How TWAP execution changes the economics of large token sales on Base

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161,977
Clean BRETT swaps analysed

89
Weekly simulations run

100%
Win rate vs instant swap (24h)

This report analyses historical BRETT swap data across Uniswap V3 and Aerodrome (Base) to quantify the price impact of large instant swaps versus time-weighted average price (TWAP) execution. All simulations use real on-chain swap history with bot and MEV activity filtered out.

Potential savings at a glance — sellers and buyers (24h TWAP · 10 slices)

Order size	Est. % of swaps	Est. % of volume	Median saving	Improvement
≥ **$10K**	~8%	~45%	**+$667**	**+7.3%**
≥ **$25K**	~3%	~28%	**+$3,650**	**+18.2%**
≥ **$50K**	~1%	~18%	**+$11,802**	**+35.2%**
≥ **$100K**	<1%	~12%	**+$33,414**	**+66.4%**

TWAP benefits sellers exiting and buyers accumulating — AMM price impact is symmetric. % of swaps and % of volume are estimates. Cumulative saving (~$47M) covers orders up to $100K only — directly simulated. A further ~$49M is estimated for orders above $100K using extrapolation; this figure is not used in headline claims.

1. Executive Summary

Large token holders on Base face a fundamental problem: selling a significant position in a low-liquidity token through a single swap destroys value. The constant-product AMM formula guarantees that the more you sell at once, the worse your execution price.

This report quantifies that cost using real historical data and demonstrates that time-weighted average price (TWAP) execution — splitting the order into slices executed over time — consistently delivers better outcomes for orders above 5% of pool liquidity.

> **Across 89 weekly simulations across Uniswap V3 and Aerodrome, a 24-hour TWAP outperformed instant swap 100% of the time for $50K orders. The median improvement was $11,802 (+35.2%).**

2. Data & Methodology

We fetched 4,904,179 raw BRETT swaps across Uniswap V3 (BRETT/WETH 0.3%, 1%, BRETT/USDC 1%) and Aerodrome (BRETT/WETH volatile) covering Feb 2024 through Mar 2026. Before running simulations, We applied five sequential filters to remove non-human activity across both venues:

Filter	Uni V3 removed	Aero removed	Reason
F1: Dust (<$1,000)	2,270,885	1,603,537	Tiny arb, failed tx remnants
F2: High-frequency (≥3 swaps/hr)	390,409	437,300	Bot activity
F3: Block density (>3/block)	173	438	Sandwich bot clusters
F4: Sandwich pairs	1,843	1,259	MEV front/back-runs
F5: Bot patterns (arb+repeated)	23,206	13,140	Algorithmic arb bots
Clean swaps	**102,858**	**59,119**	Human trades · combined 161,977

Filters are intentionally conservative across both venues — some legitimate large trades may be removed, which understates the number of real large orders and makes improvement estimates safer to cite publicly. Combined: 4,904,179 raw → 161,977 clean (96.7% removed).

Simulations use the constant-product (V2) AMM formula applied at weekly intervals across the full history. Each simulation tests 2,595 combinations of order size and TWAP duration.

3. Results

3.1 Median Improvement by Order Size (24h TWAP, 10 slices)

Median values across all weekly sample points where the order exceeded 1% of estimated pool liquidity.

Order Size	Instant Output	TWAP Output	Improvement %	Improvement $
$5,000	$4,722	$4,892	+3.6%	$170
$10,000	$9,102	$9,769	+7.3%	$667
$25,000	$20,055	$23,705	+18.2%	$3,650
$50,000	$33,486	$45,288	+35.2%	$11,802
$100,000	$50,345	$83,759	+66.4%	$33,414

3.2 Impact of TWAP Duration

Longer TWAP windows consistently deliver better execution for large orders by allowing more time for arb bots to restore pool prices between slices.

Duration	$25K Improvement %	$50K Improvement %
4h TWAP	+17.7%	+34.3%
12h TWAP	+18.1%	+35.0%
24h TWAP	+18.2%	+35.2%

3.3 Best Single Case

On **December 23, 2025**, a **$100,000** BRETT sell:

Instant swap would have returned: **$43,301**
Slicr 24h TWAP returned: **$81,307**

Improvement: **$38,006 (+87.8%)**

Source tx: see Section 3.4 for full on-chain hashes.

3.4 The Five Largest Swaps in the Dataset

The five largest swaps in the filtered dataset ranged from $339K to $412K — all executed as single instant swaps into a pool with estimated depth of ~$150K at the time. Each of these wallets had fewer than 25

lifetime on-chain transactions, suggesting team wallets, early investors, or concentrated whale positions rather than active traders. All five tx hashes are fully verifiable on BaseScan.

■ *TWAP outputs below are extrapolated beyond the $100K model ceiling using the constant-product formula at estimated pool depth. Treat as directional, not precise.*

#	Date	Swap volume	Instant est.	TWAP sim (24h)	Est. saving	Δ%
1	Apr 26, 2024	**$412,275**	~$105,800	**~$327,600**	**~+$221,800**	**~+210%**
2	Apr 20, 2024	**$359,863**	~$103,900	**~$303,500**	**~+$199,600**	**~+192%**
3	Apr 20, 2024	**$358,888**	~$103,700	**~$302,700**	**~+$199,000**	**~+192%**
4	May 16, 2024	**$349,230**	~$102,900	**~$295,200**	**~+$192,300**	**~+187%**
5	Apr 21, 2024	**$339,281**	~$101,800	**~$287,600**	**~+$185,800**	**~+182%**

Full transaction hashes — verify at basescan.org/tx/0x:

#1 Apr 26, 2024 $412,275	`0x88ecc362863b93169c4f55394e1bb7fbfd5dafd47ecaca3f12a4a899eaa6e3c6`
#2 Apr 20, 2024 $359,863	`0x80aa200856a370fb07341f9135e46239353564c78a8c0b2a7112f2f7c885518c`
#3 Apr 20, 2024 $358,888	`0x4b16ac6bc3030cf61de576253a9dcf16a21bc01e5fd0bad5a8835dc7241cc744`
#4 May 16, 2024 $349,230	`0x6ce045724a42b30ca41879c2fbbad92cd09a458a30c4e1e2873434ec7ea098d6`
#5 Apr 21, 2024 $339,281	`0xe9d54d5f246ebeb9b4449bb4c4711595c36b9a494f9698f751bedf90cec553d9`

Low lifetime tx count (<25) is consistent with team/treasury wallets, early investors, or infrequent volume bots — origin is ambiguous. Regardless, the price impact each swap caused is real and on-chain. A Slicr TWAP would have materially improved execution for any of these orders, whoever the sender.

3.5 Aerodrome — Results Consistent Across Venues

BRETT trades across both Uniswap V3 and Aerodrome on Base. To confirm the TWAP advantage is not a Uniswap-specific effect, the same backtest was run against 59,119 clean Aerodrome swaps covering May 2024 through Mar 2026. Results are consistent across both venues.

Median improvement by order size — 24h TWAP — Uniswap V3 vs Aerodrome

Order	Uni V3 out	Aero out	Uni saving	Aero saving	Uni Δ%	Aero Δ%
$5,000	$4,892	$4,943	+$170	+$156	+3.6%	+3.3%
$10,000	$9,769	$9,785	+$667	+$617	+7.3%	+6.7%
$25,000	$23,705	$23,798	+$3,650	+$3,418	+18.2%	+16.8%
$50,000	$45,288	$45,608	+$11,802	+$11,206	+35.2%	+32.6%
$100,000	$83,759	$84,738	+$33,414	+$32,294	+66.4%	+61.6%

Win rate: 100% on Aerodrome across 84 weekly simulations — identical to Uniswap V3. The TWAP advantage is not venue-specific. It is a property of AMM mechanics and pool recovery, consistent wherever BRETT trades on Base.

Aerodrome best single case:

On **December 18, 2025**, a **$100,000** BRETT sell on Aerodrome:

Instant swap: **$42,840**
Slicr 24h TWAP: **$81,128**

Improvement: **$38,289 (+89.4%)**

4. Model Caveats & Limitations

Sources of TWAP Gains: *The TWAP advantage comes from three overlapping mechanisms: (1) arbitrage bots that restore pool prices between slices after each small price dislocation; (2) organic market participants — other buyers or sellers — whose activity between your slices moves the pool back toward market price independently of arb; and (3) time-weighted price drift, where the token's broader market price shifts during the execution window. The model attributes all recovery to arb, which is conservative — in tokens with active retail flow, organic buy pressure is often the larger contributor. These gains do not come primarily from LP capital; LPs experience a similar impermanent loss pattern whether the same order is executed instantly or in slices.*

AMM Formula: *The constant-product (V2) formula is used to estimate price impact. Uniswap V3 is more capital efficient in the active tick range, meaning real impact for instant swaps is slightly less than modelled. This causes results to modestly overstate the TWAP advantage.*

Pool Liquidity Estimate: *Pool depth is approximated from rolling median swap sizes rather than live on-chain state. Cross-checking key dates against DexScreener shows directional accuracy but not precision.*

Full Recovery Assumed: *Each TWAP slice assumes the pool has partially recovered before the next slice executes. Recovery comes from arb, organic flow, and price drift — all three are captured in the bps^0.7 recovery model. Valid for low-frequency TWAP (1 slice per 2+ hours); optimistic for tightly spaced slices.*

Competing Participants Not Modelled: *If multiple large holders are TWAP-executing simultaneously, they compete for the same pool recovery across all three mechanisms above. The 100% win rate and median improvements are single-order figures. Concurrent large sellers in the same window would compress the advantage.*

These caveats are why we report medians and distributions rather than single-scenario numbers, and why filters are intentionally conservative. The direction of the findings is robust even accounting for these limitations.

5. About Slicr

Slicr is a non-custodial TWAP execution service on Base. Users connect their wallet, select a token to sell, set the duration and number of slices, and the system executes the order automatically — distributing price impact across multiple swaps to deliver significantly better execution than a single instant swap.

Multi-DEX routing	Each slice routes to the best available price across 6 DEXs
MEV protection	Per-slice on-chain price guards (minPrice/maxPrice) enforced in vault contract
Non-custodial	Tokens held in audited vault contract, cancel anytime
Cross-order aware	Execution spreads across pools when multiple orders share a pair
Proven at scale	20,000 slices, 0 failures in stress testing

Fee: 30 basis points (~$30 per $10,000 order). Based on $50K order analysis — median saving $11,802 vs fee of $150 — the value-to-fee ratio is approximately 79:1. TWAP pays for itself many times over.

Try the backtest tool at **slicr.xyz/backtest** — enter any token and order size to see your projected savings in real time.