WHAT HAPPENS WHEN AN INDEX DECIDES A COMPANY MATTERS?

The Private Rules Behind Trillions of Dollars in Benchmarked Portfolios

Institutional and quantitative evidence audit

Record date: July 23, 2026

EVIDENCE STATUS Prepared from the supplied institutional-evidence memo and quantitative research memo. Current methodologies and provider financial figures were verified through the record date. The event-level database, model outputs, exchange auction file, and reproducible code listed in the assignment were not present in the upload set; no missing empirical result has been fabricated.

CORE FINDING

Index administrators define classifications and weights. The contracts built around those definitions turn a private rule into public trading demand. The price effect is conditional, often anticipated, and not reliably permanent.

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Executive abstract

An index provider does not manage the portfolios that follow its benchmarks. It defines the eligible universe, membership, weights, review calendar, and treatment of exceptional events. A fund sponsor then promises a form of tracking; a portfolio manager chooses how and when to implement it; an exchange processes the orders; and arbitrageurs may build inventory before the effective close. The evidence therefore supports describing providers as upstream rulemakers with capital-flow consequences, not as conventional capital allocators.

That authority is not uniform. S&P combines published screens with confidential committee selection. Russell relies mainly on capitalization ranking, public preliminary lists, and retention bands. Nasdaq-100 uses rankings and buffers with narrow special-case discretion. MSCI builds investable universes through size, liquidity, free-float, foreign-room, and market-access tests. Each design creates a different mix of predictability and judgment.

The trade is also smaller and less certain than headline “assets benchmarked” figures imply. Expected purchases must be based on replicating assets and implementation practice, then reduced for source-index selling, overlapping mandates, internal crossing, derivatives, sampling, and early execution. The closing auction remains a central coordination point, but it is not the only venue or time at which funds alter risk.

Published evidence rejects a timeless index effect. Greenwood and Sammon estimate that the S&P 500 addition effect fell from 7.4% in the 1990s to less than 1% in 2010–2020 even as index-linked assets grew. Tesla’s 2020 inclusion shows how a very large, concentrated trade can coexist with immediate reversal and weak persistence. Provider economics are substantial: S&P’s Indices segment earned $1.850 billion of 2025 revenue and a 68.7% operating margin. The main limitation is decisive: the supplied package did not contain the event-level database, model outputs, auction files, or code required to produce the requested original multi-index estimates.

Ten principal findings

1. **S&P eligibility is necessary, not sufficient.** Its July 2026 methodology requires an S&P 500 candidate to have at least $22.7 billion of total company market capitalization, an investable weight factor of at least 0.10, and positive earnings in both the latest quarter and the latest four-quarter sum. A private committee still chooses the constituent and timing. P1P2
2. **Russell is rank-driven after investability screens.** The July 2026 U.S. rules require at least 5% free float, at least 5% of voting rights in unrestricted hands, and liquidity above the global median average daily dollar trading value, reported as $175,000 at the 2026 rank date. P3
3. **Nasdaq and MSCI represent different kinds of rules.** Nasdaq-100 begins with capitalization ranks and incumbent buffers; MSCI begins with investability and foreign-access screens before segmenting markets by size. P5P6
4. **“Assets benchmarked” is not a flow estimate.** FTSE Russell’s cited $12.2 trillion includes active funds, insurance products, ETFs, and passive mandates and excludes futures, options, and unreported assets. Only the subset that actually changes physical exposure on the event horizon belongs in a trade model. P3
5. **Source-index selling belongs in the base case.** A promotion from the S&P MidCap 400 to the S&P 500 creates destination buying and source selling. Composite 1500 trackers may not trade the stock at all because it remains inside the umbrella index. D1A1
6. **The effective close is a synchronization point, not proof that every fund waits until 4:00 p.m.** Funds can trade early, sample, use derivatives, cross internally, employ transition managers, or accept temporary tracking error. P16P17P18A3
7. **Tesla’s 2020 S&P 500 addition implied roughly $78–$85 billion of destination buying.** That was about 2.4–2.6 times its preceding 10-day average dollar volume of approximately $33 billion. P8S1S2
8. **A large implementation trade did not create durable value in that case.** Tesla opened nearly 5% lower and closed 6.5% lower on its first day in the index; six months after the effective close, a published reconstruction valued $100 invested in Tesla at $89.70. S1S3
9. **The average S&P effect changed by era.** Greenwood and Sammon report an addition announcement-period mean of 7.39% for 134 events in the 1990s and 0.83% for 153 events in 2010–2020; their broader headline estimate for the latest decade is 0.3%. Deletion effects also moved toward zero. A1
10. **Index provision is a high-margin commercial business, but constituent changes do not generate all revenue.** S&P’s 2025 Indices revenue was $1.850 billion, including $1.206 billion of asset-linked fees, $320 million of subscription revenue, and $324 million of usage-based royalties; operating profit was $1.271 billion. P11

Scope and evidence status

The two supplied memoranda are the primary record. The institutional package reconstructs current rules, governance, product structures, auction procedures, provider economics, and research gaps. The quantitative package is a design memo and literature synthesis. It states that a finished empirical paper is blocked without historical constituent files,

timestamped announcements, product-level holdings, exchange auction data, securities-lending records, and CRSP-grade identifiers and returns. [D1D2]

Those absences prevent a new event-level panel with means, medians, confidence intervals, observation counts, net replication demand, auction participation fractions, after-cost arbitrage returns, and 20-, 60-, and 120-day persistence estimates. This investigation therefore does four things the record supports: it verifies current rules and financial figures through July 23, 2026; reconstructs the decision-to-trade chain; performs transparent calculations from documented inputs; and organizes published empirical evidence by mechanism and event time. Exhibits requiring the missing panel are marked **not estimable from the supplied record** rather than populated with invented results.

The effective close

At 5:15 p.m. Eastern time on November 16, 2020, S&P Dow Jones Indices announced that Tesla would enter the S&P 500 before the market opened on Monday, December 21. S&P had made a membership decision. It had not bought a share. It also had not yet settled how the market would absorb what it described as one of the largest additions in the index's history. Because Tesla was so large, the provider opened a consultation on whether to add it in one step or two. [P7]

Two weeks later, S&P chose one tranche at Tesla's full float-adjusted market-capitalization weight. It said it had considered expected liquidity and the market's ability to accommodate the trade. Pro forma files would be distributed after the close on December 11. The replacement company would be named separately. The change would become effective before the open on December 21, making the official closing price on Friday, December 18 the benchmark price that tracking portfolios needed to match. [P8]

The decision entered a different institutional system at that point. ETF sponsors and mutual-fund boards had already promised investors that their products would track the S&P 500, subject to the techniques and tolerances in each prospectus. Portfolio managers calculated how much Tesla exposure each fund needed. Full replicators needed the stock. Sampling funds could use cash, futures, swaps, or correlated securities for part of the transition. Managers running several S&P portfolios could cross orders internally. Transition desks could spread purchases through preceding sessions. Arbitrageurs could buy Tesla in advance and plan to transfer inventory to index trackers at the effective close. [P16P17A3]

The estimated destination demand was enormous. Research Affiliates calculated at least $78 billion using a 1.69% entry weight and roughly $4.6 trillion of directly tracking passive assets. S&P's estimate, reported by Reuters on the effective day, was about $85 billion. Those figures did not mean that $85 billion would appear as one market-on-close order. They described the stock exposure that tracking portfolios collectively needed. The funds also had to sell roughly the same dollar amount of other S&P 500 constituents to finance the addition. [S1S2]

Tesla was not migrating from the S&P MidCap 400 or SmallCap 600, so there was no offsetting sale by a related S&P size-index tracker. The same-stock net demand was therefore close to the destination estimate before allowing for active benchmark users, derivatives, sampling, internal crossing, and positions accumulated before the close. This is the unusual case in which gross destination demand and net within-family replication demand were similar. It should not be treated as the normal addition.

The stock rose 57% from the announcement through the December 18 close. During the ten prior trading days, excluding December 18, its average dollar volume had been about $33 billion. Effective-day dollar volume reached approximately $154 billion, equal to 23% of shares outstanding and about 4.7 times that baseline. Contemporary reporting described a surge in volume and price in the final minutes. The official close became the point at which trackers, arbitrageurs, market makers, and other investors could exchange a large block of risk at one benchmark price. [S1S2]

The auction did not create the entire month-long move. Arbitrageurs and discretionary investors had been trading since the announcement. Some funds had also transitioned early. The close concentrated the final part of the handoff because managers measured tracking error against the index's official effective price. That incentive is contractual rather than mystical: a fund that buys too early can outperform or underperform the benchmark before the change; a fund that buys too late begins the new index underweight.

The next session supplied the contradiction. Tesla opened almost 5% below the effective close and finished its first constituent day down 6.5%. Reuters published a separate report about Apple's vehicle plans later that day, so the full close-to-close decline cannot be treated as a clean index reversal. The opening gap occurred before that late-session contamination and is consistent with at least part of the effective-close pressure unwinding. [S3]

Six months later, the case still did not look like permanent value creation. Research Affiliates calculated that $100 invested in Tesla at the effective close was worth $89.70. The same amount invested in the S&P 500 was worth $113.20, while the deleted apartment REIT, Apartment Investment and Management, was worth $160.20. A hypothetical

delayed rebalance, evaluated with hindsight, would have improved S&P 500 performance by 41 basis points. That is not an implementable ex ante strategy proof, but it establishes a basic point: the provider's decision generated a massive transfer of ownership without guaranteeing a persistent premium. [S1]

The case also shows why the provider cannot be collapsed into the fund manager. S&P decided that Tesla qualified and chose the implementation structure. Fund sponsors had promised tracking. Portfolio managers chose execution. Nasdaq processed the closing cross. Arbitrageurs supplied inventory and bore the risk that the price path would turn against them. Tesla could influence its eligibility through reported profitability and corporate structure, but it could not set the committee's announcement date or make passive funds buy at a chosen price.

EXHIBIT 2 **Decision-to-trade timeline**

INSTITUTIONAL TRANSMISSION MAP

Stage	Primary actor	What happens	Main empirical risk
1. Measurement	Provider / data vendors	Size, float, liquidity, profitability, foreign room measured	Errors or stale inputs can change eligibility
2. Decision or rank	Committee or methodology engine	S&P selects; Russell ranks; Nasdaq applies buffers; MSCI screens investability	Degree of surprise varies by governance model
3. Public announcement	Provider	Headline changes, effective date, pro forma weights or files	Timestamp determines first clean return window
4. Arbitrage positioning	Hedge funds, dealers, brokers	Forecasted additions bought; deletions shorted; market risk hedged	Prediction error, borrow, crowding, company news
5. Fund transition	Sponsors, portfolio managers, transition desks	Sampling, derivatives, crossing, early trading, MOC/LOC preparation	Tracking error versus market impact
6. Closing auction	Exchange and liquidity suppliers	Imbalances published; orders matched at official close	Concentrated price impact and execution risk
7. First constituent day	Funds and market	New index weights are live at open	Overnight reversal or continued information response
8. Persistence window	Researchers / investors	Measure +5, +20, +60, +120 days; ownership and liquidity changes	Corporate news and selection confound causal claims

Note: The sequence is exact only after the methodology-specific measurement, announcement, and implementation timestamps are attached to each event.
Source: [D1D2P4P9P10]

1. What an index provider decides

An equity index is a rulebook, a data system, and a recurring set of classifications. The provider decides which securities are eligible, how companies and share classes are treated, how float is measured, who enters, who remains, how constituents are weighted, when reviews occur, and what happens after mergers, spin-offs, delistings, bankruptcies, and data errors. It also decides what price and share count become effective, which is what turns a list into a replicable benchmark. [D1]

The provider generally does not decide how a client portfolio executes. A fund sponsor licenses the benchmark and represents to investors that a product will seek to track it. A portfolio manager then chooses full replication, representative sampling, optimization, derivatives, cash equitization, internal crossing, or some combination. An exchange accepts and matches orders, publishes imbalance information, and determines the official close. Arbitrageurs forecast additions and deletions, build or short inventory, hedge market risk, and decide when to exit. The issuer controls its financial reporting, capital structure, float, listing venue, and other eligibility inputs, but it does not control the provider's final selection or implementation calendar.

Index administration has several stages that are often conflated. **Eligibility** defines the candidate universe. **Selection** determines who enters. **Retention** determines whether incumbents receive buffers. **Weighting** converts membership into exposure. **Rebalancing** refreshes weights or shares. **Reconstitution** rebuilds membership. **Maintenance** handles corporate actions and exceptional events between scheduled reviews. A provider can be mechanical at one stage and judgment-based at another.

The four families in this investigation locate judgment differently. S&P's U.S. large-, mid-, and small-cap benchmarks use published screens and a committee that chooses constituents. Russell U.S. indexes use investability screens

followed mainly by market-capitalization ranks and bands. Nasdaq-100 uses ranks, incumbent buffers, fast entry, and special-case discretion. MSCI GIMI creates country and size segments after defining what is investable to international investors. “The index committee” is one governance model, not a synonym for index administration.

Rules-based does not mean judgment-free. Domicile, float, unrestricted voting rights, market accessibility, foreign room, security classification, exceptional circumstances, and data corrections require interpretation. The proper distinction is not “rules versus judgment.” It is whether ordinary membership is determined by a published calculation, by an expert application of a rule, by explicit committee choice, or by an emergency override.

2. Four different ways to enter an index

S&P 500: eligibility plus committee selection

S&P’s July 2026 U.S. methodology defines a detailed candidate set. A Composite 1500 company must be U.S.-domiciled for index purposes, satisfy U.S. periodic-reporting obligations, trade on an eligible U.S. exchange, and be an eligible company and security type. For the S&P 500, total company market capitalization must be at least $22.7 billion. The security-level float-adjusted capitalization must meet a separate minimum, and the investable weight factor must be at least 0.10. Liquidity tests apply. Financial viability requires positive GAAP net income in the most recent quarter and in the sum of the most recent four consecutive quarters. [P1]

Those conditions do not create a right to admission. A committee of full-time S&P employees meets regularly, reviews candidates and market events, keeps deliberations confidential, and may make exceptions when applying the methodology to preserve index objectives. S&P generally releases U.S. constituent-change announcements at 5:15 p.m. Eastern time. The screens define who can be considered; the committee decides who is selected and when. [P1][P2]

This structure makes surprise possible even when eligibility can be modeled. Analysts can estimate size, liquidity, float, and profitability. They cannot observe the committee’s candidate slate, representativeness judgment, timing preference, or confidential discussion. A replacement tied to an announced acquisition may be highly predictable because a vacancy is certain. A representative-range addition among several eligible companies is much harder to forecast.

Russell 1000 and Russell 2000: ranking with banding

Russell begins with an eligible U.S. universe and lets size ranking determine most ordinary membership. The broad Russell 3000E contains up to the largest 4,000 eligible U.S. companies; the Russell 3000 contains the largest 3,000, and the Russell 1000 and Russell 2000 divide that set by size. The July 2026 ground rules require at least 5% free float and at least 5% of company voting rights in unrestricted hands. Additional listed share classes must meet market-capitalization and liquidity conditions. Several structures, including U.S. limited liability companies, business-development companies, special-purpose acquisition companies, limited partnerships, ETFs, and mutual funds, are excluded. [P3]

The process is transparent enough that prediction is part of the market structure. For the June 2026 review, April 30 was rank day, preliminary lists were released after 6:00 p.m. Eastern on May 22, the process locked down on June 8, implementation occurred after the June 26 close, and new membership appeared at the June 29 open. A second reconstitution is scheduled for December, based on the last business day of October. The final schedule matters because FTSE Russell initially proposed November and later moved the second 2026 implementation to December 11. [P4]

Banding limits unnecessary turnover around size breakpoints. It also changes empirical identification. A company can remain in its current size index even when a raw rank would place it just across the line. Ben-David, Franzoni, and Moussawi show that post-2006 banding removes the clean local variation needed for a naive fuzzy regression-discontinuity design. Pre-banding and post-banding Russell samples therefore cannot be treated as the same experiment. [A9]

Rules do not eliminate information advantages. Madhavan reported that broker forecasts in his 1996–2002 sample were 90%–95% accurate by the end of May, but not perfect. Errors arose from float calculations, IPO lockups, and dual-class treatment, some requiring proprietary data or interpretation. Russell changes are forecastable; they are not frictionless. [A3]

Nasdaq-100: ranking with retention buffers

Nasdaq-100 eligibility is narrower by listing venue and industry. A company must be primarily listed on a Nasdaq-affiliated U.S. exchange, cannot be classified as a financial company under the applicable industry system, must meet a three-month average daily traded value threshold of at least $5 million, and normally must have three full calendar

months of seasoning. There is no minimum free-float rule, although low float can constrain weight under the modified market-capitalization method. Multiple security classes from one company may be eligible. [P5]

Annual selection is a ranking system with incumbency protection. The top 75 eligible companies by full market capitalization are selected. Current constituents in the top 100 are retained. Certain incumbents ranked 101–125 can remain if they satisfied specified prior conditions. Remaining vacancies are filled by eligible nonmembers until the index reaches 100 constituents. Quarterly reviews can remove incumbents outside the top 125 and admit sufficiently large nonmembers. Fast-entry rules can accelerate admission of a major IPO, a listing transfer, or a nonmember that ranks within the top 40 of current constituents. [P5]

The calendar makes much of this predictable. The annual reference date is the last trading day of November. Nasdaq announces the result after the close on the sixth trading day before effectiveness, and the new composition takes effect at the market open after the third Friday in December. Quarterly reviews use February, May, August, and November reference dates. Most changes can be modeled, although Nasdaq reserves authority to make reasonable adjustments in special circumstances to preserve index quality and integrity.

MSCI GIMI: investability and foreign access

MSCI's Global Investable Market Indexes start with a different question: what portion of each equity market is practically available to international investors? A security must pass full market-capitalization and float-adjusted size requirements, liquidity, trading-history, foreign-inclusion-factor, and foreign-room tests. At the May 2026 review, the Equity Universe Minimum Size Requirement was $537 million for developed and emerging markets and $13 million for frontier markets. Securities subject to foreign ownership limits can be excluded or down-weighted when room available to international investors becomes too small. [P6]

This system is rules-based but judgment-intensive at the market level. MSCI's committees supervise methodology and approve review results, while size segmentation and float adjustment follow published procedures. Review results are normally announced at least two weeks before implementation at the close of the last business day of February, May, August, and November. Corporate events and deteriorating foreign room can require shorter-notice changes. Market accessibility, custody, capital-flow restrictions, and operational conditions can affect country classification and the size of the investable universe. [P6P23]

The four systems create different anticipation sets. S&P can surprise at selection and timing. Russell reveals a rank date and preliminary lists. Nasdaq publishes ranks and retention buffers. MSCI gives a review calendar but depends on foreign access and local market mechanics. A pooled "index inclusion" coefficient discards the institutional information that determines when the market could have known, how strongly it expected the event, and what products were likely to trade.

EXHIBIT 1 Four systems for deciding membership

CURRENT METHODOLOGY COMPARISON; VERIFIED THROUGH JULY 23, 2026

Rule	S&P 500	Russell 1000/2000	Nasdaq-100	MSCI GIMI
Eligible universe	U.S.-domiciled eligible companies on eligible U.S. exchanges	Up to largest 4,000 eligible U.S. companies for Russell 3000E	Nasdaq-listed, non-financial eligible companies	Country equity universe filtered for international investability
Capitalization	S&P 500 candidate total company market cap ≥ $22.7bn	Ranked by total market cap; size segments follow ranks and bands	Full company market-cap ranks; top 75 automatic	Global minimum size then country/segment cutoffs; May 2026 minimum $537m DM/EM
Float	IWF ≥ 0.10; security FMC minimum	Free float ≥ 5%	No minimum free-float rule; weights may be constrained	Float-adjusted market cap and FIF central to eligibility/weight
Liquidity	Minimum trading-volume/value tests	Liquidity above global median ADDTV; $175k at 2026 rank	3-month ADVT ≥ $5m	12-month and 3-month ATVR/frequency tests by market classification
Profitability	Latest quarter and four-quarter sum positive	No general profitability screen	No general profitability screen	No general profitability screen
IPO seasoning	Normally 12 months; no Composite 1500 fast track	Quarterly IPO additions subject to rules	Normally 3 full calendar months; fast entry for very large names	Ordinary new issues normally need trading history; large IPO early inclusion possible
Dual-class treatment	Multiple share classes eligible since Apr. 2023; tracking stocks ineligible	Classes assessed; company cap aggregated subject to rules	Multiple eligible classes permitted	Security/company treatment follows GIMI share-class rules

Rule	S&P 500	Russell 1000/2000	Nasdaq-100	MSCI GIMI
Voting rights	No standalone minimum; governance structure subject to eligible security rules	At least 5% unrestricted voting rights	No minimum voting-rights screen	Captured through free float, foreign ownership limits, and security eligibility
Retention buffer	Committee maintenance, not a published rank buffer	Banding around breakpoints	Top 100 retention; conditional retention 101-125	Buffers and continuity rules in size segmentation and reviews
Committee discretion	High at constituent selection and exceptional maintenance	Low in ordinary ranking; judgment in eligibility and exceptions	Narrow special-circumstance discretion	Methodology and market-access judgments; ordinary selection rules-based
Review schedule	Quarterly reference mechanics plus unscheduled changes	Semiannual June and December reconstitutions; quarterly IPOs	Annual December reconstitution; quarterly reviews/rebalances	Comprehensive Feb/May/Aug/Nov reviews
Notice period	Often several business days; many releases at 5:15 p.m. ET	Weeks of preliminary lists and updates before close	Annual result after close on sixth trading day before effectiveness	Normally at least two weeks before review effective close

Note: Rules shown are the current framework, not a substitute for the methodology version applicable to a historical event. “Committee discretion” describes the location of judgment, not discretionary stock picking in every family. **Source:** P1P3P5P6

3. The provider’s commercial machine

An index is reusable intellectual property. A provider can sell constituent and weight data, charge funds for the right to use the index name and methodology, receive fees linked to assets in licensed products, license futures and options, calculate custom benchmarks, and sell analytics used in portfolio construction and risk control. The same benchmark can support many products at once.

S&P Global provides the cleanest public breakdown. Its Indices segment generated $1.850 billion of revenue in 2025: $1.206 billion of asset-linked fees, $320 million of subscription revenue, and $324 million of sales usage-based royalties. Segment operating profit was $1.271 billion, producing a 68.7% operating margin. The supplied institutional memo paired 2025 revenue with $1.103 billion of operating profit, but that profit figure belongs to 2024. Matching periods changes the margin from an apparent 59.6% to the correct 68.7%. P11

S&P describes several revenue channels. ETFs and mutual funds generate asset-linked fees. Exchange-traded derivatives generate royalties tied to contract volume. Over-the-counter derivatives and structured products can pay fixed or variable licenses. Data and customized-index subscriptions support fund management, analytics, and research. A constituent change can stimulate trading, but it does not directly produce every dollar in the segment. Much of the business is recurring use of the benchmark and its data.

FTSE Russell reported £954 million of 2025 revenue, comprising £630 million of subscriptions and £324 million of asset-based revenue. Adjusted EBITDA was £635 million, a 66.6% margin, and adjusted operating profit was £546 million. Period-end ETF assets linked to its indexes were $1.827 trillion. Those ETF assets are much narrower than the roughly $12.2 trillion FTSE Russell says is benchmarked to Russell U.S. indexes, a denominator that includes active and insurance assets. P12P3

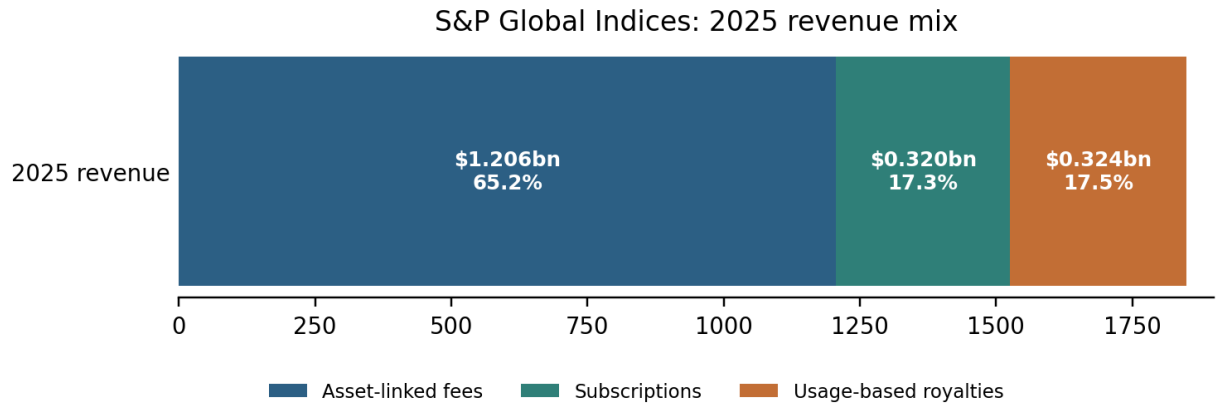
MSCI reported $511.0 million of Index operating revenue for the second quarter of 2026 and an Index run rate of roughly $2.0 billion. It linked growth in asset-based fees to higher assets in both ETFs and non-ETF indexed funds. Nasdaq reported $232 million of index revenue in the fourth quarter of 2025, up 23% year over year, and $99 billion of trailing 12-month inflows to linked products. Nasdaq does not disclose a standalone index-business margin on the same basis as S&P or FTSE Russell in the retrieved record. P13P14

The economics become durable when a benchmark is embedded in contracts and operations. Replacing it may require a prospectus amendment, fund-board approval, client consent, system changes, tax and transition analysis, a new derivatives ecosystem, and acceptance of a different performance history. Consultants, data terminals, risk systems, and mandate documents may all refer to the incumbent benchmark. The switching cost belongs partly to the sponsor and partly to every institution that has built processes around the index.

This commercial moat creates incentives to expand adoption and preserve credibility. It does not establish that a provider manipulates constituent decisions. A disciplined conflict analysis asks three separate questions: whether the provider benefits when linked assets grow; whether it possesses nonpublic information about pending changes; and whether there is evidence that commercial interests altered a methodology or event decision. The first two are documented. The third requires conduct evidence that the supplied record does not contain.

EXHIBIT 3 Where index-provider revenue comes from

PROVIDER DISCLOSURES; PERIODS AND CURRENCIES DIFFER



Provider	Period	Reported revenue	Revenue evidence	Profit / caveat
S&P Global Indices	FY 2025	$1.850bn	$1.206bn asset-linked; $320m subscriptions; $324m usage royalties	$1.271bn operating profit; 68.7% margin
FTSE Russell	FY 2025	£954m	£630m subscriptions; £324m asset-based	£635m adjusted EBITDA; 66.6% margin; £546m adjusted op. profit
MSCI Index	Q2 2026	$511.0m quarterly revenue	Index run rate about $2.0bn; asset-based fees linked to ETF and non-ETF indexed AUM	Standalone quarterly operating margin not reproduced here
Nasdaq Index	Q4 2025	$232m quarterly revenue	$99bn trailing-12-month linked-product inflows	No comparable standalone index margin in retrieved disclosure

Note: Revenue measures are not directly comparable across providers because segment definitions, currencies, periods, and disclosure bases differ. Constituent changes do not directly generate all listed revenue. **Source:** P11P12P13P14

4. The company trying to qualify

Index rules can change a company's access to benchmark-linked investors without the provider ever speaking to management. A profitability screen, float minimum, voting-rights test, listing rule, or seasoning period can make an issuer eligible or ineligible. The mechanism is real. Proving that management changed a decision because of it is harder.

S&P's profitability requirement is the clearest U.S. example. A Composite 1500 candidate must report positive net income in the latest quarter and over the latest four-quarter sum. That threshold can change market expectations about when a company becomes selectable. It can also make management attentive to the timing of restructuring charges or transactions. Crossing the line, however, does not prove earnings management, and satisfying the test does not guarantee committee selection. P1

Tesla illustrates the distinction. By 2020 it had accumulated the profitable quarters needed to satisfy S&P's test. The rule made it eligible. The committee still controlled admission and timing. The announcement conveyed that the committee had accepted the company after the screen was met, but the evidence package does not show that Tesla changed an operating or accounting decision for the purpose of entering the index.

Share-class rules can reach further into corporate structure. In July 2017 S&P announced that companies with multiple share classes would no longer be eligible for new admission to the Composite 1500 and its components; existing constituents were grandfathered. In April 2023 S&P reversed course after consultation and reopened eligibility to multiple-share-class companies, while tracking stocks remained ineligible. A company listing during the exclusion window faced a different index-access constraint from one listing after the reversal. P20P21

Russell uses a different governance lever. At least 5% of voting rights must be held by unrestricted shareholders, and at least 5% of shares must be available in free float. The voting-rights test considers listed and identifiable unlisted classes, so a low-vote public class can fail even when a substantial fraction of economic ownership trades publicly.

Russell also excludes several legal forms and applies a screen related to unrelated business taxable income for some structures. A restructuring that changes security form or blocks such income can affect eligibility. [P3]

Nasdaq-100 creates incentives around venue, seasoning, and liquidity. A company primarily listed elsewhere cannot enter without moving to an eligible Nasdaq exchange. Most candidates need three full calendar months of seasoning, although fast entry lets a very large new listing or listing transfer enter sooner. MSCI's rules can make public float and foreign ownership room central. In markets with ownership caps, an issuer can increase investable room through an offering, conversion, or other capital action, although MSCI can still reduce the foreign inclusion factor if practical room remains constrained. [P5P6]

The evidentiary standard should be strict. A rule can create an incentive without causing a response. To attribute intent, the investigation would need a contemporaneous board paper, offering document, banker statement, earnings-call comment, or adviser record showing that management treated index eligibility as a material objective. The supplied package establishes mechanisms and policy changes. It does not establish that a named company altered an IPO date, share-class design, offering, or accounting decision to win admission.

EXHIBIT 11 Eligibility-rule timeline

RULE CHANGES WITH DIRECT SAMPLE-CLASSIFICATION RELEVANCE

Date	Provider	Change	Why it matters
Mar. 2014 / Sep. 2015	S&P DJI	Multiple-share-class treatment revised	Historical company/security mapping changes
31 Jul. 2017	S&P DJI	New multi-class companies excluded from Composite 1500; incumbents grandfathered	Candidate set narrows until 2023
17 Apr. 2023	S&P DJI	Multiple-share-class eligibility reopened; tracking stocks still excluded	Post-2023 access differs from 2017-23
Feb. 2023	MSCI	Transition to quarterly comprehensive GIMI review architecture	Historical event timing must use prior SAIR/QIR regime
1 May 2026	Nasdaq	Nasdaq-100 quarterly rank-based review framework updated	Pre/post rule forecasts are not comparable
2026	FTSE Russell	U.S. reconstitution becomes semiannual	More frequent migrations and new anticipation windows
11 Dec. 2026	FTSE Russell	Second 2026 reconstitution set for December, replacing earlier November plan	Calendar correction for event dating
6 Jul. 2026	S&P DJI	TXSE added as eligible exchange when continuous trading began	Eligible listing universe expands; no immediate constituent effect stated

Note: The timeline is not exhaustive. Every historical event should be matched to the methodology vintage then in force. **Source:** [P20P21P3P4P5P6]

5. Converting a rule into a trade

The mechanical-flow model begins with a target weight, not a headline asset figure. For each product or mandate, expected purchases equal the new index weight multiplied by assets that actually seek to replicate the index, multiplied by the fraction expected to be implemented in the physical security on the relevant horizon. Expected sales from a source index are calculated the same way. The difference is predicted net replication demand.

Gross destination demand = new weight × destination replicating assets × destination physical-replication fraction.

Gross source supply = old weight × source replicating assets × source physical-replication fraction.

Net predicted replication demand = gross destination demand − gross source supply ± overlapping-product and crossing adjustments.

The denominator matters. "Assets benchmarked" can include active managers who compare performance against an index but do not buy every constituent change. ETF assets include physical and synthetic products. Mutual funds can sample. Institutional indexed mandates may use futures overlays or internal crossing. Derivatives create exposure without immediate cash-equity ownership. Custom-index assets may overlap with the parent index. The model must classify assets before multiplying. [D2]

Product implementation differs. SPY is a unit investment trust whose units represent interests in the securities held by the trust, making it close to physical replication. IVV is an open-end ETF that uses representative sampling and may hold

futures, options, swaps, cash, and non-index securities to help track. QQQ states that it generally uses full replication. IXUS samples an MSCI index containing thousands of securities. These are not cosmetic prospectus differences; they alter how a benchmark weight becomes a cash-equity order. [P16P17P18P19]

Timing differs as well. A manager can buy after the announcement, trade gradually toward the close, use a participation algorithm, cross with another client, or transact in the auction. Early buying reduces the final required order but introduces tracking risk before effectiveness. Waiting for the auction minimizes benchmark-price deviation but exposes the fund to a concentrated liquidity event. Derivatives can bridge the transition, but they still need to be unwound or carried.

The source index can dominate the calculation. Flex's June 2026 promotion from the S&P MidCap 400 to the S&P 500 is a clean institutional example: S&P 500 trackers needed to buy, MidCap 400 trackers needed to sell, and Composite 1500 trackers could remain unchanged because Flex stayed inside the combined benchmark. S&P announced the change on June 5 for implementation at the June 19 effective close and membership from the June 22 open. [P24]

The supplied package lacks event-date weights and product holdings, so a full Flex flow estimate is not auditable. A scale-normalized public-ETF illustration still shows why gross demand can mislead. On June 30, 2026, S&P reported total market capitalizations of about $67.2 trillion for the S&P 500 and $3.845 trillion for the MidCap 400. Public assets in SPY, IVV, and VOO were approximately $2.64 trillion around the period; public assets in IJH, MDY, and SPMD were approximately $168 billion. If Flex's float-adjusted value were normalized to $46 billion, the visible large-cap ETF layer would imply about $1.81 billion of buying, while the visible mid-cap ETF layer would imply about $2.01 billion of selling. The visible layer alone would therefore show roughly $0.20 billion of net supply, not a buy. [P25P26]

That is not an estimate of the actual Flex event. The AUM dates are not identical, the float-adjusted value is approximated, and the public ETFs omit indexed mutual funds, collective trusts, separate accounts, offshore funds, derivatives, and custom products. The calculation is useful because it demonstrates a structural fact: the sign and size of net demand depend on tracking intensity relative to each index's capitalization, not on the destination index's name or total benchmarked assets.

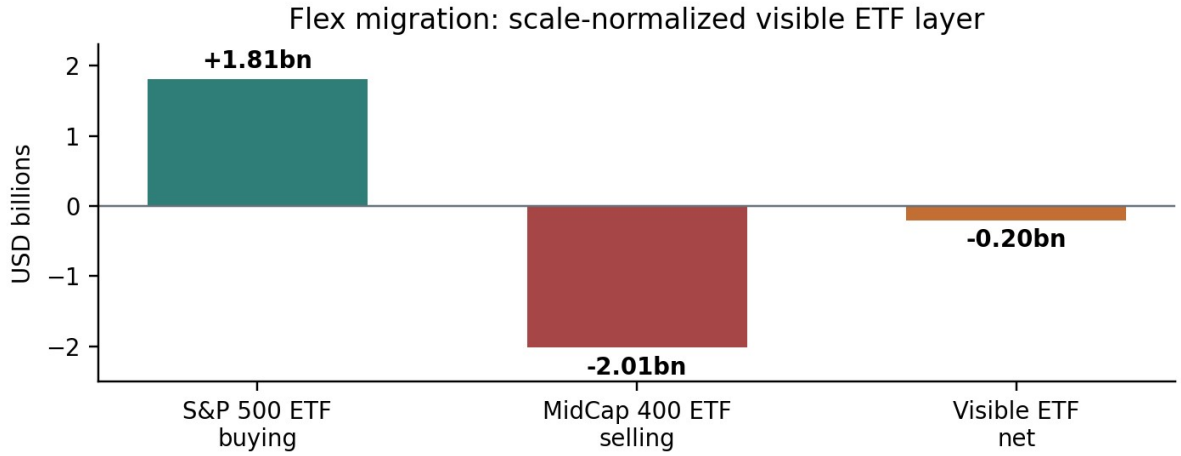
The market absorbs that demand through several inventories. Arbitrageurs who bought the addition earlier can sell to trackers. Source-index funds can supply shares in a migration. Market makers can warehouse risk. Other investors may rebalance in the opposite direction because the price changes. Internal crossing can transfer shares between funds without a public-market print. The effective closing auction records only the portion that reaches the venue at that time.

On NYSE, market-on-close and limit-on-close orders generally face a 3:50 p.m. cutoff, after which offsetting interest is restricted by the auction rules. Imbalance information is disseminated into the close. On Nasdaq, market-on-close orders must generally arrive before 3:55 p.m.; the exchange publishes imbalance and indicative-price data each second from 3:55 to 4:00; and the Closing Cross establishes the Nasdaq official closing price when a cross occurs. [P9P10]

A constituent-level auction study therefore needs four prices, not one: the last continuous-market price before the auction, the indicative match price, the official auction price, and the next opening price. It also needs paired shares, residual imbalance, and total daily volume. Daily volume cannot be substituted for auction volume. The key ratios are net predicted demand divided by normal daily volume, float, normal auction capacity, and effective-day auction volume.

EXHIBIT 4 **Gross demand versus net demand: Flex migration illustration**

SCALE-NORMALIZED PUBLIC-ETF LAYER; NOT AN EVENT ESTIMATE



Input / output	Value	Calculation or scope
Destination index total market cap	$67.185tn	S&P 500, June 30, 2026
Source index total market cap	$3.845tn	S&P MidCap 400, June 30, 2026
Visible destination ETF AUM	$2.642tn	SPY + IVV + VOO, period snapshots
Visible source ETF AUM	$0.168tn	IJH + MDY + SPMD, period snapshots
Normalized Flex float-adjusted value	$46bn	Scale input, not audited event-date FMC
Gross destination buying	$1.81bn	46 / 67,185 × 2,642
Gross source selling	$2.01bn	46 / 3,845 × 168
Visible ETF net	−$0.20bn	Destination buying less source selling

Note: The sign is intentionally counterintuitive. It shows that tracking intensity relative to each index's capitalization can make source selling as large as destination buying. Mutual funds, trusts, mandates, offshore products, derivatives, crossing, and event-date weights are missing, so the table cannot be used as Flex's actual net flow. **Source:** P24P25P26

6. What the event-study evidence finds

The evidence does not support one "index effect." It supports a sequence: anticipation, announcement, pre-effective positioning, effective-session trading, closing-auction price formation, overnight reversal, and longer-run ownership or liquidity change. Results differ by index family, methodology regime, era, and event taxonomy.

Announcement

The historical S&P benchmark comes from the post-1989 preannouncement regime. Lynch and Mendenhall studied changes from March 1990 through April 1995. For clean additions they documented a positive announcement response and a further 3.807% cumulative abnormal return from the day after announcement to the day before implementation, followed by reversal after addition. Deletions showed an inverted pattern. The study's value is chronological: it separated the date investors learned from the date index funds had to implement. A2

The modern average is much smaller. Greenwood and Sammon report 134 S&P 500 additions in the 1990s with an average announcement-window abnormal return of 7.39%, compared with 153 additions in 2010–2020 with a mean of 0.83%. For deletions, the corresponding means were −16.11% for 56 events in the 1990s and −0.62% for 87 events in 2010–2020. In their controlled specification, the 2010–2020 addition coefficient was 0.782% with a standard error of 0.55%, yielding an approximate 95% confidence interval of −0.30% to 1.86%. A1

The report cannot provide a median from the same event-level sample because the underlying data were not supplied and the paper's principal era table reports means. A separate S&P DJI study found that median excess returns for additions fell from 8.32% in 1995–1999 to −0.04% in 2011–2021. The samples and event definitions differ, so those medians are corroborating evidence of decline, not substitutes for the Greenwood-Sammon means. S4

Anticipation between announcement and effectiveness

The classic post-announcement drift reflects a temporary period in which the change is public but not yet effective. Lynch and Mendenhall's 3.807% estimate is the clean historical example. The economic interpretation is contested: it can reflect index arbitrage building inventory, information inferred from selection, or continuing demand from funds that transition early. The subsequent reversal supports a price-pressure component but does not eliminate information effects. A2

Russell shifts much of the information date earlier. Rank day, preliminary files, query periods, and lock-down can reveal likely changes weeks before implementation. Madhavan's 90%–95% forecast-accuracy figure by end-May shows why a formal announcement may contain little surprise. A credible Russell event study must start at rank day and preserve every preliminary-list date. Using only the final effective date would misclassify anticipation as unrelated pre-event return. A3P4

Nasdaq sits between Russell and S&P. Annual ranks and retention buffers are modelable, while fast entry and special replacements may be less predictable. MSCI's review calendar is public, but foreign-room and float inputs can change the probability and size of a move. Surprise should therefore be measured event by event rather than assigned by provider label.

Effective session and closing auction

The effective close is where tracking obligations become most visible. Greenwood and Sammon estimate average S&P 500 effective-window abnormal returns of 4.94% for additions in the 1990s and 1.02% in 2010–2020. For deletions, the corresponding figures were −13.91% and −0.18%. The change toward zero is consistent with greater pre-positioning, more source-index offsets, lower implementation costs, and deeper auction liquidity. [A1]

Russell reconstitution remains the clearest aggregate auction event. Madhavan documented dramatic intraday volatility in 1996–2002 and argued that indexers trade toward the close to reduce tracking error while hedge funds and other liquidity suppliers unwind. FTSE Russell reported $217.2 billion traded in the closing auctions of NYSE and Nasdaq on the June 2025 reconstitution day. That aggregate includes many adds, deletes, weight changes, and unrelated closing interest; it does not identify the share attributable to any constituent. [A3P28]

Tesla shows the difference between daily and auction evidence. The $154 billion effective-day dollar volume proves extraordinary turnover. It does not reveal the exact auction fraction without exchange-level paired-share data. A publication that calls all $154 billion “forced buying at the close” would overstate what the evidence shows.

Overnight move and short reversal

Reversal is a test of temporary price pressure, but the window must be clean. Tesla’s almost 5% opening decline on the first constituent day is stronger evidence of immediate reversal than its 6.5% full-session decline because the Apple story arrived later. The case still cannot isolate what part of the prior 57% rise was index demand, momentum, company news, or broader enthusiasm. [S3]

The literature is divided on longer reversal. Harris and Gurel’s price-pressure framework and later work by Kasch and Sarkar and Patel and Welch point toward substantial temporary effects in some samples. Chen, Noronha, and Singal argued that additions retained a permanent component while deletions did not. More recent work argues that event classification matters: direct additions from outside an index family can behave differently from migrations and corporate-action replacements. [A4A5A10]

Twenty-, sixty-, and 120-day persistence

A persistent return is not automatically a financing benefit. It can reflect information, continued ownership adjustment, liquidity, factor reclassification, or omitted company news. Persistence should be measured from the effective close, with 5-, 20-, 60-, and 120-trading-day paths, matched firms, and delisting returns. The supplied record contains no event-level persistence output, so this report does not claim a pooled estimate.

Published evidence still narrows the conclusion. Kasch and Sarkar find that firms selected for the S&P 500 already show extraordinary pre-inclusion earnings and price performance; matched firms experience similar later appreciation, leading them to reject a permanent value effect caused by inclusion. Greenwood and Sammon find that the modern short-window effect is near zero even as indexation grew. Tesla provides one prominent reversal case. None proves that every addition reverses. Together they reject the use of an old average as a timeless permanent premium. [A1A4]

EXHIBIT 5 Announcement abnormal returns

PUBLISHED EVIDENCE; ORIGINAL MULTI-INDEX PANEL NOT SUPPLIED

Family / event	Era	N	Mean	Median	95% CI	Definition
S&P additions	1980s	196	3.42%	n/r	n/r	Market-adjusted announcement CAR
S&P additions	1990s	134	7.39%	n/r	n/r	Market-adjusted announcement CAR
S&P additions	2000s	211	5.16%	n/r	n/r	Market-adjusted announcement CAR
S&P additions	2010-20	153	0.83%	n/r	n/r	Market-adjusted announcement CAR
S&P deletions	1990s	56	−16.11%	n/r	n/r	Market-adjusted announcement CAR
S&P deletions	2010-20	87	−0.62%	n/r	n/r	Market-adjusted announcement CAR
S&P additions (provider study)	1995-99	n/r	n/r	8.32%	n/r	Median excess return; separate sample

Family / event	Era	N	Mean	Median	95% CI	Definition
S&P additions (provider study)	2011-21	n/r	n/r	−0.04%	n/r	Median excess return; separate sample

Note: "n/r" means not reported in the cited table or unavailable without the underlying event file. The report does not combine the provider-study medians with Greenwood-Sammon means as if they were the same sample. **Source:** A1S4

EXHIBIT 6 Effective-date abnormal returns and volume

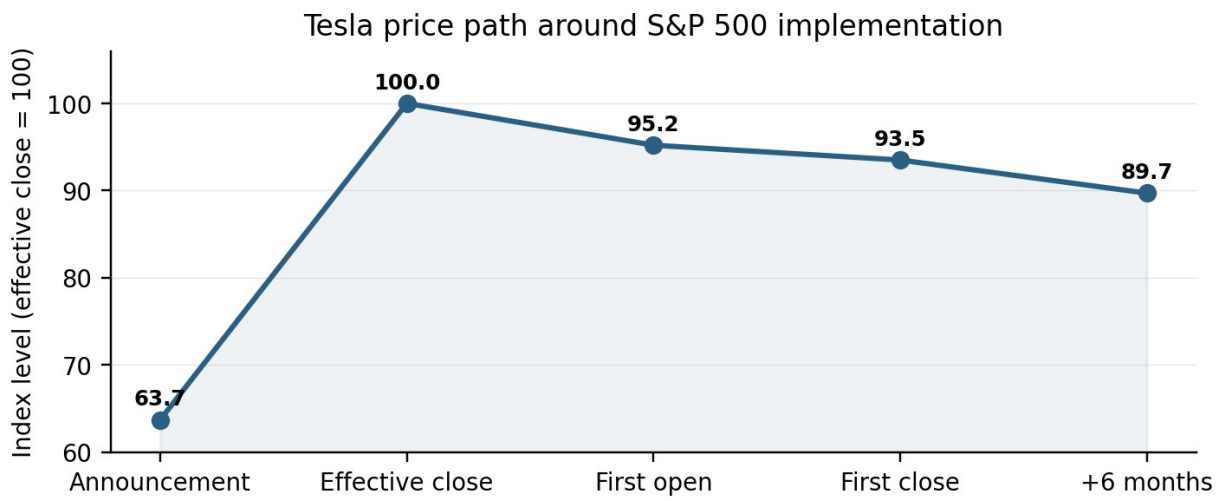
PUBLISHED S&P MEANS PLUS DOCUMENTED AUCTION CASES

Event	Period/date	N	Return or volume	Interpretation
S&P additions	1990s	134	4.94%	Day before to day after effectiveness
S&P additions	2010-20	153	1.02%	Day before to day after effectiveness
S&P deletions	1990s	56	−13.91%	Day before to day after effectiveness
S&P deletions	2010-20	87	−0.18%	Day before to day after effectiveness
Tesla addition	18 Dec. 2020	1 case	$154bn daily dollar volume	23% of shares; auction fraction unavailable
Russell reconstitution	June 2025	Aggregate	$217.2bn at NYSE + Nasdaq closes	All recon and other close activity, not constituent attribution

Note: Daily volume is not auction volume. A constituent-level closing-auction concentration ratio requires paired-share or auction-volume files by security. **Source:** A1S1P28

EXHIBIT 7 Post-effective reversal

CASE EVIDENCE AND COMPETING PUBLISHED MECHANISMS



Evidence	Window	Result	Limit
Tesla	First open	−4.8% approx.	Before late-session Apple report; consistent with partial reversal
Tesla	First close	−6.5%	Contaminated by Apple vehicle news later in session
Tesla	+6 months	$100 → $89.70	Published case reconstruction from effective close
Lynch & Mendenhall	Post-addition	Significant reversal	1990-Apr. 1995 S&P sample
Kasch & Sarkar	Longer horizon	No permanent value effect after matching	Pre-inclusion performance explains much apparent persistence

Evidence	Window	Result	Limit
Chen, Noronha & Singal	Longer horizon	Permanent addition component argued	Deletions treated differently; competing interpretation

Note: The chart normalizes the effective close to 100. The announcement level is inferred from the documented 57% announcement-to-effective gain; the first-open move is approximate. It is a case path, not a pooled estimate. **Source:** S1S3A2A4A5

7. The disappearing or changing index effect

The simple story says that more passive assets should create larger price shocks. The time series does not cooperate. U.S. indexed mutual fund and ETF assets reached $21.82 trillion in May 2026, including $15.17 trillion in domestic equity index products. Yet Greenwood and Sammon find the S&P 500 effect shrinking toward zero in 2010–2020. Passive assets grew; the old average disappeared. P15A1

One explanation is that returns moved earlier. Eligible S&P candidates can be screened, Russell ranks are public, Nasdaq buffers are published, and MSCI reviews are scheduled. Arbitrage capital can enter before the formal announcement. Greenwood and Sammon find larger long-horizon pre-announcement returns in recent decades, although their immediate 20-day and 10-day windows do not show a commensurate increase. Better anticipation is part of the answer, not a complete one. A1

A second explanation is source-index offsets. Migrations accounted for about 69% of S&P additions in the 1990s and more than 70% of both additions and deletions in recent years in Greenwood and Sammon's sample. A promotion from the MidCap 400 creates a buyer and a seller. Their 2010–2020 estimates show migrations with much smaller net demand shocks than direct additions. Using destination AUM alone increasingly exaggerates the modern trade. A1

A third is improved liquidity provision. Auctions disseminate imbalances, transition managers pre-arrange blocks, and arbitrageurs compete to supply shares. More capital willing to warehouse index risk can reduce the return needed to clear a larger quantity. Greenwood and Sammon document declining implementation shortfall in institutional mid-cap trading and discuss event-specific liquidity as a candidate explanation. Russell's enormous closing volume can therefore coexist with a smaller price dislocation. A1

A fourth is early fund trading. Managers do not all wait for the close. Some spread orders across days, use futures or swaps, or tolerate temporary tracking error. When execution is distributed, effective-day volume can remain high while the marginal price impact falls. Public prospectuses establish that funds have the tools to do this; they do not reveal desk-level timing. P17P18

A fifth is taxonomy. Corporate-action replacements, distressed deletions, recent IPOs, direct additions, and within-family migrations are different events. An acquisition-related deletion can have almost no independent index effect because the merger price dominates. A deletion caused by distress can fall before the provider acts. A predictable Russell breakpoint move can be priced before the preliminary list. Pooling them creates an average with no stable mechanism.

The best reading is not that the index effect vanished everywhere. It is that the effect moved, fragmented, and became more dependent on net flow, surprise, and liquidity. Direct additions can still produce large reactions. Migrations can show small net demand. Predictable events can move before announcement. A close can print enormous volume with little persistence. The underlying rule-to-trade mechanism remains; its price expression is conditional.

EXHIBIT 8 Results by governance model

INSTITUTIONAL COMPARISON; ORIGINAL CROSS-MODEL ESTIMATES UNAVAILABLE

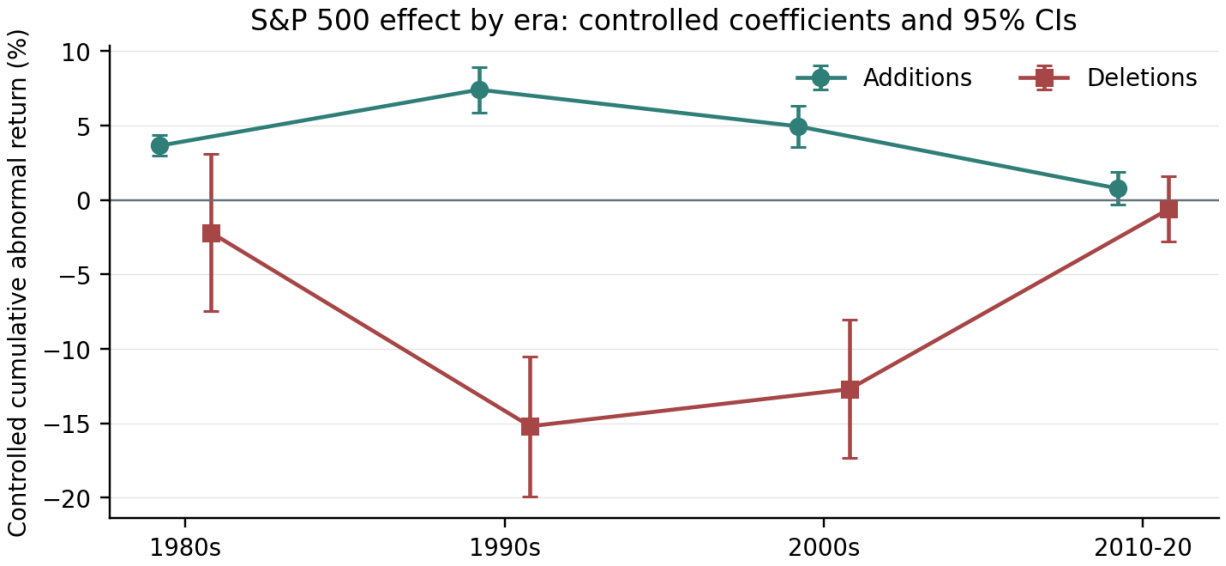
Governance model	Index example	Predictability	Evidence in record	Interpretation limit
Committee-selected	S&P 500	Lower ordinary predictability; timing can surprise	Large historical effects, near-zero modern average; migrations increasingly important	Cannot infer that discretion causes price impact
Scheduled ranked	Russell 1000/2000	High; rank date and preliminary lists public	1996-2002 effects and close volatility; broker forecasts 90-95% accurate	Banding changes post-2006 identification
Ranked with buffers	Nasdaq-100	Moderate to high for annual and quarterly reviews	Published modern multi-index panel absent from upload	Separate membership from weight changes and fast entry

Governance model	Index example	Predictability	Evidence in record	Interpretation limit
Investability screen	MSCI GIMI	Calendar known; float/foreign-room inputs can surprise	Selected-event design preferable across comparable markets	Local market and foreign-access mechanics dominate pooling

Note: This exhibit reports institutional environments and published findings, not a new causal comparison. A valid Exhibit 8 estimate requires the missing event master and harmonized return windows. **Source:** D1D2A1A3

EXHIBIT 9 Results by era

GREENWOOD-SAMMON CONTROLLED S&P 500 COEFFICIENTS



Event	Era	Coefficient	SE	Approx. 95% CI
Additions	1980s	3.654%	0.35%	2.97% to 4.34%
Additions	1990s	7.414%	0.78%	5.89% to 8.94%
Additions	2000s	4.950%	0.70%	3.58% to 6.32%
Additions	2010-20	0.782%	0.55%	−0.30% to 1.86%
Deletions	1990s	−15.20%	2.40%	−19.90% to −10.50%
Deletions	2010-20	−0.62%	1.12%	−2.82% to 1.58%

Note: Coefficients come from the no-controls era column of Table 2; confidence intervals are coefficient ± 1.96 × reported standard error. These are cumulative abnormal-return coefficients, not a universal structural parameter. **Source:** A1

EXHIBIT 10 Predicted demand versus price impact

MODEL SPECIFICATION; CROSS-SECTIONAL REGRESSION NOT ESTIMABLE FROM SUPPLIED RECORD

Model element	Specification
Dependent variable	Announcement CAR; effective-session CAR; pre-auction-to-close return; next-open reversal; +5/+20/+60/+120 CAR
Core demand variable	Net predicted replication demand / float
Liquidity scalers	Net demand / 20-day ADV; net demand / normal closing-auction volume; spread and depth
Predictability	Forecast probability, preliminary-list status, committee surprise, fast-entry flag
Taxonomy	Direct addition, within-family migration, corporate-action replacement, IPO, eligibility deletion

Model element	Specification
Controls	Size, momentum, volatility, short interest/borrow, concurrent news, sector, era, provider
Inference	Provider × date clustering; bootstrap medians; winsorization and leave-one-out tests
Available point	Tesla: gross same-stock demand about 2.4-2.6× prior 10-day average dollar volume; +57% to effective close, then −4.8% approx. at next open

Note: One Tesla point cannot identify a slope. The requested demand-impact exhibit requires event-level weights, replicating assets, source offsets, ADV, float, auction volume, and returns. **Source:** D2S1

8. Who earns the transfer

The index provider earns subscription, data, asset-linked, and licensing revenue from the benchmark franchise. A change can increase demand for data and implementation services, but the provider's main economics come from continued adoption, not a direct toll on each constituent trade. P11P12

The fund sponsor earns a management fee and bears responsibility for the product's tracking process. Its investor ultimately bears fund expenses and implementation shortfall. A sponsor can reduce cost through crossing, sampling, derivatives, transition management, securities lending, and competition among brokers. It cannot eliminate the economic cost of acquiring scarce liquidity.

The exchange earns transaction and market-data revenue and benefits from the concentration of orders in the close. A larger auction can improve price discovery by gathering offsetting interest, yet it can also create temporary impact when one-sided demand exceeds available supply. Market makers and transition managers earn spreads or fees for committing balance sheet and managing execution risk.

An index-arbitrage fund can buy an expected addition and sell to trackers at the close, or short a deletion and cover later. The trade is not riskless. A predicted change can fail. Committee timing can surprise. The stock can move on company news. Borrow can be unavailable or recalled. Hedging is imperfect. Crowded positioning can eliminate the spread before the fund enters. Madhavan's Russell evidence describes attractive returns to supplying immediacy alongside high trading costs, volatility, and unwind risk. A3

Existing shareholders in an addition may benefit if they sell into temporary demand. A securities lender can earn fees when arbitrageurs short deletions. Data vendors and brokers can sell forecasts. Deleted-company shareholders can bear temporary pressure. Index-fund investors can pay an elevated price if they buy after arbitrageurs have accumulated shares. But a counterparty on the other side may be compensated for bearing risk, and a more liquid auction can reduce the total cost relative to an uncoordinated transition.

The transfer should therefore be measured rather than moralized. For each event, the relevant quantities are the fund's implementation shortfall, the arbitrageur's after-cost return, exchange and broker fees, securities-lending revenue, and any reversal borne by the addition buyer or deletion seller. The supplied package contains no institutional execution or borrow-cost file, so these transfers cannot be totaled reliably.

EXHIBIT 12 Participant economics

POTENTIAL GAINS, FEES, AND COSTS; NOT ALL ARE POSITIVE OR RISKLESS

Participant	Potential receipt	Risk or cost	Measurement
Index provider	Licensing, subscriptions, asset-linked fees, derivatives royalties	Reputation and regulatory risk	Audited segment or product disclosures
Fund sponsor	Management fee; lending revenue share	Tracking error, trading cost, transition governance	Fund filings and execution records
Portfolio manager / transition desk	Mandate or transition fee	Benchmark slippage and inventory risk	Implementation shortfall
Exchange	Execution and market-data revenue	Auction resilience and imbalance risk	Auction fees, paired shares, outages
Market maker	Spread and liquidity premium	Adverse selection and inventory loss	Quotes, fills, hedge P&L
Index arbitrageur	Price convergence / liquidity premium	Prediction failure, borrow cost, crowding, news	After-cost strategy return
Existing addition shareholder	Can sell into higher demand	Price may reverse before exit	Sale price versus counterfactual

Participant	Potential receipt	Risk or cost	Measurement
Index-fund investor	Low-cost benchmark exposure	Fund fees, implementation shortfall, licensing cost	Tracking difference and turnover cost
Deleted-company shareholder	Potential recovery if pressure reverses	Temporary or persistent selling pressure	Abnormal return and liquidity path
Securities lender / data vendor	Borrow fees / premium data revenue	Recall, data quality, client concentration	Lending and contract data

Note: The same dollar can appear as a cost to a tracker and compensation to a liquidity supplier. Welfare analysis requires risk adjustment and a counterfactual execution path. **Source:** P11A3D2

9. Committee discretion and conflicts

Commercial incentives are real. S&P, FTSE Russell, MSCI, and Nasdaq sell benchmark licenses, data, analytics, custom indexes, and product-linked rights. Some fees increase with assets in linked products or derivatives volume. Providers know pending methodology and constituent decisions before the market. The combination creates a potential conflict: a private rulemaker controls information that affects products from which it earns revenue.

That observation is not evidence of misconduct. A disciplined analysis asks five questions. What is the incentive? What information advantage exists? What formal control limits its use? Is there evidence of actual conduct? Is any harm documented, merely plausible, or unsupported?

S&P places constituent selection and methodology oversight inside its benchmark-administration governance. Committee members are employees; deliberations are confidential; announcements occur on a controlled timetable. The firewall preserves decision integrity but also creates an unavoidable information asymmetry between the provider and the market. The record contains no evidence that a licensee bought a constituent decision or that S&P selected a company to maximize linked AUM. P2

FTSE Russell's governance documents are more explicit about conflict categories. They identify organizational ownership, index design, client and supplier relationships, and employee interests. Benchmark administration is assigned to FTSE International Limited and separated from other LSEG businesses. Conflicts are recorded in a register. External advisory committees, an Index Governance Board, oversight committees, compliance, and internal audit provide layers of review. Oversight bodies can request independent reports and escalate suspected manipulation. P22

MSCI's Equity Index Committee and Index Policy Committee supervise methodology and market classification. Material changes generally pass through public consultation after internal committee approval. Client feedback can prompt review, but formal decisions remain with MSCI committees. Nasdaq's methodology reserves discretion for special circumstances under its governance framework, although ordinary Nasdaq-100 selection is heavily codified. P23P5

Potential conflicts remain around premium data and pro forma files. A provider may sell detailed constituent, weight, and corporate-action data needed by trackers. Timely access can be more valuable as the effective close approaches. That creates a difference between equal public notice of the headline change and unequal operational detail. The relevant question is whether access terms are disclosed, non-discriminatory under the applicable benchmark regime, and separated from constituent decisions.

Custom indexes create another boundary problem. A provider may design and calculate a benchmark for a large client while also selling analytics and maintaining public indexes. Client input is normal in product design. It becomes concerning only if a licensee can influence public-index rules for private benefit without a documented consultation and governance process. The supplied record establishes consultation and oversight structures; it does not document such conduct.

Regulation is fragmented. European and U.K. benchmark regimes and IOSCO principles impose governance, methodology, conflict, and oversight expectations. U.S. equity index providers are not generally treated as portfolio managers merely because funds follow their indexes. Funds remain responsible for their investment process and disclosure. The legal separation matches the economic chain: the provider defines; the sponsor promises; the manager trades.

The strongest supported conflict statement is therefore narrow. Providers have commercial incentives tied to benchmark adoption and nonpublic knowledge of upcoming decisions. They also maintain formal controls intended to separate methodology and administration from sales and related businesses. The evidence package supports scrutiny of those controls, not an allegation of corruption.

10. Does inclusion change the cost of capital?

A one-day price increase cannot answer the cost-of-capital question. Four mechanisms must be separated.

The first is temporary inelastic demand. Index funds need exposure and arbitrageurs may require compensation to supply it. The price rises around the event and later reverses. This is a transfer among investors, not a durable reduction in the issuer's required return. Tesla's path is consistent with this mechanism for part of its effective-close move, although concurrent news and preexisting momentum prevent clean attribution.

The second is liquidity. Inclusion can increase turnover, narrow spreads, deepen the order book, expand securities lending, and attract market makers. Lower transaction costs can reduce the liquidity premium investors demand. Parts of the S&P and Russell literature find persistent liquidity improvement. A credible test needs quoted and effective spreads, depth, price impact, turnover, and lending conditions before and after the event, with matched controls.

The third is ownership and investor recognition. A benchmark can bring quasi-indexers, retirement accounts, model portfolios, and analysts into the shareholder base. Russell breakpoint research finds meaningful differences in passive or quasi-indexer ownership around historical cutoffs. Broader ownership may reduce segmentation or information costs. Whether it lowers the actual cost of equity depends on persistence and on who would have held the shares otherwise. [A8]

The fourth is information certification. S&P's committee may be interpreted as recognizing size, profitability, maturity, and representativeness. A price response could reflect information inferred from selection rather than mechanical demand. This channel is difficult to distinguish because the same characteristics influence selection, expected growth, analyst coverage, and returns.

Direct financing tests require outcomes beyond stock returns. A lower cost of capital should appear in seasoned equity offering discounts, issuance likelihood, debt yields, credit spreads, implied cost-of-equity estimates, financing mix, or investment after inclusion. Those outcomes must be compared with similar nonincluded firms and adjusted for size, profitability, momentum, risk, and market conditions. The supplied package contains no matched financing panel.

Identification is strongest where index assignment changes ownership without changing fundamentals. Historical Russell cutoffs offered that opportunity, but the 2006 banding rule removed much of the clean variation near the boundary. S&P selection is not quasi-random. Nasdaq and MSCI events combine ranking or investability changes with size, liquidity, listing, and foreign-access shifts that can independently affect financing. [A8A9]

The evidence supports a hierarchy. Temporary price pressure is well documented in some periods and cases. Persistent ownership and liquidity changes are credible. Permanent valuation changes are mixed and sensitive to event classification. A lower realized corporate cost of capital is plausible but not established by the supplied evidence. Claims that inclusion "gives a company cheaper capital" should be treated as unproven unless tied to an actual financing outcome and a credible counterfactual.

EXHIBIT 13 Evidence table for cost-of-capital claims

MECHANISM-BY-MECHANISM ASSESSMENT

Claimed mechanism	Observable measure	Result	Identification	Alternative	Confidence
Temporary inelastic demand	Effective-close return and reversal	Documented in historical studies and Tesla case	Moderate	Information and momentum	High that pressure can occur; low that it is permanent
Liquidity improvement	Spreads, depth, turnover, price impact, lending	Some S&P/Russell evidence of persistent improvement	Moderate	Firm growth and trading trends	Medium
Broader ownership	Passive/quasi-indexer ownership, breadth	Russell cutoff studies show ownership shifts	Moderate to strong in eligible regimes	Size-rank and banding mechanics	Medium-high for ownership, lower for required return
Information certification	Announcement response controlling for expected flow	Plausible for committee selection; hard to isolate	Weak to moderate	Profitability, momentum, analyst attention	Low-medium
Permanent valuation	+60/+120-day matched abnormal return	Mixed; modern average near zero; matching studies reject permanent effect	Weak to moderate	Selection and concurrent news	Low
Lower equity financing cost	SEO discount, issuance, implied cost of equity	Not established in supplied record	Weak	Market conditions and firm quality	Low
Lower debt financing cost	Bond yields, credit spreads, debt issuance	Not established in supplied record	Weak	Credit improvement preceding inclusion	Low

Claimed mechanism	Observable measure	Result	Identification	Alternative	Confidence
Corporate financing behavior	Issuance, investment, payout, capital structure	Mechanism plausible; issuer panel missing	Weak	Lifecycle and profitability changes	Low

Note: Confidence concerns the causal claim, not whether the observable variable changes. A stock-price response and a financing-cost response are different hypotheses. **Source:** A4A7A8A9D2

The close, revisited

On November 30, 2020, S&P made a specific private-rulemaking decision: Tesla would enter the S&P 500 in one tranche at full float-adjusted weight. That decision generated an estimated $78–$85 billion of same-stock demand from S&P 500 trackers, with no offsetting sale from another S&P size index. The market absorbed the transition through a December 18 session in which Tesla traded about $154 billion and the official close became the benchmark handoff among early holders, arbitrageurs, dealers, and index portfolios.

The price did not simply ratify the committee's choice. Tesla opened almost 5% lower on the first constituent day and closed down 6.5%. Six months later, a published reconstruction found that the stock remained below its effective-close price and that a hypothetical delayed rebalance would have improved S&P 500 performance by 41 basis points. The provider's decision mattered. The resulting price increase did not persist on the evidence available.

S&P collected licensing, data, and asset-linked revenue from the benchmark franchise. Fund sponsors collected management fees while bearing the tracking obligation. Nasdaq and intermediaries processed and priced the transfer. The S&P committee retained discretion over selection and implementation structure; portfolio managers retained discretion over execution. No participant controlled the entire chain.

That is what the broader evidence establishes. Index administrators do not allocate client capital in the conventional sense. They make classifications and weights that products promise to follow. When adoption is large, those definitions generate predictable trading and can alter ownership and liquidity. The amount of net demand depends on replicating assets, source-index offsets, and implementation choices. The closing auction concentrates the transfer, but anticipation often begins earlier. Price effects can be large, small, early, or reversible. Durable financing benefits remain unproven.

The private rule matters because the contracts around it matter. The stronger claim—that an index decision reliably creates permanent value or cheaper capital—does not survive the same scrutiny.

Five interpretation limits

1	**Missing event-level package.** The uploads did not include the event master database, return series, auction files, product holdings, model outputs, or code. Original cross-index means, medians, confidence intervals, observation counts, auction fractions, and persistence estimates cannot be audited or reproduced.
2	**Selection and contamination.** S&P committee additions are selected from firms with strong size, profitability, and momentum. Earnings, guidance, litigation, offerings, mergers, and other company news can contaminate announcement and effective windows.
3	**Anticipation is hard to date.** Russell and Nasdaq changes can be modeled before formal announcements; S&P candidates can be screened; MSCI foreign-room inputs may change before review results. A daily window can assign returns to the wrong information date.
4	**Flow estimates remain ranges.** Public ETF assets are one layer. Mutual funds, collective trusts, separate accounts, offshore products, derivatives, sampling, crossing, and early execution are incompletely observable. Gross destination demand is easier to estimate than net effective-close demand.
5	**Cost-of-capital identification is weak.** Short-run returns, liquidity, ownership, valuation, and financing outcomes are different variables. Without a matched panel and credible assignment mechanism, persistent correlation after inclusion is not a causal reduction in financing cost.

Methodology appendix

RESEARCH STATUS This appendix separates completed analysis from the empirical work specified but not present in the uploads. It is written as a reproducible protocol for the event master, flow model, auction study, arbitrage simulation, and persistence tests.

A. Sample construction

Use one observation per security-level membership or material weight event. Mandatory fields are provider, index, issuer, permanent security identifier, share class, event type, announcement timestamp, effective-close timestamp, first-constituent-day date, methodology vintage, reason code, source index, destination index, old and new float-adjusted weights, corporate-action flag, and concurrent-news flags.

S&P events should be separated into direct additions from outside the Composite 1500, promotions from the MidCap 400, promotions from the SmallCap 600, demotions within the family, full exits, corporate-action replacements, spin-off treatments, recent-listing events, and eligibility-driven deletions. Russell should separate scheduled reconstitutions, quarterly IPO additions, and maintenance. Nasdaq should separate annual reconstitution, quarterly review, in-year replacement, and fast entry. MSCI should be limited to markets with reliable official closes and comparable market microstructure.

Security histories must be linked with permanent identifiers rather than tickers. Share-class changes, mergers, delistings, special dividends, splits, and stale prices require explicit treatment. Events with earnings, guidance, financings, mergers, litigation, regulatory decisions, or other material news inside the core window should be excluded from the clean sample or included with a contamination flag.

B. Event dates and windows

Store at least seven dates: measurement date; rank/reference date; committee decision date when observable; public announcement timestamp; effective close; first open with new membership; and later share, float, or weight-adjustment dates. After-close announcements map the first trading response to the next session.

Recommended windows are: announcement [−1,+1] around the first actionable session; anticipation from measurement/rank date to announcement and from announcement to effectiveness; effective session from prior close to effective close; auction from a defined pre-auction reference to official close; overnight from effective close to first open; and persistence from effective close to +5, +20, +60, and +120 trading days.

Russell preliminary lists and updates are separate information events. Nasdaq annual, quarterly, replacement, and fast-entry notices are separate regimes. MSCI review and corporate-event notices should not be pooled unless their chronology and local close mechanics are comparable.

C. Return models

Primary abnormal returns should use a market model or Fama-French five-factor model with momentum, estimated over a pre-event window that ends before likely anticipation. Market-adjusted returns should be reported as a transparent robustness specification. For international events, use local-currency market and factor benchmarks and report currency treatment.

Report mean, median, observation count, and a 95% confidence interval for every event window. Use t-based or cluster-robust inference for means, bootstrap confidence intervals for medians, and randomization or permutation inference where the design supports it. Do not let one outlier determine an era result; report winsorized and leave-one-out estimates alongside the untreated sample.

Event-time plots should show the entire path rather than one endpoint. Separate additions and deletions, governance models, direct additions and migrations, and methodology eras.

D. Net replication-demand model

Estimate product-by-product gross destination buying and source-index selling using event-date weights, assets, structure, and a physical-implementation fraction. Add mutual funds, collective trusts, and separate accounts only when their benchmark and implementation method are documented. Treat active benchmark assets and derivatives as separate scenarios rather than forced cash demand.

Subtract source-index supply, overlapping umbrella-index exposure, internal crossing, and known early execution. Report low, base, and high ranges for uncertain institutional assets and replication fractions. Scale net demand by float, 20-day ADV, normal auction volume, and effective-day auction volume.

Reconcile predicted net demand to observed fund holdings where possible. A residual is not automatically arbitrage inventory: it can include active trading, derivative substitution, data timing, or model error.

E. Closing-auction study

Use exchange-level official auction files or TAQ with condition codes sufficient to identify the closing print. Required fields are paired shares, buy/sell imbalance, indicative match price, official close, last continuous price, opening price next day, and total daily volume. Keep NYSE and Nasdaq rule regimes separate.

Primary outcomes are auction volume share, pre-auction-to-close return, indicative-to-close slippage, imbalance scaled by normal auction capacity, and close-to-next-open reversal. Estimate how much predicted net replication demand appears to be completed in the auction, while recognizing that internal crossing and dealer inventory may not appear as same-day public flow.

F. Index-arbitrage reconstruction

Entry dates should follow the information available to an actual trader: rank-date models for Russell, buffer/rank forecasts for Nasdaq, candidate probabilities for S&P, and foreign-room/float estimates for MSCI. Do not grant the strategy the final list before publication.

Compute gross long-addition and short-deletion returns through the effective close and after reversal windows. Deduct bid-ask spread, market impact, commissions, financing, borrow fee, recall losses, and hedge slippage. Apply realistic position limits based on ADV and float. Report failures and false positives, not only completed events.

Strategy returns should be value- and equal-weighted, with drawdowns, turnover, capital use, and crowding by era. The central comparison is after-cost arbitrage profitability versus tracker implementation shortfall.

G. Statistical inference and identification

Cluster standard errors by event date and provider when many securities change together. For reconstitutions, a common-date shock can dominate naive security-level standard errors. Use date-level bootstrap or randomization where appropriate.

S&P committee events are not quasi-random. Match to eligible nonselected firms and control for size, profitability, momentum, liquidity, sector, and concurrent news, but describe remaining selection. Russell discontinuity designs should be restricted to regimes where assignment and banding support the design. Post-2006 banding requires alternative identification.

Cost-of-capital analysis needs separate outcomes and longer horizons: spreads, ownership, analyst coverage, equity and debt issuance, credit spreads, implied costs, and investment. A short-run event return is not a financing outcome.

H. Sensitivity tests

Vary event windows, factor models, contamination exclusions, float definitions, source-index offsets, physical-replication fractions, asset estimates, auction reference times, and outlier treatment. Re-run without the largest event in every family and era.

Compare pre- and post-rule-change regimes: S&P multi-class exclusion and reopening; Russell pre- and post-banding and annual versus semiannual reviews; Nasdaq pre- and post-May 2026 methodology; MSCI pre- and post-February 2023 review architecture.

Publish a reconciliation table showing which claims survive every reasonable specification, which are sample-dependent, and which remain unresolved.

Provider and index glossary

Term	Definition
Abnormal return	Security return minus the return predicted by a market or factor benchmark over the same window.
Assets benchmarked	Assets whose performance is compared with an index; includes active users and is broader than assets that replicate it.
Assets indexed / replicating assets	Assets managed to track an index, physically or synthetically. Only a subset necessarily trades each constituent in cash equities.
AUM-linked fee	Provider license fee that varies with assets in a linked fund or mandate.
Banding	Retention range around a rank breakpoint that limits turnover when a company moves only slightly across the line.
Benchmark administrator	Entity responsible for methodology, calculation, governance, and publication of a benchmark.
Closing auction / Closing Cross	Exchange process that aggregates eligible closing orders into one official closing price.
Closing imbalance	Difference between buy and sell interest eligible for the closing auction, often published before the close.
Composite or umbrella index	Index combining related size segments; a migration within the family may not require a trade by an umbrella tracker.
Constituent	Security included in an index.
Corporate-action replacement	Membership change caused by a merger, spin-off, delisting, or other company event rather than a scheduled ranking decision.
Cumulative abnormal return (CAR)	Sum or compounded abnormal return over a specified event window.
Custom index	Benchmark designed or calculated for a client under specified rules, often used for a product or mandate.
Deletion	Removal of a security from an index.
Destination index	Index a security enters in a migration; its trackers create gross buying.
Direct addition	Addition from outside the related index family, with no source-index tracker selling the same stock.
Effective close	Official closing price immediately before new index membership or weight becomes effective at the next open.
Eligible universe	Securities that pass listing, domicile, security-type, size, float, liquidity, profitability, or access screens.
Fast entry	Rule allowing a sufficiently large new issue or listing to enter before the ordinary scheduled review.
FIF	MSCI foreign inclusion factor, the fraction of a security's market capitalization available to international investors for index weighting.
Float / free float	Shares considered available to public investors after strategic, insider, government, or other restricted holdings are excluded.
Full replication	Portfolio holds substantially every index constituent at target weight.
Gross destination demand	New index weight multiplied by relevant replicating assets and physical implementation fraction before offsets.
Index arbitrage	Trading strategy that anticipates index changes and seeks to transfer inventory to or from trackers around implementation.
Investable weight factor (IWF)	S&P float factor used to convert company market capitalization into float-adjusted index capitalization.
Limit-on-close (LOC)	Order to trade in the closing auction only at a specified price or better.
Market-on-close (MOC)	Order to trade in the closing auction at the official closing price.

Term	Definition
Migration	Move between related source and destination indexes, creating both gross buying and gross selling.
Net predicted replication demand	Gross destination buying minus source-index selling and other modeled overlaps or crossings.
Optimization / representative sampling	Tracking method that uses a subset of securities and/or derivatives to reproduce index risk rather than holding every name exactly.
Rebalance	Scheduled update of weights, shares, or factors; membership may or may not change.
Reconstitution	Scheduled rebuilding of index membership and segmentation.
Retention buffer	Rule that lets existing constituents remain at ranks that would not admit a new entrant.
Source index	Index a security leaves in a migration; its trackers create gross supply.
Tracking difference	Fund return minus benchmark return over a period, including fees and implementation effects.
Tracking error	Variability of the fund’s return difference relative to the benchmark.
Transition manager	Specialist that plans and executes portfolio changes while controlling market impact and risk.
Foreign room	Remaining fraction of a security’s foreign ownership limit available to international investors.

Exhibit package register

Exhibit	Publication-ready title	Evidence status	Primary note
1	Four systems for deciding membership	Current methodology comparison	Rules and governance
2	Decision-to-trade timeline	Institutional transmission map	Exact event chronology
3	Where index-provider revenue comes from	Provider disclosures	Periods/currencies differ
4	Gross demand versus net demand	Scale-normalized Flex ETF illustration	Not an event estimate
5	Announcement abnormal returns	Published evidence	Original panel unavailable
6	Effective-date abnormal returns and volume	Published means and cases	Auction fraction missing
7	Post-effective reversal	Tesla case and literature	Not a pooled estimate
8	Results by governance model	Institutional comparison	No original cross-model estimate
9	Results by era	Published controlled coefficients	Greenwood-Sammon sample
10	Predicted demand versus price impact	Model specification	Cross-section not estimated
11	Rule-change timeline	Primary methodology record	Not exhaustive
12	Participant economics	Transfer map	Requires execution/borrow files
13	Evidence table for cost-of-capital claims	Mechanism assessment	Causal evidence limited

PUBLICATION NOTE Every exhibit includes a title, evidence-status line, units or definitions, a note, and a source line. Exhibits 5, 6, 8, and 10 are deliberately marked as published evidence or model specifications because the requested event-level package was not included.

Source note

Primary evidence

Current and archived provider methodologies, index announcements, governance policies, fund filings, exchange auction rules, and provider financial statements. These control event classification and institutional claims.

Market data

Documented case figures from provider releases, exchange materials, ICI asset statistics, public fund AUM pages, and the Research Affiliates Tesla reconstruction. The upload set did not include raw security returns or auction files.

Academic literature

Organized by mechanism: price pressure, demand curves, anticipation, Russell reconstitution, ownership, liquidity, information certification, and permanent value. The report does not treat an old average as a current parameter.

Provider disclosures

Revenue, fee categories, linked-product assets, and operating profit are provider-specific. Periods, currencies, and segment definitions differ; cross-provider margin comparisons are descriptive.

Estimates

Tesla destination demand and the Flex public-ETF illustration are labeled estimates. The former comes from published case sources; the latter is a scale-normalized calculation and not an event-level flow estimate.

Interviews

No interviews were supplied or conducted. No claim of issuer intent, provider conduct, or desk-level execution is attributed to an unnamed source.

Unresolved contradictions

The uploaded memo's S&P 2025 operating-profit figure used the 2024 number; this report corrects it to $1.271 billion. The earlier Russell semiannual plan referenced November; current rules place the second 2026 reconstitution in December. The Tesla daily-volume record does not identify exact auction volume.

Alternative title package

#	Title	Subtitle
1	The Rule Before the Trade	How Private Index Methodologies Become Public Market Orders
2	Who Decides What the Market Must Track?	Inside the Rules, Auctions, and Fees Behind Major Equity Indexes
3	The Benchmark's Hidden Hand-Off	How an Index Change Moves Through Funds, Arbitrageurs, and the Closing Auction
4	When a Stock Becomes the Benchmark	The Mechanics and Economics of Index Admission
5	The Index Committee as Capital Allocator?	Where Discretion Ends and Replication Begins

Note: The fifth title is accurate only with the question mark and subtitle because committee discretion is concentrated in certain families and does not describe Russell, Nasdaq, or MSCI administration generally. **Source:** [D1]

Fact-check table

AUDIT SCOPE This table covers the material numerical, rule, chronology, economics, and empirical claims in the article. Interpretive statements are traced to the evidence status and limitations in the text.

Claim	Source	Page / section	Calculation	Confidence	Remaining issue
S&P 500 candidate market-cap floor is $22.7bn in July 2026.	P1	Eligibility / market-cap guidelines	Direct transcription	High	Historical thresholds differ.
S&P Composite 1500 candidates require IWF ≥ 0.10.	P1	Eligibility / float	Direct transcription	High	Security FMC test also applies.
S&P profitability requires latest quarter and four-quarter sum positive.	P1	Financial viability	Direct transcription	High	GAAP treatment and corporate-action exceptions apply.
S&P selection remains committee-based after screens.	P1; P2	Index construction / governance	Institutional reading	High	Committee deliberations are confidential.
S&P U.S. changes are generally released at 5:15 p.m. ET.	P1	Index announcements	Direct transcription	High	Some corporate-action notices can differ.
Russell free float minimum is 5%.	P3	Eligibility / free float	Direct transcription	High	Company/security treatment varies.
Russell unrestricted voting-rights minimum is 5%.	P3	Voting rights	Direct transcription	High	Aggregates identifiable classes.
Russell global median ADDTV was $175k at 2026 rank.	P3	Liquidity screen	Direct transcription	High	Threshold changes by review.
Russell 2026 schedule: rank Apr. 30, preliminary May 22, lock-down Jun. 8, implementation Jun. 26, first day Jun. 29.	P4	2026 schedule	Direct chronology	High	Update dates omitted for brevity.
Second 2026 Russell reconstitution is in December, not November.	P3; P4	Schedule update	Current-rule correction	High	Future changes remain possible.
Nasdaq-100 top 75 automatic; top 100 retention; conditional 101-125 retention.	P5	Annual selection	Direct transcription	High	Vacancy sequence matters.
Nasdaq-100 ADVT minimum is $5m and normal seasoning is 3 full calendar months.	P5	Eligibility	Direct transcription	High	Fast-entry exceptions exist.
Nasdaq-100 has no minimum free-float rule.	P5	Eligibility / weighting	Direct transcription	High	Modified weighting can constrain low-float names.
MSCI May 2026 DM/EM universe minimum size was $537m.	P6	May 2026 review parameters	Direct transcription	High	Review-specific threshold.
MSCI review results are normally announced at least two weeks before effective closes.	P6; P23	Review timing	Direct transcription	High	Corporate events can have shorter notice.
S&P banned new multi-class entrants in 2017 and reopened eligibility in 2023.	P20; P21	Index announcements	Direct chronology	High	Grandfathering and tracking-stock rules apply.
Tesla announcement was Nov. 16, 2020; effective before open Dec. 21.	P7	Index announcement	Direct chronology	High	Announcement-time timestamp taken from provider release system.
S&P chose one-tranche Tesla implementation Nov. 30, 2020.	P8	Consultation result	Direct chronology	High	Pro forma process followed.

Claim	Source	Page / section	Calculation	Confidence	Remaining issue
Tesla entry weight used in published estimate was 1.69%.	S1	Case calculation	Published estimate	Medium-high	Weight source and float assumptions are case-specific.
Tesla destination buying estimate was at least $78bn; S&P estimate about $85bn.	S1; S2	Case estimates	Reported range	Medium-high	Does not equal visible auction order.
Tesla prior 10-day average dollar volume was about $33bn.	S1	Case volume	Published calculation	Medium-high	Excludes effective day.
Tesla effective-day dollar volume was about $154bn and 23% of shares.	S1	Case volume	Published calculation	Medium-high	Daily, not exact closing-auction volume.
Tesla rose 57% announcement to effective close.	S1	Case return	Published calculation	Medium-high	Not abnormal-return attribution.
Tesla opened nearly 5% lower and closed 6.5% lower on first constituent day.	S3	Market report	Reported price moves	High	Apple news contaminated later session.
$100 in Tesla at effective close was $89.70 six months later.	S1	Case persistence	Published case reconstruction	Medium-high	Hindsight path, not causal estimate.
Lynch-Mendenhall sample spans Mar. 1990-Apr. 1995.	A2	Data / methodology	Direct transcription	High	Clean-sample counts differ from full sample.
Lynch-Mendenhall post-announcement pre-effective addition CAR was 3.807%.	A2	Abstract / results	Direct transcription	High	Historical regime only.
Greenwood-Sammon 1990s addition announcement mean was 7.39%, N=134.	A1	Table 1	Direct transcription	High	Market-adjusted announcement window.
Greenwood-Sammon 2010-20 addition announcement mean was 0.83%, N=153.	A1	Table 1	Direct transcription	High	Headline abstract uses a related 0.3% estimate.
Greenwood-Sammon 1990s deletion announcement mean was -16.11%, N=56.	A1	Table 1	Direct transcription	High	Event classification matters.
Greenwood-Sammon 2010-20 deletion announcement mean was -0.62%, N=87.	A1	Table 1	Direct transcription	High	Not statistically different from zero.
Modern migrations exceed 70% of additions and deletions in their recent sample.	A1	Text / Figure 4	Direct transcription	High	Definition uses related S&P family moves.
2010-20 addition controlled coefficient 0.782%, SE 0.55%.	A1	Table 2	Direct transcription	High	CI computed as ±1.96 SE.
Madhavan sample spans 1996-2002 and broker forecasts were 90-95% accurate by end-May.	A3	Study / forecast discussion	Direct transcription	High	Historical annual Russell process.
Post-2006 Russell banding undermines a naive fuzzy RD.	A9	Method note	Methodological conclusion	High	Alternative designs remain possible.
Kasch-Sarkar reject a permanent value effect after matching pre-inclusion performance.	A4	Abstract / conclusion	Study interpretation	High	Specific identification assumptions apply.
ICI indexed long-term mutual fund + ETF assets were $21.821tn in May 2026.	P15	May 2026 release	Direct transcription	High	Does not include all mandates/derivatives.
ICI domestic equity index products were $15.173tn in May 2026.	P15	May 2026 release	Direct transcription	High	Mutual funds and ETFs only.
S&P 2025 Indices revenue was $1.850bn.	P11	Annual report / segment note	Direct transcription	High	USD, fiscal year.
S&P 2025 asset-linked fees were $1.206bn.	P11	Annual report / revenue mix	Direct transcription	High	Provider category definition.

Claim	Source	Page / section	Calculation	Confidence	Remaining issue
S&P 2025 operating profit was $1.271bn and margin 68.7%.	P11	Annual report / segment table	1.271 / 1.850	High	Excludes corporate allocations as reported.
FTSE Russell 2025 revenue was £954m.	P12	LSEG annual report	Direct transcription	High	Currency and segment basis differ.
FTSE Russell adjusted EBITDA was £635m; margin 66.6%.	P12	LSEG annual report	635 / 954	High	Adjusted measure.
MSCI Index Q2 2026 operating revenue was $511.0m.	P13	Q2 2026 results	Direct transcription	High	Quarterly, not annual.
Nasdaq Q4 2025 index revenue was $232m.	P14	Q4 2025 results	Direct transcription	High	Standalone margin unavailable in retrieved record.
S&P 500 total market cap was $67.185tn on Jun. 30, 2026.	P25	Index page	Direct transcription	High	Total, not necessarily float-adjusted denominator used for weights.
S&P MidCap 400 total market cap was $3.845tn on Jun. 30, 2026.	P25	Index page	Direct transcription	High	Total, not event-date FMC.
Flex was promoted from MidCap 400 to S&P 500 effective Jun. 22, 2026 open.	P24	Provider announcement	Direct chronology	High	Article's flow bridge is illustrative, not event estimate.
Visible Flex illustration produces + $1.81bn destination, -$2.01bn source, -$0.20bn net.	P25; P26	Exhibit 4	46/67,185×2,642; 46/3,845×168	Medium	Rounded AUM and normalized float cap.
June 2025 Russell close volume was $217.2bn across NYSE and Nasdaq.	P28	FTSE Russell key facts	102.5 + 114.7	High	Aggregate, not constituent-attributed.
NYSE closing freeze starts 3:50 p.m.; Nasdaq MOC deadline generally 3:55 p.m.	P9; P10	Auction rules / FAQ	Direct transcription	High	Exchange rule changes require vintage matching.
No supplied raw event database, auction file, or code was available.	D1; D2	Research-gap sections / upload audit	File audit	High	Could change if additional files are supplied later.

Master source ledger

LEDGER CONVENTION Source keys used in the article and exhibits. "New/verified" marks sources added or rechecked for this report through July 23, 2026.

ID	Category	Source	Date/version	Exact pages/sections	URL	Use / status
D1	Primary package	Reconstructing the Index Decision System	Supplied memo	pp. 1-26; tables and source anchors	User upload	Primary institutional record
D2	Primary package	Measuring the Index-Inclusion Trade	Supplied memo	pp. 1-10; literature and research gaps	User upload	Quantitative design record
P1	Methodology	S&P U.S. Indices Methodology	July 2026	Eligibility pp. 7-9; committee/maintenance pp. 22-23	spglobal.com/spdji/en/documents/methodologies/methodology-sp-us-indices.pdf	New/verified current rules
P2	Governance	S&P Dow Jones Indices Index Governance Policies / benchmark statement	Current through 2026	Committee, methodology oversight, exceptions	spglobal.com/spdji/en/documents/index-policies/sp-index-governance-policies.pdf	Governance and discretion
P3	Methodology	Russell US Equity Indexes Ground Rules	July 2026	Eligibility, float, voting rights, liquidity, reconstitution	lseg.com/.../russell-us-indexes-construction-and-methodology.pdf	New/verified current rules
P4	Calendar	FTSE Russell 2026 U.S. Reconstitution Schedule and FAQ	2026	Rank, preliminary lists, lock-down, June/December implementation	lseg.com/en/media-centre/.../russell-reconstitution-2026-schedule	New/verified; corrects November
P5	Methodology	Nasdaq-100 Index Methodology	May 2026	Eligibility, ranks, buffers, fast entry, calendar	indexes.nasdaq.com/docs/Methodology_NDX.pdf	New/verified current rules

ID	Category	Source	Date/version	Exact pages/sections	URL	Use / status
P6	Methodology	MSCI Global Investable Market Indexes Methodology	May 2026	Universe size, FIF, foreign room, review cycle	msci.com/eqb/methodology/meth_docs/MSCI_GIMIMethodology_May2026.pdf	New/verified current rules
P7	Index notice	Tesla to Join S&P 500	16 Nov. 2020	Announcement and effective date	spglobal.com/spdji index announcement	Opening case chronology
P8	Index notice	S&P DJI Announces Tesla Addition in One Tranche	30 Nov. 2020	Implementation decision and pro forma timing	spglobal.com/spdji index announcement	Opening case governance
P9	Exchange rule	NYSE Opening and Closing Auctions Fact Sheet / 2026 memo	2026	MOC/LOC deadlines, freeze, imbalance data	nyse.com/publicdocs/nyse/markets/nyse/NYSE_Opening_and_Closing_Auctions_Fact_Sheet.pdf	Auction mechanics
P10	Exchange rule	Nasdaq Closing Cross FAQ	Current through 2026	3:55 MOC deadline, second-by-second data, official close	nasdaqtrader.com/Trader.aspx?id=OpenClose	Auction mechanics
P11	Provider disclosure	S&P Global 2025 Annual Report	FY 2025	Indices revenue mix and operating profit	spglobal.com/content/dam/spglobal/corporate/en/annual-reports/2025/annual-report-2025.pdf	New/verified; corrects profit year
P12	Provider disclosure	LSEG 2025 Annual Report / preliminary results	FY 2025	FTSE Russell revenue, subscriptions, asset-based fees, EBITDA	lseg.com/en/investor-relations/financial-results/2025-preliminary-results	Provider economics
P13	Provider disclosure	MSCI Reports Q2 and Six-Month 2026 Results	Q2 2026	Index operating revenue and run rate	ir.msci.com/news-releases	New/verified current figure
P14	Provider disclosure	Nasdaq Reports Q4 and Full-Year 2025 Results	Q4/FY 2025	Index revenue and linked inflows	ir.nasdaq.com/node/109901/pdf	Provider economics
P15	Industry data	ICI Active and Index Investing, May 2026; 2026 Fact Book	May 2026	Indexed mutual fund and ETF assets	ici.org/research/stats/combined_active_index_0526	New/verified asset backdrop
P16	Fund filing	SPDR S&P 500 ETF Trust filing	Current filing	UIT structure and licensed index	sec.gov/Archives/edgar/data/884394/...	Implementation style
P17	Fund filing	iShares Core S&P 500 ETF prospectus / SAI	Current filing	Representative sampling and derivatives authority	ishares.com/us/literature/summary-prospectus/...	Implementation style
P18	Fund filing	Invesco QQQ prospectus	Current filing	Full replication under most circumstances	fundcompli.rightprospectus.com/documents/Invesco/P-QQQ-PRO-1.pdf	Implementation style
P19	Fund filing	iShares Core MSCI Total International Stock ETF prospectus	Current filing	Representative sampling	ishares.com/us/products/244048/...	Implementation style
P20	Rule change	S&P DJI Multi-Class Shares and Voting Rules Decision	31 Jul. 2017	New entrants excluded; grandfathering	press.spglobal.com/2017-07-31-...	Eligibility timeline
P21	Rule change	S&P Composite 1500 Share-Class Eligibility Consultation Result	17 Apr. 2023	Multi-class eligibility reopened	press.spglobal.com/2023-04-17-...	Eligibility timeline
P22	Governance	FTSE Russell Benchmark Administration: Governance and Conflicts	Current	Conflict register, separation, oversight committees	lseg.com/.../benchmark-administration-governance-and-conflicts-of-interest-management.pdf	Conflict controls
P23	Governance	MSCI Equity Benchmark Family Benchmark Statement / consultation policy	Current	EIC/IPC roles, consultations, benchmark usage	msci.com/.../msci-equity-benchmark-family-benchmark-statement.pdf	Conflict controls
P24	Index notice	Marvell Technology and Flex Set to Join S&P 500	5 Jun. 2026	Flex MidCap 400 deletion and S&P 500 addition	spglobal.com/spdji/.../1483743_shuffle546-june2026.pdf	New/verified migration case
P25	Index data	S&P 500 and S&P MidCap 400 index pages	30 Jun. 2026	Total market capitalizations	spglobal.com/spdji/en/indices/equity/sp-500/; /sp-400/	New/verified illustration inputs
P26	Fund data	Public ETF sponsor pages: SPY, IVV, VOO, IJH, MDY, SPMD	Jun.-Jul. 2026	Public ETF AUM snapshots	ssga.com; ishares.com; vanguard.com	Illustrative lower-bound layer
P28	Exchange/reconstitution	Russell 2026 Key Facts / June 2025 close statistics	2026	2025 NYSE and Nasdaq closing value	lseg.com/en/about-us/new-at-lseg/more-key-facts-ahead-of-the-2026-russell-us-indexes-reconstitution	Auction scale
A1	Academic	Greenwood & Sammon, “The Disappearing Index Effect”	Journal of Finance 2025 / revised 2023 WP	Tables 1-6; era returns, migrations, demand shocks	hbs.edu/ris/Publication Files/23-025_...pdf	Main modern event evidence
A2	Academic	Lynch & Mendenhall, “New Evidence on Stock Price Effects Associated with Changes in the S&P 500 Index”	Journal of Business 1997	Sample and announcement-to-effective results	pages.stern.nyu.edu/~alynch/pdfs/jb97lm.pdf	Historical chronology evidence

ID	Category	Source	Date/version	Exact pages/sections	URL	Use / status
A3	Academic	Madhavan, “The Russell Reconstitution Effect”	Financial Analysts Journal 2003	1996-2002 returns, close, forecast accuracy	hillsdaleinv.com/uploads/The_Russell_Reconstitution_Effect...pdf	Russell mechanics and arbitrage
A4	Academic	Kasch & Sarkar, “Is There an S&P 500 Index Effect?”	FRBNY Staff Report 484, 2011/2012	Matching and permanent-value conclusion	newyorkfed.org/medialibrary/media/research/staff_reports/sr484.pdf	Persistence and selection
A5	Academic	Chen, Noronha & Singal, “The Price Response to S&P 500 Index Additions and Deletions”	Journal of Finance 2004	Permanent/addition asymmetry argument	Journal source cited in D2	Competing mechanism
A6	Academic	Wurgler & Zhuravskaya, “Does Arbitrage Flatten Demand Curves for Stocks?”	Journal of Business 2002	Arbitrage risk and demand curves	ideas.repec.org/a/ucp/jnlbus/v75y2002i4p583-608.html	Demand-curve mechanism
A7	Academic	Wurgler, “On the Economic Consequences of Index-Linked Investing”	2011 survey	Mechanisms, beta, discount-rate cautions	pages.stern.nyu.edu/~jwurgler/papers/indexing13.pdf	Cost-of-capital framework
A8	Academic	Chang, Hong & Liskovich, “Regression Discontinuity and the Price Effects of Stock Market Indexing”	Review of Financial Studies 2015	Russell cutoff ownership/price identification	ideas.repec.org/a/oup/rfinst/v28y2015i1p212-246.html	Ownership and RD
A9	Academic	Ben-David, Franzoni & Moussawi, Russell assignment note	2019	Post-2006 banding and RD warning	afajof.org/wp-content/uploads/20191016-Note-for-JF.pdf	Identification limit
A10	Academic	Patel & Welch, extended S&P index-change returns	Modern long-window study	Reversion and permanent-demand tests	Source cited in D2	Persistence literature
S1	Institutional research	Research Affiliates, Tesla S&P 500 inclusion case	2021	Demand, volume, return path, 6-month reconstruction	researchaffiliates.com/publications/articles/...	Opening case estimates
S2	Journalism	Reuters, Tesla effective-day S&P inclusion report	18 Dec. 2020	S&P estimated buying and financing sales	reuters.com	Contemporaneous market report
S3	Journalism	Reuters, Tesla first day in S&P 500	21 Dec. 2020	Opening/closing decline and Apple news timing	reuters.com	Contemporaneous reversal report
S4	Provider research	S&P DJI, “What Happened to the Index Effect?”	2021	Median addition/deletion excess returns by era	spglobal.com/spdji/en/documents/research/research-what-happened-to-the-index-effect.pdf	Median corroboration