

Methodology for Estimating Short Interest Using SEC Filings & Official Data

Overview: This methodology outlines a multi-step process to infer and estimate short interest in a public company using only publicly available SEC filings and regulatory data. It is designed for low-transparency cases (e.g. heavy dark pool/off-exchange activity) where traditional daily short interest figures are obscured. Each stage below details the logic, required data sources, potential edge cases, and reliability of the signals.

Stage 1: Baseline Short Interest & Float Analysis

Objective: Establish the official short interest baseline and share float as a starting point.

- **Data Required:** Bi-monthly short interest reports (from FINRA or the listing exchange) and the company's float or shares outstanding (from 10-K/10-Q or latest 8-K). Float can be approximated as shares outstanding minus insider holdings (insider ownership is often found in the DEF 14A proxy).
- **Steps:** Retrieve the latest reported short interest (number of shares short) and calculate the percentage of float this represents ¹. Track the trend over recent reports for context (is short interest rising or falling?). Concurrently, confirm the float size from recent filings; note any changes due to equity issuances or buybacks (e.g. an 8-K announcing a new offering or a share repurchase).
- **Edge Cases:** In illiquid stocks or those with frequent corporate actions, float can change rapidly (e.g. mergers, buybacks, splits), so adjust float for the analysis period. If insiders hold an unusually large stake (small float), even a moderate short position can be a high % of float.
- **Reliability:** Official short interest data is **highly reliable** but **infrequent** (twice a month reporting) ². It provides a snapshot of open short positions at specific dates, so it may miss intra-month swings. It's a baseline for confirmed short interest, but it may understate total short exposure if there are **synthetic or hidden shorts** not reflected as conventional short positions.

Stage 2: Institutional Holdings Discrepancies (13F Analysis)

Objective: Identify potential "excess" ownership or missing holders that hint at hidden shorts.

- **Data Required:** Form 13F quarterly filings from institutional investment managers (via EDGAR or SEC APIs) and insider ownership from the proxy. Optionally, mutual fund monthly holdings (Form N-PORT) for more frequent data on some holders ³.
- **Steps:** Aggregate all reported long positions from 13F filings for the stock. Include major holders from Schedule 13D/G filings ($\geq 5\%$ owners) as well. Sum up the total shares held by institutions and insiders. Compare this sum to the total shares outstanding. If the **reported holdings significantly exceed the shares outstanding**, it implies double-counting due to share lending: shares have been lent and appear on multiple holders' reports, a strong indicator of extensive short selling (borrowed shares held by someone else) ⁴. For example, in the GameStop case, **140% of the float was sold short**, meaning some shares were lent and shorted more than once ⁴. A 13F analysis revealing $>100\%$ ownership is a red flag for potential hidden short interest. Conversely, if large expected holders are **absent or sharply reduced** in 13F reports, investigate where those shares might have gone. A big institution completely selling out could indicate shares potentially absorbed by many smaller holders or short sellers covering positions. Track quarter-on-quarter changes for each major institution: sudden large exits (e.g. a $>50\%$ stake reduction) may coincide with short interest changes (either shorts covering those shares or new

shorts stepping in if the price dropped).

- **Edge Cases:** 13F data is quarterly and excludes smaller investors and short positions (13F reports only long holdings and certain options, not outright short sales). Retail ownership is not captured by 13F, so a lower sum of 13F holdings could simply mean more retail holders (not necessarily shorts). However, an abnormally high sum of 13F holdings is more telling. Also note that some large index holders (BlackRock, Vanguard, etc.) lending out shares will still report those shares in 13F (since they remain beneficial owners), which is why total reported ownership can exceed 100% of float if heavy lending/shorting exists.

- **Reliability: Moderate.** 13F-based inference is only as good as the reporting coverage and is updated quarterly. It reliably captures big institutional shifts but is time-delayed. Use it as a coarse gauge: for instance, if reported ownership consistently sums to ~90% of float, there's little room for massive undisclosed shorts; if it sums to 130% of float, something is clearly amiss (likely significant shorting). This method leverages public filings to indirectly flag hidden short interest by the **"excess ownership"** phenomenon ⁴.

Stage 3: Detecting Synthetic Shorts via Schedule 13D/G

Footnotes

Objective: Uncover hidden short positions or derivative exposures through disclosures by large shareholders.

- **Data Required:** Schedule 13D and 13G filings (and amendments) for any 5%+ holders, accessible on EDGAR. Pay special attention to *Item 6* of Schedule 13D ("Contracts, Arrangements, Understandings...") where derivative positions are disclosed ⁵. Also review footnotes in the beneficial ownership table of the proxy (DEF 14A), where significant derivative holdings by insiders or 5% holders might be noted.

- **Steps:** For each major holder filing a 13D/13G, read the footnotes and Item 6 disclosures. Look for mentions of **cash-settled equity swaps, options, or other derivatives** related to the stock. A holder might reveal, for example, *"The reporting person has economic exposure to an additional 2% of [Company]'s shares through cash-settled swaps"*. Such a statement suggests a **synthetic position**. If the derivative gives *long* exposure, the counterparty (often a bank) could be short the stock as a hedge; if it gives *short* exposure, the holder itself effectively has a short position via the derivative. Recent SEC rule changes now *explicitly require* investors to disclose **cash-settled equity derivatives** positions in Schedule 13D ⁵, closing a historic loophole. Use these disclosures to tally any **hidden short exposure**: e.g. an activist 13D might reveal a large swap position where the bank counterparty has shorted shares to hedge. Additionally, note any sudden changes from 13D to 13G (activist scaling down and going passive) which might indicate they unwound a position (possibly covering shorts or selling longs).

- **Edge Cases:** Many short sellers will **not** trigger a 5% filing because short positions and cash-settled swaps generally don't count as "beneficial ownership" under Section 13(d) unless structured to influence control. Thus, absence of a 13D disclosure doesn't mean no shorts – it means none of the shorts have a single *reportable* position. However, if a group of investors coordinate a short strategy, there is a concept of "group" beneficial ownership that could, in theory, force disclosure (rarely enforced). In practice, this step is more useful for catching **large stealth long/short exposures by institutions** (e.g., a family office using swaps to hide positions).

- **Reliability: High** if such disclosures exist, but **low coverage**. When a 13D footnote explicitly mentions a derivative, you have a concrete clue of synthetic short or long interest. The challenge is that most short positions won't be revealed this way. Nonetheless, it's a crucial check – especially in cases where unusual derivatives were part of the story (for example, total return swaps used by hedge funds to short a stock without showing up in the ownership registry). Given new rules, failing to find any Item 6 disclosures at least tells you no single player is admitting to a large swap position.

Stage 4: Analyzing Derivative Positions in Filings (Puts, Calls, & Convertibles)

Objective: Use filings to gauge short sentiment via options and convertible instruments that can represent short bets.

- **Data Required:** Form 13F filings (which include certain option holdings of institutions) and the company's 10-K/10-Q for any convertible securities or warrants. Also monitor Schedule 13D filings for any mention of convertible notes or rights.

- **Steps:** Extract from 13F the data on **put and call option positions** for the stock. Institutional managers must report options if the aggregate value is above the 13F threshold. Look for **large put positions** as a bearish indicator – a fund holding a large number of put options might be effectively short (or hedging a long, but either way expecting decline). For example, if several funds each report significant put option holdings equivalent to, say, 5% of the float, this could signal a substantial short sentiment that isn't directly captured in short interest figures. (In one case study, Susquehanna International Group's 13F showed a new put position equivalent to 413,500 shares ⁶ ⁷, indicating a sizable bearish bet by a market maker notorious for options trading.) Also note call positions: a large call position *could* indicate speculation on a squeeze or just hedging – context matters. Next, check the 10-K/Q for any **convertible bonds, convertible preferred stock, or warrant** issuance. Convertible instruments are often associated with short interest because holders of convertibles will short the common stock as a hedge (classic convertible arbitrage). If the company has, say, a \$100M convertible note outstanding due in 2 years, determine how many shares it can convert into and see if short interest is at least that high – many convert arb funds might collectively short roughly the number of shares they can convert. Any mention in filings of "hedging activities by note holders" or an increase in shares outstanding due to conversion is relevant. Finally, consider **equity swap exposures** not caught by 13D: if known banks or prime brokers show up as large holders in 13F (perhaps holding shares on behalf of swap clients), their presence might indirectly reflect swap hedges. For instance, if Morgan Stanley appears with a new 3% stake but has no clear reason to hold the stock, it could be hedging a client's swap short – this is speculative, so treat cautiously.

- **Edge Cases:** Not all option positions are reported in 13F (only those meeting thresholds and only for certain institutional managers), so absence of reported puts doesn't mean none exist. Also, options data doesn't reveal *short* positions on options (e.g. a fund shorting calls or puts) – 13F only shows owned options. A fund shorting calls is synthetically short the stock but that would not appear directly in 13F. You might infer some of this if a fund reports a long call position drop while equity short interest rises, but that's tenuous. Convertible hedging is sometimes disclosed in 10-K risk factors (e.g. "our convertible note holders may short our stock to hedge, which could put downward pressure on the price"), so look for such language.

- **Reliability: Moderate.** Large derivative positions in filings are strong clues (e.g. a huge put position by a known short-seller is a reliable signal of negative sentiment or short exposure). But much derivative activity occurs off-record or via OTC instruments not captured in EDGAR. Use this step to capture *obvious* big bets: it's like scanning the battlefield for heavy artillery. If you see it, you can account for it; if you don't, the battle might still be happening under cover.

Stage 5: Monitoring Insider Transactions and Corporate Actions

Objective: Use insiders' trading and company actions as indirect signals of short interest stress or opportunities.

- **Data Required:** Form 4 filings (insider trading reports, which are filed within 2 business days of any director/officer trade), Form 144 filings (notices of intent to sell restricted stock), and relevant 8-Ks or press releases about corporate actions (buybacks, secondary offerings, dividends, stock splits). The EDGAR real-time feed can be used to catch these filings as they happen ⁸.

- **Steps: Track insider trading (Form 4):** Sudden, significant insider buying on the open market can indicate management believes the stock is undervalued or under attack by shorts (insiders might be stepping in to support the price). Insider buys are relatively rare, so any non-trivial purchase by a CEO/CFO is notable. Conversely, insider selling in the middle of a short-squeeze frenzy might indicate they think the price is temporarily high (or simply personal diversification). Look for clusters of Form 4 buys around times of high short interest; these could precede a short squeeze or signal a bottom. Also, if insiders exercise stock options but choose **not** to sell the shares (i.e. hold them), it could mean they expect higher prices (possibly hoping for a squeeze) – this info is in Form 4 footnotes (whether the exercise was followed by sale or not). **Monitor Form 144:** these filings by insiders or large holders announce an intention to sell restricted or control securities. A wave of Form 144s could signal upcoming supply (which shorts might anticipate). Alternatively, a *lack* of Form 144 filings when stock price is high (e.g. during a squeeze) might signal insiders are **not** willing to provide supply to the market, forcing shorts to find shares elsewhere. **Watch corporate actions:** A company can actively influence short dynamics. For example, an 8-K announcing a share *buyback* program or insider share purchase plan reduces available float (bullish against shorts). A surprise **special dividend** or **stock dividend** can catch shorts off guard (shorts will owe dividends or have to deliver more shares). A pending **merger or acquisition** (announced via 8-K/DEF14A) can squeeze shorts if the deal terms compel shorts to close (especially if the deal involves share exchange or cash that shorts must deliver). Monitor the **annual meeting proxy (DEF 14A)** for record dates – large index holders often recall loaned shares before a shareholder vote, which can temporarily pull supply from the lending market, causing shorts to tighten. Additionally, check if the proxy lists any shares pledged as collateral by insiders; heavily pledged shares can be a risk for forced sales (unrelated to short interest, but if triggered, could flood supply). Finally, **real-time EDGAR feeds** (or the SEC RSS feeds) can alert you to fresh filings like 8-Ks about equity offerings – if the company files for a dilutive issuance (e.g. ATM offering or secondary), shorts might increase positions (anticipating price drop), or conversely, if the company *withdraws* a planned offering, shorts lose an expected source of shares.
- **Edge Cases:** Insider activity can be idiosyncratic (an insider might buy for reasons unrelated to shorts – confidence in turnaround, etc.). Not all insider trades are equally meaningful; a CEO buying \$50k of stock is nice optics but not a game-changer, whereas a CEO buying \$5 million worth is a statement. Corporate actions have complex effects: e.g., a company announcing it will explore strategic alternatives (possible sale) can scare shorts, but also attract merger arbitrage shorting if a deal is expected at a known price. Always consider context.
- **Reliability: Moderate (qualitative).** These factors don't quantify short interest but provide **contextual signals**. Insider buying is a **positive signal** that often precedes stock bounces (shorts might take heed). Corporate actions like buybacks or dividends are reliably disclosed and can be game-changers for the short thesis (hence high impact), but each must be interpreted (a heavily shorted stock announcing a big buyback is reliably bad news for shorts, whereas an all-stock merger might actually invite short arb trades). Use this stage to adjust your short interest inference: e.g., if you see heavy insider buying plus an active buyback, you might infer that effective short supply is shrinking and reported short interest might soon decline as shorts cover.

Stage 6: Off-Exchange Trading and Dark Pool Volume Analysis

Objective: Assess trading patterns in dark pools and off-exchange venues to infer hidden short activity or supply/demand imbalances.

- **Data Required:** FINRA's alternative trading system (ATS) and over-the-counter (OTC) volume reports (published weekly by FINRA), and FINRA daily short sale volume data. Also get total consolidated volume for the stock from exchange data (for calculating off-exchange %). FINRA publishes aggregate OTC (non-exchange) trading volumes for each stock and venue ⁹, and daily short sale volume files for off-exchange trades ¹⁰.

- **Steps: Measure off-exchange volume:** For each week, obtain the share volume executed in all ATS

(dark pools) plus non-ATS OTC (market-maker internalizers) for the stock. Calculate what percentage of total volume this constitutes. An abnormally high off-exchange percentage (e.g. consistently >50% of volume) can indicate that much trading is happening out of public view – a scenario observed in “meme” stocks where wholesalers internalized large portions of retail buy orders. Such patterns might suppress visible demand and price discovery, indirectly facilitating short selling (since many buy orders get filled in dark pools rather than lifting offers in lit markets). Track how this ratio changes over time or during suspected short attack periods. **Analyze daily short sale volume:** FINRA’s daily short volume report shows the number of shares sold short *off-exchange* each day ¹⁰. While **this is not the same as short interest** (many of those shorts may be intra-day trades closed by day’s end) ¹¹, it’s useful for spotting trends. For example, if on most days 40–60% of the OTC volume is marked as short sales, that suggests a pattern of heavy shorting activity through market makers or dark pools. Look for spikes in short volume on days of price drops or key news – that could indicate shorts aggressively selling into news. One technique is to compute a **“short volume ratio”** = short sale volume / total volume each day and compare it over time. Extreme or rising short volume ratios could correlate with increases in true short interest (especially if those shorts are not being covered the same day). Also watch for **volume anomalies**: days with **huge volume but little price movement** may imply two-sided trading (possibly heavy short selling absorbed by equal buying – a stalemate). Alternatively, days with **surge in volume and sharp price rise** might be shorts covering en masse (squeeze conditions). Cross-reference such days with known events (filings, announcements) – absence of a fundamental catalyst might mean the move was driven by market mechanics (like a squeeze or a big short entry/exit).

- **Edge Cases:** High off-exchange volume can also be due to benign factors (e.g. retail broker order flow routinely internalized by wholesalers for liquidity reasons, not manipulation). Likewise, not all short sale volume is “new shorts”; market makers often mark sales as “short” if they sell on a down-tick even while hedging or facilitating trades. So don’t interpret daily short volume in isolation – look for persistent patterns or regime shifts (say, average short% was 30% and now it’s 55% for two weeks straight – that regime change is noteworthy). FINRA’s own guidance emphasizes that daily short sale volume **is not** short interest ¹¹, so treat it as an *activity indicator* rather than a position metric. Use it to strengthen other evidence: e.g., a period of rising off-exchange short volume concurrent with a decline in institutional holdings might reinforce the case that shorts increased.

- **Reliability: Medium.** These trading metrics are *official and timely* (daily/weekly), but their interpretation is nuanced. A high off-exchange short volume percentage reliably signals heavy off-exchange short-selling *activity*, but not how much of that became an outstanding short position. However, if you later see short interest (Stage 1) ticking up corresponding to those intervals, you can connect the dots. In opaque situations, monitoring dark pool activity is one of the few near-real-time signals available, so it’s an indispensable part of the toolkit despite its caveats.

Stage 7: Settlement Anomalies – Fails-to-Deliver and Related Flags

Objective: Use settlement failure data to detect potential naked short selling or extreme settlement stress that isn’t otherwise reported.

- **Data Required:** SEC’s **Fails-to-Deliver (FTD)** reports (published twice monthly with daily data ¹² ¹³) and the daily **threshold securities list** from exchanges or FINRA (if the stock is persistently on the threshold list, indicating significant fails).

- **Steps: Examine FTD data** for the target stock around the time of interest. Fails-to-deliver occur when trades (often short sales) don’t settle because the seller couldn’t deliver shares. Look for spikes in the number of shares failing to deliver, especially sustained large fails over many days. A high level of FTDs relative to the float (or relative to average volume) can signal that a portion of short interest might be **naked** (unborrowed) or that there’s heavy market maker shorting that’s not being closed. For example, if the data shows an outstanding fail position of, say, 1 million shares for a small-cap (persisting for

several days), that's a red flag. If the stock appears on the **Reg SHO threshold list** for 5 consecutive days or more, it means fails have been at least 0.5% of shares outstanding for a prolonged period – often a sign of settlement issues likely related to shorting. Track how FTD figures change following key events: did a short squeeze clear out some fails? Did a new wave of shorting cause fails to rise? Use a rolling window (e.g., look at a few weeks before and after a suspected shorting campaign). Another clue: if official short interest is *dropping* but fails are *rising*, it might indicate that some shorts covered on paper but delivery is not happening (possibly indicating resets or hidden positions).

- **Edge Cases:** Not all fails are due to short selling – they can also come from long sales (selling and not delivering can happen in hard-to-borrow stock if longs sell but their delivery is delayed) ¹⁴. However, significant and persistent fails are often associated with naked shorts or aggressive short tactics. Market makers engaged in bona fide market making have some exceptions that allow short selling without a pre-borrow, which can temporarily boost fails. Also, sometimes corporate actions cause technical fails (e.g., a stock split or symbol change can make it look like there's a fail until back-office adjusts). Always confirm there's no benign explanation for spikes (check corporate actions calendar).

- **Reliability: High for detection, medium for quantification.** FTD data is official and hard to fudge – if there are large fails, you have concrete evidence of settlement problems that likely tie to shorting. It reliably flags cases of **extreme shorting pressure** (e.g., GME in Jan 2021 had massive fails alongside its 140% short interest). But FTD data is published with a lag and only twice monthly, so it's not real-time. Moreover, it doesn't directly tell you how much of the short interest is naked, only that some number of shares failed to settle. Treat large fails as a **confirmation signal** that there is more short interest than meets the eye (or more than the market can easily bear). A rule of thumb: if a stock's fails-to-deliver are consistently high, the reported short interest might understate effective short interest because some shorts aren't being properly delivered/reported.

Stage 8: Synthesis – Short Interest Estimation Formula & Continuous Monitoring

Objective: Integrate all the above insights into an estimate or narrative of true short interest, and set up a data-driven pipeline for ongoing analysis.

- **Formulate the Estimate:** Combine the pieces logically. One approach to formulating an estimate is: **Reported Short Interest** (Stage 1) + **Synthetic/Hidden Shorts** (Stages 2–4) – **Recent Covering Activity** (if any signals of covering) + **Naked Short Indicators** (Stage 7) = **Estimated True Short Interest**. In practice, instead of a single number, you may present this as a range or a set of observations: e.g., “Official short interest is 5M shares, but an additional ~2M shares appear short via swaps or puts (per filings), and another ~1M shares are possibly naked shorts (judging by fails). Therefore, true short exposure might be on the order of 8M shares (X% of float), significantly higher than the official figure.” Ensure that each component of this “equation” comes from data: for instance, quantify **synthetic shorts** by summing any swap or derivative exposures discovered (Stage 3 and 4) – e.g., if two 13D filers each disclosed swaps equal to 1% of shares, that's +2% worth of float potentially short. From Stage 2, if 13F analysis showed, say, 120% ownership of float, that extra 20% suggests roughly 20% of float might be shorted and lent (noting some margin of error for retail holdings). **Absence of holdings** can be factored by estimating retail ownership: if only 70% of float is accounted in filings and insiders, the remaining 30% could be retail *and/or* short positions (if some shares have been sold short, effectively creating “synthetic” owners of the same shares). Use reasonable assumptions about retail vs short in that remainder (e.g., if it's a popular retail stock, maybe much of that is genuinely retail; if not, it could indicate undisclosed shorts). **Volume anomalies** (Stage 6) can guide short-term adjustments: for example, if you saw evidence that a million shares were likely covered in a recent high-volume rally, you might lean to the lower end of your estimate range.

- **Signal Reliability Indicators:** Annotate your final estimate or each component with confidence levels. For instance, “Short interest reported (5M) – high confidence (official) ; Swap exposure (+1M) – medium

confidence (derived from disclosed positions) ; Excess institutional ownership implies +3M short – medium confidence ; FTD suggests +0.5M potential naked shorts – low confidence (could overlap with prior).” This gives consumers of your analysis a sense of which pieces are solid and which are inferred.

- **Automate & Monitor:** For repeatability, outline a **data pipeline** that can be automated: - Use the **SEC EDGAR JSON API** to pull filings programmatically ⁸. For example, script a daily check of the target company’s **13F, 13D/G, Form 4, Form 144, and 8-K submissions**. The EDGAR API updates in real time as filings are made ⁸, which enables you to catch, say, a new 13D/A filing intraday that reveals a swap position or an insider’s Form 4 filing a big stock purchase. - Use FINRA’s data feeds for **short interest and volume**. FINRA’s **Equity Short Interest** file is downloadable for each reporting date (twice monthly) – integrate that for official short interest. Also, FINRA’s **Daily Short Sale Volume** can be fetched (they provide it via FTP or API) and stored to analyze trends ¹⁰. The **OTC Transparency** data for ATS/non-ATS can be accessed via FINRA’s web API (or by scraping their weekly reports) to keep tabs on off-exchange volume share. - Ingest the **SEC’s Fails-to-Deliver** data, which is published as text files on the SEC site, for any spikes in fails. - All these data points can flow into a dashboard or report. Design the logic to flag notable changes: e.g., “Alert if a new derivative position >0.5% of shares is disclosed in a filing” or “Alert if off-exchange volume >60% for 3 days in a row” or “If institutional + insider ownership >100% of float, flag possible over-shorting”.

- **Edge Cases & Final Checks:** Account for special situations that could throw off your estimation formula. If the company is subject to a **buyout offer or merger arbitrage**, reported short interest might include arbitrage shorts (which are not “bearish” but rather hedging the merger deal – these would disappear if the deal falls through). If the stock is dual-listed or has significant overseas trading (ADR, etc.), some shorting might occur on a foreign venue and not show in U.S. data. If **ETFs** heavily include the stock, shorting could occur at the ETF level (though that usually still translates to shorting the underlying or related arbitrage). Consider the presence of **large option market makers** (like Citadel, Susquehanna) in the stock – as seen in filings, they might carry large options positions that can drive short-term stock borrow demand (e.g. they delta-hedge call sales by shorting stock). This is more of a **flow** consideration than static interest, but it means a high open interest in calls could correspond to market makers shorting stock to hedge (their short will not appear in published short interest if closed quickly, but could contribute to daily short volume). - Cross-verify your estimates against any **anomalies**. For example, if your process suggests “at least 50% of float is short” but the stock isn’t showing any of the typical symptoms (no price suppression, no high borrow fees, etc.), double-check inputs – it might indicate a mistake or that some holders aren’t properly accounted. On the other hand, if everything points to high short interest and indeed borrow rates are high or the stock is hard to borrow, that triangulates well. - **Output:** Present the findings as a structured report: e.g., “*Official short interest = X%. However, after incorporating [signal A], [signal B], we estimate true short exposure could be Y%–Z% of float.*” Each stage’s evidence can be an appendix to back the estimate (so the methodology is transparent and repeatable).

By following the above stages, an analyst can manually (or with automation) build a comprehensive picture of short interest using **only official data and filings** – no proprietary feeds required. This methodology triangulates short interest from multiple angles: legally reported positions, observed trading behavior, and settlement data, which together can shine light on even the murkiest short-selling activity. By clearly labeling the source and reliability of each input, the approach remains transparent and repeatable for different companies and time periods, allowing for informed analysis even when direct data is limited or intentionally obscured by off-exchange practices.

Sources:

- SEC & FINRA Filing Data: SEC EDGAR filings (13F, 13D/G, Form 4, etc.) ¹⁵ ; FINRA short interest and short sale volume data ¹⁰ ¹¹ ; SEC Rule 13f-2 (2024) for new short position reporting ¹⁶ .

- Disclosure Examples: GameStop short interest >100% of float ⁴ ; SEC Schedule 13D derivative disclosure requirements ⁵ ; Institutional ownership and float analysis (case study data) ¹⁷ ¹⁸ .
- Regulatory Feeds: SEC EDGAR JSON API for real-time filings ⁸ ; FINRA OTC Transparency reports for dark pool volumes ⁹ ; SEC Fails-to-Deliver database ¹² ¹³ .

¹ ² ¹⁰ ¹¹ Short Interest – What It Is, What It Is Not | FINRA.org

<https://www.finra.org/investors/insights/short-interest>

³ ¹⁵ ¹⁷ ¹⁸ irbt_rotation_case_study_rotation_score_v_4_2019_2025 (1).md

<file:///file-4MMCuOR4pj161Q8Qn3NSW3>

⁴ GameStop short squeeze - Wikipedia

https://en.wikipedia.org/wiki/GameStop_short_squeeze

⁵ Client Alert: SEC Amends Schedules 13D and 13G Beneficial Ownership Reporting Rules and Filing Requirements | Jenner & Block LLP | Law Firm

<https://www.jenner.com/en/news-insights/publications/client-alert-sec-amends-schedules-13d-and-13g-beneficial-ownership-reporting-rules-and-filing-requirements>

⁶ ⁷ Irbt Rotation Case Study — Rotation Score V4 (2019–2025) (1).pdf

<file:///file-RoN4AgtfbdojiB5nVTJR7p>

⁸ SEC.gov | EDGAR Application Programming Interfaces (APIs)

<https://www.sec.gov/search-filings/edgar-application-programming-interfaces>

⁹ OTC (ATS & Non-ATS) Transparency | FINRA.org

<https://www.finra.org/filing-reporting/otc-transparency>

¹² ¹³ ¹⁴ SEC.gov | Fails-to-Deliver Data

<https://www.sec.gov/data-research/sec-markets-data/fails-deliver-data>

¹⁶ SEC Adopts Short Interest Reporting Requirement – Publications

<https://www.morganlewis.com/pubs/2023/11/sec-adopts-short-interest-reporting-requirement>