Predictable Demand and the Price of New Shares

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Abstract

Index funds must buy part of every new issue by firms they already hold, in amounts and on dates index rules set before the deal is priced. These purchases grew from about 2 percent of dollars raised in seasoned offerings in 2002 to nearly 16 percent in 2023. Firms selling into more of this scheduled demand sell at higher prices once the deal is public, and the issue-size discount nearly disappears among the most passively owned issuers, far beyond what removing the purchased shares from the market would give. Sales of existing shares show no such pattern. At Russell share updates turnover rises on the close, and in lower-priced issuers the price rises into it. A growing share of new equity sells into demand known in advance.

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1 Introduction

In 2002, index funds bought about 2 percent of the dollars that U.S. firms raised in seasoned equity offerings. In 2023 they bought nearly 16 percent (Table 1). These purchases are unusual among large trades in one respect. When a firm already in an index sells new shares, the funds that track the index must buy part of the issue, and the buyer, the amount and the date of that purchase follow from published rules and reported holdings before the deal is priced.

The purchase sits in the plumbing of indexing. An index fund holds what its benchmark counts, and the benchmark counts new shares only once the index provider updates the firm's share count. Providers recognize large offerings within days and leave the rest to scheduled updates, with thresholds and calendars published in advance, and each fund then buys in proportion to its holding at the close the rule names. On average, index funds buy about their pro-rata share of the new shares in the month the rules set. The event is a share update of a seasoned index member, with no membership news.

When index funds are known buyers of a firm's new shares, in a known amount at a known date, what price does the firm get, and who captures the value of that predictable demand? The answer could have gone several ways. If the market priced the purchase only when it is executed, the offer price would show no trace of it, and the close on which index funds buy would carry the whole price effect. If the purchase mattered only by removing the purchased shares from the supply other investors must absorb, the offer price would rise with it by no more than issue size lowers it. And if indexed stocks were simply easier to place, through their liquidity or their institutional base, any large block of such stocks would sell on the same terms, whether or not it carried new shares.

Measuring the price of the purchase is challenging because passive ownership goes with nearly everything else about a firm, its size, liquidity, visibility, institutional base and index segment. Four choices discipline the comparison. The price of the deal is measured from the firm's last close before the deal is public, so that price moves predating the news of the sale stay out of the outcome. Issuers are compared within index segments, through how the discount that grows with issue size varies with the scheduled purchase, because the segments' discounts differ for reasons of their own. The regressions control for issue size and passive ownership separately, and for liquidity, risk, other institutional ownership and issuer effects. And offerings of existing shares give a second price from the same buyers, who buy blocks by the same rule logic at their providers' float updates, with the recognition close as a third, separately measured price.

Four findings follow. First, the offer price rises with the scheduled purchase, and the issue-size

discount nearly disappears among the most passively owned issuers, far faster than removing the purchased shares from the market can explain. Second, both kinds of sale fetch higher prices in more passively owned stocks at the typical size, but only for new shares does that premium rise with the size of the sale; for blocks of existing shares it shrinks as the block grows, so the two size gradients have opposite signs, although index funds buy about their pro-rata share of both kinds of sale. Third, at Russell share updates the price rises into the recognition close in lower-priced Russell 2000 issuers, while S&P closes take the purchase on turnover without a price rise. Finally, valued as the price of the purchase, the offer-price loading is large next to the move at the close, and issuers' offering methods, sizes and spreads move little with passive ownership.

Per point of scheduled purchase, with one point meaning a scheduled purchase of new shares equal to 1 percent of the pre-offering shares, the offer price measured from the last close before the deal is public is about 1.6 log points higher, holding issue size and passive ownership fixed and letting the issue-size slope differ by index segment. The slope tells the same story. In the top quintile of passive ownership the issue-size slope is about a fifth as steep as in the bottom, and no longer distinguishable from zero. Had the purchase mattered only by removing those shares from the market, the loading on the purchase would offset the issue-size slope; instead the sum of the two is about 1.3, where supply removal gives zero. The loading survives issue size interacted with illiquidity, risk and book-to-market, controls for other institutional ownership, and issuer fixed effects. Hedge funds' and other institutions' ownership also flatten the issue-size slope, by less per point, even though hedge funds take up more than twice their pro-rata share of the new shares while index funds take about theirs, so the price loadings rank holders differently from their take-up. The part of the price between launch and the public time also loads. I report it and attach no reading to it; the estimate stands without it. By provider, the loading is on Russell funds' and on CRSP, MSCI and Nasdaq funds' purchases, while S&P 1500 funds' purchase loads negatively, a split of one loading that Section 4 sizes and leaves without an economic account.

Offerings of existing shares put a second price on the same demand. When a holder's block enters the float, the provider updates the float, and index funds buy about their pro-rata share of the block in the month of the family's float update, as they buy about their pro-rata share of new shares in the recognition month. Per point of scheduled purchase, the block price falls where the new-share price rises, a difference of about 3.3 log points per point. That is a difference in how each price moves with the size of the sale. At the median sale, a point of passive ownership goes with a block price about 0.3 log points higher and a new-share price about 0.1 higher. The difference survives the illiquidity terms, the ownership controls and the holder split, and within

issuer it keeps its sign and loses precision. The holders line up the same way on both sides, with hedge funds' ownership moving the two slopes as passive ownership does and other institutions' flattening both. The comparison rules out cheaper absorption of large blocks in indexed stocks as the source of the flatter discount, and it rules out the purchase quantity itself: both kinds of sale meet a pro-rata, rule-dated purchase, and only for new shares does the price rise with it.

A third price appears at execution. Within an offering and a calendar date, the two sessions ending at the recognition close load about 1.3 log points per point of scheduled purchase. The move is at Russell share-update closes, 1.8 per point, concentrated in lower-priced Russell 2000 issuers, and remains without the June closes of the annual reconstitution; S&P closes show turnover without a price rise, and turnover rises with the purchase in higher-priced stocks as well. Whether the move persists is undetermined; through ten sessions after the close the estimate is near zero, and only a move more than twice the two-session loading would have been detected. The purchases are share updates of seasoned issuers, never membership events, and no counterparty is named.

In dollars, the offer-price loading dwarfs the move at the close. Valued as if it were the price of the scheduled purchase, the offer-price loading comes to US$12.9 billion over the sample, about three fifths of what issuers paid underwriters in gross spreads, and US$8.7 billion, about two fifths, with the loadings estimated segment by segment; the two-session move at delayed recognition closes comes to US$160 million. The figures differ because the offer price applies to every share the firm sells, while the close move covers only the shares index funds buy at delayed closes. Both are scale calculations, conditional on reading each loading as the price of the purchase.

Issuers themselves show little detectable adjustment. Offering method, issue size and underwriting spreads show no economically large association with passive ownership, within reported minimum detectable effects, which bounds issuers' responses without proving their absence. The one response the data detect is that issue size follows the firm's pre-launch run-up at firms with little passive ownership and barely at firms with much, an association consistent with a scheduled buyer leaving less to gain from timing the issue's size to the price.

A little theory turns the comparison into a test. Because the purchases are pro rata, passive ownership drops out of both size slopes in any market-clearing condition: index funds take their share of either sale, and the remaining holders absorb the same proportional increase whatever passive ownership is. The opposite signs themselves then reject the accounts that work through quantities, since removing the purchased shares from supply would flatten both discounts at the

same rate and a purchase that never came would steepen both. In any demand system in which new shares do not reduce other investors' demand, a primary issue is also discounted no more than a block of the same size. The data violate that bound at low passive ownership, where new shares carry a discount of about 0.3 log points per point that blocks of the same size do not, and satisfy it above a crossing between 8 and 12 percent of passive ownership. The evidence does not identify what that low-ownership discount is. And the issue-size discount of new shares flattens far faster than any account that works only through the shares to be placed allows, which is at most about twice its own level: across index segments, with the common loading, it flattens at about 3.5 to 9.2 times that level. Three cases produce a flattening of that size. Recognition preserves indexed ownership, which my related paper values at about 1.4 percent of firm value per point and which predicts an excess about as large as the one measured; more capital comes to place an issue when part of it has a committed buyer at a known date; or the purchase changes what the issue reveals. The patterns lean loosely toward capacity, with a smaller loading in volatile markets, and the information case draws mixed support, with a larger loading where analysts' forecasts disagree more but no gradient in coverage for the issuer's size. The estimates do not choose among the three.

A natural concern is how far this evidence reaches. Passive ownership is not assigned by a design the firm cannot influence, so every offer-price result here is a conditional association, defended by the controls, the within-segment comparison, the split across holders and the comparison with existing shares, and no causal effect is claimed. The information case is tested only with standard analyst measures, which cannot separate it from placement capacity.

Read as the price of the purchase, the association matters on both sides of the market. For issuers, the passive share of the register would be part of what new shares are worth at the offer, and it has grown for two decades. For index funds, the cost measured at the close is small next to the offer-price figure, although the close figure leaves out fast purchases and the path from the offer to the close. For the debate on passive investing and corporate finance, the margin where indexing meets the firm includes the routine recognition of new shares by funds that already hold it, alongside the membership events the literature has studied.

This paper joins four strands of work, and the closest is on index demand in primary markets. Murray and Sammon (2026) show anticipated index demand reaching IPO terms, with CRSP's fast-track additions lifting eligible IPOs' aftermarket prices and the amounts they raise; Tamburelli (2024) finds that firms issue shares into S&P 500 inclusion to meet inelastic demand; Evans et al. (2024) relate ETF ownership to more seasoned offerings and smaller discounts. These

are the right comparisons, and the increment is sharp. The issuers here are already in the index, and the purchase is a share update with no membership news; against Evans et al. (2024), who also study seasoned issuers, the object is the scheduled purchase itself, with its structure against issue size and the supply-removal benchmark, the comparison with existing shares that the same funds buy, and the same purchase observed at its execution.

A second strand prices predictable index trades and asks who supplies the shares, from the index premium and its cost to index funds (Petajisto, 2011) to who clears the market when passive investors trade (Sammon and Shim, 2026a), the timing of index rebalancing (Sammon and Shim, 2026b), anticipatory trading around it (Pegoraro et al., 2026), and index share changes seen from inside an asset manager (Liu and Roberts, 2025). The increment is the issuer's side of the same predictability, the price firms receive for the shares index funds will buy, together with a dated execution at share updates across providers.

A third strand studies placement and the price of seasoned equity. Asquith and Mullins (1986) find that the announcement-day price reduction rises with the size of the offering, Masulis and Korwar (1986) document the announcement fall, and later work traces the discount to placement costs, liquidity, marketing and institutional investors (Corwin, 2003; Altınkılıç and Hansen, 2000; Butler et al., 2005; Gao and Ritter, 2010; Gustafson, 2018; Chemmanur et al., 2009). Against that benchmark, passive ownership enters as a known, dated buyer of the new shares, measured from the moment the deal is public, and the paper ranks holders by how much each flattens the issue-size discount, set beside what each takes up.

The fourth strand is downward-sloping demand and inelastic markets, from index events (Lynch and Mendenhall, 1997; Kaul et al., 2000; Madhavan, 2003; Greenwood, 2005) to demand systems and aggregate elasticities (Koijen and Yogo, 2019; Gabaix and Koijen, 2023; Haddad et al., 2025; van der Beck, 2026; Davis et al., 2026), with Wang (2025) correcting elasticity estimates for firms' issuance response to demand shocks. The purchase studied here has an amount and a date that follow from published rules at pricing, at share updates of seasoned members rather than membership changes or index redefinitions, and it is observed at the offer as well as at execution. No demand system is estimated.

Four boundaries hold throughout. Who sells to index funds at the recognition close is outside the paper, as are membership events, index premia and closing-auction mechanics. Passive ownership by provider follows Behmaram and Davis (2026), whose stock-level elasticities are taken as given. Index funds' required sales of spun-off firms are studied in Behmaram (2026b); the required trade here is a purchase dated by a share update. And passive ownership is not

assigned by the Russell 1000/2000 cutoff.[1] Section 2 describes the rules, the data and the primary market; Sections 3 to 8 give the evidence, Section 9 the interpretation, and Section 10 concludes.

2 Recognition rules and the primary market

An index fund holds the shares its benchmark counts. When a firm already in the index sells new shares, the benchmark counts them only once the index provider updates the firm's share count, and the fund buys on the close at which that update takes effect. The provider's rule therefore fixes the date of the purchase, and each fund's holding before the offering fixes its size. Both follow from published rules and reported holdings when the firm sells.

2.1 How index providers recognize new shares

Providers recognize large offerings promptly, within days of pricing, and leave everything else to a scheduled update. S&P recognized offerings of 5 percent or more of an S&P 1500 member's shares as soon as reasonably possible until March 2020 and has since recognized promptly only offerings of at least US$150 million and 5 percent of shares, or US$1 billion; smaller changes wait for its quarterly rebalancing on the third Friday of March, June, September and December. FTSE Russell had no prompt recognition before June 2017. Share changes above 5 percent entered at the next month end and smaller ones at the June reconstitution. Since June 2017 Russell has updated share counts at quarterly reviews and recognizes promptly only offerings of US$1 billion, or of 5 percent of index shares and US$250 million. CRSP, MSCI and Nasdaq follow rules of the same two-part form with their own thresholds and calendars. Appendix Table A1 lists the rules of each provider and period with their sources.

The firms are seasoned members of the index, so recognition updates a share count and does not by itself change membership. A single offering nonetheless produces several purchases. Funds that follow different providers buy on different closes, and a fund whose provider recognizes the offering promptly buys within days while another waits for the next scheduled update. I call the first purchase fast and the second delayed.

I reconstruct recognition from dated provider methodologies and implementation notices, applying each rule in the period it was in force rather than today's methodology throughout.[2]

[1] The cutoff (Chang et al., 2015; Appel et al., 2016) has a small first stage in passive ownership (Behmaram and Davis, 2026), and few offerings lie near it, so that design has no power for offer prices.

[2] FTSE Russell's January 13, 2017 announcement describes its move from month-end to quarterly share updates. Before 2017, the Russell pickup of smaller changes at the June reconstitution follows from the structure of its rules; the rule text does not state it. Where a dated rule or a required membership input is unavailable, the purchase is

Dates refer to the close at which index funds trade, so a change effective before the next open is assigned to the preceding close. CRSP and MSCI since 2015 and S&P since 2019 exclude forward sales from prompt recognition; the borrowed shares of a forward sale enter a later update once the issuer settles.

2.2 Offerings, ownership and the scheduled purchase

The offering records cover seasoned offerings of U.S. common stock priced from 2002 to 2023. SDC supplies dates, terms and the split between primary shares and shares sold by existing holders; linked EDGAR prospectuses add terms and offerings that SDC does not record. The primary component of an offering can include a forward sale, in which the terms are fixed at pricing and the issuer delivers new shares later.[3]

Index-fund ownership comes from fund holdings reports, following Behmaram and Davis (2026). Funds are identified by their index-investment style and assigned to providers through dated benchmark histories, which record benchmark changes; an ETF designation by itself does not make a fund passive. I distinguish six recognition groups whose funds share a recognition decision: S&P 1500, S&P completion, CRSP, Russell, MSCI and Nasdaq-100. The two S&P groups are separate because a firm's membership in the 1500 decides which S&P rule applies to its funds' holdings. Holdings assigned to other benchmarks, or without a classified status, enter neither the fast nor the delayed purchase. Let ϕ_{eg} be the ownership of funds in recognition group g, in percent of shares outstanding at the month end before offering e, N_e the primary shares the rules recognize, the base primary shares sold at pricing before any overallotment option, and S_e the shares outstanding before the offering. Index funds' scheduled delayed purchase, in percent of pre-offering shares, is

$$Q_e^D = \frac{N_e}{S_e} \sum_{g \in \mathcal{D}_e} \phi_{eg}, \tag{1}$$

where $\mathcal{D}_e$ collects the groups whose rule recognizes the offering at a later update. The fast purchase Q_e^F sums over the groups that recognize it promptly. Writing $x_e = 100N_e/S_e$ for issue size and Φ_e for the passive ownership of all recognizing groups, the scheduled purchase is

left without a date. Some rules leave the information date open; the construction then assumes confirmation at pricing or regular-way settlement. CRSP rules before its January 2014 guide were not read, and the construction applies that guide to 2011 to 2013.

[3]The Sempra Energy prospectus supplement for its July 2018 offering is an example. It describes an initial sale of borrowed shares and anticipated physical settlement with the issuer, permits cash or net-share settlement, and provides for direct delivery by the issuer if the forward sellers cannot borrow the shares. Original prospectuses separate the direct and borrowed components of 88 such arrangements in the offering records; the direct component enters the recognition rules at its own size and the borrowed component when settled.

$Q_e = Q_e^D + Q_e^F = x_e \Phi_e / 100$. It depends on the issue the firm chooses and on ownership it already has, so every regression conditions on issue size and on delayed and fast ownership separately. Positions that active funds hold in their benchmark's stocks enter as a separate control.

The estimation sample consists of 3,951 pure primary offerings by 1,912 issuers. Each has a delayed recognition close at least two sessions after pricing, an SDC launch date within ten trading days of pricing, and complete daily returns from the last close before launch through 60 sessions after the dominant delayed close. Appendix Table A2 lists the screens and the distributions. Three dates organize the analysis. L is the last close before the recorded launch, t_0 the first session after pricing, and T the dominant delayed recognition close, the close of the provider with the largest delayed purchase. The median offering sells 13.4 percent of its shares, and index funds are scheduled to buy 0.77 percent of its shares, at a median wait of 22 trading days.

The price of the deal is measured from the last close before the deal is public, in log points. A deal is public when EDGAR accepts its preliminary prospectus, and the last close before it is that day's close if the prospectus is accepted after the close and the previous close otherwise. The post-public offer price has two parts: the change from that close to the close before pricing, net of the CRSP value-weighted index, and the concession, the log of the offer price over the close before pricing. For 2,401 offerings the acceptance time is observed. Without it, the deal is taken as public at pricing when launch and pricing are at most one session apart (1,097 offerings, for which the measure is the concession alone) and at L otherwise (453 offerings). The offer price from launch is measured the same way from L, and its excess over the post-public offer price is the part before the deal is public (Appendix B). Returns after pricing are CRSP total returns net of the value-weighted market, and a window with a missing daily return is missing rather than zero. Unless a table states otherwise, standard errors are clustered by issuer and by month: the sale month for offer prices and issuers' choices, and the month of the recognition close for trading at that close.

2.3 The passive-era primary market

Index funds now buy a large slice of new seasoned equity. Table 1 and Figure 1 value index funds' purchases of the new shares at the offer price across all 10,221 primary and mixed seasoned offerings of the period. In 2002 they were 2.11 percent of the dollars firms raised; in 2023 they were 15.62 percent. Over the whole period they come to 9.40 percent of US$1,545 billion of proceeds, or US$145 billion. The scheduled part, which a reconstructed rule dates, is smaller:

fast purchases account for 5.15 percent of proceeds and delayed purchases for 2.76 percent. The rest belongs to funds whose benchmark carries no classified rule or whose recognition status is unknown, and before 2006 it is most of the total; in 2002, fast and delayed purchases were 0.00 and 0.17 percent of proceeds. Delayed purchases stayed below 1 percent of proceeds every year before 2007 and have ranged between 3.45 and 6.68 percent since 2016.

The wait grew with the rules. In the estimation sample, the median wait to the dominant delayed close lay between 13.5 and 16 trading days in every year from 2005 to 2016. It rose to 26 days in 2018, after Russell moved to quarterly share updates, and to 45 in 2020, after S&P raised its threshold for prompt recognition and abolished weekly updates. In 2023 it was 59 days.

The way firms sell new shares changed over the same years. Fully marketed offerings fell from 57.8 percent of offerings in 2002 to 11.8 percent in 2023, registered direct and best-efforts offerings rose from 3.2 to 37.0 percent, and at-the-market program starts rose from 4 to 399 a year. Section 8 asks whether these choices line up with passive ownership.

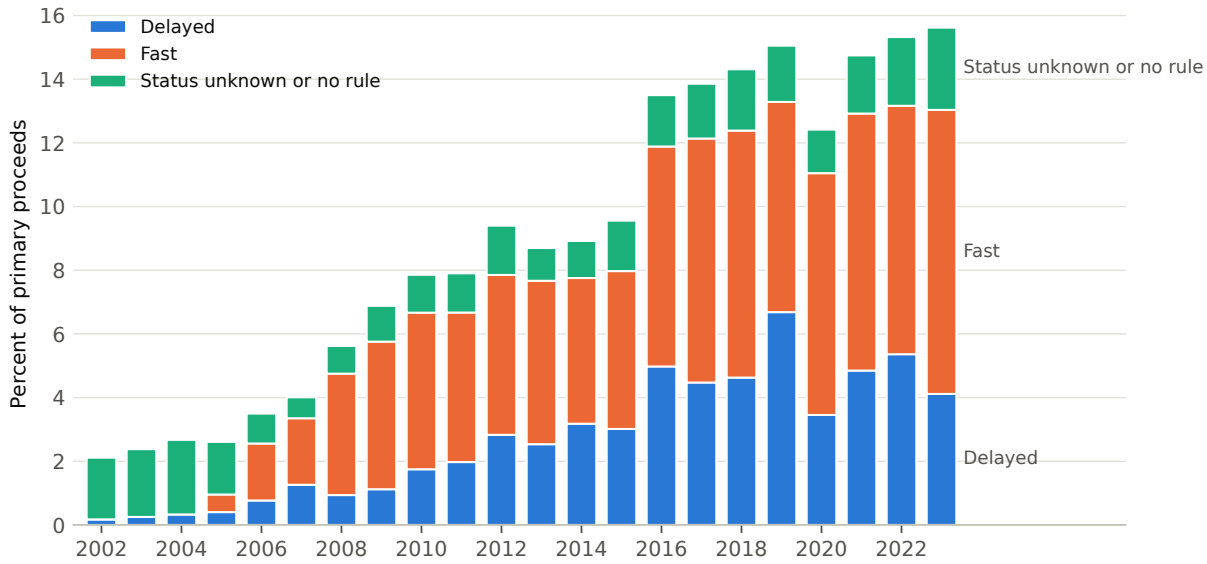

Figure 1. Index funds' share of new seasoned equity

Index funds' purchase of the new shares sold in seasoned offerings, in percent of primary proceeds, by pricing year, for the offerings of Table 1. Each provider's purchase is its funds' ownership share times the primary shares, valued at the offer price. Delayed purchases occur at a later close set by the provider's rule and fast purchases at the first eligible close after pricing; the top segment collects purchases whose recognition status is unknown or which no rule covers, most of the total through 2005. Table 1 reports the values.

Table 1. Seasoned equity offerings and index funds' purchases of new shares, 2002 to 2023

		Proceeds	Median (%)		Index purchase (%)			Main sample		Method (%)			ATM
Year	Offerings	(US$ bn)	Size	Passive	Fast	Delayed	All	Offerings	Wait	Marketed	Accelerated	Direct	starts
2002	308	46.5	12.8	1.5	0.00	0.17	2.11	2	79.5	57.8	36.4	3.2	4
2003	358	43.6	12.1	1.6	0.00	0.25	2.38	4	10.0	46.4	45.8	4.7	9
2004	392	45.9	12.2	1.5	0.00	0.33	2.67	3	17.0	49.2	39.5	7.4	5
2005	321	39.7	14.8	1.7	0.55	0.40	2.61	21	14.0	48.6	39.6	7.8	7
2006	346	42.5	13.0	1.8	1.79	0.77	3.50	73	15.0	44.8	42.2	11.3	13
2007	300	44.6	13.5	2.1	2.09	1.26	4.01	90	13.5	47.0	38.3	12.3	11
2008	229	126.1	10.8	4.5	3.81	0.94	5.62	101	16.0	25.3	57.6	11.4	25
2009	640	161.3	13.7	5.5	4.64	1.12	6.88	345	15.0	21.7	59.2	13.3	74
2010	523	66.8	13.7	3.7	4.92	1.75	7.86	230	14.0	26.8	53.3	14.7	78
2011	389	62.2	14.4	3.6	4.70	1.97	7.90	171	14.0	26.0	63.0	7.2	80
2012	413	50.8	13.2	3.9	5.02	2.83	9.40	195	14.0	22.8	66.1	7.0	94
2013	484	64.6	13.1	3.4	5.13	2.54	8.70	223	16.0	26.0	62.0	9.7	97
2014	466	61.1	13.0	2.8	4.58	3.18	8.92	171	16.0	33.7	55.8	8.4	94
2015	484	77.5	14.0	3.5	4.96	3.01	9.56	187	16.0	29.5	59.5	9.7	162
2016	460	76.1	13.1	5.7	6.91	4.98	13.50	255	16.0	15.7	70.2	12.0	177
2017	562	68.3	14.8	4.4	7.66	4.47	13.86	290	19.0	15.1	65.7	16.0	240
2018	523	71.8	13.8	4.6	7.76	4.63	14.31	243	26.0	14.9	72.1	10.7	238
2019	521	66.1	13.3	4.8	6.60	6.68	15.05	272	36.0	11.7	67.6	18.8	279
2020	841	130.5	14.3	3.6	7.59	3.45	12.42	375	45.0	9.6	65.0	22.0	496
2021	721	112.8	14.0	4.4	8.07	4.85	14.75	319	47.0	11.0	64.6	22.1	509
2022	364	38.8	12.7	4.8	7.80	5.36	15.32	147	55.0	12.1	58.2	25.8	409
2023	576	46.8	14.1	3.6	8.92	4.11	15.62	234	59.0	11.8	47.2	37.0	399
Total	10,221	1,544.6	13.6	3.2	5.15	2.76	9.40	3,951	22.0	24.6	57.7	14.5	3,500

Notes: The population is the 10,221 primary and mixed seasoned offerings of U.S. common stock priced from 2002 to 2023 with parsed terms, a plausible share basis, CRSP closes on the day before and the day of pricing, and shares outstanding. Proceeds are primary proceeds in nominal dollars. Size is the primary issue size, the primary shares in percent of shares outstanding; passive ownership is index funds' holdings across providers in percent of shares outstanding at the month end before the offering. The index purchase values at the offer price the new shares that index funds buy in proportion to their holdings, each provider's ownership share times the primary shares, in percent of primary proceeds. Fast purchases occur at the first eligible close after pricing and delayed purchases at a later close set by the provider's rule; together they are the scheduled purchase. All adds purchases whose recognition status is unknown or which no rule covers. Main-sample offerings and their median wait, in trading days from pricing to the dominant delayed recognition close, refer to the main sample of Appendix Table A2, which has fewer than 25 offerings a year before 2006. Methods, in percent of the year's offerings, follow the EDGAR structure of the final prospectus where one is linked and SDC's launch-to-issue clock otherwise: Accelerated includes overnight offerings, bought deals and blocks; Direct is a registered direct or best-efforts offering; rights offerings and unclassified structures, 3.2 percent of offerings over the period, are not shown. ATM starts count at-the-market programs by filing year. The Total row pools all years.

3 When index funds buy the new shares

On average, index funds buy about their pro-rata share of a firm's new shares, in the months the recognition rules set. That is the premise for treating the purchase as predictable when the firm sells, and Table 2 measures it.

The measure compares monthly changes in index-fund holdings with the purchase that would preserve each provider family's pre-offering position in proportion to the offering. For offering e, provider family g and month m, let Δh_{egm} be the change in holdings of the issuer's shares by funds that report in both adjacent months under the same family, as a fraction of pre-offering shares, and let h^{pre}_{egm} be those funds' holdings at their last report before the sale. With n_e the base primary shares, excluding the borrowed part of identified forward sales, divided by pre-offering shares, the pro-rata block is $h^{pre}_{egm} n_e$. For a timing cell $\mathcal{C}$, a set of offering, family and month triples that share a position on the recognition calendar, the reported ratio is

$$\mathcal{R}_{\mathcal{C}} = \frac{\sum_{(e,g,m)\in\mathcal{C}} \Delta h_{egm}}{\sum_{(e,g,m)\in\mathcal{C}} h^{pre}_{egm} n_e}. \tag{2}$$

The ratio aggregates position changes and pro-rata quantities before dividing, so a large ratio on a tiny initial holding cannot drive it.

The purchases arrive when the rules say they should (Panel A). Funds whose provider recognizes the new shares at a later update buy 1.031 times their pro-rata block in the month that contains the recognition close, after small fractions of it in the two months before and about a quarter of it in the pricing month. Funds whose provider recognizes the offering promptly buy 1.160 times the block in the pricing month. The pattern holds family by family, with S&P funds somewhat above their block in the recognition month, Russell funds somewhat below it and MSCI funds near it; the CRSP and Nasdaq rows rest on 264 and 18 offerings.

The adjacent months include the funds' ordinary flows. S&P funds already buy a fifth and a third of the block in the two months before their recognition month, so the recognition month is read against its neighbors, never against zero.

Monthly holdings cannot place the purchase on a day. For the 110 Russell offerings with daily index shares, the index side is visible at that frequency: indexed shares rise by at least half the block in 102 of them, and in 97 of those the rule date is the close before the rise (Panel B). Trading on the close itself, turnover and price, is the subject of Section 6.

Existing shares meet the same machinery (Panel C). When a holder sells a block and the shares enter the float, the provider updates the firm's float at a scheduled review. Index funds

then buy about their pro-rata share of the block in the month that contains their family's float-update close: 1.076 times the pro-rata float block, with each issuer's purchase at a close counted once, against 1.031 for new shares in Panel A. The neighboring months are small, between 0.032 and 0.198 of the block. A sale of existing shares is therefore followed by a scheduled, about pro-rata index purchase of its own, dated by the same kind of rule, and Section 5 prices the two sales side by side.

These ratios say how much index funds buy on average and in which month, and no more. They are aggregates, so they leave room for funds that trade early or late; the dates come from a reconstruction of published rules, with its assumptions stated in Section 2; and who sells the shares the funds buy is outside the paper.

Table 2. Index funds' purchases of new and existing shares

Panel A. Monthly index-fund purchases / pro-rata block, main sample						
Month relative to month 0	−2	−1	0	+1	+2	Offerings
Delayed, recognition month	0.099	0.170	1.031	0.264	0.193	2,695
S&P Dow Jones funds	0.197	0.330	1.359	0.332	0.301	1,636
FTSE Russell funds	0.023	0.066	0.803	0.223	0.121	1,632
MSCI funds	0.165	0.308	1.206	0.303	0.240	1,402
CRSP funds	0.427	0.211	1.690	0.245	0.390	264
Nasdaq funds	−0.151	2.839	1.748	0.092	0.591	18
Delayed, pricing month	0.212	0.206	0.240	0.446	0.516	2,695
Fast, pricing month	0.134	0.153	1.160	0.211	0.216	3,589
Panel B. Russell recognition dates in daily index shares						
Scheduled-proxy offerings with daily Russell index shares						110
with an observed increase of at least half the block; rule date is the close before it						102 / 97
Panel C. Monthly purchases / pro-rata float block, pure secondaries						
Month relative to month 0	−2	−1	0	+1	+2	Offerings
Delayed, float-update month	0.145	0.032	1.076	0.198	0.147	1,293
sales that raise the CRSP float	0.135	0.019	1.046	0.195	0.130	1,026

Notes: Panel A divides summed monthly changes in index-fund holdings of the issuer's shares by the summed pro-rata block (each fund's pre-offering holding times relative issue size, excluding borrowed forward shares), for funds reporting in both adjacent months under the same provider family; the ratios are aggregates, not averages of offering ratios. Delayed rows use funds whose provider recognizes the new shares at a later update; month 0 contains that provider's recognition close (first six rows) or is the pricing month (last two). Offerings are counted in month 0. Panel B covers main-sample Russell scheduled-proxy offerings priced from March 2018 to March 2020 with daily index shares; the observed date is the first record at which indexed shares rise by at least half the expected block, at least five sessions after pricing, and the comparison close is the session before it. Panel C applies the Panel A construction to the 1,517 pure secondaries of Table 4, which add no shares: each fund's pro-rata purchase is its holding before the sale month times the block over the CRSP float of the month before the sale, and month 0 contains the provider's float-update close set by its rules, for providers that update floats one to twelve months after the sale month (FTSE Russell before its June 2017 rules at the June reconstitution). Sellers often sell several blocks before one close, so each issuer's purchase at a close is counted once, over the pro-rata blocks of all its sales dated to that close (1,839 closes). The second row keeps the sales that raise the float in CRSP's float shares. Table 5 reports turnover on the recognition closes, and Table 6 how holdings change around the sale.

4 The offer price and the scheduled purchase

When index funds are scheduled to buy more of a firm's new shares, the firm sells those shares at a higher price relative to its last close before the deal is public, and the discount that grows with issue size nearly disappears among the most passively owned issuers. This section establishes that fact, sizes it, shows that it exceeds what taking the purchased shares off the market would give, and answers the concerns a reader raises first. The variation is in the product of issue size and passive ownership, holding each fixed and letting the issue-size slope differ across index segments. The comparison needs one assumption, stated here once: given the controls, nothing else that lowers the issue-size discount scales with passive ownership within an index segment. Section 5 tests the leading alternative, that indexed stocks absorb any block more cheaply.

The outcome is the offer price measured from the issuer's last close before the deal is public: the market-adjusted move from that close to the close before pricing, plus the concession, the log of the offer price over the close before pricing (Section 2; Appendix B). Starting at the public time is what makes this the price of the deal. The part of the price before the deal is public cannot be the market's response to a purchase the market does not yet know about, so it stays out of the outcome and is reported separately below.

For offering e in segment $s(e)$, quarter $q(e)$ and industry $k(e)$, the regression is

$$R_e^{\text{post}} = \beta_Q \, Q_e + g(x_e) + \delta_{s(e)} + \gamma_{s(e)} \, x_e + \lambda' Z_e + \alpha_{q(e)} + \alpha_{k(e)} + u_e, \tag{3}$$

where $Q_e = x_e \Phi_e / 100$ is the scheduled purchase of equation (1), g collects issue size in linear, logarithmic and squared form and its product with centered log market capitalization, δ_s and γ_s are the intercept and issue-size slope of the issuer's index segment in the month before pricing (S&P 1500 member, otherwise Russell 1000, otherwise Russell 2000, otherwise other), and Z_e holds delayed and fast passive ownership, log market capitalization at launch, an accelerated-offering indicator and active funds' benchmark ownership, with calendar-quarter and Fama-French 48 industry effects. Standard errors are clustered by issuer and by sale month. The segments get their own issue-size slopes because they differ in placement technology, investor base and recognition rule, so the comparison should run among issuers whose shares the same kind of index buys. Issue size is the base primary issue at pricing, set together with the offer price. β_x denotes the issue-size slope with no passive ownership at the median issue, averaged over segments by their shares of offerings.

Per point of scheduled purchase, the post-public offer price is 1.575 (0.466) log points higher

(Table 3, Panel A), with standard errors in parentheses here and throughout. One point of scheduled purchase means index funds are scheduled to buy new shares equal to 1 percent of the pre-offering shares. Section 7 puts the loading in dollars.

The loading exceeds what removing the purchased shares from the float would give. If the purchase mattered only by taking Q shares out of what other investors must absorb, with the valuation fixed, the loading on the purchase would offset the issue-size slope, and $\beta_x + \beta_Q$ would be zero; the sum is 1.274 (0.436). Behind it, the issue-size slope at the median issue is -0.300 log points per point of issue size with no passive ownership, and across the interquartile range of passive ownership it flattens by about two fifths (Panel A). Section 9 turns the ratio of the two loadings into a test of what committed demand can do.

Two companion rows in Panel A place the estimate in the whole window from launch. The part of the offer price before the deal is public loads 0.739, and the offer price from the pre-launch close, the sum of the two parts, loads 2.314. I report the pre-public part so that the reader sees the whole window and attach no reading to it. The post-public estimate stands without it. With the pre-public part as a control, the loading is 1.597, and it lies between 1.397 and 1.589 with market-adjusted returns before launch added, with the float share and its product with issue size among the controls, and on the 2,401 deals whose public time is observed, where the outcome never falls back on the concession or the offer price from launch (Appendix Table A9, Panel D).

The issue-size slopes themselves differ across segments, which is why the comparison belongs within them. With no passive ownership, the slope is steepest where passive ownership is highest: -0.486 among S&P 1500 members, where passive ownership averages 14.2 percent, down to -0.185 among firms outside the S&P 1500 and the Russell 3000, where it averages 2.8 percent. Across segments, more passive ownership comes with a steeper issue-size slope; within a segment, it comes with a flatter one. Appendix Tables A9 (Panel A) and A12 report the specification with one issue-size slope for all segments and the loadings estimated segment by segment. Without the 800 offerings by issuers outside the S&P 1500 and the Russell 3000, small firms with a median market capitalization of US$73 million at launch, the loading is 1.138 (Appendix Table A9, Panel D).

Both parts of the outcome carry the loading (Appendix Table A6, Panel A). Per point of scheduled purchase, the market move between the public time and pricing rises 0.589 log points and the concession 0.986.[4]

Panel B of Table 3 varies the specification one concern at a time, and the loading stays

[4]For 1,097 offerings launched within a session of pricing and without an observed public time, the outcome is the concession alone (Appendix B).

between 0.993 and 1.714 per point across columns 2 to 5. Liquid, low-risk stocks absorb blocks more cheaply (Corwin, 2003; Butler et al., 2005), so column 2 adds issue size times Amihud illiquidity, idiosyncratic volatility and log book-to-market. Institutional ownership of any kind eases placement (Chemmanur et al., 2009; Gibson et al., 2004), so columns 3 and 4 add institutional ownership and its product with issue size; with the two loadings separate, non-index institutional ownership flattens the issue-size slope at 0.304 per point, about a quarter of passive ownership's loading in that column. Column 3's estimate is close to the excess per point of passive over other institutional ownership, and it is positive and statistically significant. Issuers that sell into high passive ownership may differ in ways no control captures, so column 5 estimates the loading within issuer, on issuers with two or more offerings.

Columns 6 to 8 estimate column 2 by period. The loading is present in 2009 to 2015, 1.501, largest from 2016, 3.217, and imprecise before 2009, on 284 offerings. The later period also brought the 2017 and 2020 rule changes, the rise of registered direct offerings and the 2020 to 2021 issuance wave (Table 1), and I do not tie the difference across periods to the size of the purchase.[5]

The loading leans on low-priced issuers, and the comparison with blocks does not. Under the sample screens of the closest papers, a price of at least $3 before launch, as Corwin (2003) requires of the offer price, and a market value of at least US$75 million, as Gao and Ritter (2010) require, the loading is 0.760 and 1.039, and 0.677 under both (Appendix Table A11, Panel A). Neither paper, nor Khan et al. (2012), screens on a $5 price; split there, the loading is 4.437 below it and 0.554 at or above it. As a slope common to every issuer, then, the lead depends on low-priced issuers, and the claim of this paper is the comparison of Section 5. Few blocks are priced that low, the block loading moves little under any screen, and the difference between the two survives each. By Amihud illiquidity tercile, the new-share loading shows no liquidity gradient among issuers at or above that price, while the steepening for blocks sits in the least liquid tercile (Panel B).

Figure 2 shows the shape of the flattening. Estimated by quintile of passive ownership, the issue-size slope rises from -0.321 in the bottom quintile to -0.066 in the top, with quintiles 2 and 3 close (Appendix Table A8, Panel A). In the top quintile, at a mean passive ownership of 17.2 percent, the issue-size discount is no longer distinguishable from zero. Supply removal would flatten the slope by about a sixth there. The squares are the blocks of existing shares of

[5]Issuers also time offerings to past returns and to price pressure from mutual fund flows (Khan et al., 2012). With market-adjusted returns over five windows before launch as controls, the loading is 1.506 (Appendix Table A8, Panel C).

Section 5, whose slope moves the other way.

Index funds are one holder among several, so the next question is whether any committed or habitual buyer flattens the discount the same way. Appendix Table A13 splits institutional ownership other than index funds into other funds, hedge funds, other institutions, and the five largest index managers' 13F holdings net of their own funds, which are mostly institutional index accounts. Per point of ownership times issue size, index funds' purchase loads 1.340 and hedge funds' ownership 0.560; other institutions load less than hedge funds per point, while other funds and the index managers' institutional holdings load nothing distinguishable from zero. Counting the index managers' institutional holdings with index funds in one committed purchase only lowers the loading (Panel C). Holders who take up new shares in seasoned offerings, hedge funds above all, also flatten the issue-size slope, by less per point than index funds' purchase, and institutional index accounts measured this way add nothing to it.

The quantities each holder takes sit beside these loadings (Appendix Table A14). At the first quarterly report after the sale, index funds hold 0.130 of each new share, against ownership of 0.122 before it, about their pro-rata share. Hedge funds hold 0.193 against prior ownership of 0.075, more than twice theirs, and other funds also take more than their share while showing no loading. The price loadings therefore do not rank holders by how much of the issue they take up. Section 9 uses both rankings.

By provider, the loading is on Russell funds' purchase, 4.000, and on CRSP, MSCI and Nasdaq funds', 1.381, while S&P 1500 funds' purchase loads −2.904 (Appendix Table A7, Panels A to D). First, the S&P 1500 and Russell purchases fall on the same firms, and the total scheduled purchase loads the same at S&P 1500 members, 1.461, as at other firms, 1.434, so the sign is a split of one loading between providers that buy the same firms' new shares. Second, the negative part is the delayed S&P 1500 purchase, and its precision comes from 41 accelerated offerings of at least 5 percent of shares that S&P's 2020 dollar test sends to the quarterly update; without them the delayed loading keeps its sign and loses precision, and β_Q is little changed. Nor is the sign a matter of forward sales, whose borrowed shares enter a later update: the delayed loading is essentially unchanged without the 86 offerings whose final prospectus describes one, and with the borrowed shares of the reviewed forward sales counted as a delayed purchase (Panel D). It also keeps its sign and precision with S&P's and Russell's dollar tests evaluated at the value before launch, so that the offer price does not enter the classification. Third, I offer no economic account of the sign and report it as the one provider group whose purchase does not load with the others.

Two splits describe when the loading is larger, and Section 9 uses both as patterns. The loading is larger when market volatility before launch is at or below its median, 2.025, than above it, 1.042, and larger on fast purchases, recognized within days, than on delayed purchases (Appendix Table A8, Panels B and C). Neither difference is statistically significant.

The estimate is similar with standard errors clustered by issuer and recognition month and in the interaction form with issue size and passive ownership entered separately (Appendix Table A9, Panels B and C).

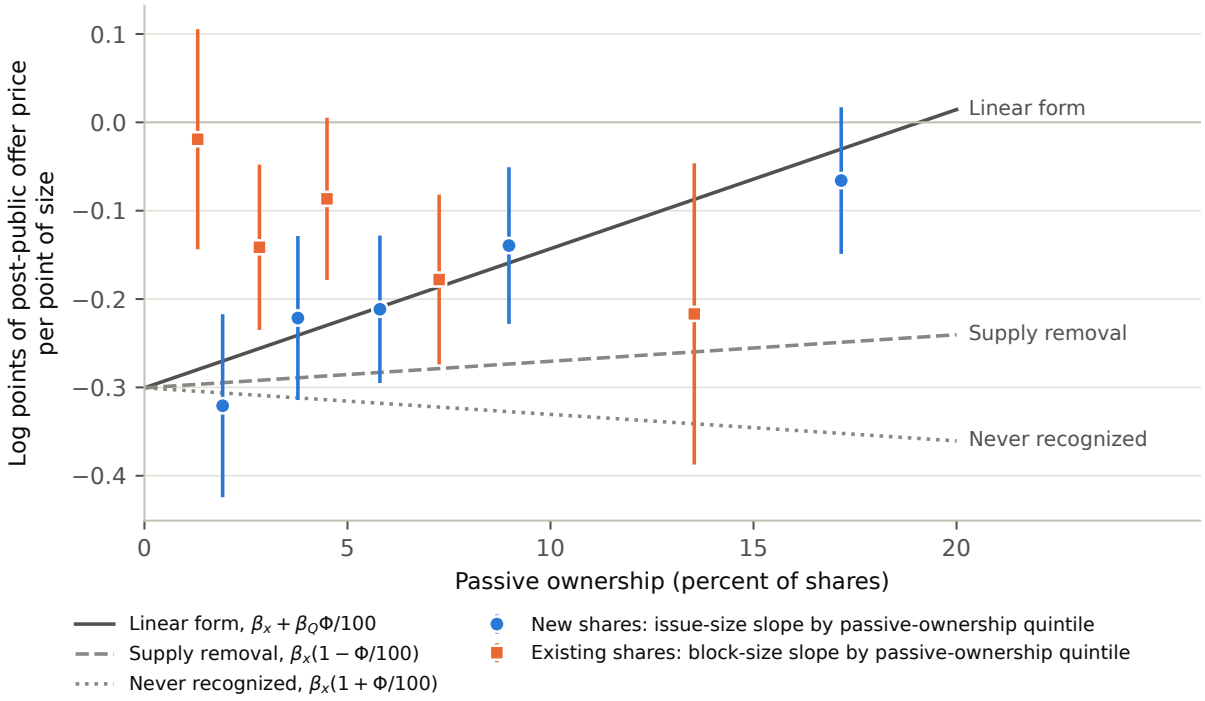

Figure 2. The size slope by passive ownership: new and existing shares

Circles: the issue-size slope of the post-public offer price at the median issue for primary offerings in one quintile of passive ownership, plotted at the quintile's mean passive ownership, with a 95 percent confidence interval, with segment-specific issue-size slopes (Appendix Table A8, Panel A). Squares: the same regression on the pure secondary offerings of Table 4, with quintiles of passive ownership among secondaries and the slope in block size at the median block. The lines refer to new shares. The solid line is the slope implied by the one-loading form of Table 3, Panel A, $\beta_x + \beta_Q \Phi/100$. The dashed and dotted lines scale the slope without passive ownership, β_x, by the share of the issue left to other investors if index funds take their pro-rata part ($1 - \Phi/100$, supply removal) and by the share of the remaining float the issue adds if index funds never buy ($1 + \Phi/100$, never recognized).

Table 3. The offer price and scheduled index demand

Panel A. One loading on the scheduled purchase

	Scheduled purchase	Issue size	Sum	Issue-size slope at passive ownership (%) of		
	β_Q	β_x	$\beta_x + \beta_Q$	3.4	5.8	10.0
Post-public offer price	1.575	−0.300	1.274	−0.247	−0.209	−0.143
	(0.466)	(0.047)	(0.436)	(0.038)	(0.034)	(0.037)
Pre-public part	0.739	−0.055	0.684	−0.030	−0.012	0.019
	(0.224)	(0.020)	(0.216)	(0.018)	(0.018)	(0.022)
Offer price from launch	2.314	−0.356	1.958	−0.278	−0.222	−0.124
	(0.484)	(0.052)	(0.453)	(0.044)	(0.041)	(0.044)

Panel B. The loading of the post-public offer price on the scheduled purchase, β_Q, across specifications

		Illiquidity	13F	Non-index	Issuer	Column 2 by period		
	Baseline	terms	ownership	ownership	effects	2002–08	2009–15	2016–23
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Scheduled purchase, β_Q	1.575	1.714	0.993	1.279	1.401	1.331	1.501	3.217
	(0.466)	(0.459)	(0.456)	(0.441)	(0.574)	(1.939)	(0.613)	(0.893)
13F × size/100			0.299					
			(0.086)					
Non-index × size/100				0.304				
				(0.086)				
Issue size × illiquidity terms	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Issuer effects	No	No	No	No	Yes	No	No	No
Offerings	3,951	3,710	3,709	3,709	2,922	284	1,449	1,977
Issuers	1,912	1,809	1,809	1,809	883	212	834	1,123

Notes: Main sample. The post-public offer price, in log points, is the change from the last close before the deal is public to the close before pricing, net of the CRSP value-weighted return, plus 100 log of the offer price over the close before pricing; a deal is public when EDGAR accepts its preliminary prospectus (Section 2). The offer price from launch starts at the pre-launch close, and the pre-public part is the difference. The scheduled purchase $Q = x\Phi/100$ is primary issue size x, in percent of pre-offering shares, times the ownership Φ of index funds whose providers recognize the new shares, so β_Q is 100 times the coefficient on $x \times \Phi$. Controls are primary issue size, its logarithm and square, issue size interacted with centered log market capitalization, delayed and fast passive ownership, log market capitalization at launch, an accelerated-offering indicator, and active-fund benchmark ownership, with calendar-quarter and FF48 industry effects. Every regression adds indicators for the issuer's index segment in the month before pricing (S&P 1500 member, the base; otherwise Russell 1000; otherwise Russell 2000; otherwise other) and their products with issue size. β_x is the issue-size slope without passive ownership at the median issue of 13.4 percent of shares, averaged over segments by their shares of offerings; the slope columns give $\beta_x + \beta_Q\Phi/100$ at the 25th, 50th and 75th percentiles of passive ownership. If the purchase only removed Q shares from a demand curve $p/v = (1 + x - q)^{-1/\varepsilon}$, the sum would be zero. In Panel B, column 2 adds issue size times centered Amihud illiquidity, idiosyncratic volatility and log book-to-market, with their levels; columns 3 and 4 add to it gross 13F ownership or non-index ownership (13F less index funds' holdings) and its product with issue size, so column 3's β_Q is close to the excess per point of passive over other institutional ownership (on its sample, column 2 gives 1.714 (0.460)); column 5 uses issuer effects, on issuers with at least two offerings; columns 6 to 8 estimate column 2 by period. Appendix Table A9 reports the specification with one issue-size slope for all segments. Standard errors in parentheses are clustered by issuer and sale month.

5 New shares and existing shares

Index funds buy existing shares by the same rule logic that dates their purchase of new shares. When a holder sells a block and the shares enter the float, the index provider updates the firm's float at a scheduled review. The funds then buy about their pro-rata share of the block in the month of that update (Section 3; Table 2, Panel C). A pure secondary offering therefore sells blocks of the same stocks, through the same offering machinery, into the same kind of rule-dated purchase. What it lacks is the issue: the firm adds no shares and raises no cash. The two kinds of sale give two prices for one demand, and if what the scheduled purchase does at the offer came from the purchase itself, or from how indexed stocks absorb any large block, it would appear in both.

It appears in one. Of the pure secondaries in the offering records, 1,517 pass the main-sample screens (Table 4, notes). Size is the shares sold in percent of shares outstanding, and the scheduled purchase is size times passive ownership over 100. The outcome is the post-public offer price measured as for primaries, and the regressions are those of Table 3, columns 1 and 2, with segment-specific size slopes in each sample.[6] Passive ownership flattens the size discount of new shares and steepens that of blocks (Panel A). Per point of scheduled purchase, holding size and passive ownership fixed, new shares sell 1.576 log points higher, blocks of existing shares 1.721 log points lower, and the difference is 3.297 (0.965). The block loading on its own is marginal, with an interval that reaches toward zero, and I do not treat it as a result by itself; the fact is the difference.

The size slopes without passive ownership order the two sales the other way. At each sample's median sale, the slope is -0.300 log points per point of size for new shares and -0.029 for blocks. At low passive ownership, then, new shares carry a size discount that blocks of the same size, sold to the same holders, do not; Section 9 states that gap, -0.272 (0.070), as a bound (Table 8, Panel A). Figure 2 shows the two shapes. By quintile of passive ownership within each sample, the size slope of new shares rises toward zero as in Section 4, while the block slope falls from -0.019 to -0.217, and the blocks' top quintile averages 13.5 percent passive ownership, against 17.2 for new shares. The two parts of the price agree: for new shares the loading is in the market move after the deal is public and in the concession, and for blocks both parts are negative (Panel A, columns 3 and 4).

The loadings are gradients, and the levels behind them differ. The same regressions carry

[6]The primary sample also requires a delayed recognition close and returns through $T+60$, screens the secondaries do not face (Appendix Table A2). In Table 4 the market move after the deal is public is built from daily returns in both samples, so the primary estimates differ slightly from Table 3.

delayed and fast passive ownership among their controls. For blocks these level terms are large and positive, 0.399 and 0.532 log points per point of passive ownership, against −0.072 and −0.086 for new shares (Appendix Table A10). At each sample's median sale, a point of passive ownership goes with a block price 0.315 (0.062) log points higher and a new-share price 0.133 (0.048) higher, so both kinds of seller sell higher in more passively owned stocks at the typical size. For blocks that premium is a level that shrinks as the block grows and is indistinguishable from zero at a quarter of the shares outstanding; for new shares it is about zero for a small issue and rises in proportion to the scheduled purchase. The block level holds on blocks that raise the float and on those that leave it unchanged. I offer no account of it and build nothing on it; the comparison drawn here is between the two size gradients.

The difference survives the battery (Panel B). Size interacted with illiquidity, idiosyncratic volatility and book-to-market answers the concern that liquid, low-risk stocks place blocks more cheaply. Non-index institutional ownership and its product with size answer the concern that institutions of any kind ease placement, and that ownership flattens the size slope of both kinds of sale by amounts that do not differ detectably. The third column splits that ownership into the holder groups of Appendix Table A13. Across the three columns the difference runs from 2.518 to 2.870. Within issuer, with issuer and year-quarter effects on repeat issuers in each sample, it is 1.500, the right sign and imprecise.

The holder split separates who moves which slope. Per point of ownership times size, hedge funds load 0.560 on new shares and −0.590 on blocks, moving the two slopes the way passive ownership does, while other institutions flatten both, 0.328 and 0.288. One might read the hedge-fund rows as composition, hedge funds selling the blocks and buying the new issues. Their take-up says otherwise: at the first report they hold 0.189 of each existing share sold against ownership of 0.088 before the sale, much as they do after sales of new shares (Appendix Table A14). I offer no account of the hedge-fund rows.

Blocks and new shares are mostly sold by different firms, and the two designs that hold the firm fixed are both imprecise: the within-issuer column above, and mixed offerings, which sell new and existing shares in one deal at one price. With both scheduled purchases in one regression, the within-deal difference is 0.660 on the deals that meet the main screens and 2.950 on those without the provider-status requirement (Appendix Table A15). The minimum detectable differences, 7.375 and 5.727, sit well above the difference in the pure samples, so the within-deal test is too imprecise to tell.

The block loading itself has few handles. It does not grow with the block's wait to the float

update: −1.730 at no wait, and 0.038 per quarter of wait (Appendix Table A19, Panel B). A cost of carrying the block to the purchase would put the loading near zero at no wait and let it grow with the wait, so carrying cost does not account for it. Russell's June 2017 move from annual to quarterly float updates shortened most waits, and the change in the Russell part of the loading around that date is not determined, with a difference in differences of −2.830 (3.704) (Panel C). The steepening appears for every type of seller: financial sponsors, corporate sellers, insiders and others.

Neither price reverses detectably after the sale. From the last close before the deal is public, no reversal of either loading is detected within sixty sessions, and the difference between the two does not shrink, standing at 6.279 (2.657) at $t_0 + 60$ with independent-samples standard errors (Appendix Table A19, Panel A). What does reverse is common to both. At low passive ownership, both kinds of sale carry a temporary size concession that is gone within twenty sessions: the return from the offer price rises with size by 0.261 log points per point for new shares and 0.231 for blocks through $t_0 + 20$.

This comparison is hard to reconcile with explanations under which indexed stocks absorb large blocks more cheaply: it holds the stocks, the funds and the rules fixed, and the two size gradients have opposite signs. It also rules out the purchase itself as the explanation, because both kinds of sale meet a pro-rata, rule-dated purchase and only for new shares does the price rise with it; what is specific to new shares carries the result. The leading candidate is what a primary issue reveals about the firm (Myers and Majluf, 1984). The classic issue-size evidence operates once the deal is public: Asquith and Mullins (1986) find that the announcement-day price reduction rises with the size of the offering, and Masulis and Korwar (1986) document the price fall at announcements of seasoned sales; the outcome here starts when the deal is public, so the comparison sets the two kinds of deal from the same point. Section 9 states the comparison as a bound, that in a broad class of demand systems a primary is discounted no more than a block of the same size, and brings analyst measures to the information question.

Table 4. New shares and existing shares

	Post-public offer price		Market move	
	Baseline (1)	Illiquidity terms (2)	after the deal is public (3)	Concession (4)
Panel A. Primary and pure secondary offerings				
Primary offerings, β_Q	1.576	1.715	0.646	1.069
	(0.467)	(0.461)	(0.339)	(0.366)
Secondary offerings, β_Q	−1.721	−1.155	−0.614	−0.541
	(0.804)	(0.798)	(0.581)	(0.493)
Primary minus secondary	3.297	2.870	1.260	1.610
	(0.965)	(0.963)	(0.660)	(0.646)
Minimum detectable effect, secondary	2.253	2.235	1.626	1.380
Offerings, primary	3,951	3,710	3,710	3,710
Offerings, secondary	1,517	1,283	1,283	1,283
Panel B. The post-public offer price: other holders and issuer effects				
	Illiquidity terms	Non-index ownership	Holder split	Issuer effects
Primary offerings, β_Q	1.715	1.279	1.340	0.753
	(0.461)	(0.442)	(0.476)	(0.539)
Secondary offerings, β_Q	−1.155	−1.353	−1.177	−0.747
	(0.798)	(0.754)	(0.758)	(1.010)
Primary minus secondary	2.870	2.632	2.518	1.500
	(0.963)	(0.924)	(0.940)	(1.175)
Non-index × size/100: primary		0.304		
		(0.087)		
Non-index × size/100: secondary		0.150		
		(0.119)		
Non-index × size/100: difference		0.154		
		(0.152)		
Hedge funds × size/100: primary			0.560	
			(0.195)	
Hedge funds × size/100: secondary			−0.590	
			(0.222)	
Hedge funds × size/100: difference			1.150	
			(0.290)	
Other institutions × size/100: primary			0.328	
			(0.170)	
Other institutions × size/100: secondary			0.288	
			(0.157)	
Other institutions × size/100: difference			0.040	
			(0.249)	
Offerings, primary	3,710	3,709	3,709	2,922
Offerings, secondary	1,283	1,283	1,283	1,086

Notes: A pure secondary offering sells existing shares only. For secondaries the β_Q row is the coefficient on secondary size, in percent of shares outstanding, times passive ownership over 100, in the units of β_Q; the specification is otherwise that of Table 3, column 1 in column 1 and column 2 in columns 2 to 4, with segment-specific issue-size slopes in each sample. Of the 2,308 pure secondaries in the event file's price layer, 1,517 pass the main-sample screens: prices, returns and provider holdings around the offering, unflagged terms, an SDC launch within ten trading days of pricing, complete prices over the launch window, and positive passive ownership by providers with a known rule. The post-public offer price is measured as in Table 3 in both samples, with the market move after the deal is public taken from daily returns: where it starts at the pre-launch close it is the market-adjusted sum of daily log returns to the close before pricing, so the primary estimates differ slightly from Table 3. Columns 3 and 4 add up to column 2. Primaries and secondaries are stacked with sample-specific coefficients and fixed effects, so the point estimates equal separate regressions; standard errors, in parentheses, are clustered by issuer and sale month across both samples. The minimum detectable effect is 2.80×SE. In Panel B, the first column repeats Panel A, column 2. The second adds non-index institutional ownership (13F institutions less index funds) and its product with size over 100, centered within each sample. The third splits it into other funds, index managers outside their index funds, hedge funds and other 13F institutions, each with its product with size (the first two not shown), on primaries with the holder data of Appendix Table A13. The fourth uses issuer and year-quarter effects, on repeat issuers in each sample, with one size slope and without the illiquidity terms.

6 The purchase at the recognition close

The scheduled purchase of Section 4 is executed at the recognition close, and two facts show it. Turnover rises with the purchase on the close, and at Russell share updates the price of lower-priced issuers rises into it. Each observation is an offering and one of its distinct delayed recognition closes T_h, so offering effects compare the closes of the same offering, and calendar-date effects absorb returns and turnover common to all stocks on a rebalancing close (Table 5).

Turnover on the close rises with the purchase scheduled for it: within an offering, by more than the purchase; within an offering and date, by about the purchase, 1.414 percentage points of shares outstanding per point (column 1, Panels A and B). The turnover is on S&P and Russell closes, and on neither CRSP nor MSCI closes (Panel C).

Within offering and date, the two sessions ending at the recognition close load 1.309 (0.448) log points per point of scheduled purchase (Panel B, column 4). The session before the close carries the larger part (column 2; Figure 3, Panel A), and within offering only the estimate is larger and less precise (Panel A).

The price move comes from lower-priced issuers in the Russell 2000. At a pre-launch price of \$10 or more the two-session loading is −0.502, and in one regression on all closes it is 1.781 (0.830) larger below that price than above. By the issuer's index segment, the move is in the Russell 2000 and not detectable among S&P 1500 members (Appendix Table A18). Turnover still rises with the purchase in those higher-priced issuers, by 1.357 percentage points per point.

The move is at Russell share-update closes, 1.800, in the Russell 2000. S&P closes show turnover, 1.571, without a price rise over those two sessions (Panel C); over the window through ten sessions after the close, the S&P coefficient is −3.471, which I report without a reading. The purchases are share updates of seasoned issuers, never membership events.

The move remains without Russell June closes. Dropping the closes that fall in June, the month of the annual reconstitution, leaves the pooled two-session estimate as large as with them and the Russell estimate at 2.034 (Panel D). The Russell move is at quarterly share updates, with no reconstitution in the window.

Float updates give the purchase of existing shares its own closes. Turnover rises on those closes too, 1.815 percentage points of shares outstanding per point of scheduled purchase within offering and date, and the two sessions ending there show no rise, −0.608, an estimate too imprecise to distinguish those closes from share updates.

Persistence is not determined. The ten sessions after the close are negative and imprecise, and the window from $T_h - 1$ through $T_h + 10$ is 0.105, with a minimum detectable effect of 3.377

(Appendix Table A5). One session in the figure, $T_h + 5$, is negative and statistically significant on its own, and I do not build on one session.

Two further cuts size the result. Across offerings, with the controls of the price-path regressions, the estimates are of similar size and less precise (table notes). And the two-session loading per point does not detectably rise with the purchase measured in days of normal volume: the top-minus-bottom tercile contrast is 3.023 pooled and negative for the Russell purchase, with minimum detectable effects several times the two-session loading (Panel E; Appendix Table A5). That test is uninformative, in either direction, about the cost of carrying the purchase.

The S&P 1500 purchase also loads negatively at the offer (Appendix Table A7, Panel A), which Section 4 reports as a split of one loading between providers that buy the same firms' new shares; the two S&P results stand side by side, and neither accounts for the other. Section 9 sets the close against the benchmark of an unanticipated, permanent purchase. Who sells to index funds at the close is outside the paper, and no counterparty is named.

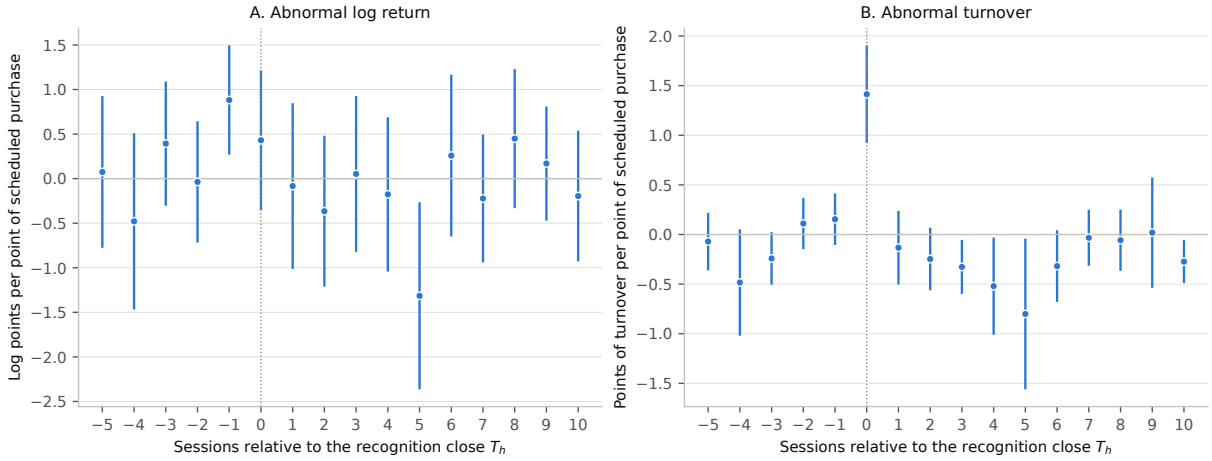

Figure 3. Price and turnover around recognition closes

Each point is the coefficient on the scheduled purchase Q_h, in percent of pre-offering shares, from a regression of the abnormal log return (Panel A) or abnormal turnover (Panel B) on one session relative to the offering's delayed recognition close T_h, with offering and calendar-date effects, the purchases the same offering has scheduled for that session on its other closes, and 95 percent confidence intervals from standard errors clustered by issuer and the calendar month of T_h. Session 0 is column 3 of Table 5, Panel B. A session enters only if it falls at $t_0 + 2$ or later, so the rows per session run from 2,922 to 4,321.

Table 5. Turnover and price on recognition closes

	Turnover	Abnormal log return				
	T_h	$T_h - 1$	T_h	$T_h - 1$ to T_h	$T_h + 1$ to $T_h + 10$	$T_h - 1$ to $T_h + 10$
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A. Within offering						
Scheduled purchase, Q_h	2.239	1.494	0.544	2.036	−1.815	0.673
	(0.169)	(0.566)	(0.520)	(1.001)	(0.957)	(1.470)
Panel B. Within offering and calendar date						
Scheduled purchase, Q_h	1.414	0.882	0.431	1.309	−1.026	0.105
	(0.251)	(0.313)	(0.400)	(0.448)	(0.988)	(1.205)
Panel C. Within offering and calendar date, by provider						
S&P Dow Jones	1.571	0.090	−1.130	−1.043	−2.426	−3.471
	(0.312)	(0.460)	(0.631)	(0.863)	(1.390)	(1.471)
FTSE Russell	1.474	1.118	0.687	1.800	−0.848	1.102
	(0.277)	(0.363)	(0.429)	(0.505)	(1.171)	(1.447)
CRSP	−1.540	−2.391	−2.680	−5.013	5.789	0.323
	(1.074)	(2.889)	(1.670)	(2.762)	(4.760)	(4.102)
MSCI	−0.049	−1.841	−0.302	−2.073	2.289	−0.411
	(0.439)	(1.163)	(1.282)	(2.147)	(4.652)	(4.499)
Panel D. Panels B and C without Russell closes in June						
Scheduled purchase, Q_h	1.123	0.897	0.505	1.396	−0.201	1.084
	(0.293)	(0.366)	(0.427)	(0.529)	(1.210)	(1.462)
S&P Dow Jones	1.388	−0.031	−1.437	−1.474	−2.080	−4.410
	(0.381)	(0.456)	(0.636)	(0.905)	(2.155)	(2.336)
FTSE Russell	1.151	1.181	0.859	2.034	−0.100	1.983
	(0.323)	(0.430)	(0.462)	(0.604)	(1.325)	(1.632)
Rows, Panels A to C	4,252	4,204	4,252	4,204	4,247	4,143
Offerings, Panels A to C	1,917	1,894	1,917	1,894	1,931	1,882
Rows, Panel D	3,831	3,785	3,831	3,785	3,824	3,718

Panel E. Two sessions $T_h - 1$ to T_h, by the purchase in days of normal volume

	Bottom	Middle	Top	Top − bottom
Scheduled purchase, Q_h	−1.721	0.832	1.302	3.023
	(2.349)	(1.125)	(0.454)	(2.263)
mean days of volume	0.03	0.19	1.00	
FTSE Russell purchase	2.393	3.042	1.616	−0.777
	(1.548)	(0.745)	(0.530)	(1.633)
mean days of volume	0.09	0.36	1.50	

Notes: Each observation is an offering and one of its distinct delayed recognition closes T_h. Q_h is the scheduled purchase of every delayed provider whose recognition close is T_h, in percent of pre-offering shares; S&P 500 and S&P 1500 tracker purchases are combined. Turnover is abnormal turnover on T_h in percentage points of shares outstanding, relative to the offering's own turnover over the 20 sessions before launch. Returns are abnormal log returns against the CRSP value-weighted index, in log points summed over the window; column 4 sums the returns of columns 2 and 3 on the rows where both exist. A window enters only if it starts at $t_0 + 2$ or later and every session has a return. Panels A to D include offering effects, so they compare the recognition closes of the same offering; Panels B to D add calendar-date effects, which absorb returns and turnover common to all stocks on a rebalancing close. Window regressions also include the purchases scheduled for the same offering's other delayed closes inside the window. Panel D drops the 417 rows whose close falls in June and carries a Russell purchase, so the Russell rows there are quarterly share updates outside the annual reconstitution. Across offerings, pooling all rows with the controls and calendar-quarter and FF48 effects of Appendix Table A16, turnover loads 2.478 (0.511) and the two sessions 1.553 (0.812). Panel E, on the 4,204 rows of column 4, repeats column 4 of Panel B with the purchase interacted with terciles of its size in days of normal volume, the purchase in percent of shares divided by the offering's mean daily turnover over the 20 sessions before launch; the Russell row interacts the Russell purchase, with the other providers' purchases as controls, and its terciles are those of the Russell purchase; the uninteracted loadings on these rows are those of Panels B and C. Standard errors in parentheses are clustered by issuer and the calendar month of T_h.

7 Who holds the new shares, and who captures the value

Valued as the price of the scheduled purchase, the offer-price loading is worth about three fifths of what issuers paid in gross spreads, and the move at the close a small fraction of that. The account closes with the quantities and dollars behind that comparison: who holds the new shares around the sale, and what each loading is worth.

Holdings first (Table 6, Panel A). From the last quarterly report before the sale to the first after it, per new share and value-weighted, index funds' holdings rise by 0.130, other mutual funds' and ETFs' by 0.301, and those of 13F institutions net of their own funds by 0.736, with hedge funds at 0.196 and investment advisers at 0.284 inside the last. These are net purchases, which can include existing shares, so they sum to more than one new share, with a negative residual; they describe where holdings grow around the sale and assign no particular share to a holder.

For most offerings that first report also falls after recognition: 5,940 of 10,462 primary and mixed offerings are recognized in the sale quarter (Panel B, which uses all primary and mixed offerings on an earlier construction of the recognition calendar). Where recognition falls later, the change in index funds' holdings through the recognition quarter is larger, from 0.063 per new share in the sale quarter to 0.516 three or more quarters later, on 186 offerings in that last cell. Longer windows also collect more of the funds' ordinary flows, so this is how holdings build around recognition, and I read nothing more into it. The shift across eras, with other funds' share of the take-up falling and hedge funds' rising, is in Appendix Table A20. Quarterly reports cannot show purchases within a quarter or who sells to index funds.

Panel C puts the two loadings in dollars. The offer-price loading in dollars, β_Q of the post-public offer price times each offering's scheduled purchase times its primary proceeds, over 100 and summed, is US$12.9 billion over the main sample, 1.95 percent of proceeds; with the loadings by segment of Appendix Table A12, Panel C, it is US$8.7 billion, 1.31 percent. The two-session move at the close, valued the same way over the dollars bought at delayed closes, is US$160 million, half a percent of the delayed purchase. Issuers paid US$21.8 billion in gross spreads over the same offerings, 3.28 percent of proceeds. The offer-price figure is about three fifths of the spreads, and about two fifths with the loadings by segment, with a wide interval either way.[7]

The gap between the two dollar figures is mechanical. Per point of purchase the two loadings

[7] I quote the main-sample column throughout; the column for all 10,221 primary and mixed offerings applies the main-sample coefficients outside the sample and is for scale only.

are of the same size; the offer-price figure applies to every share the firm sells, while the close figure covers only the shares index funds buy at delayed closes, leaving out fast purchases, more than half of the scheduled purchase in this sample, and the price path from the offer to the close (Appendix Table A23).

These figures are scale calculations, and none is a welfare statement. The offer-price figure values the loading of Section 4 as if it were the price of the scheduled purchase, with a standard error from that loading alone, and the close figure values the execution loading of Section 6 the same way. On that reading, the value arrives at the offer. The difference between the offer-price and close figures is attributed to no party.

Table 6. Who holds the new shares, and who captures the value

Panel A. Change in holdings to the first quarterly report after the sale, per new share

	Main sample			All primary and mixed offerings		
	Value-wtd.	Median	Adjusted	Value-wtd.	Median	Adjusted
Index funds	0.130	0.058	0.080	0.118	0.036	0.069
	(0.007)		(0.008)	(0.006)		(0.008)
Other funds and ETFs	0.301	0.152	0.234	0.336	0.121	0.237
	(0.018)		(0.020)	(0.012)		(0.015)
13F institutions	0.736	0.658	0.619	0.793	0.634	0.635
	(0.031)		(0.032)	(0.025)		(0.033)
hedge funds	0.196	0.177	0.194	0.197	0.149	0.184
	(0.013)		(0.019)	(0.011)		(0.015)
investment advisers	0.284	0.182	0.229	0.318	0.159	0.249
	(0.016)		(0.020)	(0.016)		(0.018)
Residual	−0.167	0.021	0.067	−0.247	0.074	0.059
	(0.045)		(0.046)	(0.031)		(0.043)

Panel B. Change in index-fund holdings through the recognition quarter, per new share

Quarters to recognition	0	1	2	3 or more	Later − 0
Value-weighted	0.063	0.114	0.373	0.516	0.134
	(0.006)	(0.019)	(0.037)	(0.078)	(0.021)
Offerings	5,940	3,095	1,241	186	10,462

Panel C. Dollars, US$ millions

	Main sample			All primary and mixed offerings		
	Amount	Percent of proceeds	Percent of purchase	Amount	Percent of proceeds	Percent of purchase
Offer-price loading	12,942	1.95	18.83	23,042	1.49	18.84
	(3,834)	(0.58)	(5.58)	(6,825)	(0.44)	(5.58)
with loadings by segment	8,738	1.31	12.71	15,800	1.02	12.92
	(3,277)	(0.49)	(4.77)	(5,795)	(0.38)	(4.74)
Two-session move at the close	160	0.02	0.50	198	0.01	0.46
	(55)	(0.01)	(0.17)	(68)	(0.00)	(0.16)
at Russell closes	103	0.02	0.84	132	0.01	0.77
	(29)	(0.00)	(0.24)	(37)	(0.00)	(0.22)
Issuers' gross spread	21,776	3.28		48,611	3.15	
Memo: primary proceeds	664,683			1,544,650		
index purchase, fast and delayed	68,737			122,281		
delayed index purchase	31,825			42,709		
delayed Russell purchase	12,193			17,167		

Notes: Panel A divides the change in holdings from the last quarterly report before the sale to the first after it by the new shares, over 3,951 main-sample and 10,622 primary and mixed offerings. 13F institutions are net of their own funds and include hedge funds and investment advisers; the residual is one minus the three groups. Means weight offerings by proceeds, with standard errors clustered by offering quarter; adjusted subtracts the same change over the quarter before the sale, scaled for fund groups' reporting gap. Panel B measures index-fund holdings, value-weighted, from the first report after the sale to the report for the quarter of the latest scheduled delayed recognition, in all primary and mixed offerings; its recognition quarters predate a correction to Russell's information cutoff from September 2018 that the main sample uses. Panel C values the two loadings in dollars, over the 3,951 main-sample offerings, as if each were the price of the scheduled purchase. The offer-price row is β_Q of the post-public offer price in Table 3, Panel A, times each offering's Q times its primary proceeds, over 100, summed, in percent of proceeds and of the fast and delayed index purchase at the offer price; the row below uses each segment's loading (Appendix Table A12, Panel C). The close row is the two-session loading of Table 5, Panel B, times each delayed purchase Q_h times the dollars bought at that close, over 100, summed, in percent of proceeds and of the delayed purchase; the Russell row uses the Russell loading and purchases. Main-sample purchases are valued at the recognition close, and the main-sample coefficients are applied for scale to the 10,221 offerings of Table 1, valued at the offer price. Standard errors scale the coefficient's by the same weights. The gross spread sums SDC's gross spread where reported, 90.2 and 88.9 percent of proceeds. The offer-price row covers every share sold; the close row covers only delayed purchases and omits the path from the offer to the close. Quarterly reports cannot show purchases within a quarter or who sells to index funds, and the difference between the rows is not attributed to any party.

8 What issuers do

Issuers could sell differently when more of the issue is destined for index funds, and mostly they do not: offering method, issue size and the underwriting spread show no economically large association with passive ownership (Table 7). Passive ownership is unrelated to the use of accelerated or bought deals, 0.0003 per point of ownership, and goes with slightly fewer registered direct and best-efforts offerings, −0.0016: an interquartile increase lowers that probability by 1.1 percentage points against a mean of 15.0 percent (columns 1 and 2). Methods follow the EDGAR structure of the final prospectus; under SDC's launch-to-issue clock, which misdates offerings whose recorded launch is a registration filing date, both coefficients turn positive.[8] The method association therefore depends on the classification, and I do not adopt the reading that elastic demand favors accelerated offerings (Gao and Ritter, 2010).

Issue size moves little with passive ownership. An interquartile increase goes with issues 3.7 log points smaller relative to shares outstanding, within sampling error (column 3).

The one response the table detects is in how issue size follows the pre-launch price. Firms are more likely to issue equity when their market values are high relative to past values (Baker and Wurgler, 2002). Here the size of the issue follows that run-up only where index funds own little of the firm. Log issue size rises with the abnormal return over the 63 sessions through the pre-launch close, 0.0019 per log point of run-up with no passive ownership, and the product of the run-up with passive ownership over 100 enters at −0.0179 (0.0067) (column 4). The run-up slope falls from 0.0012 at the 25th percentile of passive ownership to about zero at the 75th (notes). This is an association. One possible reading is that a scheduled buyer for part of every issue leaves less to gain from timing the size of the issue to the price. The run-up window ends at the pre-launch close, before the deal is launched, and the estimate says nothing about return windows that reach into the sale itself. The same regression on blocks of existing shares gives a run-up slope about six times as large, 0.0116, and whether that sensitivity varies with passive ownership is not determined (Table 7, bottom rows).

The underwriting spread shows no loading on the scheduled purchase, −0.012 percentage points per point, where the test could detect 0.121 (Appendix Table A5); higher delayed passive ownership goes with a slightly lower spread (column 5).[9]

Two further choices could move the date of the index purchase, and neither shows a response (Appendix G). Offering values show no detectable bunching below Russell's US$250 million test

[8] Under that clock the coefficients are 0.0033 and 0.0017 (Table 7, notes).

[9] The mean spread across offerings is 4.883 percent of proceeds. The 3.28 percent of Table 6 divides total spreads by total proceeds and so weights large offerings more.

for prompt recognition, where the design could detect a jump of 0.547 in log density, or at the S&P thresholds after March 2020; and in 20 of the 21 mixed direct and forward offerings with original pricing documents, the direct and forward parts are sold at a common initial net price. In sum, nothing economically large appears in method, size or spread, within the minimum detectable effects of Appendix Table A5. That bounds issuers' responses without showing their absence, and the one association the table does detect is the run-up result of column 4.

Table 7. Offering method, issue size and underwriting spread by passive ownership

	Accelerated or bought (1)	Registered direct (2)	Log issue size (3)	Log issue size (4)	Underwriting spread (5)
Passive ownership (percent)	0.0003	−0.0016	−0.0049	−0.0034	
	(0.0014)	(0.0008)	(0.0034)	(0.0034)	
interquartile change	0.002	−0.011	−0.037	−0.026	
	(0.009)	(0.005)	(0.025)	(0.026)	
Pre-launch run-up (log points)				0.0019	
				(0.0008)	
× passive ownership / 100				−0.0179	
				(0.0067)	
Scheduled purchase, β_Q					−0.012
					(0.043)
Delayed passive ownership					−0.024
					(0.012)
Fast passive ownership					−0.006
					(0.012)
Mean of the outcome	0.726	0.150	−2.048	−2.049	4.883
Passive ownership, interquartile range	6.72	6.72	7.55	7.55	
Fixed effects	Year, FF48	Year, FF48	Year, FF48	Year, FF48	Quarter, FF48
Offerings	7,829	9,597	3,928	3,927	3,337
Issuers	3,330	3,626	1,900	1,899	1,726
Column 4 on blocks of existing shares (pure secondaries)					
Passive ownership (percent)				−0.0172	
				(0.0053)	
Pre-launch run-up (log points)				0.0116	
				(0.0040)	
× passive ownership / 100				0.0100	
				(0.0310)	
Blocks				1,421	
Issuers				724	

Notes: Columns 1 and 2 use the 10,101 primary and mixed seasoned offerings of 2002 to 2023 with prices, returns and provider holdings around the offering (9,737 with Amihud illiquidity and idiosyncratic volatility, measured over trading days −250 to −21). Column 1 compares accelerated and overnight offerings, bought deals and blocks with fully marketed offerings; column 2 compares registered direct and best-efforts offerings with all others. Methods follow the EDGAR structure of the final prospectus where one is linked and SDC's launch-to-issue clock otherwise. Regressors are passive ownership in percent of shares outstanding, log market capitalization on the day before pricing, Amihud illiquidity, idiosyncratic volatility and the return over trading days −63 to −2. Column 3 regresses the log of primary shares over shares outstanding on the same regressors in the main sample, with market capitalization at the pre-launch close. The interquartile change multiplies the coefficient by the interquartile range of passive ownership. Column 4 adds the pre-launch run-up, the abnormal log return over the 63 sessions through the pre-launch close, and its product with passive ownership over 100; the run-up slope is 0.0012 (0.0007) at the 25th percentile of passive ownership and −0.0001 (0.0008) at the 75th. The bottom rows estimate column 4 on the pure secondaries of Table 4, with the log of the block over shares outstanding as the outcome; their run-up slope is 0.0118 (0.0036) and 0.0125 (0.0035) at the blocks' 25th and 75th percentiles of passive ownership. Column 5 regresses the underwriting spread, SDC's gross spread in percent of proceeds weighted by tranche primary cash, on the specification of Table 3, column 2, in the main sample: 3,550 main-sample offerings report a spread whose primary cash matches the offering's cash identity (400 have no SDC spread), and the illiquidity measures leave 3,337; with the column 1 specification on all 3,550, β_Q is −0.010 (0.041). Reading SDC's launch-to-issue clock before the EDGAR structure gives 0.0033 (0.0012) in column 1 and 0.0017 (0.0005) in column 2; that clock classes every SDC offering as marketed or accelerated and misdates offerings whose recorded launch is a registration filing date. The estimates are associations. Standard errors in parentheses are clustered by issuer and sale month.

9 Two prices for one purchase

Two size slopes, one set of buyers. Index funds buy about their pro-rata share after a sale of new shares and after a block of existing shares, each at a close their providers' rules set, yet passive ownership flattens the size discount of new shares and steepens that of blocks. Both prices are higher in more passively owned stocks at the typical sale (Appendix Table A10); what differs is how that premium moves with the size of the sale. This section asks what demand structure can produce the pair. Market clearing alone rejects the accounts that work through quantities; a broad class of demand systems implies a bound that the data violate at low passive ownership; and the one assumption that does produce opposite signs fails its own restriction. What remains is the flattening of the new-share discount itself, which three cases can produce, and the estimates do not choose among them. Derivations are in Appendix H.

Little structure is needed for the first results. Write $f \geq 1$ for shares outstanding over the float. Let the demand of float holders other than index funds respond to the log price with elasticity ε, to log shares outstanding with loading η, and to the cash a sale adds to book equity with loading μ (Appendix H.5). A sale of new shares of size x, in percent of shares outstanding, raises shares and the float together and brings in cash; a block of size y moves existing shares into the float and brings neither. Index funds take their pro-rata part of either addition once the provider updates, so the remaining holders absorb the same proportional increase in their holdings whatever passive ownership is, and market clearing gives, to first order,

$$\frac{dp}{dx} = -\frac{f - \eta - \mu}{\varepsilon}, \qquad \frac{dp}{dy} = -\frac{f}{\varepsilon}. \tag{4}$$

Passive ownership has dropped out of both slopes: with pro-rata purchases it can move either one only through the composition of the other holders, ε, η and μ. Two benchmarks follow: if index funds' purchase mattered only by shrinking what others must hold along a fixed demand curve, supply removal, both slopes would flatten with passive ownership at the same rate, and if index funds held their weight and never bought, both would steepen. The opposite signs of Table 4 reject both at once. The remaining benchmark, demand in market equity, does give opposite signs and is tested below.

The difference between the slopes is the bound. New shares bring demand of their own, through η and μ: benchmarked and characteristic demand expands with the firm's shares, and the cash raised adds to its book value. A block brings none. If η and μ are not negative, equation (4) gives $dp/dx - dp/dy = (\eta + \mu)/\varepsilon \geq 0$: a primary is discounted no more than a block of the

same size. Table 8 evaluates both size slopes at given passive ownership from the regressions of Table 4. At no passive ownership the gap is −0.272 (0.070): new shares carry a discount of about 0.3 log points per point that blocks of the same size, sold to the same holders, do not. The violation is robust to where the slopes are evaluated, between −0.272 and −0.383 across the fifteen combinations of sizes and segment mixes in Panel B, 3.5 to 4.4 standard errors below zero. The gap crosses zero between 8 and 12 percent passive ownership, 8.25 to 11.63 across the evaluations, and at 15 percent passive ownership, the blocks' 95th percentile, it is 0.111 to 0.222. Firms whose holders sell blocks have more shares outside the float, a larger f, which steepens the block slope and works against the violation. The violation is a statement about what the discount is not: below the crossing, new shares carry a discount specific to them that no demand system in this class produces. The evidence here does not identify what that discount is.

One assumption does produce opposite signs. If demand depends on the price and shares outstanding only through market equity, as in Koijen and Yogo (2019), then $\eta = 1 - \varepsilon$, and an elasticity that falls with passive ownership flattens the new-share slope while steepening the block slope. The same form ties the two slopes at every level of passive ownership, with an intercept of −1: as blocks become costless to sell, new shares are fully diluted. Fitting the tying coefficient from the two passive gradients, 0.915, leaves a restriction that the system sets to zero and the data put at 0.673 (0.078) (Table 8, Panel C). The failure has a plain reading: blocks at low passive ownership carry almost no size discount, which demand in market equity can match only if demand is very elastic, and very elastic demand in market equity puts the new-share slope near −1, against the measured −0.300. The falling elasticity itself has support elsewhere: Behmaram and Davis (2026) estimate stock-level demand elasticities of 0.357 in the lowest quintile of index ownership and 0.181 in the highest. That ordering is consistent with the sign of the block steepening and not with its level, which is an order of magnitude smaller than those elasticities imply. Wang (2025) corrects demand-system elasticities for firms' issuance responses; the restriction here concerns how such a system prices the issuance itself.

Pricing the new shares themselves takes more structure, and the setup is deliberately small. A firm with S shares sells N new shares at date 0, so its issue size is $x = N/S$. Index funds own a fraction $\theta = \Phi/100$ of the shares and follow providers that recognize the new shares at date T, set by the rule; at T they buy $q = \theta N$ shares at whatever price prevails. Other investors value the stock at v and have a stock-level demand elasticity ε. Between 0 and T, intermediaries who buy in the offering carry the shares index funds will take at T, and the rest until other investors absorb them. Appendix H derives the offer price in this setting (equation (8)); the text keeps

what the regressions estimate and what each case predicts.

Because passive ownership enters the regressions separately, the flattening ratio $\rho = \beta_Q/|\beta_x|$ measures how fast the issue-size slope flattens with passive ownership relative to its own level, and the curvature κ of the discount in issue size adjusts for its shape. If committed demand mattered only through the number of shares to be placed, whether priced by the holders' demand curve or by break-even intermediaries who carry the issue, then $\rho - \kappa \leq 2$ (Appendix H.4). The estimate is 5.682 on the issue-size slope averaged over segments and, with the common loading, between 3.511 and 9.207 across the four index segments, above the bound in each (Appendix Table A24). So committed demand also goes with a lower cost of placing the shares that are not committed.

Three cases produce that. The first is preserved indexed ownership. Pro-rata recognition keeps index funds' ownership at Φ; without it, an issue of x percent would dilute that ownership by $Q/(1 + x/100)$ points. If a point of indexed ownership is worth κ_I percent of value, the valuation adds $\kappa_I/(1 + x/100)$ to β_Q and nothing to β_x. My related paper (Behmaram, 2026a) puts κ_I at 1.385 percent of value per point of total indexed ownership, and at 1.37 to 1.46 per point of new index-fund ownership at S&P 500 additions, the unit of Φ here. At the median issue this adds 4.0 to 4.3 to $\rho - \kappa$ and predicts a sum $\beta_x + \beta_Q$ of 1.21 to 1.29, beside the measured 1.274. I present this as an order-of-magnitude comparison with my own estimate, with the intervals in Appendix H, and the loading here is no test of it; its S&P 500 estimates come from additions, while S&P 1500 funds' purchase loads negatively here (Section 4).

The second is placement capacity. If more capital comes to place an issue when part of it has a committed buyer at a known date, as when capital is slow-moving (Duffie, 2010), the cost per uncommitted share falls with passive ownership and $\rho - \kappa = 2 + b$, with b the rise in capacity per unit of committed demand. With the common loading, the excess over 2 runs from about 1.5 among S&P 1500 members to 7.2 among other firms. Two patterns fit this case, neither statistically significant on its own. The loading is smaller when market volatility before launch is high, when capital for intermediation is scarcer (Section 4), and fast purchases give a larger $\rho - \kappa$ than delayed ones on the slope averaged over segments, 6.779 against 4.216.

The third is information. If a scheduled purchase changes what the issue reveals, or who bids for it, the adverse-selection discount can fall faster than the shares placed, and the curvature does not restrict ρ. Its distinctive prediction is a larger loading where the market knows less about the firm, and two standard measures disagree (Appendix Table A25). Analyst coverage for the issuer's size (Hong et al., 2000; Bowen et al., 2008) does not order the loading: below

minus above the median is −0.604. Forecast dispersion (Diether et al., 2002) does order it: the loading above the median exceeds the loading at or below it by 1.885, mostly in the market move after the deal is public, and the gradient is similar when the loading also varies with size or by segment. Dispersion also measures uncertainty about value, which raises the cost of carrying the shares, so it fits the capacity case too. The information case receives mixed support that cannot separate it from capacity.

The estimates do not choose among the three cases, and the S&P 1500 sign of Section 4 fits none of them.

A pure secondary offering, in these terms, adds no shares and brings no cash, so the terms η and μ that distinguish a primary have nothing to act on, and none of the three cases applies to it. Its loading has the opposite sign (Section 5), and the bound of Table 8 is the comparison of the two.

At the close, the intermediaries of the second mechanism deliver the committed shares. If they have not fully positioned by T, index funds meet temporary pressure Δ over the sessions ending at the close, which unwinds afterward in the model. The estimates give a provider contrast, a price move at Russell closes and turnover without a price rise at S&P closes (Table 5), and I do not read that contrast as carry capacity by firm size: the S&P family includes S&P 600 trackers and the Russell family includes Russell 1000 trackers. The sharpest alternative is the case without anticipation, under which the purchase moves the price by $1/\varepsilon$ log points per point only when executed, with no reversal. Published stock-level demand elasticities supply that benchmark (Koijen and Yogo, 2019; Gabaix and Koijen, 2023; Davis et al., 2026; Behmaram and Davis, 2026); this paper estimates no elasticity, and the window that could decide the question, $T_h - 1$ through $T_h + 10$, is the one Section 6 reports, with a minimum detectable effect of 3.377. Whether the move at the close persists is undetermined, and the dose test of Table 5, Panel E, is uninformative.

Timing closes the evidence. In the intermediation case the offer price falls with the wait when committed shares leave late, by the carry cost c per point and period; with abundant capital it is independent of T. The rules supply three sources of variation in the wait, and each gives a bound (Appendix Table A17). Delayed and fast purchases show no detectable difference at the offer from launch, 0.627, where the test could detect 3.376. Pricing just after a quarterly information cutoff adds about 50 trading days of wait, with no bunching of offerings at the cutoff, and the price responses in that design are imprecise. The June 2017 Russell rules, which lengthened most issuers' waits, give bounds dated by a rule change (Appendix E). For blocks of existing shares,

the loading does not grow with the wait to the float update either (Appendix Table A19, Panel B). The cost of a period of wait is not estimable from these designs.

Four cautions apply. No parameter of the model is estimated: ρ and κ are ratios of regression coefficients, with delta-method standard errors, local to the median issue, and the slopes of Table 8 are linear evaluations of the regression estimates. The issue-size slope also contains information effects and the issuer's choice of size, which the bound of the flattening test treats as parts of the discount that passive ownership does not affect. The price of indexed ownership κ_I is a cited number from my related paper, in units of total indexed ownership for the joint estimate and of index-fund ownership for the S&P 500 estimates. And κ_I is distinct from the carry cost c and from the curvature κ.

Table 8. The size slopes of new and existing shares and the demand-system bound

Panel A. Size slopes at given passive ownership, each sample's median size and segment mix

	Passive ownership (percent)			
	0	5	10	15
New shares (primary offerings)	−0.300	−0.222	−0.143	−0.064
	(0.047)	(0.035)	(0.037)	(0.051)
Existing shares (pure secondaries)	−0.029	−0.115	−0.201	−0.287
	(0.053)	(0.033)	(0.051)	(0.086)
New minus existing (the bound: at least 0)	−0.272	−0.107	0.058	0.222
	(0.070)	(0.048)	(0.063)	(0.100)
Crossing passive ownership (percent)		8.253 (1.634)		

Panel B. Across 15 evaluations: sizes and segment mixes

	Estimate		*t*-statistic	
	Lowest	Highest	Lowest	Highest
Gap at no passive ownership	−0.383	−0.272	−4.42	−3.50
Gap at 15 percent passive ownership	0.111	0.222	0.83	2.22
Crossing passive ownership (percent)	8.25	11.63		

Panel C. A demand system in market equity

Coefficient tying the slopes, $k = -b_P/b_B$	0.915
	(0.507)
Restriction, $a_P + 1 + k\,a_B$ (zero)	0.673
	(0.078)

Notes: Each sample's size slope at passive ownership Φ is $s(\Phi) = a + b\,\Phi/100$, where a is the slope of the post-public offer price in size at no passive ownership and b the loading β_Q, from the regression of Table 3, column 1, with segment-specific slopes, on the 3,951 primaries and, with block size, on the 1,517 pure secondaries of Table 4, estimated separately, with the primaries' offer price on the basis of Table 3. In Panel A each slope is evaluated at its own sample's median size and mix of index segments. When index funds buy pro rata after both kinds of sale (Table 2), the gap between the slopes of new and existing shares is at least zero if the demand that new shares bring with them, through shares outstanding and the cash raised, is not negative (Section 9). The crossing is $100(a_B - a_P)/(b_P - b_B)$. Panel B evaluates both slopes at no passive ownership at each sample's median size and at sizes of 5, 10, 15 and 20 percent of shares outstanding, each with each sample's own segment mix, the primaries' and the secondaries', Panel A's evaluation included; the crossing's standard errors run from 1.63 to 3.49. Under demand in market equity (Koijen and Yogo, 2019) the slopes satisfy $s_P(\Phi) = -1 - k\,s_B(\Phi)$ at every Φ; Panel C fits k from the two passive gradients and reports the intercept restriction, which is zero under that system. Standard errors, in parentheses, are clustered by issuer and sale month within each sample and combined by the delta method, the samples being independent.

10 Conclusion

A firm that sells new shares while index funds track it sells part of the issue to buyers whose demand is written down in advance. This paper measures the price of that arrangement twice, once on new shares and once on existing shares that meet the same demand. When index funds are scheduled to buy a larger part of a firm's new shares, the firm sells them at a higher price relative to its last close before the deal is public. The discount that grows with issue size nearly disappears among the most passively owned issuers, far faster than removing the purchased shares from the market would give. The same funds buy about their pro-rata share of blocks of existing shares at their providers' float updates, and per point of the same scheduled purchase the block price falls where the new-share price rises, a difference of about 3.3 log points per point. Both kinds of sale fetch higher prices in more passively owned stocks at the typical size, but only for new shares does that premium grow with the sale, so what the purchase goes with at the offer is specific to new shares. At low passive ownership, new shares carry a discount that blocks of the same size do not, a gap with the wrong sign for any demand system in which new shares do not reduce other investors' demand. At Russell share updates the price of lower-priced issuers rises into the recognition close, and whether that move persists is undetermined.

If the loading is the price of the purchase, two implications follow. For issuers, passive ownership would carry a price at the offer itself, about three fifths of gross spreads over this sample, or about two fifths with the loadings by segment. For index funds, the cost measured at the close would be small next to that figure, though the close measures only delayed purchases and leaves out the path from the offer to the recognition close.

The limits are those of the design. Passive ownership is not assigned by a design the firm cannot influence, so the offer-price results are controlled associations, defended by the controls, the segment comparison, the holder split and the comparison with existing shares, with no experiment behind them. The model's three cases above the bound, preserved indexed ownership, placement capacity and information, are not distinguished, by the analyst measures or otherwise, and the evidence does not identify what the discount specific to new shares at low passive ownership is. Recognition timing gives bounds, with no carry cost identified; who sells to index funds at the close is outside the paper; and no financing, investment or welfare effect is claimed. Earlier drafts of this project reported firm-level financing and investment panels, financing and offer-price comparisons by prior Russell ownership around the June 2017 Russell rules, initial dollar targets, an issue-size elasticity range and an elastic-demand headline; none is part of this paper, and the elasticity range rested on a control that contains the outcome.

The stakes are set by the size of the margin. Index funds bought about 2 percent of the dollars raised in seasoned offerings in 2002 and nearly 16 percent in 2023, and rules now date most of that buying before the deal is priced. A growing share of new equity is sold into demand that is known when the firm sets the price, and the terms firms get move with it.

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A Recognition rules and their sources

Appendix Table A1 summarizes how each provider recognized the new shares of a seasoned offering by a member firm from 2002 to 2023. The rules come from dated primary documents: each provider's methodology in the version in force at the time, its implementation notices, and its consultations and their results. Where a provider no longer serves an old version, I read the document at the provider's own address in the Internet Archive, and for a few documents in a third-party copy of the original. Every rule in the table was read in its source document, with two exceptions that the table notes flag. Russell's pickup of smaller share changes at the June reconstitution before 2017 follows from the structure of its rules rather than from their text, and CRSP's rules before its January 2014 guide were not found, so that guide is applied to 2011 to 2013.

Three features of the rules shape the construction. First, prompt recognition depends on size tests with different denominators. S&P tests total shares, MSCI the number of shares, CRSP float-adjusted index holdings and Russell, since 2017, float-adjusted index shares. One offering can therefore be large for one provider and small for another, so the same offering produces a fast purchase by some funds and a delayed purchase by others. Second, scheduled updates follow calendars and information cutoffs that changed over time, notably when Russell moved from month-end to quarterly updates in June 2017 and when S&P introduced dollar tests and abolished weekly updates in March 2020. Third, CRSP and MSCI since 2015 and S&P since 2019 exclude forward sales from prompt recognition, so the borrowed shares of a forward sale wait for an update after the issuer settles.

Recognition dates apply the rule in force at pricing to the offering's terms and to the issuer's index membership, shares and float. Some rules leave the information date open, for instance by requiring that the offering be confirmed closed. The construction then takes the information date to be pricing or, where completion is required, regular-way settlement: three trading days after pricing before September 5, 2017, and two thereafter. Russell announced its rank day each spring from 2018 on, and those dates are not encoded, so the Russell delayed purchase of 67 main-sample offerings, 2.0 percent of delayed demand, has no date; it is left out of the wait rather than assigned one. S&P postponed its March 2020 quarterly share changes to June (S&P Dow Jones Indices, 2020a,b), and the eight main-sample offerings whose S&P recognition moved are dated at the June 19 close.

Table A1. Recognition of new shares from seasoned offerings, by provider and rule period

Provider and period	Prompt recognition	Scheduled recognition
S&P 500, 400 and 600; 2006 to March 27, 2020	Public offerings of 5 percent or more of total shares outstanding: as soon as reasonably possible, then next-day implementation (2015 to 2020). From January 21, 2015, the offering must be underwritten, registered and confirmed closed.	Smaller changes accumulate to the quarterly rebalancing after the close on the third Friday of March, June, September and December.
S&P TMI and Completion, outside the 1500; 2006 to March 27, 2020	None.	Weekly update for changes of 5 percent or more (by 2014, announced on a Friday and effective after the close the following Friday); quarterly rebalancing below 5 percent.
S&P, all U.S. indices; after the close of March 27, 2020	Underwritten offerings of US$150 million or more and 5 percent or more of pre-event total shares, or of US$1 billion or more, with one business day's notice.	All other offerings at the quarterly rebalancing; share reference date five weeks before the third Friday from August 13, 2021. Weekly updates abolished.
CRSP; January 2014 guide onward	Offerings of 5 percent or more of the security's float-adjusted Total Market Index holdings, at the close of the day after pricing if known by the cutoff on that day; from January 2022, also offerings of US$1 billion or more.	Next quarterly ranking, after the close on the first Friday of March, June, September and December, using shares as of five trading days earlier.
MSCI; September 2005 to March 28, 2007	All equity offerings, at pricing.	None.
MSCI; from the close of March 28, 2007	Offerings of 5 percent or more of shares, the same or next day after pricing; two business days' notice from May 2016; 10 and 25 percent for small and micro caps from March 2018.	Next index review at the end of February, May, August or November, for changes made before the equity universe cutoff about three months earlier.
FTSE Russell; April 2002 to May 2017	None.	Month-end update for cumulative share changes above 5 percent, with no June month-end; smaller changes at the annual June reconstitution.
FTSE Russell; from the June 2017 review	Offerings with US$1 billion or more of investable market-capitalization change, or 5 percent or more of index shares and US$250 million or more, with two days' notice once pricing is known. The dollar test uses the market price until March 2018 and the subscription price after.	Quarterly reviews (third Friday of March, September and December) for cumulative changes above 1 percent; June reconstitution. Information cutoff: third Wednesday of the prior month (2017); Friday five weeks before (from October 2019); last business day of January, April, July or October (from June 2023).
Nasdaq-100; 2012 onward	Changes of 10 percent or more of total shares, as soon as practicable.	Quarterly, after the close on the third Friday of March, June, September and December.
Forward sales	S&P (2019 onward), CRSP (2015 onward) and MSCI (2015 onward) exclude forward sales from prompt recognition.	Settled shares enter a later scheduled update.

Notes: Share-update rules for seasoned public offerings, from dated provider methodologies, notices and consultations. Prompt recognition follows the offering within days; scheduled recognition waits for the provider's next periodic update. Dates refer to the close at which index funds trade. Before 2017, the Russell pickup of smaller changes at the June reconstitution follows from the rule structure; the rule text does not state it. CRSP rules before its January 2014 guide were not read; the construction applies that guide to 2011 to 2013. S&P postponed its ordinary March 2020 quarterly share maintenance to June 2020.

B Sample and measurement

B.1 Sample

Appendix Table A2 builds the main sample. The event file combines SDC's seasoned offerings of 2002 to 2023 with offerings that appear only in EDGAR, 14,986 in all. Parsing the terms, checking the share basis and dropping offerings larger than the shares outstanding leaves 12,648, of which 9,477 are pure primary offerings. Requiring prices and returns around pricing, provider holdings and a known recognition status for at least three quarters of passive ownership leaves 6,450, and the EDGAR and share-price identity checks leave 6,394. The paper studies the purchase at the recognition close, so it requires a delayed recognition close at least two sessions after pricing; 4,630 offerings have one. After the controls, an SDC launch date with its reference close, and complete returns through $T + 60$, 4,218 remain, and the launch rule below leaves 3,951 offerings by 1,912 issuers. Panel B gives the distributions, and Panel C the provider with the largest delayed purchase, Russell for 66.1 percent of offerings and S&P for 27.7 percent.

B.2 The launch reference

The reference price P^A is the last CRSP close strictly before the recorded SDC launch date. I place it on the share basis of the close before pricing, P^-, with the ratio of CRSP cumulative price adjustment factors at the two dates, and exclude offerings with an unresolved change in the adjustment factor on the pricing date. With P^o the offer price and r^M the cumulative log return on the CRSP value-weighted index between the two closes,

$$\begin{aligned} R^{\text{ref}} &= 100 \left[\log(P^-/P^A) - r^M \right], \\ C^{\text{offer}} &= 100 \log(P^o/P^-), \\ R^{\text{offer}} &= R^{\text{ref}} + C^{\text{offer}}. \end{aligned} \tag{5}$$

The concession C^{offer} is negative when the offer is discounted, so a larger value means a smaller concession. Every regression uses the same offerings and regressors for the three outcomes, so the coefficients obey the same identity. The offer price measures the change since the pre-launch quote; anything priced before that quote is outside it, and the recorded launch need not be the firm's first public news of its financing plans. One reference is corrected from an original filing. Pepco's offering release was filed at 08:34 Eastern on November 6, 2007, a day before the recorded launch, so its reference is the November 5 close.

B.3 The public time

The offer price from launch includes price moves before investors knew of the sale, so the paper measures the price of the deal from the last close before it is public. A deal is public when EDGAR accepts its preliminary prospectus, read from the filing index page in Eastern time. Let P^{pub} be the last close before acceptance: that day's close if the prospectus is accepted at or after 16:00 on a trading day, the previous close otherwise, and never later than P^{-}. With r^{M}_{pub} the cumulative log return on the CRSP value-weighted index between P^{pub} and P^{-},

$$\begin{aligned} R^{\text{post}} &= 100\left[\log(P^{-}/P^{\text{pub}}) - r^{M}_{\text{pub}}\right] + C^{\text{offer}}, \\ R^{\text{pre}} &= R^{\text{offer}} - R^{\text{post}}. \end{aligned} \tag{6}$$

The acceptance time is observed for 2,401 offerings, and for 1,648 of them it falls after the close before pricing, so that their post-public offer price is the concession alone. Without an observed acceptance, the deal is taken as public at pricing when launch and pricing are at most one session apart (1,097 offerings) and at the pre-launch close otherwise (453 offerings, for which $R^{\text{post}} = R^{\text{offer}}$). The identity $R^{\text{offer}} = R^{\text{pre}} + R^{\text{post}}$ holds in every offering, and the regressions use the same offerings and regressors for each part.

B.4 Launch records

For most offerings SDC's launch date marks the public start of the sale, but where it lies far before pricing it is usually the date a registration statement was filed. Panel A of Appendix Table A3 shows the difference. Within ten trading days of pricing, 47 percent of SDC launch dates equal the SDC filing date and 39 to 62 percent of offerings have an EDGAR preliminary prospectus; beyond ten days, 77 to 87 percent equal the filing date and 3 to 10 percent have a preliminary prospectus. The market reference then spans weeks of unrelated news. Its standard deviation rises from 7.9 log points for launches within a day of pricing to 50.5 beyond 63 days, and the delayed purchase loads 12.224 (9.841) on it in the 267 offerings with longer gaps, against 0.995 (0.520) in the main sample. The main sample therefore keeps launches within ten trading days of pricing.

Panel B measures the run-up to recognition and the ten sessions after it in four ways. The loadings on delayed demand keep their signs. The run-up loading is larger with arithmetic and buy-and-hold returns than with log returns, and half the realized variance in the window, which separates log from arithmetic returns, also loads on delayed demand, 1.657 (0.440). Panel

C clusters the price-path regressions by issuer and sale month instead of the month of the recognition close, with similar standard errors.

B.5 The timing contrast at pricing

Appendix Table A4 asks whether delayed and fast purchases load differently at the offer under other specifications. With total and delayed demand as regressors (specification B), the delayed increment is the difference in Appendix Table A16, 0.627 (1.205). Specification C adds the ownership shares of six provider groups and their products with issue size. Apart from unclassified statuses, those terms add up to delayed plus fast ownership, so the delayed coefficient is identified only by which providers' rules make the same ownership delayed or fast. The other regressors explain 94.6 percent of the variance of delayed demand, and the specification is not an interpretable timing test. Specification D estimates specification B within issue-size bins; the delayed increment is statistically significant only for issues of 20 percent of shares or more, 5.471 (2.270), and of mixed sign below.

B.6 Minimum detectable effects

Appendix Table A5 reports, for every estimate the text treats as a bound, the true coefficient that a two-sided test at the 5 percent level detects with probability 0.8, 2.80 times the standard error. Appendix Table A17 and Table 4 report the same quantity for the timing contrasts and the secondary offerings.

Table A2. Offerings, ownership, and scheduled index demand

Panel A. Sample

Seasoned offerings in the event file, 2002 to 2023	14,986
Offer price, shares and value parsed	13,054
Plausible share basis	12,889
Shares offered at most the shares outstanding	12,648
Pure primary (no selling holders)	9,477
Day -1 price, returns over $[-25, +5]$, provider holdings, timing known for at least three quarters of passive ownership	6,450
Terms pass the EDGAR and share-price identity checks	6,394
A delayed recognition close at least two sessions after pricing	4,630
Controls and fixed effects available	4,602
SDC launch date, its reference close and issuer-price controls available	4,251
Complete daily returns through $T + 60$	4,218
SDC launch within ten trading days of pricing (main sample)	3,951
Main sample, complete through $t_0 + 130$ (Figure A1, Panel A)	3,936
Main sample, wait of 12 or more trading days (Figure A1, Panel B)	2,857
Main sample issuers / sale months / dominant recognition months	1,912 / 228 / 215

Panel B. Main sample distributions

	Mean	SD	25th pct.	Median	75th pct.
Offering value (US$ millions)	168.2	290.1	30.0	78.8	189.2
Primary issue size, x (percent of shares)	17.24	14.22	8.27	13.43	21.35
Delayed passive ownership, Φ^D (percent)	3.84	4.22	1.43	2.55	4.56
Fast passive ownership, Φ^F (percent)	3.69	4.33	1.02	2.18	4.53
Delayed scheduled demand, Q^D (percent of shares)	0.503	0.532	0.185	0.350	0.628
Fast scheduled demand, Q^F (percent of shares)	0.567	0.728	0.129	0.334	0.744
Total scheduled demand, $Q^D + Q^F$	1.070	1.035	0.414	0.774	1.359
Wait from t_0 to T (trading days)	32.1	28.8	10.0	22.0	47.0
Launch to pricing (trading days)	1.45	1.52	1.00	1.00	2.00

Panel C. Provider with the largest delayed purchase

	Offerings	Percent	Median wait
FTSE Russell	2,613	66.1	21
S&P Dow Jones	1,094	27.7	20
MSCI	146	3.7	100
CRSP	97	2.5	42
Nasdaq	1	0.0	58

Notes: Panel A applies the screens in the order listed; each indented row keeps the offerings of the row above that pass one more screen. The event file combines SDC seasoned offerings with offerings identified only in EDGAR; the requirement of an SDC launch date removes the EDGAR-only records. The main sample consists of seasoned pure-primary offerings priced from 2002 to 2023 with complete issuer prices and daily returns from the pre-launch close through 60 trading days after the dominant delayed recognition close, whose recorded SDC launch falls within ten trading days of pricing; longer recorded gaps are mostly registration filing dates (Appendix Table A3, Panel A). L is the last close before the recorded SDC launch, t_0 the first session after pricing, and T the dominant delayed recognition close, the close at which index funds following the provider with the largest delayed purchase trade. Delayed and fast scheduled demand are defined in Section 2; the wait is measured in trading days from t_0 to T. 424 main-sample offerings have another offering by the same security between L and $T + 60$; they are retained. Panel C classifies offerings by the provider family of T; S&P 500 and S&P 1500 trackers form one family.

Table A3. Launch records, return measures and clustering

Panel A. SDC launch records by distance from pricing					
Launch to pricing (trading days)	Offerings	SDC launch = filing date	EDGAR preliminary	SD of reference	Mean Q^D
0–1	2,854	0.47	0.62	7.9	0.502
2–5	965	0.47	0.61	13.2	0.522
6–10	132	0.47	0.39	13.5	0.397
11–20	81	0.77	0.09	21.0	0.496
21–63	115	0.82	0.03	30.9	0.456
64+	71	0.87	0.10	50.5	0.345
		Delayed coefficient, market reference			
All gaps	4,218		1.872 (0.673)		
Ten days or fewer (main)	3,951		0.995 (0.520)		
More than ten days	267		12.224 (9.841)		
	Coefficient	SE	Offerings		
Panel B. Return measure, coefficient on Q^D					
t_0+2 to T, log	2.267	1.549	3,951		
t_0+2 to T, arithmetic	3.668	1.508	3,951		
t_0+2 to T, buy-and-hold	3.741	1.591	3,951		
t_0+2 to T, half realized variance	1.657	0.440	3,951		
$T+1$ to $T+10$, log	−0.799	0.801	3,951		
$T+1$ to $T+10$, arithmetic	−0.888	0.883	3,951		
$T+1$ to $T+10$, buy-and-hold	−0.769	0.879	3,951		
$T+1$ to $T+10$, half realized variance	−0.142	0.262	3,951		
Panel C. Clustering by issuer and sale month, coefficient on Q^D					
Offer price, β_0	1.630	0.814	3,951		
Recognition day T	0.886	0.381	3,951		
t_0+2 to T	2.267	1.370	3,951		
$T+1$ to $T+10$	−0.799	0.755	3,951		

Notes: Panel A groups offerings with complete daily returns through $T+60$ by trading days from the recorded SDC launch to pricing. The third column is the share whose SDC launch date equals the SDC filing date; the fourth is the share with an EDGAR preliminary prospectus. The reference is the market-adjusted log price change from the pre-launch close to the close before pricing, in log points. The last rows of the panel report the coefficient on delayed scheduled demand for that reference, with the controls, effects and clustering of Table A16. Panel B measures two windows of Table A16 as summed log abnormal returns, summed arithmetic abnormal returns, the difference in buy-and-hold returns, and half the realized variance of daily returns in the window. Panel C repeats rows of Table A16 with standard errors clustered by issuer and sale month instead of dominant recognition month.

Table A4. The timing contrast at pricing under alternative specifications

	Market reference	Concession	Offer price	Offerings
Spec. B. Delayed increment at fixed total scheduled demand				
Q^D	0.096	0.531	0.627	3,951
	(0.671)	(0.836)	(1.205)	
$Q^D + Q^F$	0.900	0.104	1.004	3,951
	(0.394)	(0.457)	(0.654)	
Spec. C. Adding provider-group ownership shares and their products with x				
Q^D	−4.580	−1.585	−6.164	3,951
	(1.547)	(0.817)	(1.958)	
priced before June 24, 2017	−4.448	−0.395	−4.842	2,222
	(2.525)	(1.936)	(2.898)	
priced from June 24, 2017	−5.975	−2.124	−8.100	1,729
	(2.184)	(1.400)	(3.059)	
Share of the variance of Q^D explained by the other regressors, Spec. B		0.814		3,951
Share of the variance of Q^D explained by the other regressors, Spec. C		0.946		3,951
Spec. D. Spec. B by primary issue size, coefficient on Q^D				
$x < 5$ percent	−8.838	2.863	−5.975	437
	(7.272)	(7.433)	(8.604)	
$5 \leq x < 10$	0.422	0.316	0.738	912
	(3.322)	(2.932)	(4.483)	
$10 \leq x < 20$	−2.714	2.711	−0.003	1,499
	(2.333)	(1.930)	(3.069)	
$x \geq 20$	2.703	2.768	5.471	1,103
	(1.459)	(1.478)	(2.270)	

Notes: Main sample. Specification B replaces delayed and fast scheduled demand in Table A16 with total scheduled demand and delayed demand, so the coefficient on Q^D is the delayed increment at fixed total demand; it equals the third column of Table A16. Specification C adds the ownership shares of six provider groups and their products with issue size. Up to unclassified statuses, those terms add up to delayed plus fast ownership and to total scheduled demand, so specification C keeps delayed demand and delayed ownership and drops fast ownership and total demand; the coefficient on Q^D is identified only by which providers' rules make the same ownership delayed or fast for the offering. The variance rows report the share of the variance of Q^D that the other regressors and effects of each specification explain; in specification C little variation remains, and the era rows show it in both rule periods. Specification D estimates specification B within issue-size bins. Standard errors in parentheses, clustered by issuer and dominant recognition month.

Table A5. Minimum detectable effects of the estimates reported as bounds

	Estimate	SE	MDE	N
Recognition close T_h (Table 5, Panel B)	0.431	0.400	1.121	4,252
Two sessions, $T_h - 1$ to T_h	1.309	0.448	1.255	4,204
$T_h + 1$ to $T_h + 10$	−1.026	0.988	2.767	4,247
$T_h - 1$ to $T_h + 10$	0.105	1.205	3.377	4,143
Top minus bottom tercile of days of volume (Panel E)	3.023	2.263	6.339	4,204
Russell purchase	−0.777	1.633	4.575	4,204
Accelerated or bought, per point of passive ownership (Table 7)	0.0003	0.0014	0.0039	7,829
Registered direct, per point of passive ownership	−0.0016	0.0008	0.0021	9,597
Log issue size, per point of passive ownership	−0.0049	0.0034	0.0094	3,928
Underwriting spread, β_Q	−0.012	0.043	0.121	3,337
Log density jump below Russell's US$250 million test, after June 2017 (Table A21)	0.022	0.195	0.547	1,150

Notes: The minimum detectable effect is the true coefficient that a two-sided test at the 5 percent level rejects with probability 0.8, $(1.96 + 0.84) \times \text{SE} = 2.8016 \times \text{SE}$, with the standard error of the estimate. Each row is in the units of the table it comes from: log points per percentage point of scheduled purchase for the execution rows of Table 5, probability or log units per point of passive ownership for the method and issue-size rows, percentage points of proceeds per point of scheduled purchase for the spread, and log counts for the density row. N counts offerings, or offering-close rows for the execution rows. Appendix Table A17 reports the minimum detectable effects of the timing contrasts and Table 4 those of the secondary offerings.

C The offer price: components, providers, segments and holders

Appendix Tables A6 to A9 split each estimate of Table 3 into the market move after the deal is public and the concession, and report the specifications that the main text summarizes. The two parts add up to the post-public offer price in every row, because each regression uses the same offerings and regressors.

The loading on the scheduled purchase is in both parts (Appendix Table A6, Panel A). Per point of scheduled purchase, the market move between the time the deal is public and pricing rises 0.589 (0.334) log points, and the concession 0.986 (0.357). Issue size lowers both parts, and the issue-size slope of each flattens with passive ownership. The battery of Table 3 keeps this split (Panel B). By period (Panel C), the loading is imprecise before 2009, on fewer than 300 offerings, and present in 2009 to 2015, 1.567 (0.737), and from 2016, 2.968 (0.808), in the baseline.

Appendix Table A7 reports the providers. By provider (Panel A), the loading is on Russell funds' purchase, 4.000 (1.740), and on CRSP, MSCI and Nasdaq funds', 1.381 (0.795), mostly in the concession; S&P 1500 funds' purchase loads −2.904 (1.437), and the Russell purchase exceeds it by 6.904 (2.523). Panel B splits the S&P 1500 and Russell purchases by whether the provider

recognizes the new shares within days or at a later update. The Russell purchase loads when delayed, 3.980 (1.744), and imprecisely when fast, 4.601 (3.108). The S&P 1500 purchase loads negatively when delayed, −4.791 (1.706), mostly in the concession, and not detectably when fast. Panel C takes the delayed S&P 1500 purchase apart. Forty-one accelerated offerings of at least 5 percent of shares by S&P 1500 members after March 27, 2020, which S&P's dollar test sends to the quarterly update, load −4.733 (1.739); the other delayed offerings, all below 5 percent of shares, load −4.157 (3.925). Without the 41 offerings the delayed loading is −5.451 (4.256) and the loading on the scheduled purchase 1.684 (0.490). In the one-loading form, the scheduled purchase loads 1.461 (0.513) at S&P 1500 members and 1.434 (0.550) at other firms. Panel D removes the forward sales, whose borrowed shares enter a later update: without the 20 source-reviewed forward sales the delayed S&P 1500 loading is −4.547 (1.655), without the 86 offerings whose final prospectus describes a forward sale it is −4.622 (1.676), and with the reviewed forwards' borrowed shares counted as a delayed purchase it is −4.740 (1.301). With S&P's and Russell's dollar tests evaluated at the close before launch times the shares filed, so that the offer price does not enter the classification, it is −4.338 (1.641). The negative S&P 1500 coefficient is therefore a split of one loading between providers that buy the same firms' new shares, estimated precisely only because of a small group of offerings and not produced by forward sales; the paper offers no economic account of it.

Appendix Table A8 reports the shape of the loading and how it varies with market conditions and timing. Panel A gives the quintile slopes of Figure 2 by component; the flattening from the bottom to the top quintile is in both, 0.110 (0.045) in the market move and 0.145 (0.051) in the concession. Panel B splits offerings at the median of market volatility over the 21 sessions before launch. The loading is 2.025 (0.596) when volatility is low and 1.042 (0.679) when it is high, and the difference, −0.983 (0.889), is in the concession. Panel C replaces the scheduled purchase with its delayed and fast parts, 1.148 (0.741) and 1.922 (0.614), and adds market-adjusted returns over five windows before launch, which leave the loading at 1.506 (0.449).

Appendix Table A9 reports the specification with one issue-size slope and checks inference and functional form. With one issue-size slope for all segments (Panel A) the loading is 0.584 (0.424), 0.243 (0.293) in the market move and 0.342 (0.340) in the concession. Clustering by issuer and dominant recognition month raises the standard error of the loading from 0.466 to 0.494 (Panel B). A coefficient b on the product of issue size and passive ownership corresponds to a loading of $100b$ on Q, so the three rows of Panel C imply loadings of 1.77 with linear issue size, 1.52 with the nonlinear issue-size terms and 1.69 with the products of issue size and the

illiquidity measures. Panel D shows that the loading does not depend on the part of the offer price before the deal is public. With that part as a control the loading is 1.597 (0.473); with market-adjusted returns over four windows before launch added, it is 1.588 (0.473). On the 2,401 deals whose preliminary prospectus has an EDGAR acceptance time, so that the outcome never falls back on the concession or the offer price from launch, it is 1.589 (0.624). With the float share and its product with issue size among the controls it is 1.397 (0.475), and without the 800 offerings by issuers outside the S&P 1500 and the Russell 3000, whose median market capitalization at launch is US$73 million, 1.138 (0.456).

Appendix Table A10 reports the rest of the regressions behind Table 4, Panel A. The level terms in delayed and fast passive ownership are near zero for new shares and positive for blocks, with the illiquidity terms as in the baseline, and they hold on blocks that raise the float and on those that leave it unchanged (table notes). Panel B combines them with the loading on the scheduled purchase. The total effect of a point of passive ownership on the price of new shares is about zero for an issue of 5 percent of the shares and rises with the issue, to 0.316 at 25 percent; for blocks it is 0.393 at 5 percent and falls with the block, to 0.049 at 25 percent. The loadings of Table 4 are the slopes of these total effects in the size of the sale.

Appendix Table A11 reports the loadings under the sample screens of the closest papers (Panel A; Section 4) and by price tier and liquidity tercile (Panel B). Among new shares, the loading is 1.123 at a pre-launch price of $10 or more and 1.602 higher below $5; by Amihud tercile it is largest in the least liquid tercile, whose median price is $4.41, and among issuers priced at $5 or more or at $10 or more no tercile differs detectably from the most liquid. Among blocks, the steepening sits in the least liquid tercile at every price floor. Only 16 blocks with the illiquidity terms are priced below $5, so the blocks' row for that tier carries no information.

C.1 Why one issue-size slope understates the loading

Appendix Table A12 shows where the difference between the two specifications comes from. Panel A splits it, −0.991 (0.262) for the post-public offer price, into the contributions of the segment terms, as in Gelbach (2016). The segment indicators contribute −0.018 (0.149) and their products with issue size −0.973 (0.340): the difference comes from the issue-size slopes, not from differences in the level of the offer price across segments. Panel B shows why the slopes matter. With no passive ownership, the issue-size slope at the median issue is −0.486 (0.077) among S&P 1500 members, −0.369 (0.101) in the Russell 1000, −0.256 (0.046) in the Russell 2000 and −0.185 (0.054) among other firms, and mean passive ownership falls in the same order, from

14.2 to 2.8 percent. Across segments, more passive ownership comes with a steeper issue-size slope; within a segment, it comes with a flatter one. One slope for all segments mixes the two comparisons and assigns part of the steeper slope of the most passively owned segments to the scheduled purchase.

By segment (Panel C), the loading is 1.351 (0.497) among S&P 1500 members, 0.830 (0.679) in the Russell 2000 and 7.408 (2.627) among other firms, where passive ownership is lowest, and −1.519 (1.143) in the Russell 1000, on 176 offerings of Russell 1000 members outside the S&P 1500. Equal loadings across the four segments are rejected, with a $\chi^2(3)$ statistic of 11.34 ($p = 0.010$).

C.2 Which holders flatten the issue-size slope

Table 3, column 4, shows that institutional ownership other than index funds also flattens the issue-size slope. Appendix Table A13 splits it into other funds and three groups of 13F holdings outside registered funds, each netted against the same family's fund holdings at the same quarter end: the five largest index managers (BlackRock, Vanguard, State Street, Northern Trust and Geode), whose holdings outside their funds are mostly institutional index accounts; hedge funds outside those families; and other institutions. Per point of ownership times issue size, hedge funds load 0.560 (0.195) and other institutions 0.328 (0.170), against 1.340 (0.474) for index funds' scheduled purchase; other funds load 0.073 (0.165), and the index managers' institutional holdings −0.358 (0.838). Index funds' loading exceeds hedge funds' by 0.780 (0.514) and other institutions' by 1.011 (0.518) (Panel A). Per interquartile range of each group's ownership, the slope rises by 0.090 (0.032) for index funds, 0.054 (0.019) for hedge funds and 0.076 (0.039) for other institutions (Panel B). Adding the index managers' institutional holdings to index funds' ownership in one committed purchase lowers its loading to 0.788 (0.354), against 1.269 (0.444) for index funds' purchase alone on the same offerings (Panel C). Holders that take up new shares in seasoned offerings flatten the slope, by less per point than index funds' purchase; institutional index accounts measured this way do not add to it.

Appendix Table A14 sets the quantities beside these loadings, on the same offerings. At the first quarterly report after the sale, index funds hold 0.130 (0.007) of each new share, against ownership of 0.122 (0.005) before the sale, close to their pro-rata share. Hedge funds hold 0.193 (0.013) of each new share against ownership of 0.075 (0.004), more than twice their share, and other funds and other 13F institutions also take more than their shares, by 0.106 (0.017) and 0.118 (0.022). Holders outside funds and 13F hold 0.167 (0.046) fewer shares per new share,

against ownership of 0.195 (0.009) before the sale. The price loadings do not rank holders by how much of the issue they take up: index funds take the new shares about in proportion to their holdings and load most per point, other funds take more than their share and do not load, and hedge funds take the most relative to their holdings and load less per point than index funds. The quantity is the change in institutional holdings around the offer date that Gibson et al. (2004) relate to issuers' later returns, here split by holder.

Appendix Table A15 prices the two kinds of share within one deal. A mixed offering sells new and existing shares at one price, so both scheduled purchases enter one regression with the controls of Table 3, and the deal's passive ownership is common to both. The new-minus-existing difference is 0.660 (2.632) on the 344 deals that meet the main screens and 2.950 (2.044) on the 478 deals without the provider-status requirement, with minimum detectable differences of 7.375 and 5.727: too imprecise to tell either way, so the pure samples of Table 4 carry the comparison.

Table A6. The offer price and scheduled index demand: components and periods

	Post-public offer price	Market move after public	Concession	Offerings
Panel A. One loading on the scheduled purchase (Table 3, Panel A)				
Scheduled purchase, β_Q	1.575	0.589	0.986	3,951
	(0.466)	(0.334)	(0.357)	
Issue size, β_x	−0.300	−0.118	−0.183	3,951
	(0.047)	(0.029)	(0.036)	
$\beta_x + \beta_Q$	1.274	0.471	0.803	3,951
	(0.436)	(0.315)	(0.333)	
Issue-size slope at passive ownership of 3.4 (p25)	−0.247	−0.098	−0.150	3,951
	(0.038)	(0.023)	(0.029)	
Issue-size slope at passive ownership of 5.8 (p50)	−0.209	−0.084	−0.126	3,951
	(0.034)	(0.021)	(0.027)	
Issue-size slope at passive ownership of 10.0 (p75)	−0.143	−0.059	−0.084	3,951
	(0.037)	(0.025)	(0.028)	
Panel B. Table 3, Panel B, columns 2 to 5				
(2) Illiquidity terms, β_Q	1.714	0.645	1.069	3,710
	(0.459)	(0.338)	(0.365)	
(3) 13F ownership, β_Q	0.993	0.390	0.604	3,709
	(0.456)	(0.332)	(0.414)	
(4) Non-index ownership, β_Q	1.279	0.522	0.756	3,709
	(0.441)	(0.328)	(0.381)	
(5) Issuer effects, β_Q	1.401	0.831	0.570	2,922
	(0.574)	(0.368)	(0.513)	
(3) 13F × size/100	0.299	0.137	0.161	3,709
	(0.086)	(0.048)	(0.069)	
(4) Non-index × size/100	0.304	0.143	0.161	3,709
	(0.086)	(0.049)	(0.069)	
Panel C. β_Q by period				
Column 1, 2002–2008	0.725	−1.079	1.804	294
	(1.692)	(1.737)	(1.259)	
Column 1, 2009–2015	1.567	0.428	1.139	1,522
	(0.737)	(0.493)	(0.467)	
Column 1, 2016–2023	2.968	1.084	1.883	2,135
	(0.808)	(0.541)	(0.681)	
Column 2, 2002–2008	1.331	−1.238	2.569	284
	(1.939)	(1.782)	(1.231)	
Column 2, 2009–2015	1.501	0.490	1.011	1,449
	(0.613)	(0.420)	(0.438)	
Column 2, 2016–2023	3.217	1.237	1.980	1,977
	(0.893)	(0.654)	(0.716)	

Notes: Main sample. Each row reports the post-public offer price and its two components, with the specifications of Table 3 and segment-specific issue-size slopes. The market move after the deal is public is the change from the last close before the deal is public to the close before pricing, net of the CRSP value-weighted return (zero when the deal is public at pricing), and the concession is 100 log of the offer price over the close before pricing; the post-public offer price is their sum, so each row's first column is the sum of the other two. Panel C reports the baseline and column 2 within 2002 to 2008, 2009 to 2015 and 2016 to 2023. Standard errors in parentheses are clustered by issuer and sale month.

Table A7. The offer price and scheduled index demand: providers

	Post-public offer price	Market move after public	Concession	Offerings
Panel A. The scheduled purchase by provider				
S&P 1500	−2.904	−0.384	−2.520	3,951
	(1.437)	(1.164)	(0.844)	
Other S&P	−0.876	2.046	−2.922	3,951
	(2.831)	(2.156)	(2.409)	
Russell	4.000	0.956	3.044	3,951
	(1.740)	(1.030)	(1.497)	
CRSP, MSCI and Nasdaq	1.381	0.109	1.273	3,951
	(0.795)	(0.550)	(0.585)	
Russell minus S&P 1500	6.904	1.340	5.564	3,951
	(2.523)	(1.692)	(1.822)	
Panel B. The scheduled purchase by provider and recognition				
S&P 1500, delayed	−4.791	−1.038	−3.753	3,951
	(1.706)	(1.208)	(1.079)	
S&P 1500, fast	−1.556	0.020	−1.576	3,951
	(1.633)	(1.341)	(0.840)	
Russell, delayed	3.980	0.958	3.022	3,951
	(1.744)	(1.032)	(1.500)	
Russell, fast	4.601	−0.676	5.277	3,951
	(3.108)	(1.779)	(2.271)	
Other S&P	−0.928	2.015	−2.942	3,951
	(2.824)	(2.159)	(2.396)	
CRSP, MSCI and Nasdaq	1.571	0.144	1.427	3,951
	(0.808)	(0.549)	(0.599)	
Panel C. The delayed S&P 1500 purchase				
Delayed S&P 1500 purchase: under the 2020 dollar test	−4.733		−4.022	3,951
	(1.739)		(1.129)	
Delayed S&P 1500 purchase: below 5 percent of shares	−4.157		−6.688	3,951
	(3.925)		(3.149)	
Delayed S&P 1500 purchase, without the dollar-test offerings	−5.451		−7.055	3,910
	(4.256)		(3.433)	
β_Q of Table 3, column 1, on the same sample	1.684		1.039	3,910
	(0.490)		(0.370)	
Scheduled purchase at S&P 1500 members	1.461		0.701	3,951
	(0.513)		(0.368)	
Scheduled purchase at other firms	1.434		0.966	3,951
	(0.550)		(0.422)	
Panel D. The delayed S&P 1500 purchase, forward sales and the dollar tests				
Without the source-reviewed forward sales	−4.547		−3.525	3,931
	(1.655)		(1.065)	
Without any offering described as a forward sale	−4.622		−3.497	3,865
	(1.676)		(1.072)	
Borrowed shares of reviewed forwards as a delayed purchase	−4.740		−3.859	3,951
	(1.301)		(0.843)	
Dollar tests at the pre-launch value	−4.338		−3.475	3,951
	(1.641)		(1.072)	

Notes: Main sample. Each row reports the post-public offer price and its components, as in Appendix Table A6, with the specifications of Table 3 and segment-specific issue-size slopes. Panel A replaces Q with the scheduled purchases of funds tracking S&P 1500 indexes (the S&P 500, 400, 600 and 1500), other S&P indexes, Russell indexes, and CRSP, MSCI and Nasdaq indexes, adding each group's passive ownership to the controls. Panel B splits the S&P 1500 and Russell purchases by whether the provider recognizes the new shares within days (fast) or at a later scheduled update (delayed). Panel C splits the delayed S&P 1500 purchase, in the regression of Panel B, into offerings by S&P 1500 members after March 27, 2020, of at least 5 percent of shares, which S&P's dollar test sends to the quarterly update (41 offerings, all accelerated), and the others; it reruns that regression without the dollar-test offerings; and it splits the scheduled purchase of Table 3, column 1, by whether the issuer is an S&P 1500 member. Panel D reruns Panel B's regression without the 20 offerings whose forward sales were reviewed against their sources, without the 86 whose final prospectus describes a forward sale (of 3,531 linked final prospectuses read), and with the borrowed shares of the reviewed forward sales added to the delayed S&P 1500 purchase of the 12 offerings that carry them. Its last row evaluates S&P's and Russell's dollar tests at the close before launch times the shares filed (or base shares), not at the offer value, which moves 4 S&P 1500 and 27 Russell offerings between fast and delayed. The market move after public is not estimated in Panels C and D. Standard errors in parentheses are clustered by issuer and sale month.

Table A8. The offer price and scheduled index demand: shape, market conditions and timing

	Post-public offer price	Market move after public	Concession	Offerings
Panel A. Issue-size slope by passive-ownership quintile (Figure 2)				
Quintile 1, mean passive ownership 1.9	−0.321	−0.129	−0.192	3,951
	(0.053)	(0.030)	(0.045)	
Quintile 2, mean passive ownership 3.8	−0.221	−0.093	−0.128	3,951
	(0.047)	(0.031)	(0.036)	
Quintile 3, mean passive ownership 5.8	−0.212	−0.062	−0.149	3,951
	(0.043)	(0.026)	(0.035)	
Quintile 4, mean passive ownership 9.0	−0.139	−0.076	−0.063	3,951
	(0.045)	(0.030)	(0.032)	
Quintile 5, mean passive ownership 17.2	−0.066	−0.019	−0.047	3,951
	(0.042)	(0.031)	(0.036)	
Quintile 5 minus quintile 1	0.255	0.110	0.145	3,951
	(0.065)	(0.045)	(0.051)	
Panel B. Market volatility before launch				
β_Q, volatility at or below the median	2.025	0.481	1.544	3,951
	(0.596)	(0.484)	(0.473)	
β_Q, volatility above the median	1.042	0.717	0.325	3,951
	(0.679)	(0.387)	(0.503)	
High minus low	−0.983	0.237	−1.219	3,951
	(0.889)	(0.566)	(0.685)	
Panel C. Delayed and fast purchases, and pre-launch returns				
Delayed purchase	1.148	0.792	0.357	3,951
	(0.741)	(0.473)	(0.590)	
Fast purchase	1.922	0.424	1.497	3,951
	(0.614)	(0.426)	(0.431)	
Delayed minus fast	−0.773	0.367	−1.141	3,951
	(0.978)	(0.602)	(0.734)	
β_Q with pre-launch returns as controls	1.506	0.446	1.060	3,950
	(0.449)	(0.305)	(0.364)	

Notes: Main sample. Each row reports the post-public offer price and its components, as in Appendix Table A6, with the specifications of Table 3 and segment-specific issue-size slopes. Panel A replaces Q in Table 3, column 1, with issue size times passive-ownership quintile indicators, and the indicators, and reports the issue-size slope at the median issue in each quintile. Panel B interacts Q, issue size and delayed and fast passive ownership with an indicator for 21-session realized volatility of the CRSP value-weighted return, ending at the pre-launch close, above its sample median. Panel C replaces Q with delayed and fast scheduled purchases, and adds market-adjusted returns over five windows before launch to column 1. Standard errors in parentheses are clustered by issuer and sale month.

Table A9. The offer price and scheduled index demand: specification and inference

	Post-public offer price	Market move after public	Concession	Offerings
Panel A. One issue-size slope for all segments				
Scheduled purchase, β_Q	0.584	0.243	0.342	3,951
	(0.424)	(0.293)	(0.340)	
Issue size, β_x	−0.233	−0.099	−0.135	3,951
	(0.042)	(0.026)	(0.033)	
$\beta_x + \beta_Q$	0.351	0.144	0.207	3,951
	(0.400)	(0.278)	(0.321)	
(2) Illiquidity terms, β_Q	0.932	0.585	0.347	3,710
	(0.421)	(0.310)	(0.346)	
(4) Non-index ownership, β_Q	0.504	0.464	0.040	3,709
	(0.396)	(0.293)	(0.364)	
(5) Issuer effects, β_Q	0.752	0.544	0.208	2,922
	(0.538)	(0.297)	(0.491)	
Panel B. Standard errors clustered by issuer and recognition month				
Scheduled purchase, β_Q	1.575	0.589	0.986	3,951
	(0.494)	(0.309)	(0.416)	
Issue size, β_x	−0.300	−0.118	−0.183	3,951
	(0.047)	(0.027)	(0.041)	
$\beta_x + \beta_Q$	1.274	0.471	0.803	3,951
	(0.461)	(0.290)	(0.386)	
Panel C. The interaction form, coefficient on $x \times \Phi$				
Linear issue size	0.0177	0.0060	0.0117	3,951
	(0.0048)	(0.0034)	(0.0037)	
Nonlinear issue size	0.0152	0.0060	0.0092	3,951
	(0.0047)	(0.0033)	(0.0037)	
Nonlinear issue size and issue size × illiquidity terms	0.0169	0.0064	0.0105	3,710
	(0.0047)	(0.0033)	(0.0038)	
Panel D. The part before the deal is public, the float and the smallest issuers				
Pre-public part as a control, β_Q	1.597	0.613	0.985	3,951
	(0.473)	(0.343)	(0.357)	
and pre-launch returns as controls	1.588	0.605	0.983	3,950
	(0.473)	(0.341)	(0.358)	
Deals with an observed public time, β_Q	1.589	1.013	0.575	2,401
	(0.624)	(0.441)	(0.469)	
Float share and issue size × float share as controls, β_Q	1.397		0.919	3,943
	(0.475)		(0.369)	
Issuers in the S&P 1500 or the Russell 3000, β_Q	1.138	0.244	0.894	3,151
	(0.456)	(0.302)	(0.354)	

Notes: Main sample. Each row reports the post-public offer price and its components, as in Appendix Table A6. Panel A omits the segment indicators and their products with issue size from Table 3, columns 1, 2, 4 and 5. Panel B reports Table 3, Panel A, with standard errors clustered by issuer and dominant recognition month, as in Appendix Table A16. Panel C regresses the post-public offer price on issue size, passive ownership and their product, with log market capitalization, an accelerated-offering indicator, active-fund benchmark ownership, the segment terms, and calendar-quarter and FF48 effects: with linear issue size; adding its logarithm, square and product with centered log size; and adding issue size times Amihud illiquidity, idiosyncratic volatility and log book-to-market with their levels. A coefficient of b on $x \times \Phi$ corresponds to $100b$ on Q. Panel D adds to Table 3, column 1, the pre-public part of the offer price (the offer price from launch less the post-public offer price), then also market-adjusted returns over sessions $L-62$ to $L-21$, $L-20$ to $L-6$, $L-5$ to $L-1$ and L; estimates column 1 on the deals whose preliminary prospectus has an EDGAR acceptance time; adds the CRSP float share of shares outstanding in the month before pricing and its centered product with issue size, on the offerings with a float share (the market move is not estimated in that row); and drops the 800 offerings by issuers in none of the S&P 1500, the Russell 1000 and the Russell 2000 in the month before pricing, whose median market capitalization at launch is US$73 million. Standard errors in parentheses are clustered by issuer and sale month except in Panel B.

Table A10. Passive ownership's level and total effect: new shares and blocks

	New shares		Blocks	
	Baseline	Illiquidity terms	Baseline	Illiquidity terms
	(1)	(2)	(3)	(4)
Panel A. Level terms, per point of passive ownership				
Delayed passive ownership	−0.072	−0.103	0.399	0.334
	(0.058)	(0.056)	(0.090)	(0.091)
Fast passive ownership	−0.086	−0.110	0.532	0.466
	(0.068)	(0.067)	(0.106)	(0.108)
Panel B. Total effect of a point of passive ownership, at a sale of				
5 percent of shares	0.000	−0.021	0.393	0.355
	(0.047)	(0.047)	(0.070)	(0.072)
The median sale	0.133	0.122	0.315	0.304
	(0.048)	(0.049)	(0.062)	(0.063)
The mean sale	0.193	0.185	0.281	0.284
	(0.058)	(0.059)	(0.065)	(0.065)
25 percent of shares	0.316	0.322	0.049	0.124
	(0.087)	(0.088)	(0.143)	(0.141)
Panel C. Size slope at the median sale				
No passive ownership	−0.301	−0.299	−0.029	−0.091
	(0.047)	(0.046)	(0.053)	(0.052)
Mean passive ownership	−0.182	−0.165	−0.130	−0.163
	(0.034)	(0.037)	(0.033)	(0.034)
Median sale, percent of shares	13.43	13.31	9.54	9.46
Mean sale, percent of shares	17.24	17.03	11.55	11.19
Mean passive ownership, percent	7.53	7.76	5.89	6.29
Delayed share of passive ownership	0.510	0.506	0.397	0.403
Offerings	3,951	3,710	1,517	1,283

Notes: Each column is one regression of Table 4, Panel A, column 1 or 2, estimated on one kind of sale: the post-public offer price on the size of the sale, delayed and fast passive ownership and the scheduled purchase Q, size times passive ownership over 100, with the other controls of Table 3 and segment-specific size slopes; new shares are measured on the return basis of Table 4, and the coefficients on Q are those of its Panel A. Panel A reports the regression's own coefficients on delayed and fast passive ownership, which are among the controls of Table 3, in log points per percentage point. Panel B reports the total effect of a point of passive ownership on the offer price at a sale of y percent of shares, $w\,b^D + (1-w)\,b^F + \beta_Q\,y/100$, with b^D and b^F the coefficients of Panel A and w the delayed share of passive ownership in the column's offerings; the median and mean sales are each column's. Panel C reports the size slope at the median sale and mean centered size (the convention of Table 8) with no passive ownership and at the column's mean. The level terms are near zero for new shares and positive for blocks, and they hold on blocks that raise the float, 0.379 (0.104) and 0.524 (0.127) on 1,204 blocks, and on blocks that leave it unchanged, 0.475 (0.267) and 0.383 (0.265) on 250 (column 3's specification). The loadings β_Q of Table 4 are the gradients of Panel B's total effects in the size of the sale. Standard errors in parentheses are clustered by issuer and sale month within each sample.

Table A11. The loadings under the closest literature's screens and by price and liquidity

	New shares		Blocks		New shares
	β_Q	Offerings	β_Q	Offerings	minus blocks
Panel A. Sample screens of Corwin (2003) and Gao and Ritter (2010), and price floors					
Main sample	1.575	3,951	−1.721	1,517	3.296
	(0.466)		(0.806)		(0.931)
Price at L of \$3 or more	0.760	3,304	−1.729	1,510	2.490
	(0.433)		(0.829)		(0.936)
Market value of US\$75 million or more	1.039	3,499	−1.696	1,516	2.735
	(0.465)		(0.829)		(0.951)
Both	0.677	3,213	−1.729	1,510	2.406
	(0.434)		(0.829)		(0.936)
Price at L of \$5 or more	0.554	2,998	−1.704	1,499	2.258
	(0.420)		(0.828)		(0.929)
Price at L of \$10 or more	0.488	2,360	−1.995	1,421	2.483
	(0.429)		(0.791)		(0.900)
Price at L below \$5	4.437	953			
	(1.454)				
Panel B. Price tiers and liquidity terciles, one regression each					
	β_Q	Offerings	β_Q	Offerings	
Price tiers, price at L					
\$10 or more	1.123	2,240	−1.075	1,200	
	(0.441)		(0.800)		
\$5 to \$10, difference	0.601	602	−1.370	67	
	(0.571)		(1.434)		
below \$5, difference	1.602	868	−13.356	16	
	(0.810)		(6.325)		
Amihud illiquidity terciles					
Most liquid	1.245	1,237	0.404	428	
	(0.598)		(0.911)		
middle, difference	−0.436	1,236	−0.693	427	
	(0.488)		(0.623)		
least liquid, difference	2.204	1,237	−3.361	428	
	(0.953)		(0.900)		
Amihud terciles, price at L of \$5 or more					
Most liquid	0.918	947	0.854	422	
	(0.558)		(0.860)		
middle, difference	−0.369	947	−0.686	422	
	(0.469)		(0.623)		
least liquid, difference	−0.303	948	−3.363	423	
	(0.683)		(0.884)		
Amihud terciles, price at L of \$10 or more					
Most liquid	0.774	747	0.526	400	
	(0.606)		(0.917)		
middle, difference	0.050	746	−0.527	400	
	(0.508)		(0.624)		
least liquid, difference	−0.150	747	−2.800	400	
	(0.662)		(0.942)		

Notes: Each row is Table 4, Panel A, column 1, estimated on each kind of sale separately: the post-public offer price on the scheduled purchase Q with the controls of Table 3 and segment-specific size slopes; new shares are on the issuer-price basis of Table 3. Panel A restricts both samples. Corwin (2003) requires an offer price of at least \$3 and Gao and Ritter (2010) a pre-issue market value of at least US\$75 million; neither they nor Khan et al. (2012) screen on a \$5 price. The price at L is the absolute close before launch and the market value is at that close. The difference uses the independent-samples standard error (Table 4 reports the stacked one for the main sample); 18 blocks are priced below \$5. Panel B adds, on the offerings with the illiquidity terms of Table 3, column 2, indicators for the second and third group, each with its products with size and with Q; the first row of each block is the loading in the base group and the others its difference from it, and the offerings columns count each group. Amihud terciles are cut by rank within each regression's offerings; among new shares their median prices at L are \$34.45, \$14.52 and \$4.41 and their mean passive ownership 12.2, 7.4 and 3.7 percent, from most to least liquid. Standard errors in parentheses are clustered by issuer and sale month.

Table A12. Why one issue-size slope understates the loading

	Post-public offer price	Market move after public	Concession	Offerings
Panel A. From one issue-size slope to segment-specific slopes				
β_Q, one issue-size slope	0.584	0.243	0.342	3,951
	(0.424)	(0.293)	(0.340)	
β_Q, segment-specific slopes	1.575	0.589	0.986	3,951
	(0.466)	(0.334)	(0.357)	
One slope minus segment-specific slopes	−0.991	−0.346	−0.644	3,951
	(0.262)	(0.167)	(0.205)	
due to the segment indicators	−0.018	−0.088	0.071	3,951
	(0.149)	(0.066)	(0.126)	
due to their products with issue size	−0.973	−0.258	−0.715	3,951
	(0.340)	(0.195)	(0.267)	
Panel B. Issue-size slope at the median issue by segment, post-public offer price				
	$\Phi = 0$	$\Phi = \bar{\Phi}$	$\bar{\Phi}$	
S&P 1500	−0.486	−0.263	14.2	924
	(0.077)	(0.057)		
Russell 1000	−0.369	−0.227	9.0	176
	(0.101)	(0.091)		
Russell 2000	−0.256	−0.157	6.2	2,051
	(0.046)	(0.038)		
Other	−0.185	−0.141	2.8	800
	(0.054)	(0.052)		
Panel C. The loading by segment				
β_Q, S&P 1500	1.351	0.434	0.917	3,951
	(0.497)	(0.352)	(0.388)	
β_Q, Russell 1000	−1.519	−2.018	0.498	3,951
	(1.143)	(1.204)	(0.691)	
β_Q, Russell 2000	0.830	0.386	0.444	3,951
	(0.679)	(0.458)	(0.538)	
β_Q, Other	7.408	4.350	3.059	3,951
	(2.627)	(2.030)	(2.055)	
Equal loadings, $\chi^2(3)$	11.34	7.42	1.96	
p-value	0.010	0.060	0.581	

Notes: Main sample. Columns as in Appendix Table A6. Panel A splits the difference between the loading with one issue-size slope (Appendix Table A9, Panel A) and with segment-specific slopes (Table 3, column 1) into the contributions of the segment terms: each term's coefficient in the regression with segment slopes times the coefficient on Q in a regression of the term on the other regressors. The contributions add up to the difference, and their standard errors hold those auxiliary coefficients fixed. Panel B reports the issue-size slope at the median issue in each segment from Table 3, column 1, with no passive ownership and at the segment's mean passive ownership $\bar{\Phi}$, in percent, with the common loading; the last column counts the segment's offerings. Panel C replaces Q with its products with the four segment indicators and adds the products of delayed and fast passive ownership with the indicators; the χ^2 statistic tests equal loadings. Standard errors in parentheses are clustered by issuer and sale month.

Table A13. Which holders flatten the issue-size slope

	Post-public offer price	Offer price from launch	Concession	Offerings
Panel A. Holders' ownership times issue size				
Index funds' scheduled purchase, β_Q	1.340	1.926	0.977	3,709
	(0.474)	(0.484)	(0.411)	
Index managers outside their funds × size/100	−0.358	−0.208	−1.175	3,709
	(0.838)	(0.969)	(0.628)	
Hedge funds × size/100	0.560	0.713	0.243	3,709
	(0.195)	(0.213)	(0.179)	
Other 13F institutions × size/100	0.328	0.309	0.091	3,709
	(0.170)	(0.198)	(0.138)	
Other funds × size/100	0.073	0.277	0.302	3,709
	(0.165)	(0.186)	(0.138)	
β_Q minus hedge funds	0.780	1.213	0.734	3,709
	(0.514)	(0.535)	(0.485)	
β_Q minus other institutions	1.011	1.617	0.886	3,709
	(0.518)	(0.532)	(0.453)	
Panel B. Slope change per interquartile range of each holder's ownership				
Index funds	0.090	0.130	0.066	3,709
	(0.032)	(0.033)	(0.028)	
Index managers outside their funds	−0.015	−0.009	−0.048	3,709
	(0.034)	(0.040)	(0.026)	
Hedge funds	0.054	0.069	0.023	3,709
	(0.019)	(0.021)	(0.017)	
Other 13F institutions	0.076	0.072	0.021	3,709
	(0.039)	(0.046)	(0.032)	
Other funds	0.014	0.053	0.058	3,709
	(0.032)	(0.035)	(0.026)	
Panel C. Index managers' institutional holdings counted with index funds				
One committed purchase, $x(\Phi + \text{index managers})/100$	0.788	1.243	0.284	3,709
	(0.354)	(0.395)	(0.294)	
$\beta_x + \beta_Q$	0.466	0.851	0.090	3,709
	(0.319)	(0.357)	(0.266)	
Index funds' purchase alone, β_Q	1.269	1.885	0.745	3,709
	(0.444)	(0.463)	(0.385)	
$\beta_x + \beta_Q$	0.954	1.512	0.535	3,709
	(0.421)	(0.440)	(0.365)	

Notes: Main-sample offerings with illiquidity terms and 13F holdings at the last quarter end before the offering's quarter (3,709). Each regression is Table 3, column 4, with non-index ownership split into four groups, each in percent of shares and times centered issue size over 100: registered funds other than index funds, and the 13F holdings outside registered funds, net of each family's own funds, of the five largest index managers (BlackRock, Vanguard, State Street, Northern Trust and Geode), of hedge funds outside those families, and of other institutions. Panel B multiplies each slope by the interquartile range of the holder's ownership. Panel C counts the index managers' holdings with index funds' ownership in one scheduled purchase. Standard errors are clustered by issuer and sale month.

Table A14. Who takes up the new shares, beside the price loading

	Price loading	Take-up per new share	Ownership before the sale	Take-up minus ownership	
				Mean	Median
Index funds	1.340	0.130	0.122	0.008	−0.011
	(0.474)	(0.007)	(0.005)	(0.007)	
Other funds	0.073	0.301	0.195	0.106	0.028
	(0.165)	(0.018)	(0.004)	(0.017)	
Index managers outside their funds	−0.358	0.078	0.066	0.013	−0.001
	(0.838)	(0.007)	(0.001)	(0.007)	
Hedge funds	0.560	0.193	0.075	0.118	0.107
	(0.195)	(0.013)	(0.004)	(0.012)	
Other 13F institutions	0.328	0.464	0.347	0.118	0.089
	(0.170)	(0.024)	(0.005)	(0.022)	
Holders outside funds and 13F		−0.167	0.195	−0.362	−0.310
		(0.046)	(0.009)	(0.044)	

Notes: Offerings of Appendix Table A13 (3,709, in 79 offering quarters). Take-up per new share is the change in the group's holdings from the quarter end before the sale to the first quarter end at or after it, in units of the new shares, as in Table 6, Panel A; ownership before the sale is the group's holdings at the quarter end before the sale as a fraction of shares outstanding. A group that takes the new shares in proportion to its holdings has a difference of zero. Index funds and other funds are registered funds; the three 13F groups are holdings outside registered funds, net of each family's own funds, as in Appendix Table A13; holders outside funds and 13F are the rest, so the take-up and ownership columns each add up to one. Means are weighted by proceeds, with standard errors clustered by offering quarter. The price loading is the post-public offer price coefficient of Appendix Table A13, Panel A: per point of scheduled purchase for index funds, and per point of ownership times issue size for the other groups. Its ownership measures are those of this table, except passive ownership of the providers' funds for index funds (correlation 0.99) and 13F holdings less passive and other fund ownership for other 13F institutions (correlation 0.98). Holdings are quarterly levels; the table does not show who sells to index funds at recognition.

Table A15. Mixed offerings: new and existing shares sold in one deal

	Post-public offer price	Market move after public	Concession	Offerings
Panel A. Main version				
Purchase of the new shares, β_Q	−0.528	−0.642	0.115	344
	(0.989)	(0.966)	(0.578)	
Purchase of the existing shares, β_Q	−1.188	−0.376	−0.812	344
	(2.164)	(1.713)	(0.935)	
New minus existing	0.660	−0.267	0.927	344
	(2.632)	(2.160)	(1.145)	
Minimum detectable effect, new minus existing	7.375	6.051	3.208	
Panel B. Alternative version				
Purchase of the new shares, β_Q	0.836	0.641	0.196	478
	(1.192)	(0.968)	(0.550)	
Purchase of the existing shares, β_Q	−2.114	−1.562	−0.552	478
	(1.328)	(1.099)	(0.659)	
New minus existing	2.950	2.203	0.747	478
	(2.044)	(1.718)	(0.822)	
Minimum detectable effect, new minus existing	5.727	4.813	2.303	

Notes: A mixed offering sells new shares and existing shares in one deal, at one price. Of the 857 mixed offerings in the event file's price layer, 478 pass the screens of the pure secondaries in Table 4 (494 have an SDC launch within ten trading days of pricing). Both sizes, the new shares and the existing shares sold in percent of shares outstanding, and both scheduled purchases, each size times passive ownership over 100, enter one regression, with the nonlinear size terms on the deal's total size, the other controls of Table 3, column 1, segment-specific slopes in total size, and calendar-quarter and FF48 effects. The main version keeps deals in which providers with an unknown rule status hold at most a quarter of passive ownership, and uses scheduled passive ownership, as the main sample does; the alternative drops the requirement and uses all passive ownership. Both purchases in a deal share its passive ownership, so the difference compares the two kinds of share within the same deals. The market move after the deal is public is the change from the last close before the deal is public to the close before pricing, net of the CRSP value-weighted return (zero when the deal is public at pricing), and the concession is 100 log of the offer price over the close before pricing; the post-public offer price is their sum, so each row's first column is the sum of the other two. The minimum detectable effect is 2.80×SE. Standard errors in parentheses are clustered by issuer and sale month.

D The price path and recognition timing

D.1 The price path

Appendix Table A16 follows the price from the pre-launch close through the recognition close and beyond, on one sample and one clock. After pricing, the path value at a close $p \geq t_0$, in log points from the pre-launch close, is

$$R_p = R^{\text{ref}} + 100 \sum_{j=t_0}^{p} \left[\log(1 + r_j) - \log(1 + r_j^M)\right],$$

where r_j is the stock's CRSP total return and r_j^M the value-weighted market return. The offer price enters between $t_0 - 1$ and t_0, so the path at the offer equals R^{offer}, and each window of the table is a difference of path values. Each window is regressed on delayed and fast scheduled demand with the controls of Table 3. The offerings and regressors are common, so the components of Panel A add up to the cumulative changes of Panel B.

At the offer, delayed and fast demand load 1.630 (0.897) and 1.004 (0.654), a difference the data cannot detect (Appendix Table A17, Panel A), and most of either loading is in the market reference. After pricing, delayed demand loads on the recognition day, 0.886 (0.380), and its cumulative loading through T is 4.206 (1.963), while fast demand shows no such pattern. Delayed demand's loadings after recognition are negative and imprecise. Figure A1 plots the cumulative coefficients from the pre-launch close (Panel A) and around the recognition close (Panel B).

D.2 Recognition timing

The model of Section 9 separates anticipation, under which the offer price does not depend on when the purchase is scheduled, from costly carry, under which a longer wait lowers it. Appendix Table A17 uses three sources of variation in the wait. Each gives a bound, reported with its minimum detectable effect in brackets.

Panel A compares delayed with fast demand in the same offerings. At the offer the difference is 0.627 (1.205), and the test could detect 3.4 log points per point of purchase.

Panel B uses pricing just after a quarterly information cutoff, which adds 50.0 (3.2) trading days to the wait with no jump in the density of offerings, 0.090 (0.186). The price responses in this design have minimum detectable effects of 12 log points at the offer and more over longer windows. Panel C fits the signed-timing equation of Appendix E to the main-sample offerings it covers; timing exposure has no detectable effect on the offer price, the concession, the

recognition-day return or the ten sessions after recognition. Of the 19 S&P quarterly recognitions postponed from March to June 2020, eight are in the main sample, too few to estimate. In the interaction form, with issue size and passive ownership entered separately, delayed and fast ownership also show no detectable difference (Appendix Table A17, notes). Together the designs bound the price of recognition timing without identifying it, and the carry cost per period of wait is not estimable from them.

D.3 The recognition close by price and index segment

Appendix Table A18 repeats the within-offering-and-date comparison of Table 5, Panel B, on subsets of the closes. Turnover on the close rises with the purchase at each price floor. The price over the two sessions ending at the close does not: its loading is 0.631 on offerings priced at \$5 or more before launch and −0.502 at \$10 or more (Panel A), and in one regression on all closes it is 1.781 larger below \$10 than above (Panel B). By segment, the two sessions load 2.176 in the Russell 2000, 0.764 there at \$10 or more and 1.861 below, both imprecise (Panel C). On higher-priced issuers the Russell purchase keeps its turnover, and its two-session loading falls to 1.380 at \$5 or more and 0.311 at \$10 or more (Panel D).

D.4 Existing shares: the path after the sale and the wait to the float update

Appendix Table A19 follows both kinds of sale after the deal and gives the block side's timing. In Panel A, no reversal of either loading is detected within 60 sessions of the offer: the difference between the new-share and block loadings, with independent-samples standard errors, is 3.663 (1.130) at the offer and 6.279 (2.657) at $t_0 + 60$, and the loadings on the return from the offer price itself are near zero for new shares and negative and imprecise for blocks. At low passive ownership both kinds of sale carry a temporary size concession that reverses within twenty sessions, 0.261 (0.072) and 0.231 (0.079) per point of size on the return from the offer through $t_0 + 20$. In Panel B, the block loading does not grow with the wait to the float update, −1.730 (0.800) at no wait and 0.038 (1.079) per quarter of wait, so a cost of carrying the block to the purchase does not account for it. In Panel C, Russell's June 2017 move from annual to quarterly float updates leaves the change in the Russell part of the loading undetermined, with a difference in differences of −2.830 (3.704).

Table A16. The offer price and the price path of scheduled index demand

	Delayed Q^D	Fast Q^F	Delayed − fast
Panel A. Components, in order			
Market reference, L to $t_0 - 1$	0.995	0.900	0.096
	(0.520)	(0.394)	(0.671)
Concession, offer price relative to the $t_0 - 1$ close	0.635	0.104	0.531
	(0.690)	(0.457)	(0.836)
Sale, offer price to the $t_0 + 1$ close	0.308	−0.053	0.361
	(0.725)	(0.491)	(0.837)
Wait, $t_0 + 2$ to $T - 1$	1.382	−1.013	2.395
	(1.681)	(0.809)	(2.017)
Recognition day T	0.886	0.118	0.768
	(0.380)	(0.187)	(0.454)
After recognition, $T + 1$ to $T + 10$	−0.799	0.132	−0.931
	(0.801)	(0.411)	(0.897)
Panel B. Cumulative from the pre-launch close			
Offer price, β_0	1.630	1.004	0.627
	(0.897)	(0.654)	(1.205)
Through T	4.206	0.054	4.151
	(1.963)	(1.188)	(2.383)
Through $T + 10$	3.407	0.187	3.220
	(2.069)	(1.283)	(2.563)
Through $T + 60$	3.687	−2.541	6.229
	(2.301)	(1.842)	(3.177)
Panel C. After recognition, longer window			
$T + 1$ to $T + 60$	−0.518	−2.596	2.077
	(1.746)	(1.248)	(2.132)
Offerings	3,951	3,951	3,951

Notes: Main sample. Each row reports coefficients on delayed and fast scheduled demand from one regression of the indicated log price change, adjusted by the CRSP value-weighted index, in log points per percentage point of pre-offering shares; the third column is their difference, with its standard error from the same regression. L is the last close before the recorded SDC launch, t_0 the first session after pricing, and T the dominant delayed recognition close, the close at which index funds following the provider with the largest delayed purchase trade. The concession is $100 \log(P^o/P^-)$, the offer price relative to the close before pricing; a higher value means a smaller concession. Panel A's components add up to Panel B's cumulative changes because every regression uses the same offerings and regressors. Controls are primary issue size, its logarithm and square, issue size interacted with centered log market capitalization, delayed and fast passive ownership, log market capitalization at launch, an accelerated-offering indicator, and active-fund benchmark ownership, with calendar-quarter and FF48 industry effects. Table 3 reports one loading on total scheduled demand, measured from the time the deal is public and with segment-specific issue-size slopes. The offerings are by 1,912 issuers in 215 dominant recognition months; standard errors, in parentheses, are clustered by issuer and dominant recognition month.

Table A17. Recognition timing and the price: bounds

	Offer price (1)	Concession (2)	Recognition day T (3)	t_0+2 to T (4)	$T+1$ to $T+10$ (5)	Through $T+60$ (6)
Panel A. Delayed minus fast scheduled demand						
$Q^D - Q^F$	0.627	0.531	0.768	3.163	−0.931	6.229
	(1.205)	(0.836)	(0.454)	(1.825)	(0.897)	(3.177)
	[3.376]	[2.343]	[1.273]	[5.114]	[2.512]	[8.901]
Panel B. Pricing just after a quarterly information cutoff						
$Q^D \times$ after cutoff	1.750	3.843	0.766	9.231	3.569	15.162
	(4.329)	(3.909)	(1.358)	(10.786)	(5.729)	(24.240)
	[12.129]	[10.952]	[3.805]	[30.218]	[16.050]	[67.912]
$Q^F \times$ after cutoff (placebo)	−3.314	−2.188	0.010	3.577	−0.995	2.654
	(2.385)	(1.527)	(0.568)	(5.258)	(2.957)	(7.309)
Jump in the wait (days)	50.037					
	(3.176)					
Jump in log density of offerings	0.090					
	(0.186)					
Panel C. The June 2017 Russell rules						
Timing exposure × post	−0.023	0.080	−0.007		0.242	
	(0.232)	(0.159)	(0.061)		(0.257)	
	[0.649]	[0.445]	[0.172]		[0.721]	
Offerings, Panels A to C	3,951; 472; 198					
Issuers, Panel C	88					

Notes: Main sample. Outcomes are market-adjusted log price changes over the windows of the column heads, in log points, with the clocks of Appendix Table A16. Below each standard error, in brackets, is the minimum detectable effect, 2.80×SE, the true coefficient a two-sided 5 percent test detects with probability 0.8. Panel A is the difference between the loadings on delayed and fast scheduled demand in the regressions of Appendix Table A16. Panel B uses offerings priced within ten sessions of a quarterly information cutoff of the dominant provider, with an indicator for pricing after the cutoff, the distance to the cutoff and its product with the indicator, the products of the indicator with delayed and fast demand, and the products of delayed demand with the distance on each side, with dominant channel by year effects; its last rows are the jump in the ownership-weighted wait at the cutoff and the log jump in the count of offerings priced in the ten sessions after it, from a Poisson regression with linear trends on each side. Fast demand is recognized promptly, so its product with the indicator is a placebo. Panels A and B cluster by issuer and dominant recognition month. Panel C fits the signed-timing equation of Appendix E: six May 2016 issuer variables interacted with the post and transition periods of the June 2017 Russell rules, with issuer and calendar-quarter effects and clustering by issuer and sale month; timing exposure is prior Russell ownership times the issuer's historical primary issue ratio times the rule-implied change in the wait in trading days, with an interquartile range of nonzero post exposure of 8.1 to 21.6. Of the 19 S&P quarterly recognitions postponed from March 20 to June 19, 2020, 8 are in the main sample, too few to estimate. In the interaction form, with issue size and passive ownership entered separately and separate products of issue size with delayed and fast passive ownership, the delayed minus fast product loads −0.0017 (0.0109) on the offer price from launch with linear issue size and 0.0044 (0.0118) with the nonlinear terms, per point of issue size times point of ownership, clustered by issuer and sale month. Standard errors in parentheses.

Table A18. Turnover and price on recognition closes, by price and index segment

	Turnover	Abnormal log return			
	T_h	$T_h - 1$	$T_h - 1$ to T_h	$T_h - 1$ to $T_h + 10$	Offerings
	(1)	(2)	(3)	(4)	
Panel A. By the price at L					
All closes	1.414	0.882	1.309	0.105	1,894
	(0.251)	(0.313)	(0.448)	(1.205)	
\$5 or more	1.477	0.722	0.631	−0.634	1,585
	(0.191)	(0.292)	(0.551)	(1.144)	
\$10 or more	1.357	0.229	−0.502	−2.071	1,307
	(0.193)	(0.335)	(0.576)	(1.053)	
\$5 to \$10	2.283	2.688	5.473	5.547	278
	(0.669)	(1.454)	(2.016)	(6.073)	
Below \$5	1.192	0.051	0.741	−4.090	309
	(1.214)	(1.012)	(1.501)	(5.204)	
Below \$10	1.361	0.894	1.697	0.650	587
	(0.727)	(0.725)	(1.214)	(3.624)	
Panel B. All closes, with Q_h times a price at L below \$10					
Q_h (price at L of \$10 or more)	1.470	0.468	0.418	−0.548	1,894
	(0.235)	(0.327)	(0.537)	(1.191)	
$Q_h\times$ price at L below \$10	−0.113	0.828	1.781	1.451	1,894
	(0.287)	(0.521)	(0.830)	(2.082)	
Q_h at a price below \$10	1.358	1.296	2.199	0.903	1,894
	(0.333)	(0.470)	(0.649)	(1.940)	
Panel C. By the issuer's index segment					
S&P 1500	1.785	0.058	−0.517	−0.975	281
	(0.351)	(0.528)	(0.889)	(1.775)	
Russell 1000	−1.223	0.618	−4.374	9.316	142
	(0.939)	(1.880)	(2.395)	(4.822)	
Russell 2000	1.308	1.285	2.176	1.606	1,429
	(0.393)	(0.501)	(0.758)	(2.185)	
price at L of \$10 or more	0.956	1.167	0.764	1.486	894
	(0.346)	(0.629)	(0.921)	(2.152)	
price at L below \$10	1.352	1.072	1.861	0.518	535
	(0.783)	(0.740)	(1.271)	(4.055)	
Panel D. By provider, price at L of \$5 or more and of \$10 or more					
S&P Dow Jones, \$5 or more	1.522	0.139	−0.643	−1.654	1,585
	(0.297)	(0.478)	(0.806)	(1.160)	
FTSE Russell, \$5 or more	1.584	1.145	1.380	−0.158	1,585
	(0.232)	(0.373)	(0.617)	(1.527)	
S&P Dow Jones, \$10 or more	1.457	0.048	−0.946	−2.104	1,307
	(0.300)	(0.519)	(0.890)	(1.179)	
FTSE Russell, \$10 or more	1.486	0.702	0.311	−2.210	1,307
	(0.235)	(0.420)	(0.644)	(1.628)	

Notes: Panels A to C repeat Table 5, Panel B, on subsets of the recognition closes, with offering and calendar-date effects, the purchases scheduled for the same offering's other delayed closes inside the window, and the offerings with two or more closes in the subset. The price at L is the absolute close before launch. Panel B is one regression on all closes that adds Q_h times an indicator for a price at L below \$10; its first row is the loading at \$10 or more and its last the sum. Panel C splits the closes by the issuer's index segment in the month before pricing (Table 3). Panel D reports the provider loadings of Table 5, Panel C, on the closes of offerings priced at \$5 or more and at \$10 or more. The offerings column counts the offerings in column 3. Standard errors in parentheses are clustered by issuer and the calendar month of T_h.

Table A19. Existing shares: the path after the sale, the wait and the June 2017 Russell rules

Panel A. The path after the sale, new and existing shares

	β_Q			Size slope, β_x	
Close of session	New	Existing	Difference	New	Existing
Cumulative from the last close before the deal is public					
t_0	1.572	−2.091	3.663		
	(0.605)	(0.954)	(1.130)		
$t_0 + 5$	1.321	−2.631	3.952		
	(0.698)	(1.153)	(1.348)		
$t_0 + 20$	1.056	−2.985	4.042		
	(0.824)	(1.262)	(1.507)		
$t_0 + 60$	1.683	−4.596	6.279		
	(1.267)	(2.336)	(2.657)		
From the offer price					
t_0	−0.003	−0.370	0.367	0.044	0.054
	(0.412)	(0.669)	(0.786)	(0.040)	(0.050)
$t_0 + 5$	−0.254	−0.911	0.656	0.153	0.163
	(0.546)	(0.935)	(1.083)	(0.053)	(0.066)
$t_0 + 20$	−0.519	−1.265	0.746	0.261	0.231
	(0.714)	(1.079)	(1.294)	(0.072)	(0.079)
$t_0 + 60$	0.108	−2.875	2.983	0.415	0.396
	(1.137)	(1.996)	(2.297)	(0.120)	(0.128)

Panel B. The block loading by the wait to the float update

	Post-public offer price	Market move after public	Concession
β_Q at no wait	−1.730	−1.164	−0.566
	(0.800)	(0.637)	(0.431)
β_Q at the median wait	−1.717	−0.980	−0.737
	(0.833)	(0.686)	(0.401)
β_Q at the 90th percentile of the wait	−1.686	−0.541	−1.144
	(1.404)	(1.141)	(0.600)
$\beta_Q \times$ wait, per quarter	0.038	0.526	−0.489
	(1.079)	(0.828)	(0.512)
Panel C. The Russell part of the block purchase and Russell's June 2017 rules (columns of Panel B)			
Russell part, before June 2017	−4.421	−1.440	−2.982
	(3.179)	(2.652)	(1.899)
Russell part, after June 2017	−6.647	−3.127	−3.520
	(2.202)	(1.805)	(1.275)
Rest of the purchase, before June 2017	−0.579	−0.658	0.079
	(1.193)	(0.802)	(0.765)
Rest of the purchase, after June 2017	0.026	−0.299	0.325
	(0.920)	(0.717)	(0.571)
Difference in differences	−2.830	−2.046	−0.784
	(3.704)	(2.443)	(2.554)

Notes: Panel A regresses each return on the specification of Table 3, column 1, with segment-specific size slopes, separately on the 3,951 primaries, with the offer price on the basis of Table 3, and the 1,517 pure secondaries of Table 4. The cumulative return runs from the last close before the deal is public to the close of the session shown; the return from the offer runs from the offer price to that close, market-adjusted. β_x is the size slope at each sample's median sale without passive ownership. Differences use independent-samples standard errors. Panels B and C use the secondaries' regression of Table 4, column 1. In Panel B, the wait is each block's wait to its providers' float updates, dated by their rules and weighted by each provider's part of the purchase, in quarters of 63 sessions (median 0.35, 90th percentile 1.18); the regression adds the purchase times the wait and the wait. For 26 sales between Russell's rank day in May and its June reconstitution under the June 2017 rules, the rules give no Russell date, and the Russell purchase is dated at the reconstitution. In Panel C, the Russell part of the purchase is block size times the passive ownership of Russell-tracking funds over 100, and the rest is the remainder; each enters before and after Russell's June 2017 rules (sales priced after June 16, 2017), which replaced the annual update of floats with a quarterly one (909 and 608 blocks). With Russell membership in place of the Russell part, the difference in differences is −5.816 (5.538), against 89 blocks at firms outside Russell's indexes. Standard errors, in parentheses, are clustered by issuer and sale month.

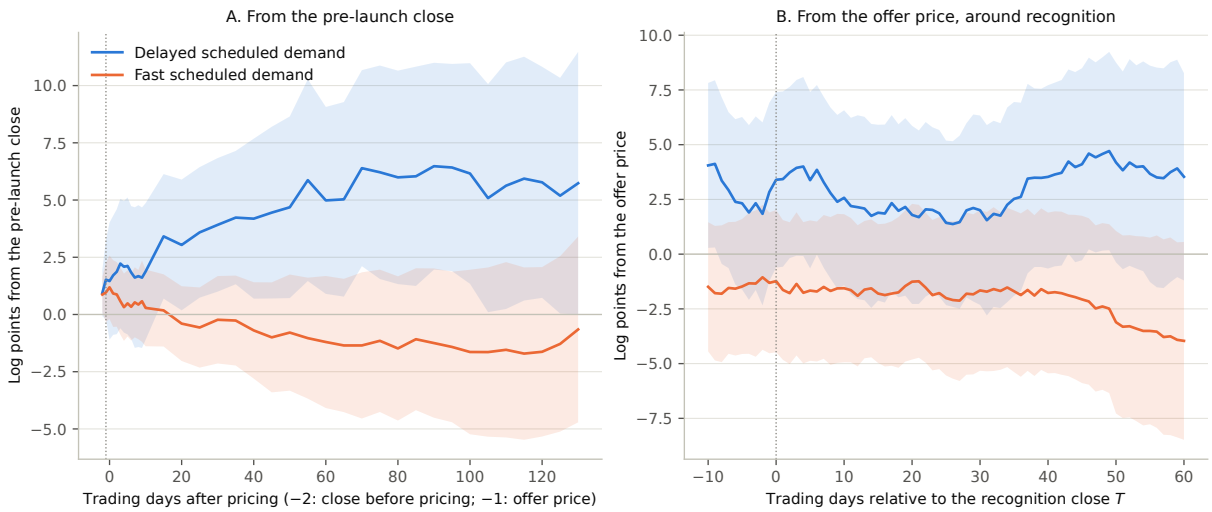

Figure A1. The price path of scheduled index demand

The figure plots coefficients on delayed and fast scheduled demand, per percentage point of pre-offering shares, in regressions of the cumulative market-adjusted log price with the controls, effects and clustering of Table A16, with 95 percent confidence bands. Panel A measures the price from the pre-launch close through 130 trading days after pricing on 3,936 main-sample offerings complete through that horizon. Panel B measures it from the offer price, from ten sessions before to 60 sessions after the dominant delayed recognition close T, on the 2,857 main-sample offerings whose wait is at least 12 trading days.

E The June 2017 Russell rules

In 2017 Russell moved routine share updates from month-end to quarterly maintenance and introduced prompt recognition of large offerings. The change was announced on January 13, 2017, after a June 2016 consultation, and took effect with the June reconstitution.[10] I date the new regime from June 24, 2017, after the reconstitution at the June 23 close, and treat January 13 to June 23 as a transition with its own interactions. For most issuers the new rules lengthened the wait for the delayed purchase. The design below uses the change and gives bounds rather than effects.

The design, in Appendix Table A17, Panel C, measures how much the rules lengthened each issuer's waits, with information fixed before the consultation. Let ω_i be issuer i's Russell ownership in May 2016, in percentage points. For each of its primary offerings j in the history ending May 31, 2014, let D_{ij} be direct shares, F_{ij} borrowed shares sold forward and S_{ij} shares outstanding at the preceding close, and let $\Delta\tau_{ij}^{D}$ and $\Delta\tau_{ij}^{F}$ be the new-minus-old recognition

[10] See FTSE Russell's January 13, 2017 announcement and March 3, 2017 reconstitution notice. The latter also specifies that May month-end share changes would not be implemented.

waits of the two components, averaged over the trading days of the 2016 calendar. The exposure

$$E_i = \omega_i \frac{1}{J_i} \sum_{j=1}^{J_i} \left(\frac{D_{ij}}{S_{ij}} \Delta\tau_{ij}^{D} + \frac{F_{ij}}{S_{ij}} \Delta\tau_{ij}^{F} \right) \tag{7}$$

is in points of historical primary demand times trading days of additional wait, and positive values mean slower recognition. An issuer has an exposure only when the timing of every component is known. The equation interacts the exposure and five other May 2016 issuer variables (historical primary demand, Russell and CRSP ownership, the mean historical issue ratio and log market capitalization) with the post and transition periods, with issuer and calendar-quarter effects and standard errors clustered by issuer and sale month. On the 198 main-sample offerings by 88 issuers it covers, exposure has no detectable effect on the offer price, −0.023 (0.232) per unit, the concession, the recognition-day return or the ten sessions after recognition. The bounds are weak: the minimum detectable effect at the offer is 0.649 per unit, against an interquartile range of nonzero exposure from 8.1 to 21.6 units.

F Holdings of new shares by era

Appendix Table A20 compares offerings priced in 2002 to 2007 with those priced in 2018 to 2023, with the groups and measurement of Table 6, Panel A. Value-weighted, index funds' holdings rise by more per new share in the later period, 0.148 against 0.075, and so do hedge funds', 0.252 against 0.144, while those of other mutual funds and ETFs and of investment advisers rise by less. Net of the prior quarter, the value-weighted fall for other funds, −0.022 (0.049), is not significant, while the median fall is. Quarterly holdings describe how the new shares are held around the sale; they cannot assign each share to a buyer or trace its later transfer to an index fund.

Table A20. Holdings of new shares at the first report after the sale, by era

	Value-weighted			Median		
	2002–07	2018–23	Change	2002–07	2018–23	Change
Panel A. Change to the first report						
Index funds	0.075	0.148	0.073	0.037	0.030	−0.007
			(0.012)			(0.006)
Other mutual funds and ETFs	0.439	0.284	−0.155	0.334	0.015	−0.319
			(0.031)			(0.018)
Hedge funds	0.144	0.252	0.108	0.113	0.183	0.070
			(0.022)			(0.017)
Investment advisers	0.519	0.193	−0.327	0.424	0.061	−0.364
			(0.032)			(0.023)
13F institutions	1.020	0.679	−0.341	0.873	0.515	−0.358
			(0.063)			(0.029)
Panel B. Net of the same change in the prior quarter						
Index funds	0.036	0.082	0.046	0.015	0.009	−0.005
			(0.017)			(0.004)
Other mutual funds and ETFs	0.243	0.221	−0.022	0.220	0.009	−0.211
			(0.049)			(0.018)
Hedge funds	0.135	0.251	0.116	0.115	0.191	0.076
			(0.037)			(0.017)
Investment advisers	0.423	0.136	−0.287	0.358	0.038	−0.320
			(0.034)			(0.023)
13F institutions	0.834	0.530	−0.304	0.763	0.440	−0.324
			(0.095)			(0.031)
Offerings	2,151, 3,677					

Notes: All primary and mixed offerings priced in 2002 to 2007 and in 2018 to 2023, with the groups and measurement of Table 6, Panel A. The value-weighted change is the coefficient on a 2018–23 indicator in a proceeds-weighted regression with standard errors clustered by offering quarter; the median change has a bootstrap standard error that resamples offering quarters. Offerings are for 2002–07 and 2018–23.

G Index thresholds and forward sales

Two choices could let an issuer move the date of the index purchase: the size of the offering relative to a provider's threshold for prompt recognition, and the use of a forward sale, whose borrowed shares enter the index only after the issuer settles.

G.1 Offering size at recognition thresholds

The data show no detectable bunching at the thresholds (Appendix Table A21). At Russell's US$250 million test for prompt recognition, in force since June 2017, the jump in the log density of offering values is 0.022 (0.195), against −0.021 (0.160) at the same value before the rule existed; the minimum detectable jump is 0.547 in log density (Appendix Table A5). At the three S&P thresholds, the change in the discontinuity after March 2020, when S&P added its dollar tests, is negative and imprecise in each case.

G.2 Forward sales in mixed offerings

In a forward sale the issuer fixes the terms at pricing, dealers sell borrowed shares, and the issuer delivers new shares later. The recognition rules treat the two parts of a mixed offering separately. The direct shares enter the rules at their own size, like any primary shares, and the borrowed shares wait for an update after the issuer settles the forward (Section 2.1). Appendix Table A22 reports how the two parts are priced and settled.

Panel A covers the 21 mixed offerings, with both direct and borrowed shares, among the forward arrangements identified in original final prospectuses. In 20 of them the direct and forward shares are sold at the same initial net price; the remaining offering deducts a stated dividend adjustment of US$0.46 from the forward price. Forwards account for US$5.501 billion of initial contract value, 56.2 percent of the combined initial net value. Panel B compares the cash of every physical settlement leg of the four offerings with sourced settlement cash with the same-date value of the delivered shares. The difference is negative in the three Agree Realty legs and positive in the two Independence Realty legs. Settlement timing is chosen by the issuer and the cash reflects contractual adjustments, so these are contractual and accounting facts about selected offerings. They are not effects of passive timing, and they do not show that issuers choose forward sales to time recognition.

Table A21. Offering size at index recognition thresholds

	Estimate	SE	N
Log density discontinuity			
Russell US$250 million test, after June 2017	0.022	0.195	1,150
before June 2017	−0.021	0.160	2,551
S&P 5 percent test, jump after minus before March 2020	−0.284	0.359	487 / 1,667
S&P US$150 million test, after minus before	−0.205	0.195	2,043 / 6,551
S&P US$1 billion test, after minus before	−0.354	0.560	36 / 117

Notes: Log density discontinuities in offering size at Russell's test for members, and after-minus-before-March-2020 differences in discontinuities at the S&P thresholds for S&P 1500 and Total Market members (N is after / before).

Table A22. Initial pricing and settlement of forward sales in mixed offerings

Panel A. Initial prices of direct and forward shares	
Mixed direct and forward offerings reviewed	21
With a fixed initial public price / variable resale prices	16 / 5
Direct and forward shares at the same initial net price	20
Forward less direct net price, remaining offering (US$)	−0.46
Initial forward contract value (US$ billions)	5.501
Initial direct underwriting-net value (US$ billions)	4.282
Forward share of the combined initial net reference (percent)	56.2

Panel B. Physical settlement cash and same-date share value

Issuer	Settlement date	Shares (m)	Cash (US$m)	Share value (US$m)	Difference (US$m)
Agree Realty	2018-09-06	3.450	160.200	189.302	−29.102
Agree Realty	2019-05-01	3.500	186.000	228.620	−42.620
Agree Realty	2019-12-30	3.163	195.800	219.288	−23.488
Independence Realty	2020-03-31	3.406	50.000	30.450	19.550
Independence Realty	2020-12-28	6.944	98.775	94.924	3.851

Notes: Panel A covers every mixed offering, with both direct and borrowed base shares, among the forward arrangements identified in original final prospectuses. Prices are per share before other expenses and before later forward adjustments for carry, dividends and borrowing costs. The remaining offering (CyrusOne, 2018) deducts a stated dividend adjustment from the forward price. A common initial price does not imply equal present value or zero cost. These are selected offerings, not an estimate of how common forwards are. Forward values are commitments that depend on settlement, not cash at signing. Panel B shows every physical settlement leg of the four offerings with sourced settlement cash. Share value is shares delivered times the same-date CRSP close; the difference is reported cash less that value. Cash already reflects contractual adjustments and reported deductions. The reference excludes the price impact and costs of a hypothetical new offering. Settlement timing is chosen by the issuer, so the differences are not causal benefits, issuer profits or dealer losses. Agree Realty cash is approximate to US$0.1 million; Independence Realty cash is reported to the nearest US$1,000.

H Derivations for the model of a dated purchase

H.1 Setup

A firm with S shares sells N new shares at date 0, so its issue size is $x = N/S$. Index funds own a fraction θ of its shares and follow providers that recognize the new shares at date T, when they buy $q = \theta N$ shares at whatever price prevails. Relative to pre-offering shares, $q/S = \theta x$, the scheduled purchase Q of the text with $\Phi = 100\theta$. Other investors value the stock at v and have a stock-level demand elasticity ε. The derivations use fractions; multiplying prices by 100 gives log points, quantities by 100 percentage points, and the loadings are unchanged.

H.2 Three cases

Anticipation with abundant capital. Once the offering is known, investors price the supply that will remain after index funds buy. With the demand curve $p/v = (1 + x - q/S)^{-1/\varepsilon}$, log-linearized around $x = q = 0$,

$$\log(p_0/v) \approx -\frac{1}{\varepsilon}\Big(x - \frac{q}{S}\Big), \tag{8}$$

so the offer price loads $-1/\varepsilon$ on issue size and $+1/\varepsilon$ on the scheduled purchase, and $\beta_x + \beta_Q = 0$. Capital is abundant, so intermediaries carry the q shares from 0 to T at no cost; the price does not move between pricing and recognition, and the purchase at T has no price effect.

Costly carry. Intermediaries with risk-bearing capacity H and risk aversion a hold the q shares from 0 to T. With return variance σ^2 per period they require an expected return of $k = a\sigma^2 qT/H$ per share, so the price at 0 is lower by cT per point of scheduled purchase, with the carry cost c proportional to $a\sigma^2/H$, and rises by the same amount by T. The offer price loads $1/\varepsilon - cT$ on the scheduled purchase, the wait loads cT, and $\beta_x + \beta_Q = -cT$. A longer wait lowers the offer price by c per period, and so does higher variance. If intermediaries have not fully positioned by T, index funds meet temporary pressure Δ per point over the sessions ending at the close, which in the model is reversed as positions unwind, so the window from $T - 1$ through $T + 10$ loads zero.

No anticipation. If investors price the purchase only when it is executed, the offer price reflects issue size alone, $\log(p_0/v) \approx -x/\varepsilon$, and loads zero on the scheduled purchase, so $\beta_x + \beta_Q = -1/\varepsilon$. At T the purchase raises the price by $1/\varepsilon$ per point, which does not reverse, plus any temporary pressure Δ.

Fast demand is the case $T \approx 0$, in which the three cases coincide at the offer. In the model, issue size is known at launch in every case, so its slope is $-1/\varepsilon$ throughout; in the data, issue size

is the base issue at pricing, which the issuer can adjust after launch. The placement concession compensates the sale of x against the market price before pricing and contains no term in T, because the carry of the scheduled purchase is priced in the market price itself. For the same reason, under anticipation the wait does not enter the offer price, and the issuer has no reason to change issue size with T. Appendix Table A23 sets the predictions beside the estimates.

H.3 Supply removal and the issue-size slope

With $q/S = \theta x$, equation (8) gives the issue-size slope at passive ownership Φ,

$$\frac{\partial \log(p_0/v)}{\partial x} = -\frac{1}{\varepsilon}\Big(1 - \frac{\Phi}{100}\Big) = \beta_x\Big(1 - \frac{\Phi}{100}\Big),$$

the supply-removal line of Figure 2. Index funds' pro-rata purchase takes Φ percent of the issue off the market, and the slope flattens by that fraction; in the regression form $\beta_x + \beta_Q\Phi/100$ the same restriction is $\beta_Q = -\beta_x$. If instead the elasticity of the other investors is held fixed and index funds never buy, the issue falls on the $1 - \Phi/100$ of shares those investors hold, and the slope is $\beta_x/(1 - \Phi/100) \approx \beta_x(1 + \Phi/100)$, the never-recognized line. At the mean passive ownership of the top quintile, 17.2 percent, both lines differ from β_x by about a sixth, while the measured slope of the post-public offer price there, -0.066, is about a fifth of β_x.

H.4 How fast the issue-size slope flattens

Write the offer price as $R(x, \theta)$ with $\theta = \Phi/100$. Because passive ownership enters the regressions separately, they estimate, locally, $\beta_x = f'(x)$, the slope of the issue-size function $f(x) = R(x, 0)$ at the median issue, and $\beta_Q = \partial^2 R/\partial\theta\,\partial x$. Their ratio $\rho = \beta_Q/|\beta_x|$ is the rate at which the issue-size slope flattens with passive ownership relative to its level, and $\kappa = xf''(x)/f'(x)$ is the curvature of the discount in issue size, negative when the discount rises less than in proportion to the issue.

Supply removal. If passive ownership affects the price only through the shares other investors must hold, $R = -D\big((1-\theta)x\big)$ for an increasing D. Then $\beta_Q = D'(x) + xD''(x)$ and $\beta_x = -D'(x)$, so $\rho - \kappa = 1$ for any D; with a linear D, $\rho = 1$ and $\kappa = 0$, the restriction $\beta_Q = -\beta_x$ above.

Intermediation. Suppose instead that intermediaries buy the issue at the offer price, sell the committed shares θx to index funds and carry the rest until other investors take them, at an inventory cost $C\big((1-\theta)x\big)$, and that competition makes them break even, so the discount on every share sold recovers the cost: $R = -C\big((1-\theta)x\big)/x$. The committed shares share the

discount but not the cost, and $\rho - \kappa = 2$ for any C. If the committed shares leave only at the recognition date T, they add to the cost. With a mean-variance cost $A\int_0^\infty I(t)^2\,dt$ of the inventory $I(t)$, committed shares leaving at T and the rest absorbed at rate $1/\tau$, the cost per share sold is $Ax\,g(\theta)$ with

$$g(\theta) = \frac{(1-\theta)^2\tau}{2} + 2\theta(1-\theta)\tau(1-e^{-T/\tau}) + \theta^2 T,$$

so $\kappa = 0$ and $\rho = 2\big(2e^{-T/\tau} - 1\big)$: 2 when the committed shares leave at once, 1 at $T = \tau\ln(4/3)$, and less for longer waits.

Sums. If the discount is a sum of parts that each fall with issue size, ρ and κ are averages of the parts' values weighted by their shares of the slope, f_i'/f'. A part that passive ownership does not affect contributes $-\kappa_i$ to $\rho - \kappa$, which is 1, 0 and -1 for parts proportional to $\log x$, x and x^2. In every combination of these cases, therefore, $\rho - \kappa \le 2$, and the sum $\beta_x + \beta_Q = |\beta_x|(\rho - 1)$ is at most $|\beta_x|(1+\kappa)$.

Cases above the bound. $\rho - \kappa$ exceeds 2 only if committed demand changes something other than the number of shares to be placed. Three cases do. First, preserved indexed ownership: the valuation term of the next subsection adds $\kappa_I/(1 + x/100)$ to β_Q and nothing to β_x, so it adds $\kappa_I/\big((1+x/100)|\beta_x|\big)$ to $\rho - \kappa$. Second, capacity: if intermediaries' capacity rises with committed demand, so that the cost is $C\big((1-\theta)x\big)/(1+b\theta)$, then $\rho - \kappa = 2 + b$. Third, information: if the discount is $\alpha(x)s(\theta)$, with s falling in passive ownership because the purchase changes what the issue reveals, $\rho = -s'(0)/s(0)$, which κ does not restrict.

The estimates (Appendix Table A24). The bound applies to the discount of each index segment, so Panel D computes $\rho - \kappa$ from each segment's issue-size slope in the regression of Table 3, column 1, with its common loading. It is 3.511 (0.686) among S&P 1500 members, 4.622 (1.328) in the Russell 1000, 6.676 (1.483) in the Russell 2000 and 9.207 (3.077) among other firms: above the bound of 2 in each segment, and above the supply-removal value of 1 by more than two standard errors in each. Measured from the pre-launch close, it runs from 4.118 (0.597) among S&P 1500 members to 10.650 (2.923) among other firms. On the issue-size slope averaged over segments by their shares of offerings (Panel A), the discount is concave in issue size at the median issue, $\kappa = -0.441$ (0.137), the slope flattens at $\rho = 5.241$ (1.165), and $\rho - \kappa = 5.682$ (1.138). On that average slope, fast purchases give $\rho - \kappa$ of 6.779 (1.729) and delayed purchases 4.216 (2.270), the order the intermediation case predicts when committed shares leave later, but the difference is imprecise. With κ_I between 1.37 and 1.46, the preserved-ownership case adds 4.0 to 4.3 at the median issue to the bound of 1 or 2, comparable to the measured excess. The

capacity case fits any excess, with b equal to the excess of $\rho - \kappa$ over 2, from about 1.5 among S&P 1500 members to 7.2 among other firms, and has no outside calibration here. The estimates do not choose among the three cases.

The information case (Appendix Table A25). Its distinctive prediction is a larger loading where the market knows less about the issuer. Two standard measures, both read from IBES before launch, give different answers. Analyst coverage for the issuer's size (Hong et al., 2000), which Bowen et al. (2008) relate to the discount in seasoned offerings, does not order the loading: the difference between issuers below and above the median is −0.604 (0.929). Forecast dispersion (Diether et al., 2002) does. The loading is 2.384 (0.735) for issuers above the median and 0.499 (0.480) at or below it, a difference of 1.885 (0.792). The difference remains when the loading also varies with size, 2.107 (0.829), or by segment, 1.841 (0.771), and it is in the market move after the deal is public, 1.502 (0.485), rather than in the concession, 0.383 (0.618). Dispersion also measures uncertainty about value, which raises the cost of carrying the shares in the capacity case, so this split does not separate information from capacity.

H.5 Clearing conditions for new and existing shares, and the bound

This subsection derives equation (4) and the restriction of Table 8, Panel C. A firm has S shares outstanding and a float $F \leq S$; write $f = S/F \geq 1$. Index funds hold a share ϕ of the float, and their demand is the float times their index weight, with no price term. The demand of the other float holders, in log changes, has three parts: the price elasticity ε; a loading η on log shares outstanding, demand that follows the firm's size as benchmarked or characteristic demand does; and a loading μ on the cash a sale of new shares adds to book equity, the loading on log book equity times the market-to-book ratio.

A sale of new shares of size x, as a fraction of S, raises S and F by xS and adds the proceeds to book equity. A block of size y moves yS from holders outside the float into it, changing neither shares outstanding nor book equity. When the provider updates the share count or the float, index funds buy ϕ of the addition to the float, so the other float holders absorb $(1-\phi)xS$ or $(1-\phi)yS$: in both cases a proportional increase of fx or fy in their holdings, whatever ϕ is. Setting that increase equal to their demand, $-\varepsilon\, dp + (\eta + \mu)\, x$ after a sale of new shares and $-\varepsilon\, dp$ after a block, gives equation (4), $dp/dx = -(f - \eta - \mu)/\varepsilon$ and $dp/dy = -f/\varepsilon$, to first order in x and y.

Passive ownership is absent from both slopes because the purchase is pro rata; it can enter only through the composition of the other holders, $\varepsilon(\phi)$, $\eta(\phi)$ and $\mu(\phi)$. If index funds' purchase

only removed supply along a fixed linear demand curve in shares, both slopes would carry the factor $1-\phi$ and flatten at the same rate; if index funds held their weight and never bought, the sale would fall on the $1-\phi$ of the float the other holders own, and both slopes would steepen through $1/(1-\phi)$. The difference between the slopes is $dp/dx - dp/dy = (\eta+\mu)/\varepsilon$, non-negative when η and μ are: a primary is then discounted no more than a block of the same size, the bound of Table 8. Firms whose holders sell blocks have more shares outside the float, a larger f, which steepens dp/dy and works against the violation that Table 8 finds at low passive ownership.

Under demand in market equity, demand responds to the price and to shares outstanding only through their product, so $\eta = 1-\varepsilon$ and $dp/dx = -1 + (\mu - f + 1)/\varepsilon$. Substituting $1/\varepsilon = -(dp/dy)/f$ ties the two slopes at every ϕ,

$$\frac{dp}{dx} = -1 - \frac{\mu - f + 1}{f}\,\frac{dp}{dy},$$

with an intercept of -1: as blocks become costless to sell, new shares are fully diluted. The tying coefficient $k = (\mu - f + 1)/f$ is identified from the two loadings on the scheduled purchase, $k = -\beta_Q^P/\beta_Q^B = 0.915$ (0.507), and the system then restricts the size slopes at no passive ownership, $\beta_x^P + 1 + k\,\beta_x^B$, to zero; the data put it at 0.673 (0.078) (Table 8, Panel C). In this subsection ε, η and μ describe the demand of float holders other than index funds; the capacity gain b and the carry cost c of the other subsections are unrelated objects.

H.6 The preserved-ownership benchmark

Without recognition, index funds' ownership after the issue would be $\Phi/(1+x/100)$, so recognition preserves

$$\Phi - \frac{\Phi}{1+x/100} = \frac{Q}{1+x/100}$$

points of indexed ownership: Q to first order in x, and $0.88\,Q$ at the median issue of 13.4 percent. If a point of indexed ownership is worth κ_I percent of value, an offer price that prices recognition adds $\kappa_I/(1+x/100)$ to the loading on Q. With v_0 the valuation before the offering, and with x and Q in percent, equation (8) becomes

$$100\log(p_0/v_0) \approx -\frac{x-Q}{\varepsilon} + \frac{\kappa_I\,Q}{1+x/100},$$

so $\beta_x = -1/\varepsilon$, $\beta_Q = 1/\varepsilon + \kappa_I/(1+x/100)$ and $\beta_x + \beta_Q = \kappa_I/(1+x/100)$, up to the small dependence of the last term on x. Behmaram (2026a) estimates κ_I at 1.385 percent per point

of total indexed ownership in a joint estimate across four designs, with a 95 percent common-parameter region of [0.855, 1.888], and at 1.37 [0.63, 2.42] to 1.46 [0.73, 2.64] percent per point of new index-fund ownership at S&P 500 additions, the unit of Φ here. With the S&P 500 estimates, the benchmark for $\beta_x + \beta_Q$ is 1.37 to 1.46 for small issues and 1.21 to 1.29 at the median issue, against the measured 1.274 (0.436) of the post-public offer price (Table 3, Panel A). The benchmark comes from my related paper, and it treats the valuation of preserved ownership as given rather than testing it. The value of indexed ownership κ_I is distinct from the carry cost c of the costly-carry case and from the curvature κ.

Table A23. Predictions of a dated predictable purchase and estimates

	Prediction			Estimate	
	Anticipation	Costly carry	No anticipation	Delayed	Fast
Panel A. Windows					
Offer price from launch, β_0	$1/\varepsilon$	$1/\varepsilon - cT$	0	1.630	1.004
				(0.897)	(0.654)
Post-public offer price, one loading	$1/\varepsilon$	$1/\varepsilon - cT$	0	1.575	
				(0.466)	
Diagnostic, $\beta_x + \beta_Q$	0	$-cT$	$-1/\varepsilon$	1.274	
				(0.436)	
Offer to T	0	$cT + \Delta$	$1/\varepsilon + \Delta$	2.575	-0.949
				(1.662)	(1.110)
Two sessions, $T_h - 1$ to T_h	0	Δ	$1/\varepsilon + \Delta$	1.309	
				(0.448)	
$T_h + 1$ to $T_h + 10$	0	$-\Delta$	$-\Delta$	-1.026	
				(0.988)	
$T_h - 1$ to $T_h + 10$	0	0	$1/\varepsilon$	0.105	
				(1.205)	
Issue-size slope, β_x	$-1/\varepsilon$	$-1/\varepsilon$	$-1/\varepsilon$	-0.300	
				(0.047)	

Notes: For each window, the coefficient on scheduled demand predicted by the model of Section 9 under three cases, and the estimate. ε is the elasticity of demand for the stock, T the wait, c the carrying cost per point and period of wait, and Δ temporary pressure at the recognition close, which in the model reverses afterward. Under no anticipation the purchase is priced when it is executed and the price does not reverse; issue size is known at launch in every case, so its predicted slope is $-1/\varepsilon$ throughout, and the restriction $\beta_x + \beta_Q = 0$ holds only under anticipation with costless carry. With the valuation v fixed, no case gives a positive sum. Estimates come from Appendix Table A16 (offer price by delayed and fast demand, and the regressions behind it for the window from the offer price to T, measured from the pre-launch close), Table 3, Panel A (one loading of the post-public offer price on the scheduled purchase, the sum and the issue-size slope, with segment-specific slopes and issuer and sale-month clusters) and Table 5, Panel B (the three execution windows, within offering and calendar date). Standard errors in parentheses.

Table A24. How fast the issue-size slope flattens, against the model's cases

	Post-public offer price	Offer price from launch
Panel A. One scheduled purchase		
Curvature, $\kappa = xf''/f'$	−0.441	−0.371
	(0.137)	(0.121)
Flattening, $\rho = \beta_Q/\lvert\beta_x\rvert$	5.241	6.505
	(1.165)	(1.065)
$\rho - \kappa$	5.682	6.876
	(1.138)	(1.046)
$\rho - \kappa - 2$	3.682	4.876
	(1.138)	(1.046)
Panel B. Fast purchases		
Curvature, $\kappa = xf''/f'$	−0.411	−0.293
	(0.145)	(0.125)
Flattening, $\rho = \beta_Q/\lvert\beta_x\rvert$	6.368	9.410
	(1.785)	(1.857)
$\rho - \kappa$	6.779	9.703
	(1.729)	(1.816)
$\rho - \kappa - 2$	4.779	7.703
	(1.729)	(1.816)
Panel C. Delayed purchases		
Curvature, $\kappa = xf''/f'$	−0.411	−0.293
	(0.145)	(0.125)
Flattening, $\rho = \beta_Q/\lvert\beta_x\rvert$	3.805	2.772
	(2.240)	(2.018)
$\rho - \kappa$	4.216	3.065
	(2.270)	(2.040)
$\rho - \kappa - 2$	2.216	1.065
	(2.270)	(2.040)
Panel D. $\rho - \kappa$ by index segment, one scheduled purchase		
S&P 1500	3.511	4.118
	(0.686)	(0.597)
Russell 1000	4.622	5.992
	(1.328)	(1.518)
Russell 2000	6.676	8.345
	(1.483)	(1.497)
Other	9.207	10.650
	(3.077)	(2.923)

Notes: Main sample, 3,951 offerings, with the segment-specific issue-size slopes of Table 3. $\beta_x = f'(x)$ is the issue-size slope without passive ownership at the median issue of 13.4 percent of shares, f'' its derivative from the logarithmic and squared terms, κ the curvature of the discount in issue size, and β_Q the loading of Table 3, Panel A. In Panels A to C, β_x averages the segments' slopes by their shares of offerings; Panels B and C come from one regression with the fast and delayed loadings of Appendix Table A8, Panel C, in place of β_Q, so they share κ. Panel D uses each segment's own issue-size slope (Appendix Table A12, Panel B) with the loading of Panel A. In the model of Section 9, $\rho - \kappa$ is 1 when passive ownership lowers the price impact of the shares other investors must hold (supply removal), at most 2 when intermediaries who break even carry the issue and the committed shares leave at once, and less when they leave later; it exceeds 2 only if committed demand also lowers the cost of placing each share that is not committed (Appendix H). The bound applies to each segment's discount. Standard errors in parentheses, by the delta method from the regression's covariance, clustered by issuer and sale month.

Table A25. The loading and the issuer's information environment

	Post-public offer price	Market move after public	Concession	Offerings
Panel A. Analyst coverage for the issuer's size				
β_Q, coverage at or above the median	1.897	0.680	1.217	3,951
	(0.744)	(0.478)	(0.584)	
β_Q, coverage below the median	1.293	0.459	0.835	3,951
	(0.584)	(0.445)	(0.425)	
Below minus above	−0.604	−0.221	−0.382	3,951
	(0.929)	(0.621)	(0.709)	
loading also varying with log market capitalization	−0.501	−0.068	−0.434	3,951
	(0.860)	(0.627)	(0.684)	
loading also varying by segment	−0.596	−0.163	−0.433	3,951
	(0.906)	(0.597)	(0.715)	
Panel B. Forecast dispersion				
β_Q, dispersion at or below the median	0.499	−0.483	0.982	3,391
	(0.480)	(0.358)	(0.354)	
β_Q, dispersion above the median	2.384	1.019	1.365	3,391
	(0.735)	(0.473)	(0.583)	
Above minus below	1.885	1.502	0.383	3,391
	(0.792)	(0.485)	(0.618)	
loading also varying with log market capitalization	2.107	1.849	0.258	3,391
	(0.829)	(0.527)	(0.587)	
loading also varying by segment	1.841	1.396	0.445	3,391
	(0.771)	(0.488)	(0.604)	

Notes: Main sample; Panel B uses the offerings with two or more estimates. Analyst coverage is the number of annual earnings-per-share estimates for the current fiscal year in the latest IBES consensus dated at most 45 days before the pre-launch close L, and zero without one (3,917 offerings have an IBES ticker); the split is at the offering year's median of the residual from a regression of $\log(1 + \text{coverage})$ on log market capitalization with offering-year effects. Forecast dispersion is the standard deviation of those estimates in percent of the price at L, split at the offering year's median. Coverage below the median and dispersion above it mark less information. Each regression adds to Table 3, column 1, the indicator for less information and its products with issue size, delayed and fast passive ownership and Q, as the volatility split of Appendix Table A8, Panel B. The variants add the products of Q and delayed and fast passive ownership with centered log market capitalization, or with the segment indicators. Standard errors in parentheses are clustered by issuer and sale month.