

7512338-incentives-at-play-fee-induced-volume-on-a-regulated-perpetual-futures-venue

SUMMARY: This study examines the trading behavior on Kalshi, a CFTC-regulated perpetual futures exchange, focusing on the impact of fees and incentives on trading volume. The analysis covers the first six months of trading, from June to December 2026, and uses Kalshi's public trade data and CFTC filings to document the presence of a fixed-size flow in BTC and ETH contracts. The study reveals that 39% of BTC and 48% of ETH notional volume is executed in resting quotes of a fixed dollar size, which are fully absorbed by orders of the same size. The paper also documents the changes in the fee schedule and incentive program, which have no apparent effect on the fixed-size flow. The study concludes that the fixed-size flow is not driven by trading activity, but rather by the cost-effectiveness of producing volume.

METHOD: The study reconstructs the fee and incentive history from Kalshi's CFTC filings and uses the public trade data to document the fixed-size flow in BTC and ETH contracts over the first six months of trading. The methodology includes analyzing the raw trade data to compute the volume and dollar size of the fixed-size flow, as well as testing the flow against the changes in the fee schedule and incentive program.

KEY FINDINGS:

- 39% of BTC and 48% of ETH notional volume is executed in resting quotes of a fixed dollar size.
- The fixed-size flow is present from the first week of trading and has changed its dollar size, intensity, and quote-replenishment cycle.
- The fixed-size flow is insensitive to changes in the fee schedule, as its gross edge remains stable.
- The fixed-size flow is not influenced by identifiable latency arbitrageurs, as volume from this source does not change in response to fee changes.
- The gold and silver contracts listed on Kalshi show no fixed-size flow, indicating that the fixed-size flow is specific to BTC and ETH contracts.

IMPLICATION FOR TRADING: The findings suggest that the fixed-size flow on Kalshi is not driven by trading activity, but rather by the cost-effectiveness of producing volume. This implies that traders are not engaging in wash trading or exploiting market inefficiencies, but rather are executing trades in a cost-effective manner. For practitioners, this suggests that the fixed-size flow may not be a significant factor in trading decisions and that other factors, such as market conditions and liquidity, may be more important. Additionally, the lack of fixed-size flow in gold and silver contracts suggests that the fixed-size flow is specific to BTC and ETH contracts and may not be applicable to other markets.

Incentives at Play: Fee-Induced Volume on a Regulated Perpetual Futures Venue

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September 22, 2026

Abstract

Kalshi launched the first CFTC-regulated perpetual futures on 3 June 2026. Using every public trade in its BTC and ETH contracts through 20 September 2026 (26.3 million trades, \$47.2 billion), its gold and silver contracts since their listing, and 283 million Binance futures trades as reference prices, I document that 39% of BTC and 48% of ETH notional is executed in resting quotes of a fixed dollar size that are taken in full by orders of the same size. CFTC filings show that self-clearing members faced no exchange fees until 24 June and net fees of zero thereafter under a rebate program filed the same day. The fixed-size flow is present from the first week of trading, has changed its dollar size, its intensity and its quote-replenishment cycle in steps that hit both contracts within minutes of each other, and is insensitive to a fee change on 18 August that moved the taker from a zero fee to 0.3 bps while its gross edge stayed at 0.3–0.4 bps. When the fee schedule went live on 24 June, venue-wide volume collapsed by 80–92% within hours and returned about forty hours later with ticket volume three to five times higher. The metals contracts, listed under the same program, show no fixed-size flow and track the reference market’s trading hours as closely as Binance does. The evidence is consistent with volume that exists because it is costless to produce rather than because it serves a trading purpose.

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1 Introduction

On 20 September 2026 a trader published an analysis of Kalshi’s public trade tape claiming that a single trade size of \$5,500 accounted for about half of the exchange’s ethereum perpetual volume, and the claim spread quickly through the crypto press (CoinDesk, 2026). Kalshi’s response was that the exchange charges fees and that no one would wash trade on a venue that charges fees. This paper takes the question seriously from both sides. It reconstructs, from the exchange’s own filings with the Commodity Futures Trading Commission (CFTC), exactly what fees applied to whom and when, and it tests whether the anomalous flow reacts to those fees the way an independent, profit-seeking trader would.

The setting is unusual and, for the study of manufactured volume, unusually clean in one respect and unusually opaque in another. It is clean because Kalshi is a Designated Contract Market: every fee schedule, rebate program and incentive scheme is self-certified to the CFTC with an effective date, so the incentive to trade can be dated to the hour. It is opaque because the public tape carries no account identifiers, so the legal element of a wash sale, that the two sides have the same owner or acted by agreement, cannot be observed. The empirical strategy therefore does not try to prove ownership. It asks a narrower question that the data can answer: does this flow behave like trading, or like the production of volume?

A pseudonymous working paper released on 21 September 2026 documented the fixed-size pattern in the BTC and ETH contracts over a two-week window and applied the detectors of the wash-trading literature to it (OctopusTakopi, 2026). This paper differs in three ways: it covers the contracts’ whole life rather than two weeks, it reconstructs the fee and incentive history from the regulatory record, and it tests the flow against the dated changes in that history rather than against statistical benchmarks. All figures reported here are computed from the raw tape.

The paper makes four contributions. First, it assembles the full institutional timeline. The perpetual contracts traded with no exchange fee for three weeks; a fee schedule went live at 10:00 ET on 24 June; a “Temporary Perpetual Fee Rebate Program” filed the same day returned all net fees to self-clearing members; an update effective 18 August changed the rebate so that takers net a 0.3 bps fee and makers a 0.3 bps credit; and a further update effective 16 September extended the program to metals and added, for the first time, a clause excluding wash trades from rebates. Between two members, exchange fees therefore netted to zero from 24 June onwards, and a member trading with itself paid nothing.

Second, it documents the fixed-size flow over the contracts’ whole life rather than a two-week window. The flow is present from the first week of June. Its dollar size was changed on 10, 18 and 24 August in both contracts, its share of volume doubled on 10 August and on 26 June, and the cycle at which its quotes are replenished dropped from about 520–700 ms to about 118 ms at 06:07 UTC on 25 August, in both contracts within the same few minutes and 27 hours after the sizes had changed. Whatever produces this flow is a single configurable process, and it was reconfigured twice in two days.

Third, it uses the dated fee events as natural experiments. The 24 June switch-on of fees is followed within hours by a collapse of venue-wide volume of 80–92%, and by a return on 26 June with ticket volume three to five times its pre-event level and the ETH ticket doubled

from \$5,000 to \$10,000. The 18 August change moved the ticket taker from a zero net fee to 0.3 bps, which is roughly its entire gross edge; neither its volume, its selectivity nor its markouts changed, while volume from identifiable latency arbitrageurs rose several-fold in response to a simultaneous cut in list fees. Across all regimes the money changing hands on the fixed-size trades is a few thousand dollars a day on hundreds of millions of notional: whatever the flow is for, it is not for trading profit on either side.

Fourth, it uses the gold and silver contracts listed on 10 September as a within-venue comparison. They are covered by the same rebate program but show no fixed-size flow, their size concentration is an order of magnitude below the crypto contracts, and their volume falls by 86–96% when COMEX is closed, in line with the reference market. The crypto anomaly is therefore not a property of the venue’s matching engine, its API or its member base as a whole.

The paper relates to the literature on wash trading in crypto markets, which has relied either on account- or wallet-level data (Victor and Weintraud, 2021; Sirolly et al., 2025) or on statistical signatures of the trade tape (Cong et al., 2023; Aloosh and Li, 2024). It adds a setting where the incentive to produce volume is written down in public filings and changes on known dates, which allows behavior to be tested against the incentive rather than against a statistical benchmark. It also relates to work on exchange fee design and maker–taker pricing (Colliard and Foucault, 2012; Malinova and Park, 2015), where the concern is usually distortion of order choice rather than of the volume statistic itself.

2 Institutional setting

Kalshi listed bitcoin and ethereum perpetual futures on 3 June 2026, followed by XRP on 10 June, further crypto contracts through the summer, and gold and silver on 10 September. The contracts trade continuously, are cleared by Kalshi’s own clearing house (Kalshi Klear), and settle funding every eight hours. Members trade either as self-clearing members (SCMs) or through a futures commission merchant (FCM).

Table 1 lists every filing bearing on trading costs, assembled from the CFTC’s rule-filing index for organization KEX and from Kalshi’s regulatory notices page. Three points matter for what follows.

No fees at launch. The first perpetual fee schedule was filed on 8 June and, by an exchange notice, implemented at 10:00 ET on 24 June. For three weeks after launch no exchange fee applied to perpetual trades at all. The schedule that then took effect charged takers 12.0 to 2.6 bps and makers 5.0 to 0.6 bps, depending on 30-day trailing volume across perpetuals and event contracts; maker tiers could alternatively be reached by holding a minimum share of the venue’s total maker volume, up to 10% for the top tier.

Full rebate from the same day. On 24 June Kalshi also filed the Temporary Perpetual Fee Rebate Program, under which all SCMs receive monthly rebates of “all net taker and maker fees” in every perpetual market. The filing is not simultaneous with the fee, however. Its cover letter is dated 24 June but was date-stamped by the CFTC on 25 June and posted to Kalshi’s notices page that day, and its terms set the effective date at 9 July, “retroactive to the self-

Table 1: Fee and incentive filings for Kalshi perpetual futures

Filed	Effective	Content
3 Jun	3 Jun	BTC perp lists. Market Maker Program amended for perps; terms confidential.
4 Jun	18 Jun	Fee Consideration Program: prior volume on Hyperliquid, Coinbase, Binance, KCEX counts toward initial fee tier.
8 Jun	24 Jun 10:00 ET	First perp fee schedule: takers 12.0–2.6 bps, makers 5.0–0.6 bps by 30-day volume; maker tiers also by share of venue maker volume.
24 Jun filed, 25 Jun posted	9 Jul, retroactive	Temporary Perpetual Fee Rebate Program: all net maker and taker fees rebated to SCMs, all perp markets. Effective 9 Jul, retroactive to the filing date; no rebate earned until it takes effect.
4 Aug	18 Aug 17:00 ET	Rebate update: takers net 0.3 bps, makers net –0.3 bps. New fee schedule: takers 4.0–1.0 bps, makers 2.0–0 bps.
14 Aug	28 Aug	Clearing-house Perpetual Interest Program: 7% p.a. on $\min(\text{OI}/2, \text{margin})$, \$7m cap.
2 Sep	16 Sep 17:00 ET	Rebate update: metals at 0.018 bps; affiliates excluded; wash and self-matched trades excluded from rebates. Metals fee schedule.
10 Sep	10 Sep	Gold and silver perps list.

Sources: CFTC rule filings 61122, 61074, 61360, 62335, 63563, 63564 and Kalshi Klear’s 14 August filing; Kalshi exchange notice of 24 June 2026. Effective dates are those stated in the filings; implementation is “upon exchange notice”, and for the 18 August and 16 September changes no implementation notice was found, so the stated earliest dates are used.

certification filing date” but with “no Rebates . . . earned unless this Program goes into effect”.¹ For roughly forty hours, from 10:00 ET on 24 June, members thus faced the full fee schedule with no rebate in force and no public certainty that one would apply. Once the rebate was in effect, net exchange fees for members were zero on both sides, retroactive to 24 June. An update filed on 4 August and effective 18 August changed the terms so that “taker fees will be rebated down to 0.3 bps” and “maker fees will be rebated such that makers net 0.3 bps”; the sum across the two sides of a trade remains zero. A member on both sides of its own trade still pays nothing. The 2 September update, effective 16 September, added metals at 0.018 bps, excluded Kalshi affiliates, and for the first time excluded from rebates any fees on transactions “resulting from, or subject to inquiry or investigation for potential, self-matching, wash trading, pre-arranged trading”. The June and August versions contained no such clause.

Other incentives. Kalshi amended its 2025 Market Maker Program on 3 June to add “tailored liquidity conditions and benefits” for perpetuals; the appendices setting out those conditions and benefits were filed with a request for confidential treatment under FOIA Exemption 4 and are not public. A referral program (effective 7 August), a clearing-house program paying 7% a year on open positions (effective 28 August, capped at \$7 million), and a retail deposit-and-trading reward program (filed 15 September) were also filed; none pays for perpetual volume as such at any scale, and none predates the fixed-size flow.

¹The rebate program’s cover letter is dated 24 June but was submitted through the CFTC portal and date-stamped 25 June (filing 61360), and Kalshi posted it to its regulatory notices page on 25 June. Its terms set the effective date at “on or after 5:00 PM ET on July 9, 2026,” with an effective period that “may be retroactive to the self-certification filing date,” and “no Rebates will be earned unless this Program goes into effect.”

3 Data

Kalshi publishes every perpetual trade through its public API with a price, a contract count, the taker side and a microsecond timestamp; there is no account field. I collected every trade in the BTC and ETH contracts from listing on 3 June to 20 September 2026 (18.89 million and 7.45 million trades, \$27.1 and \$20.1 billion of notional), and in the gold and silver contracts from listing on 10 September (250,000 and 134,000 trades, \$150 million each). Cumulative notional matches the exchange’s own reported lifetime volume for each contract to within rounding, and no trade identifier appears twice. One BTC contract is 0.0001 BTC and one ETH contract is 0.001 ETH, so a trade’s dollar notional is price times count times the contract multiplier.

Reference prices come from Binance USD-M futures aggregated trades for BTCUSDT, ETHUSDT, XAUUSDT and XAGUSDT, downloaded from Binance’s public archive for the same days (283 million trades in total). Each Kalshi trade is matched to the last Binance trade price at or before its timestamp, and to the prices 100 ms before and 1, 5, 30 and 300 seconds after. Markouts are signed in the taker’s favor and expressed in basis points; they are gross of fees and funding. Because they use last-trade prices rather than quotes, they carry noise at short horizons and could bias the taker’s edge in either direction by a few hundredths of a basis point, which is the same order as the net figures in Section 5.2. No order book history is public, so resting sizes and the replenishment cycle are inferred from trade timestamps, and open interest is taken from single snapshots of the exchange’s API. The metals sample is eleven days. Event contracts, which are most of Kalshi’s business, are not covered, and nothing in this paper identifies a person or a firm.

A *ticket* is defined per market-day, without reference to any prior list of sizes: for every round dollar amount K (a multiple of \$100 above \$500) the window $[K - 15, K + 1]$ collects trades whose notional is the largest whole number of contracts that fits under K ; any K whose window carries at least 5% of the day’s notional is a ticket for that day. The procedure is given no list of sizes and recovers every ticket, past and present, from the tape alone. Because the limit is in dollars, the contract count of a ticket trade moves with the price, which is why tests built on exact contract sizes miss it.

4 The fixed-size flow

4.1 Extent

Over the full sample, ticket trades are 39% of BTC notional (\$10.6 billion) and 48% of ETH notional (\$9.7 billion). Figure 1 shows daily notional split into ticket and other volume. The flow is present from the first days of trading; on 3–8 June, when daily volume was in the low millions, \$1,000, \$5,000 and \$10,000 tickets already carried 35–72% of ETH notional. In gold and silver the same procedure finds tickets on a handful of launch days only, carrying 1% of notional overall.

Figure 2 compares size concentration across venues: for each market-day with at least 500 trades, the largest share of notional inside any 1%-wide window of trade size. The median is 37% for Kalshi ETH and 24% for Kalshi BTC; it is 1% or below for every Binance market,

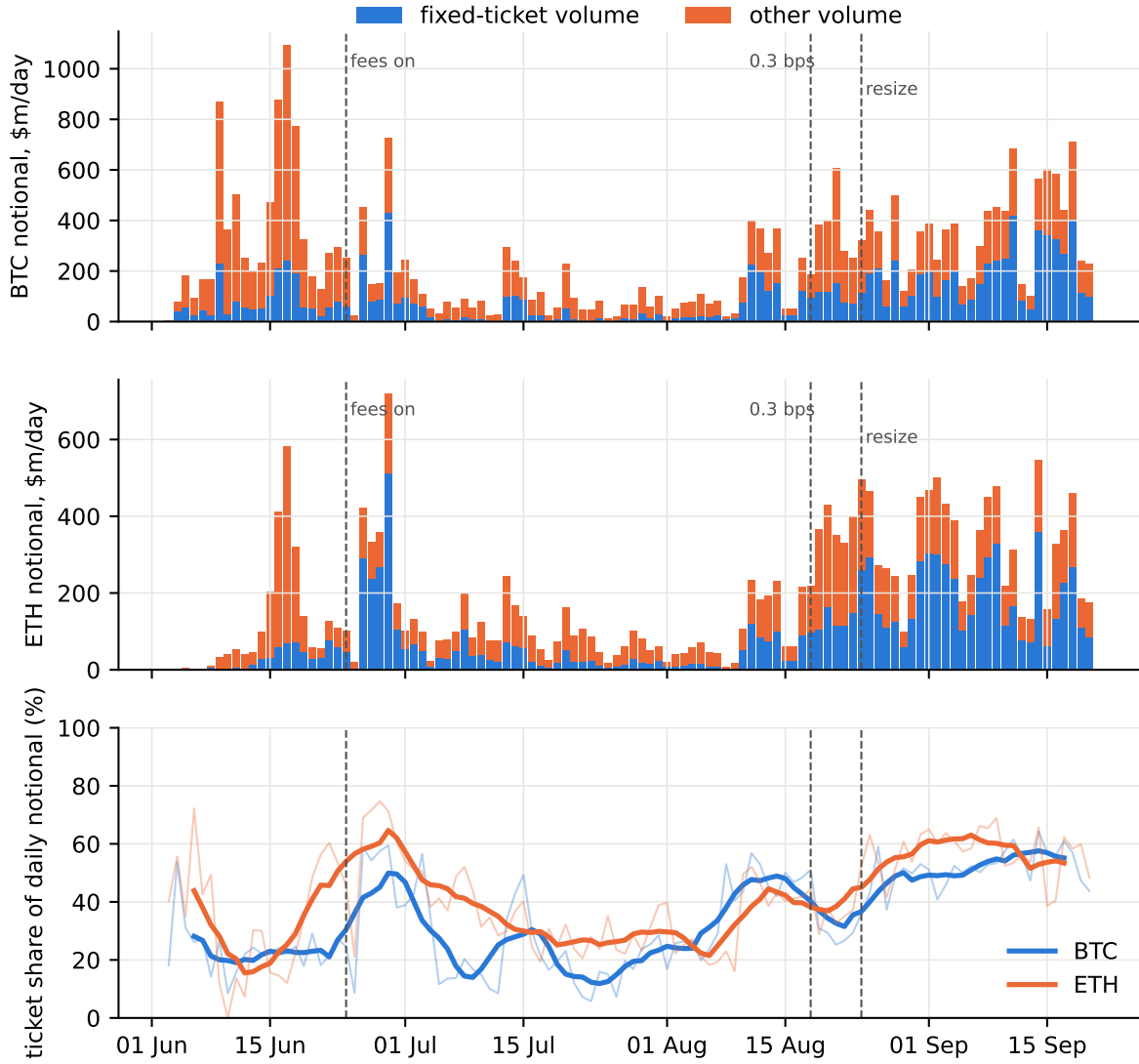


Figure 1: Daily notional in the Kalshi BTC and ETH perpetuals, 3 June – 20 September 2026, split into trades at a fixed dollar ticket (blue) and all other trades (orange), and, in the bottom panel, the ticket share of daily notional for both contracts (daily values faint, seven-day centred mean bold). Dashed lines: fee schedule live (24 June), rebate changed to 0.3 bps (18 August), ticket sizes changed (24 August).

including gold and silver, and 7% and 12% for Kalshi gold and silver. BTC’s median is lower than ETH’s not because its flow is less concentrated but because BTC carries two tickets at once, and a 1% window captures only the larger of them; the two together carry about the same share as the single ETH ticket. The Kalshi metals contracts sit between the crypto contracts and Binance, but their concentration comes from small launch-day samples rather than from a persistent ticket.

4.2 Share of volume

Figure 3 puts the extent of the suspect flow in one place. Because the ticket share has risen through the contracts’ life, a single full-sample figure would understate what the venue’s reported volume consists of today. In the three fee-free weeks after launch, tickets were 23% of

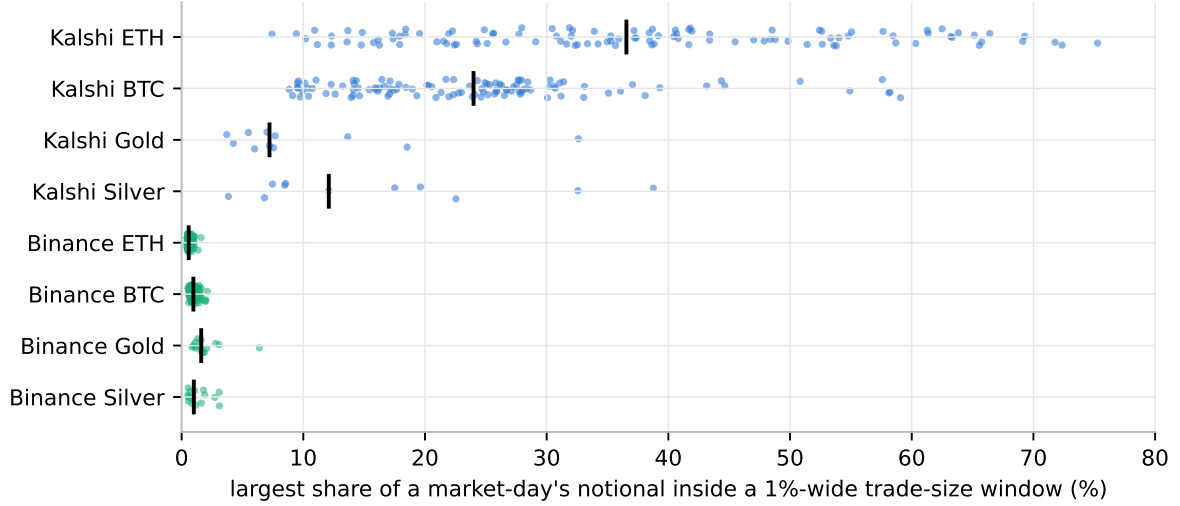


Figure 2: Dollar-size concentration per market-day. Each dot is one market-day with at least 500 trades; the bar is the median. Kalshi contracts in blue, Binance USD-M futures in the same assets in green.

notional in both contracts. Under the full rebate they were 37% of BTC and 48% of ETH. From the 10 August scale-up to the end of the sample they were 49% and 53%, and in the first twenty days of September 55% and 60%, or 57% of the two contracts combined. BTC and ETH are more than 85% of all perpetual volume on the venue. The same construction appears at lower shares in the smaller contracts: over 1–20 September, tickets carry 29% of HYPE notional (a \$2,400 ticket), 16% of SOL (\$3,500) and 11% of XRP, so the figure for the perpetual complex as a whole is a few points below the BTC and ETH figures.

Two qualifications apply. First, the ticket share is the share of volume that fails the economic tests of this paper (insensitive to fees, leaving no position, produced by one configurable process) and not an estimate of wash trading in the legal sense, which the public data cannot deliver; it is best read as an upper bound on same-owner or pre-arranged volume and as a point estimate of volume that does not measure trading interest. Second, a further layer of volume depends on the tickets without being part of them. The latency-arbitrage flow that hits Kalshi quotes within 100 ms of a Binance move of more than 1 bps, which is a further 24% of ETH and 14% of BTC notional in September, would largely not exist without stale fixed-size quotes to pick off. On that reading, roughly 85% of reported ETH volume is either ticket flow or flow induced by it. Perpetuals are in turn a minority of Kalshi’s business: on 20 September the exchange reported \$1.9 billion of total volume, of which the BTC and ETH perpetuals were about \$0.36 billion, so the ticket flow is on the order of 10–15% of the exchange’s total reported volume on a typical day. No comparable analysis exists for the event contracts that make up the rest.

Table 2 states the pattern of Figure 3 as a regression. On the panel of contract-hours, the ticket share of hourly notional is regressed on indicators for three later periods, with the fee-free launch weeks omitted, on hour-of-day fixed effects, and on log Binance notional, log realized volatility and a weekend indicator, separately for each contract. The three later windows here are disjoint, so the August window ends on 31 August. All three period effects are positive and

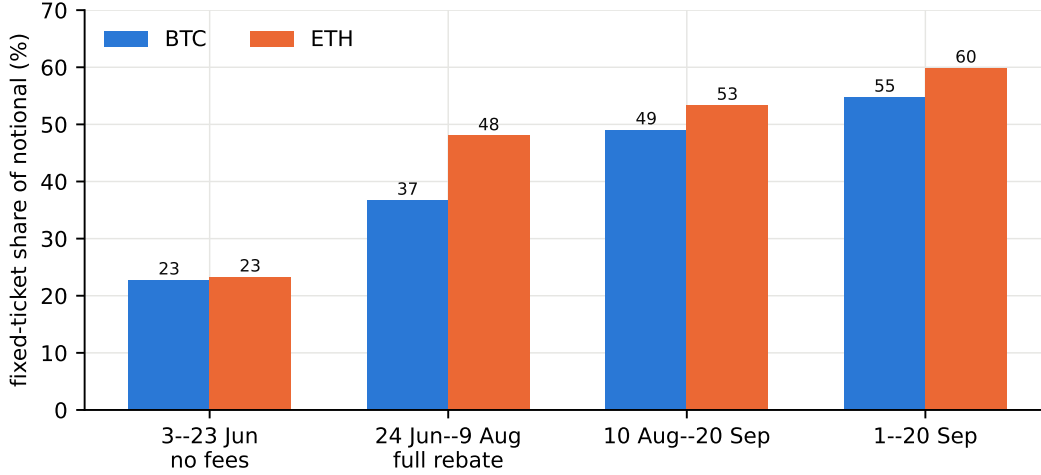


Figure 3: Share of notional executed at a fixed dollar ticket, by contract and window. Tickets are identified per market-day as in Section 3; windows follow the fee regimes of Table 1, with the last window showing the most recent three weeks.

the Wald test rejects their joint absence in both contracts.² The effects grow over time: about 15 to 22 percentage points under the full rebate, 21 to 25 points in late August and 33 to 39 points in September, and the September step above August is precise in both contracts. Because the periods are consecutive blocks of one time series, I also run a randomization test that holds the period lengths fixed, shifts all boundaries jointly to a random date, and re-estimates the model 1,000 times; the p -value is the share of draws that produce a coefficient at least as large as the observed one. The August and September effects pass this test in both contracts (BTC: 0.01 and 0.02; ETH: 0.06 and 0.001). The full-rebate effect does not, with a randomization p -value of about 0.2 in both contracts, and its unweighted estimate is close to zero (0.01 in BTC, 0.05 in ETH). That effect is therefore carried by the high-volume days in the week after the rebate filing rather than by a broad shift across the period; July hours look much like June hours. The negative coefficient on Binance notional restates the elasticity result of Section 5.3: other flow rises with the market and ticket flow rises less, so the ticket share falls in busy hours.

4.3 A single configurable process

Three features of the flow change in steps, and the steps coincide across the two contracts. The dollar size of the ETH ticket was \$5,000 from mid-June, \$10,000 on 26–29 June, back to \$5,000 from 30 June, \$4,000 from 10 August, \$4,500 from 18 August (about 06:00 UTC, fifteen hours before the fee change that day could take effect) and \$5,500 from 24 August. BTC moved from \$5,000 to a pair of \$4,000 and \$2,100 on 10 August and to \$5,000 and \$2,500 on 24 August; On 24 August the last ETH trade at the old size is stamped 03:07:22.98 UTC and the first at the new size 03:07:24.71; the first BTC trade at a new size is stamped 03:07:14.73, so the two contracts switched within ten seconds of each other. Daily ticket notional rose about tenfold on 10 August in both contracts (from \$16 million to \$155 million a day in BTC and from \$9

²Newey–West standard errors with a seven-day lag deliver qualitatively similar results. They are larger than the day-clustered errors by 30 to 50 percent for the period effects, and every effect that is significant at 1 percent on clustered errors remains so.

Table 2: Ticket share of hourly notional by fee period

	BTC	ETH
24 Jun–9 Aug, full rebate	0.145*** (0.044)	0.219*** (0.058)
10–31 Aug	0.212*** (0.028)	0.250*** (0.046)
1–20 Sep	0.333*** (0.020)	0.387*** (0.042)
log Binance notional	-0.070*** (0.020)	-0.175*** (0.032)
log realised volatility	0.038 (0.040)	0.137*** (0.052)
Weekend	-0.049* (0.025)	-0.033 (0.037)
Hour-of-day fixed effects	yes	yes
Observations (contract-hours)	2,598	2,596
R^2	0.51	0.42
Wald test, all period effects zero (p -value)	<0.001	<0.001

Weighted least squares on contract-hours, 3 June to 20 September 2026, with hourly notional as weights. The dependent variable is the share of the hour's notional executed at a fixed dollar ticket. The omitted period is 3–23 June, when no exchange fee applied (weighted mean share 0.23 in BTC and 0.24 in ETH). Standard errors clustered by day (110 clusters) in parentheses. *, **, ***: significance at 10, 5 and 1 percent on the clustered errors.

million to \$87 million in ETH, comparing 1–9 August with 10–14 August) and three- to fivefold on 26 June.

The third feature is timing. For consecutive trades of the same ticket on the same side of the book, the first percentile of the inter-trade gap, which estimates the time the quoting process needs to replace a quote that has just been taken, was between about 520 and 730 ms in ETH on 40 of the 51 days from 22 June to 23 August with more than 2,000 such gaps, and between 116 and 135 ms on every such day from 25 August (Figure 4). BTC shows the same two levels, with more noise from days on which two tickets are hit in one sweep. The change is sharp. In ETH the last hour on the old cycle (05:00–06:00 UTC on 25 August) has a first-percentile gap of 546 ms and the first hour on the new one (06:00–07:00) of 120 ms; at one-minute resolution the switch occurs at 06:07 UTC, with no gap under 300 ms in the preceding hour and twenty in that minute (Figure 5). BTC switches between 06:06 and 06:12 UTC. Figure 4 shows the two regimes as distributions: the ticket curves are flat at zero up to the cycle length and turn sharply at 520 ms in the two weeks before the change and at 118 ms in the two weeks after, while the curve for all other trades in the same market rises from 20 to 25 percent at one millisecond and has no edge anywhere. The small mass of the before curves between 118 and 520 ms comes from days on which two tickets were active and from sweeps that take two resting quotes of one size in a single burst. The ticket sizes had changed 27 hours earlier, at 03:07 UTC on 24 August, and the cycle stayed at about 520 ms through that change; the two reconfigurations are separate events, each of which reached both contracts within minutes. Neither coincides with anything in Kalshi's public API changelog, which has no entry between 20 and 27 August and

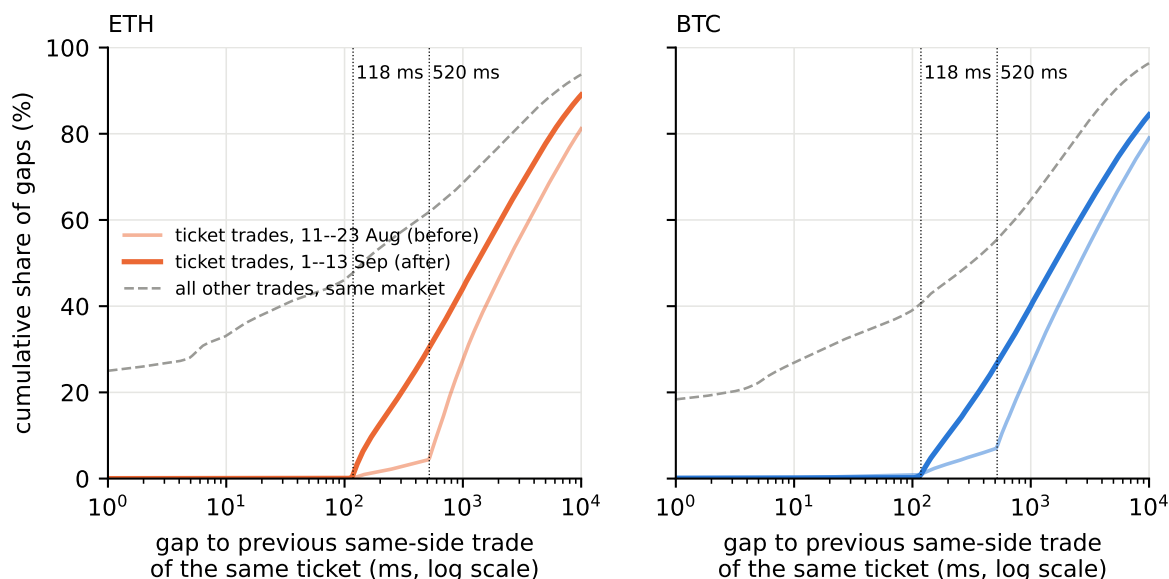


Figure 4: Replenishment cycle of the ticket quotes. Cumulative distribution of the gap between consecutive trades of the same ticket on the same side of the book, for the two weeks before the change (11–23 August) and the two weeks after (1–13 September), against the same gap for all other trades in the same market over both windows.

none concerning order handling or rate limits until 10 September, and I found no status-page incident or public discussion of either date. The 24-hour windows either side of the cycle change show no change in the taker’s markouts (0.27 bps at five seconds in ETH before and after) and a modest rise in the BTC ticket share of volume from 33% to 46%. Non-ticket trades in the same markets show no such floor: 36–68% of their same-side gaps are under 100 ms in every month. Independent makers would not share one cycle time, and would not change it together with their order sizes on the same day.

4.4 No position is left behind

Ticket buys and sells are balanced to within a fraction of a percent (50.3% buys in BTC, 50.1% in ETH), and the absolute net signed ticket flow within an hour is 12% of gross in BTC and 6% in ETH. Non-ticket flow is similarly balanced at the hourly level (11% and 10%), so this statistic alone does not separate the two; but combined with the exchange’s reported open interest it says that ticket volume does not accumulate into positions. On 21 September Kalshi’s API reported open interest of \$11.1 million in BTC against 24-hour volume of \$667 million, and \$9.2 million in ETH against \$621 million, so open interest turns over 60 and 67 times a day; across all 23 perpetual contracts the ratio is 42. On Binance USD-M futures over 15–20 September, daily volume was 1.4 times open interest in BTC and 1.7 times in ETH, using the exchange’s published open-interest series.

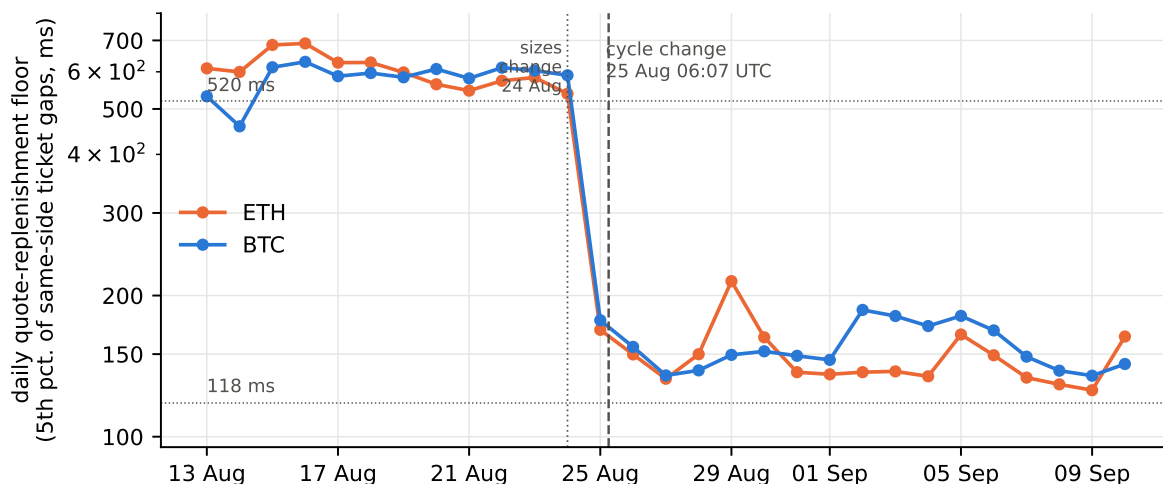


Figure 5: The quote-replenishment floor, by day. Each dot is one day’s fifth percentile of the gap between consecutive trades of the same ticket on the same side of the book, a robust estimate of the shortest time the quoting process takes to replace a quote. Both contracts sit at about 520–650 ms through 24 August and drop together to about 150 ms on 25 August; the ticket-size change of 24 August (dotted) leaves the floor unchanged. Days with more than 5,000 same-side ticket gaps, 13 August–10 September 2026. Dotted horizontal lines at 520 and 118 ms.

5 Fee events

5.1 24 June: fees switched on

The exact times matter here, so I set them out first. The perpetual fee schedule filed on 8 June was implemented “as of 10:00 AM ET” on 24 June by an exchange notice of that date, which is 14:00 UTC. From that instant takers owed up to 12 bps and makers up to 5 bps. The rebate that would return those fees was filed the same day but was not effective the same day: its cover letter is dated 24 June, it was date-stamped by the CFTC and posted to Kalshi’s notices page on 25 June, and its own terms set the effective date at 9 July, retroactive to the filing date but earning “no Rebates . . . unless this Program goes into effect”. For about forty hours, then, members faced a live, unrebated fee, and on the morning the fee began the rebate had not yet even been filed.

Figure 6 shows what followed, at hourly resolution. Through 23 June and the morning of 24 June the venue runs at \$10–40 million per hour and at 2–5% of Binance, with a pre-fee median of 3.1% of Binance per hour. Within hours of 14:00 UTC the flow thins, and from about 18:00 UTC on 24 June through all of 25 June it is close to dead: the quietest hour, 07:00 UTC on 25 June, traded essentially nothing in either contract and registered a Kalshi-to-Binance share of zero, against roughly \$10 million and 3% in the same hour a day earlier. Over the whole of 25 June BTC traded \$23 million and ETH \$21 million, against \$296 million and \$109 million on 23 June, and ticket volume fell to \$2.0 million and \$4.5 million. The collapse is venue-wide, ticket and non-ticket flow alike, and the bottom panel shows it is not a market-wide lull: Binance BTC+ETH volume was in fact near its June high on 24–25 June, so Kalshi’s share, which divides that out, falls by more than a factor of ten. Trading resumed abruptly at about 08:00 UTC on 26 June and ramped to a peak of \$87 million in the 14:00 UTC hour, above anything in

the pre-event days; over the day BTC traded \$453 million and ETH \$423 million, ticket volume was \$267 million and \$292 million, three and five times its 23 June level, and the ETH ticket had doubled from \$5,000 to \$10,000, holding 69–75% of ETH volume for the next four days.

The sequence lines up with the fee timeline rather than with the market. The drop begins in the hours after fees go live and deepens overnight, which is when a fee of up to 12 bps on volume that carries a sub-basis-point edge makes that volume unambiguously loss-making; and the rebound begins on the morning after 25 June, the day the rebate filing became public and its retroactive design could be read. An operator producing volume for its own sake would stop the moment it became costly and restart the moment the cost was credibly promised to be refunded, which is what the two turning points show. That the flow returned larger, with a doubled ticket, is consistent with the same operator resuming under a confirmed zero-fee regime rather than with independent traders drifting back.

Two alternative readings deserve a word. A market-wide halt is ruled out by the bottom panel, since Binance was busy throughout. A pure technical outage is a weaker fit than it first looks: trades print in most hours of 25 June rather than stopping cleanly, the withdrawal is graded over the evening of 24 June rather than instantaneous, and the one clean gap, 07:00–09:00 UTC on 25 June, is a two-hour window in both contracts that recurs as an ad hoc maintenance pattern later in the sample. I cannot exclude that a maintenance window contributed to part of the 25 June trough, and the exchange did file notice of an ad hoc maintenance period on 28 June; but an outage explains neither the timing of the onset relative to the fee nor the timing of the recovery relative to the rebate filing, and it would have to have begun within hours of the fee and ended within hours of the rebate becoming public. The joint pattern is what fee sensitivity looks like, and a coincident outage is not needed to account for it.

5.2 18 August: the taker starts paying

The exact implementation hour of the 18 August change is not documented; the filing gives 17:00 ET as the earliest time, and I use it. From 18 August the ticket taker pays a net 0.3 bps where it paid nothing before, and the maker receives 0.3 bps where it received nothing. The sum is unchanged, but the split now determines which side loses money. Table 3 reports the taker’s gross markout against Binance by fee regime. In BTC it is 0.30–0.40 bps at 30 seconds in every regime; in ETH it is 0.37–0.43 bps. At 5 seconds it is 0.27–0.39 bps. Under the third regime the taker’s net edge after fees is therefore between zero and 0.1 bps, and the maker’s loss net of rebate is the same amount with the opposite sign.

An independent taker facing a new 0.3 bps fee on trades with a 0.3–0.4 bps gross edge should become more selective and trade less. In a window from 11 to 23 August, excluding 18 August itself and stopping before the 24 August resizing, BTC ticket volume was \$124 million a day before and \$107 million after; ETH ticket volume rose from \$75 million to \$130 million. The Binance price move in the 100 ms before a ticket trade, a measure of how selectively the taker times its orders, was 0.10–0.19 bps throughout; five-second markouts were unchanged at 0.24–0.29 bps. The flow that *did* respond was non-ticket flow arriving within 100 ms of a Binance move of more than 1 bps, which rose four- to six-fold after 18 August; the same filing cut list taker fees for non-members from 12.0–2.6 bps to 4.0–1.0 bps, and this is what a price-sensitive

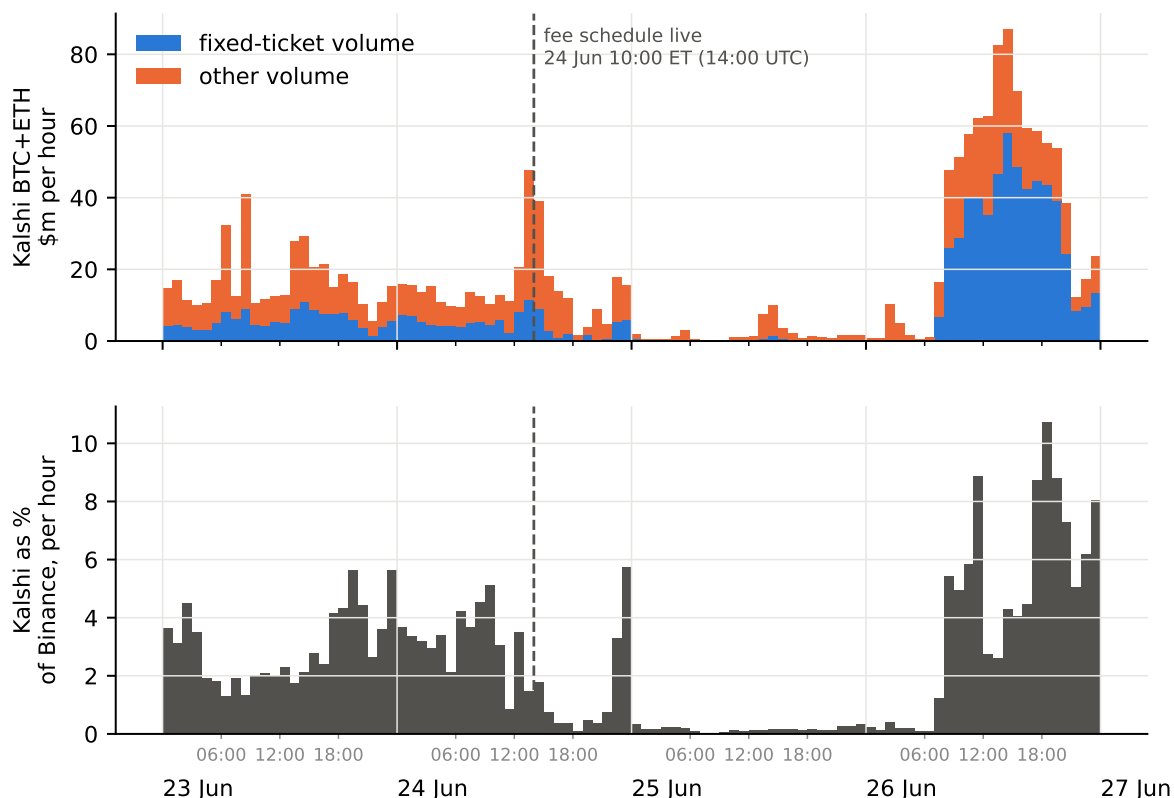


Figure 6: The 24 June switch-on of fees, at hourly resolution. Top: Kalshi BTC+ETH notional per hour, split into trades at a fixed dollar ticket (blue) and all other trades (orange). Bottom: the same Kalshi volume as a percentage of Binance BTC+ETH USD-M volume in the same hour, which nets out any market-wide movement in trading. Dashed line: perpetual fee schedule live, 24 June 10:00 ET (14:00 UTC). Sample: 23–26 June 2026.

population looks like when its costs fall.

The test does not reject an independent ticket taker: at break-even it has no reason to change. What it establishes is that the economics are negligible. At 0.3–0.4 bps on \$180 million a day, the gross transfer between the two sides of the ticket trades is \$5,000–7,000 a day, and net of the rebate split it is at most about \$1,500 a day either way. Before 18 August the maker lost the entire markout on every fill, roughly \$2,000–2,500 a day, for eight weeks, with no rebate to offset it and, as far as the public filings show, no other payment.

5.3 Sensitivity to market activity

Volume that serves a trading purpose rises when markets are active. Table 4 regresses log hourly Kalshi notional on log hourly Binance notional in the same asset, separately for ticket and non-ticket flow and by regime, with standard errors clustered by day. In the launch regime nothing on Kalshi tracks Binance, which reflects the launch ramp rather than the flow’s nature. From 24 June onwards non-ticket flow has an elasticity of 0.74–0.94 and a correlation of 0.58–0.76 with Binance volume; ticket flow has an elasticity of 0.36–0.86 and a correlation of 0.30–0.49. The ETH ticket is the least responsive (0.36, correlation 0.30, in the third regime) and BTC’s the most. Whether these gaps are statistically distinguishable is tested in Appendix A, which stacks the two flow types in one regression per contract and sample and interacts the Binance

Table 3: Ticket flow by fee regime

	Regime	Days	Vol/day (\$m)	Ticket/day (\$m)	Share	Ticket taker markout (bps)		
						5 s	30 s	300 s
BTC	3–23 Jun, no fees	22	354	81	0.23	0.38	0.32	0.36
	24 Jun–18 Aug, full rebate	55	133	54	0.41	0.27	0.30	0.34
	19 Aug–20 Sep, taker 0.3 bps	33	364	178	0.49	0.34	0.40	0.45
ETH	3–23 Jun, no fees	22	111	27	0.24	0.39	0.43	0.47
	24 Jun–18 Aug, full rebate	55	122	58	0.47	0.36	0.40	0.40
	19 Aug–20 Sep, taker 0.3 bps	33	331	181	0.55	0.33	0.37	0.32

Markouts are the signed change in the Binance USD-M price from the moment of the Kalshi trade, in the taker's favour, weighted by notional, gross of fees and funding.

variable with a ticket indicator, so that the interaction is the difference in elasticities with a standard error from the joint covariance. For ETH the difference is negative and significant at 1 percent in the full sample and in both post-fee periods, and it widens over time: -0.27 under the full rebate and -0.38 under the 0.3 bps taker fee for Binance volume, and -0.60 for realized volatility in the last period. For BTC the picture is weaker than the point estimates suggest. Over the full sample and under the full rebate the difference is small and not significant; only from 18 August is the BTC ticket significantly less responsive than other BTC flow (-0.17 for volume, -0.34 for volatility, both at 1 percent). The BTC ticket therefore behaved like ordinary flow for most of the summer and detached from the market in the final regime, while the ETH ticket was detached throughout. In both contracts the gap is largest in the period in which the ticket share is highest. The ticket flow is not indifferent to the market, but where it is distinguishable it is less tied to it than everything else on the venue, and its hour-of-day profile is flatter (coefficient of variation 0.25 for the ETH ticket against 0.32 for other ETH flow and 0.39 for Binance).

6 Metals as a within-venue comparison

Gold and silver perpetuals were listed on 10 September under the same rebate program (at a lower rate from 16 September) and the same matching engine. If fixed-dollar quoting were a property of the venue's technology, its API, or its members in general, it should appear in these contracts too. It does not. No persistent ticket appears; the largest concentration on any gold day after the launch weekend is below 7%.

Metals also allow a test that crypto does not: the reference market closes. COMEX gold and silver futures do not trade on Saturdays, on Sundays before 18:00 ET, or in the daily 17:00–18:00 ET break, while Kalshi's contracts trade continuously. Figure 7 shows volume per hour when COMEX is closed as a share of the open-hours level. Kalshi gold trades at 14% of its open-hours rate when COMEX is closed and silver at 4%; Binance's XAUUSDT and XAGUSDT trade at 10% and 22%. The Kalshi metals contracts behave like their reference market. Kalshi's crypto contracts trade at 32% and 45% of their weekday-hours rate during the same clock hours, against 38% and 47% on Binance: there is nothing to close in crypto, and the profile is ordinary. This is a placebo in the sense that matters: a venue whose volume

Table 4: Elasticity of hourly Kalshi notional to hourly Binance notional

Regime		Ticket flow		Non-ticket flow	
		β (s.e.)	corr.	β (s.e.)	corr.
BTC	no fees	0.04 (0.19)	0.02	0.06 (0.24)	0.03
	full rebate	0.86 (0.15)	0.40	0.94 (0.07)	0.66
	taker 0.3 bps	0.61 (0.06)	0.49	0.78 (0.03)	0.64
ETH	no fees	-0.36 (0.24)	-0.16	-0.15 (0.31)	-0.06
	full rebate	0.58 (0.14)	0.32	0.85 (0.10)	0.58
	taker 0.3 bps	0.36 (0.10)	0.30	0.74 (0.04)	0.76
OLS of $\ln V_h^{\text{Kalshi}}$ on $\ln V_h^{\text{Binance}}$ over hours h with positive Kalshi volume; standard errors clustered by day.					

is manufactured by its own systems or by an exchange-wide arrangement would not produce metals volume that switches off with COMEX.

7 Interpretation

Three hypotheses are on the table. Under H_1 the maker and the taker have the same owner. Under H_2 they are two parties acting under an arrangement, for example a market-making contract with volume conditions. Under H_3 they are independent: a subsidized maker posts fixed-dollar quotes and an independent arbitrageur takes them.

The evidence against H_3 is circumstantial but consistent. The maker lost the full markout on every fill for eight weeks before any rebate could compensate it, and the taker’s edge is at or below its fee since. The taker’s order size tracked the maker’s size through three changes, including a same-day change in two contracts. The taker did not become more selective when its fee rose from zero to its entire gross edge, while a separately identifiable population of arbitrageurs on the same venue reacted strongly to a fee cut the same day. The flow scaled up three- to fivefold within 42 hours of the fee switch-on once a full rebate was assured, and rose tenfold on 10 August without any public change in incentives. Its order sizes were changed in both contracts within ten seconds on 24 August and its quoting cycle in both contracts within minutes on 25 August. None of this is impossible for two independent firms, but each step requires a coincidence.

The evidence does not separate H_1 from H_2 . The 3 June market-maker amendment for perpetuals is confidential, so a volume condition or a payment per contract cannot be ruled in or out. The fee schedule itself gives one public motive: until 24 June, volume set each member’s initial fee tier, and maker tiers can be reached by holding a share of the venue’s maker volume; a maker with half of all volume qualifies for the top tier on that ground alone. After 24 June the tier stopped mattering for members, because everything was rebated.

What the evidence does establish is that between a fifth and two thirds of the volume reported for these contracts, depending on the week, is produced by a process that does not respond to its own trading profit, leaves no position, and costs nothing to run under the exchange’s own rebate design. That is enough to say that the volume statistic does not measure trading interest. It is not enough to say who is on the other side.

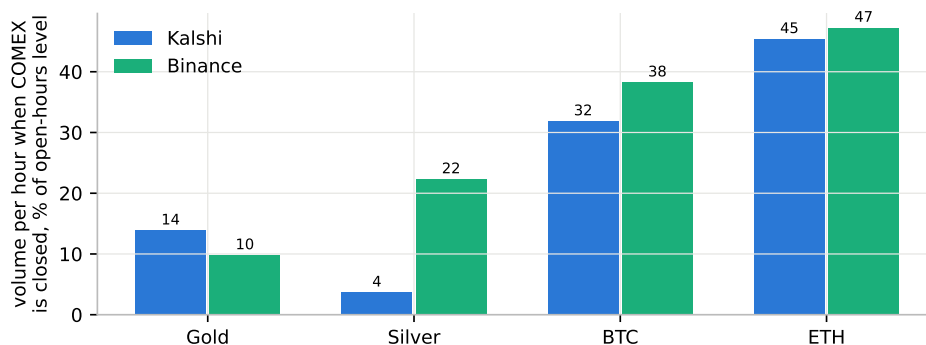


Figure 7: Volume per hour during hours when COMEX metals futures are closed (Saturday, Sunday before 18:00 ET, 17:00–18:00 ET daily), as a percentage of volume per hour during COMEX trading hours, 10–20 September 2026.

8 Conclusion

Kalshi’s perpetual futures have carried, since their first week, a flow of fixed-dollar quotes taken in full by same-sized orders that now accounts for about half of reported volume. The exchange’s own filings show that this flow has been costless to produce for members throughout: no fees for three weeks, then a full rebate, then a split rebate that can sum up to zero. The flow scaled with the rebate, ignored a fee change that wiped out the taker’s edge, and changed its size in both contracts within ten seconds and its cycle time in both contracts within minutes, on consecutive days. The gold and silver contracts listed under the same program show none of this and follow their reference market’s hours. Whether the two sides of the flow are one firm or two is not observable from public data; that they are not trading is.

A Elasticity of ticket and non-ticket flow to market activity

Table 5 reports the stacked regressions discussed in Section 5.3. Each column is a sample and each panel a Binance variable; the difference row is the coefficient on the interaction of that variable with the ticket indicator.

Table 5: Stacked elasticity regressions with a ticket interaction

	All	No fees 3–23 Jun	Full rebate 24 Jun–18 Aug	Taker 0.3 bps 19 Aug–20 Sep
<i>Panel A: log Binance notional</i>				
BTC				
Non-ticket flow	0.881 (0.092)	0.035 (0.248)	0.961 (0.094)	0.769 (0.041)
Ticket flow	0.857 (0.128)	0.014 (0.193)	0.885 (0.172)	0.598 (0.066)
Difference	-0.024 (0.070)	-0.021 (0.097)	-0.077 (0.107)	-0.171*** (0.064)
Observations	5168	994	2604	1570
ETH				
Non-ticket flow	0.649 (0.143)	-0.297 (0.323)	0.821 (0.129)	0.752 (0.041)
Ticket flow	0.465 (0.154)	-0.502 (0.250)	0.548 (0.169)	0.374 (0.097)
Difference	-0.184*** (0.065)	-0.205 (0.164)	-0.273*** (0.079)	-0.378*** (0.073)
Observations	5137	954	2619	1564
<i>Panel B: log realised volatility</i>				
BTC				
Non-ticket flow	1.088 (0.154)	-0.265 (0.391)	1.152 (0.154)	1.106 (0.072)
Ticket flow	0.902 (0.200)	-0.301 (0.315)	0.954 (0.269)	0.766 (0.114)
Difference	-0.187* (0.096)	-0.036 (0.177)	-0.198 (0.151)	-0.340*** (0.104)
Observations	5168	994	2604	1570
ETH				
Non-ticket flow	0.531 (0.281)	-0.999 (0.503)	1.058 (0.218)	1.120 (0.060)
Ticket flow	0.286 (0.294)	-1.238 (0.377)	0.826 (0.298)	0.519 (0.130)
Difference	-0.245** (0.114)	-0.239 (0.270)	-0.232 (0.152)	-0.601*** (0.096)
Observations	5137	954	2619	1564

OLS on a panel of contract-hours stacked over the two flow types (ticket and non-ticket), estimated separately by contract and sample. The dependent variable is log hourly Kalshi notional of the flow type. Regressors are the log of the Binance USD-M variable in the same asset (hourly notional in Panel A, realised volatility from one-minute returns in Panel B), an indicator for ticket flow, their interaction, and hour-of-day fixed effects. The non-ticket row is the coefficient on the Binance variable, the ticket row is the sum of that coefficient and the interaction, and the difference row is the interaction. Standard errors clustered by day in parentheses. *, **, ***: the difference is significant at 10, 5 and 1 percent.

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