



SIGMA QUANT RESEARCH

Odds Drift Research: Assessing Market Path Signals

Win/Place odds paths, confirmation structure and a practical risk filter

Study window: 15 Apr 2026 - 13 Jun 2026

Sample: 180 races · 2,229 runners · multi-timestamp Win/Place snapshots

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Abstract

This study asks whether pre-race Win/Place odds paths (steam and drift) add information beyond closing price level and market rank in Hong Kong racing. Price level remains the dominant signal. Path features deliver a modest held-out lift of roughly 0.5-1.2 AUC percentage points-real, but far from a standalone betting edge. The most credible positive structure is mild, persistent support confirmed late; the clearest negative signal is sustained strong lengthening. Today the practical role is a confidence overlay and risk filter.

One line: do not chase every shorten. Score path quality, then upgrade, downgrade or veto an existing model view.

180 Races	2,229 Runners	+0.5-1.2 pt Best AUC lift	Not shown Betting edge
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1. Question and headline conclusion

Steam mechanically raises implied probability because implied probability is defined by odds. The real questions are whether realised win/place rates improve in step, and whether the updated price remains attractive. Predictive lift and betting edge are different claims.

Verdict: paths are not pure noise, but the incremental signal is small. Mild steam-especially full-window Place support confirmed late-can upgrade confidence. Strong Place drift over 29→0 is the clearest veto. Strong steam often carries overheat and thin-sample risk.

Concept map

Concept	Plain meaning	Current reading
Implied probability	Chance encoded by odds	Rises with steam by definition
Realised probability	True win/place chance	May rise, not necessarily one-for-one
Predictive lift	Does the path improve ranking?	Yes, modestly
Betting edge	Positive EV after costs?	Not demonstrated
Confidence modifier	Upgrade/downgrade a baseline	Most practical use today



2. Data, definitions and validation

Each row is a runner-race. Snapshots near 29/15/5/0 minutes are rebuilt into a path. We use log odds move $\log(\text{end}/\text{start})$ and race-normalised implied share to control pool-wide shifts. Outcomes include win, top-3, top-4 and finishing position.

Path buckets

Bucket	Definition	Plain language
Strong steam	$\text{end}/\text{start} < 0.75$	Shortens more than 25%
Mild steam	0.75-0.90	Shortens about 10%-25%
Flat	0.90-1.10	Roughly unchanged
Mild drift	1.10-1.33	Lengthens about 10%-33%
Strong drift	$\text{end}/\text{start} > 1.33$	Lengthens more than 33%

- Pre-race fields only; dividends, final times and post-result columns are excluded.
- Incremental models use date/race blocked held-out tests: Market-only versus Market + Drift.
- Normalised Place share is a directional support proxy, not a calibrated top-3 probability.

3. Baseline: price level dominates

Market rank, closing level and an existing place model already explain most ranking power. Path features must add value after those controls.

Snapshot	Win%	Top3%	Top4%	Avg rank
Win favourite @5m	23.7	53.9	61.8	4.34
Win favourite @0m	20.0	49.3	60.0	4.53
Place favourite @5m	25.3	55.7	63.3	4.13

Favourites remain a strong baseline; path research must beat this bar.

Longer windows (Place 29→0, Win ON→15) show clearer directional correlation. The final five minutes alone are weak linearly. Mid windows are unstable and should not carry a standalone rule.

4. Clearest pattern: Place 29→0

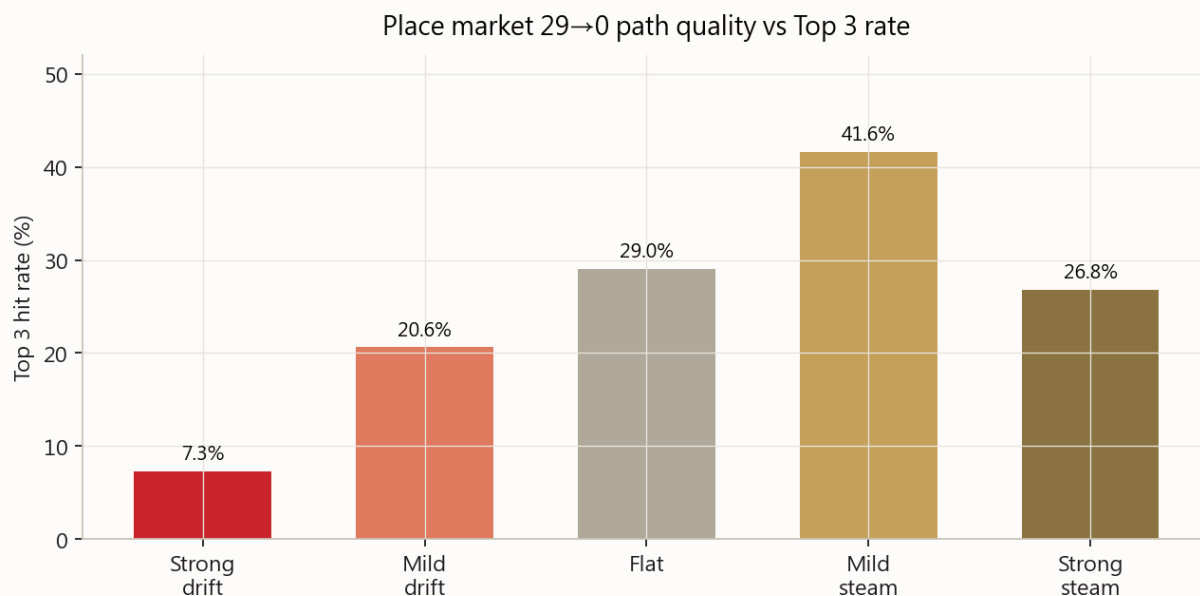


Figure 1 | Full-window Place path quality versus top-3 rate: bigger steam is not better.

Mild steam reaches 41.6% top-3 versus 29.0% for flat; strong steam falls back to 26.8%. Strong drift prints only 7.3% top-3 with average rank 8.61-the most consistent negative label. Mild, persistent updating looks informative; extreme shortening mixes in chase noise.

Caveats from other windows

- Place 5→0 mild steam looks strong in raw hits, but top-3 AUC barely moves after level controls (0.783→0.784).
- Some 15→5 definitions flip (steam below flat); prefer results that agree across methods.
- Strong buckets with teens of runners are fragile to a handful of outcomes.

5. Timing and fake steam

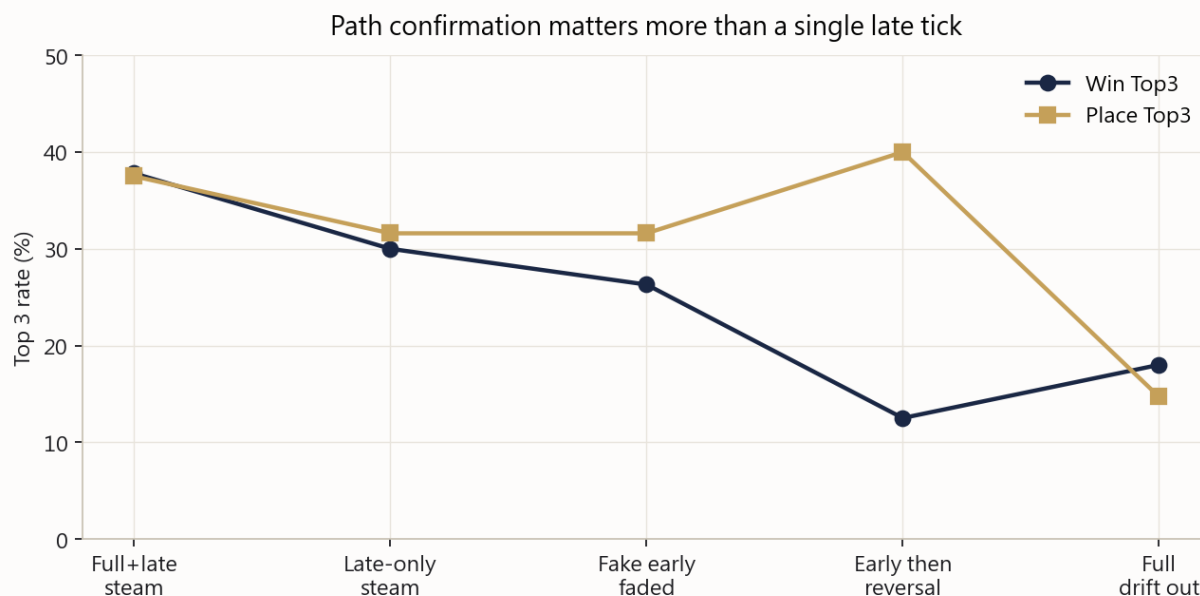


Figure 2 | Confirmation structure matters more than one late tick.

Pattern	Win top3	Place top3	Reading
Full-and-late steam	37.8%	37.5%	Most trustworthy now
Late-only steam	30.0%	31.6%	Alert only; not proven best
Early fade	26.3%	31.6%	More suspicious
Early then reverse	12.5%	40.0%*	Poor on Win; *thin N
Full drift out	18.0%	14.7%	Consistent negative control

Place full+late steam beats full drift by about +22.8 top-3 points ($p < 0.001$). That shows separation, not automatic causality-starting rank and model score may still differ. Late-only is not significantly better than faded early steam.

6. Rank-controlled lift

A 10th favourite shortening from 30 to 20 is not the same information as a 2nd favourite shortening from 4 to 3. Production rules should compare within similar starting rank and probability bands.

Window	Start rank	Path	N	Top3%	vs flat
Place 29→0	2-3	Mild steam	41	46.3	+12.2
Place 29→0	4-6	Mild steam	29	41.4	+12.8
Place 29→0	7+	Mild steam	31	25.8	+11.3
Place 29→0	7+	Strong drift	116	6.0	-8.4
Place 5→0	2-3	Mild steam	20	40.0	-7.2

Full-window mild steam lifts across several rank bands; late-only rules do not travel cleanly.

7. Incremental models and practical gates

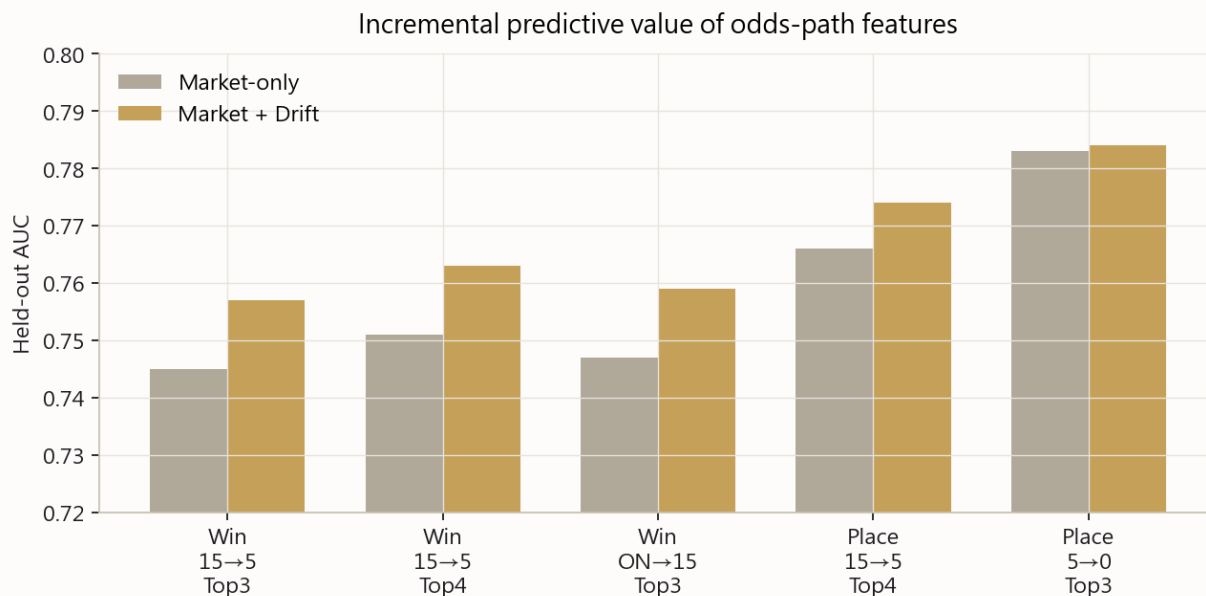


Figure 3 | Held-out AUC: Market + Drift versus Market-only.

Best lifts are about +0.012 AUC with small Brier gains. Paths are not a placebo-but they are secondary to price level. Treat them as an overlay, not the core alpha engine.

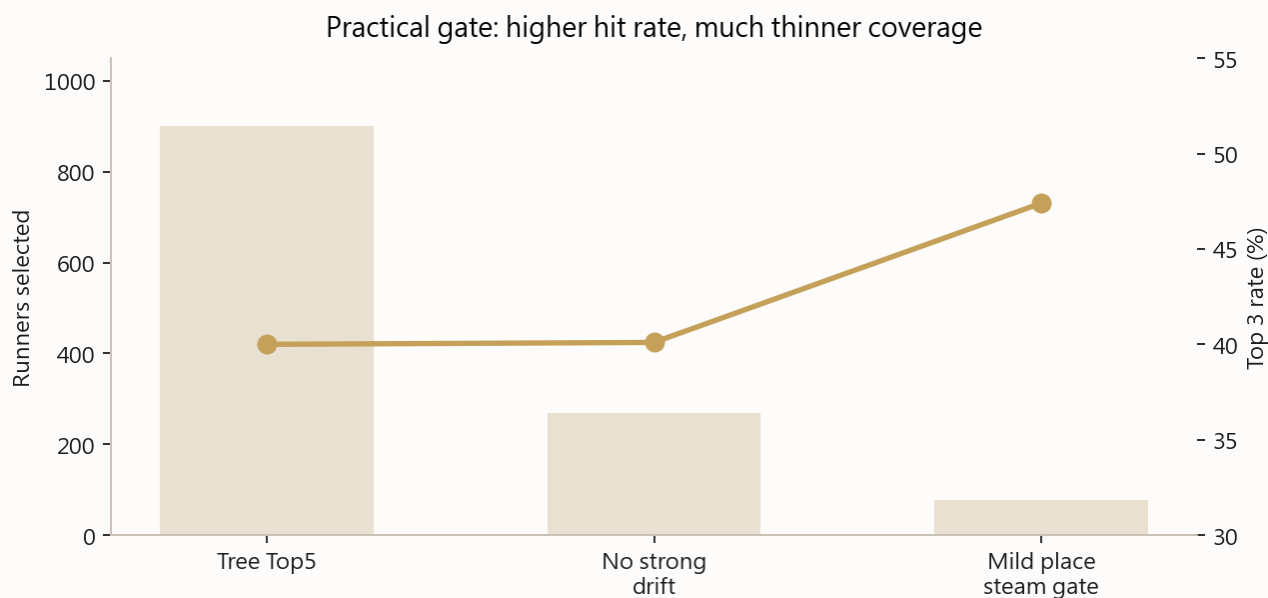


Figure 4 | A mild Place-steam gate raises hit rate while sharply cutting coverage.

- Tree place-prob top 5: 900 runners, 40.0% top-3.
- Add 29→0 mild Place steam: 78 runners, 47.4% top-3, about 1.7 per race.
- Without tradable odds, takeout, drawdown and cross-season tests, a betting edge is not claimed.

8. Limits, gaps and production rules

Key risks

- Only about two months of racing-season and venue regimes can shift.
- Many windows invite multiple-testing cherry picks.
- Runners in a race are dependent; errors should be race-clustered.
- Zero-minute snapshots may not be tradable in live operations.
- Many buckets are under-powered except for large effects.

Suggested Steam Quality Score (overlay)

Condition	Score
29→0 mild steam	+1
5→0 mild steam confirmation	+1
Market rank improves	+1
Win/Place agree	+1
Mid/late reversal	-2
Late strong steam / single-tick shock	-1
Full-window strong drift	-3

Suggested use: ≥3 confirmed; 1-2 alert; ≤0 no upgrade / downgrade. Fair probability versus price still decides stakes.

Production principles

- Build a no-drift fair probability first, then compare tradable price.
- Mild confirmed steam: small confidence upgrade, still require a value gap.
- Strong late steam: overheat flag-do not scale linearly.
- Full-window strong drift: prefer as a risk veto.
- Compare three models on the same race: form only; form + market level; plus path. Only the third-versus-second gap is drift edge.

What we found is not a magic follow-the-steam system. It is a modest market-state signal that may create defensive edge by improving candidate quality and cutting bad risk. Conversion into positive ROI still needs a tradable-price stage.



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