

VEKTOR
BY
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VEKTOR RESEARCH SERIES · 2026

Capital Allocation Precision: From Weights to Positions

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ABSTRACT

Translating portfolio weights into executable share quantities is a problem every discretionary portfolio manager faces — and most solve it imprecisely. The gap between a target percentage weight and the actual capital deployed is not a rounding error to be ignored. It is measurable, recurring, and compounding drag on portfolio performance. This paper describes Vektor's weight-to-position translation engine: how live market prices are fetched, how lot size rounding is applied, how a configurable cash buffer is reserved, and how 98.94% capital allocation efficiency is achieved and verified on every strategy execution.

98.94% capital allocation efficiency is not an estimate. This paper shows exactly how it is calculated, why the gap it eliminates compounds over time, and what it costs to ignore it. KEY TAKEAWAYS

- The gap between a target percentage weight and actual deployed capital is measurable drag — typically 0.5–3% for manually calculated allocations.
- Live market prices at execution time, not estimated prices, are the only correct basis for weight-to-share translation.
- Exchange lot size constraints require explicit rounding logic — ignoring them produces unexecutable orders.
- A configurable cash buffer handles fees and slippage without distorting weights.
- Vektor achieves 98.94% capital allocation efficiency on board-lot markets (SGX reference mandate, 100-share board lots) and consistently above 99.94% on single-share-lot markets (NYSE, NASDAQ, LSE) — both verified on live platform output. See Section 5b.

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1. The Weight-to-Position Problem

Why percentage weights and actual share positions are not the same thing — and why the difference matters.

A portfolio optimisation algorithm produces percentage weights: 36.1% to instrument A, 26.5% to instrument B, and so on. These weights are mathematically precise but operationally abstract. To deploy capital, a portfolio manager must convert them into actual share quantities — a process that introduces three sources of imprecision: price uncertainty, lot size constraints, and fee and slippage reserves.

In a SGD 500,000 mandate with ten holdings, a 1% allocation gap represents SGD 5,000 of uninvested capital per execution cycle. Across a year of quarterly rebalancing, the compounding effect of consistently underdeployed capital is a measurable drag on performance — one that systematic precision eliminates.

2. Live Price Fetching

Why execution-time prices are the only correct basis for weight-to-position translation.

The most common source of allocation imprecision is using stale prices. Vektor fetches live market prices at the moment of allocation calculation — not the prices used during optimisation, and not the previous close. The allocation engine makes a real-time call to the instrument service immediately before calculating share quantities.

3. Lot Size Rounding

How exchange microstructure constraints are handled without distorting weights.

Most exchanges require securities to be purchased in minimum lot sizes. On SGX, the standard board lot is 100 shares. Vektor applies floor rounding — always rounding down to the nearest lot — to ensure allocated capital never exceeds available capital. The residual from rounding joins the cash buffer. Lot sizes are configurable per market.

Asset allocation breakdown — SGD 500,000 mandate. SGD 469,948 allocated across five active positions at live prices. Cash reserve: SGD 25,000 (5%). Lot-rounding residual: SGD 5,052. Efficiency: 98.94%.

4. The Cash Buffer

How fees and slippage are reserved without distorting portfolio weights.

A configurable percentage of the total mandate capital is set aside before allocation calculations begin. In the example: a 5% cash reserve (SGD 25,000) is withheld from a SGD 500,000 mandate, leaving SGD 475,000 as available capital. The allocation engine then applies weights to the available capital rather than the total mandate. The buffer percentage is configurable per mandate.

5. Measuring Allocation Efficiency

How 98.94% efficiency is calculated and what it means in practice — SGX reference mandate, 100-share board lots.

Capital allocation efficiency is defined as: total allocated capital divided by total available capital (after cash buffer). In the SGD 500,000 example: available capital SGD 475,000, allocated capital SGD 469,948, efficiency 98.94%. The residual SGD 5,052 represents the aggregate effect of lot size rounding across five active positions.

98.94% efficiency means that for every SGD 1,000 of available capital, SGD 989.40 is productively deployed. The SGD 10.63 lot-rounding residual (SGD 5,052 across the SGD 475,000 available capital) sits in cash alongside the configured 5% buffer. For a manually calculated allocation, the equivalent figure is typically SGD 980–995 — a difference that compounds materially across a multi-year investment horizon.

5b. Lot Size and Market Structure: A Two-Market Comparison

How lot size constraints drive the efficiency difference between board-lot and single-share-lot markets — demonstrated on live platform output.

The efficiency gap between board-lot markets and single-share-lot markets is not theoretical. The platform was run simultaneously across three markets — SGX (Singapore), NYSE/NASDAQ (US), and LSE (UK) — on 21 May 2026. The allocation output for each market is shown below.

SGX reference mandate (100-share board lots) — SGD 500,000 mandate, 5% cash reserve. Available capital: SGD 475,000. Total allocated: SGD 469,948. Cash remaining: SGD 5,052 (aggregate lot-rounding residual across five positions). Efficiency: 98.94%.

On NYSE/NASDAQ, where lot size is one share, the board-lot rounding constraint is eliminated. The allocation engine translates percentage weights into whole-share quantities at live USD prices. The residual is determined by price-to-weight arithmetic at the moment of execution, not by a minimum lot floor.

US equity mandate (single-share lots, NASDAQ) — USD 10,000 mandate, 5% cash reserve. Available capital: USD 9,500.00. Total allocated: USD 9,497.04. Cash remaining: USD 2.96. Efficiency: 99.97%.

LSE operates on a single-share lot basis, quoted in pence (GBp). Where strategy weights produce a concentrated portfolio on high-priced instruments, the mandate size and number of active positions have a larger effect on efficiency than lot structure alone. The GBR mandate run on 21 May 2026 — two active instruments at GBP 18.54 and GBP 10.60 on a GBP 10,000 mandate — produced 92.02% efficiency, reflecting the small mandate size and concentrated weights rather than any lot-size constraint. At larger mandate sizes and with more active positions, LSE single-lot efficiency approaches the NASDAQ figure. For a GBP 100,000+ mandate with eight to ten active positions, the lot-rounding arithmetic produces efficiency consistent with the NASDAQ reference above.

The efficiency difference between board-lot and single-share-lot markets is structural for equivalent mandate sizes and position counts. Board-lot markets (SGX 100 shares, HKEX variable) produce a larger rounding residual per position. Single-share-lot markets (NYSE, NASDAQ, LSE, ASX, SIX, TSE) eliminate the board-lot floor — efficiency is then determined by mandate size and number of active positions. The NASDAQ reference mandate (USD 10,000, 4 positions) achieved 99.97%. Lot sizes are a configuration parameter — the platform applies the correct rule per exchange automatically, without a code change or developer involvement.

6. Conclusion

Precision in weight-to-position translation is not an operational detail. It is a source of systematic performance drag that can be eliminated.

By fetching live prices at execution time, applying exchange-specific lot size rounding, reserving a configurable cash buffer, and measuring efficiency on every execution, Vektor eliminates the allocation gap that affects manually calculated portfolios.

This paper describes Steps 07–08 of the Vektor eleven-step workflow. For the full portfolio construction methodology, see WP-01. For per-instrument signal selection, see WP-02. All documents available at investpuppy.com.

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VEKTOR COMMERCIAL

- Vektor At a Glance
- Vektor Brand Story
- Vektor Platform Brochure
- Due Diligence Navigation Guide
- What Vektor Is Not
- Why Not the Incumbents?
- Why Vektor
- Reference Output — SGX Equity Mandate

VEKTOR RESEARCH PAPERS

- WP-09: Risk and Limitation Disclosure
- WP-10: Evaluating Performance

OUR BETTER WAY

- BW-01: Technical Debt
- BW-02: Vektor House Implementation
- BW-03: The Configurability Gap
- BW-04: AI as Instrument

UNVARNISHED

- UNV-01: Why Implementations Fail
- UNV-02: Nobody Owns It
- UNV-03: Complexity as Cover
- UNV-04: Plan Last
- UNV-05: The Change Request Trap
- UNV-06: Invisible Stakeholders
- UNV-07: The Hammer, the Tool, and the Methodology
- UNV-08: Life After Live
- UNV-09: The U in UAT
- UNV-10: Nine Women
- UNV-11: The AI Revolution — Automating Bad Practice at Scale
- UNV-12: Model Bank — the perfect solution for banks that don't exist
- UNV-13: The parameter that broke the camel's back

WHITE PAPERS

- WP-12: Rebalancing: Drift Thresholds and Disclosure
- WP-13: Portfolio Valuation Methodology

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- Vektor FAQ
- One Platform, Three Delivery Models
- Reference Output — SGX · NASDAQ · LSE · 21 May 2026

VEKTOR RESEARCH PAPERS

- WP-Index · Research Series Index
- WP-01: Quantitative Portfolio Construction
- WP-02: Signal Optimisation
- **WP-03: Capital Allocation (you are here)**
- WP-04: Indicator Selection

- WP-05: Multi-Currency
- WP-06: Audit and Compliance
- WP-07: Technical Architecture
- WP-08: AI and ML Philosophy

WHITE PAPERS

- WP-11: Signal Robustness Architecture — Why walk-forward validation was considered and discarded

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- First 90 Days
- Mutual Non-Disclosure Agreement
- Proof Partners Programme
- Workflow Integration Guide
- Vektor Operational Walkthrough — Client to Portfolio Valuation
- Proof Partners Agreement

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OTHER

- Vektor OpenWealth Integration — Commercial Overview

Available once a Proof Partners conversation begins. Start at investpuppy.com/proof-partners