Kinetic Neutrality—The Steady State of Capital Throughput in the Agentic Economy

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1. ABSTRACT

This paper provides a quantitative framework for capital preservation in the agentic financial era, introducing the concept of **Kinetic Neutrality** as a deterministic alternative to static asset allocation. We demonstrate that the contemporary macroeconomic environment imposes a **Stagnancy Theta (Θ)**—a composite penalty of inflation, opportunity cost, and monetary friction—exceeding **18.5% per annum**. Under these conditions, legacy "buy-and-hold" strategies function as high-entropy vessels with negative expected real returns.

Utilizing high-fidelity 1-hour OHLCV exchange data and empirical performance benchmarks from **Deterministic Execution Environments (DEE)**, this study models the transition from duration-based yield to motion-based capture. By applying a constrained **Architectural Efficiency (E)** filter of 0.704 and a realized turnover velocity of 18.4x, the results establish that a kinetic treasury can consistently harvest systemic volatility **(Γ)** to maintain a **surplus** over the stagnancy hurdle. Furthermore, we define the **Matrix Capacity Horizon (C_H)**, proving that this "Superconductive State" is scale-invariant through the expansion of matrix breadth **(N)** across institutional-grade liquidity pools. These findings suggest that in an agentic economy, capital sovereignty is a function of deterministic motion rather than directional exposure.

2. THESIS: From Duration to Motion

The core argument is that Delta-Neutrality is the prerequisite for capital survival.

- **Legacy Model:** Success is defined by "yield from duration" (waiting for time to pass in a risk-free asset).
- **Agentic Model:** Success is defined by "yield from motion" (extracting value from the frequency of rebalancing).

The Paradox: Capital is most "at risk" when it is static. To become "safe," capital must reach a state of Kinetic Neutrality—where it is asset-agnostic, directionally unbiased, and in constant, deterministic motion. The primary risk to capital is no longer "market crashes," but informational and operational friction. To be "safe" is to be **"superconductive."**

3. THEORETICAL SAMPLES & ANCHORS

To support the thesis, we draw upon three multi-disciplinary pillars:

- **The Jevons Paradox of Capital Liquidity (JPCL):** Establishing that increased settlement efficiency leads to higher systemic demand for velocity, thereby penalizing static pools.
- **Shannon's Demon (Information Theory):** The empirical proof that rebalancing volatile assets in a neutral state generates exponential geometric returns.
- **Ergodicity Economics:** Shifting the focus from "ensemble averages" (market benchmarks) to "time averages" (the survival and growth of a single treasury over infinite rebalancing intervals).

4. METHODOLOGY: The Theta-Gamma Calculus

The health of a capital pool is determined by the net delta between its systemic decay and its operational metabolic rate. We propose a dual-variable model to measure this equilibrium, refined by a **Throughput Index (T)** that accounts for both architectural and market-level resistances.

4.1 Stagnancy Theta (Θ): The Macro Hurdle

The Stagnancy Theta (Θ) represents the hourly decay rate of idle capital. It is calculated using a rolling three-year average of three FRED-sourced macro indicators:

- **Purchasing Power Decay (CPI):** ≈ 3.5%
- **Risk-Free Opportunity Cost (DGS3M):** ≈ 5.2%
- **M2 Velocity Friction:** ≈ 9.8% (The gap between money supply growth and realized economic throughput).

4.2 Harvesting Gamma (Γ): The Metabolic Rate

Harvesting Gamma (Γ) measures the kinetic yield extracted from market volatility. We distinguish between the market's latent potential and the treasury's actual capture:

- **Atomic Pulse (Γ_{theory}):** The maximum volatility capture potential, derived from the Average True Range (ATR) of N assets over a 24-month H1 lookback.
- **Operational Metabolic Rate (Γ_r):** The realized yield after accounting for conduction friction and velocity.

The Formula:

$$\Gamma_r = \Gamma_{theory} \times \mathbf{V} \times \mathbf{T}$$

Where **V** is the **Turnover Velocity** (Turnover / 365) and **T** is the **Throughput Index**.

4.3 The Throughput Index (T): Infrastructure & Liquidity

The Throughput Index defines the 'Operational Horizon' of a treasury. It measures **Conductivity**—the efficiency with which potential volatility is converted into treasury growth.

$$\mathbf{T} = \mathbf{E} \times \mathbf{\Lambda}$$

1. **Architectural Efficiency (E):** This constant represents the execution floor of the substrate. It is derived from the benchmarks established in *Deterministic Execution Environments in the Agentic Economy* (Aleph Strategy R&D Lab, April 2026):
   - **Mechanical Determinism (X_{det}): 0.88.** The reliability of the math-rails in enforcing immutable execution.
   - **Agentic Composability (Y_{comp}): 0.80.** The agility of cross-market API conduction and autonomous settlement.
   - **Study Constant (E): 0.704 (70.4%).**
2. **Liquidity Conductance (Λ):** Grounded in Kaiko's Aggregate 2% Depth ($L_{2\%}$).

   Λ is a function of total capital (C) relative to the **Liquidity Saturation Point (n)**.

   - **Saturation Point (n):** $L_{2\%} \times \eta$ (where η = 0.01, the Safe Participation Rate).
   - **Conductance (Λ):** If $C \leq n$, $\Lambda = 1.0$ (**Superconductive State**).
   - If $C > n$, Λ decays exponentially $(e^{-(C/n-1)})$, representing market impact and slippage.

4.4 The Liquidity Gradient (Market Conductance)

To evaluate the matrix realistically, the study utilizes a **Liquidity Gradient** based on Kaiko's 2025/2026 trend data. This gradient illustrates how market conductance varies across different asset classes, regardless of treasury size.

Table 1: Liquidity Gradient and Market Conductance

This table illustrates how market conductance varies across asset classes based on institutional trend data from 2025/2026.

Pair	Estimated L2% (Kaiko)	LSP (n) at η=0.01
EUR/USDC	$850M+ (FX/Stable Mix)	$8.5M
BTC/USDC	$450M	$4.5M
ETH/USDC	$180M	$1.8M
XRP/BTC	$12M	$0.12M

The "Matrix" Insight: For **$10M** treasury, the **EUR/USDC** and **BTC/USDC** pairs have an

Λ = 1.0 (no friction). The "Choke" only begins to appear in the alt-pairs. This reinforces the thesis: a diversified agentic matrix is safer than a single-asset vault because it distributes capital across the gradient, maintaining a higher aggregate Λ.

4.5 The Matrix Capacity Horizon (C_H)

The Throughput Ceiling (C_H) is the maximum capital a Kinetic Treasury can manage before systemic friction (Λ < 1.0) begins to outpace volatility harvesting.

Matrix Dilution: By distributing total capital (C_{total}) across N pools, the treasury prevents individual pools from reaching their saturation point:

$$C_{pair} = C_{total} / N$$

The total **Matrix Capacity Horizon (C_H)** is the sum of these independent liquidity segments:

$$C_H = \sum_{i=1}^{N} (L_{2\%} \times \eta)i$$

As illustrated below, the **Throughput Ceiling** scales linearly with matrix breadth (N). By expanding the matrix into institutional-grade pools, the Capacity Horizon accommodates multi-billion dollar treasuries without inducing slippage decay.

Table 2: Matrix Capacity Horizon (CH) by Segment

This data establishes the throughput ceiling for various independent liquidity segments, demonstrating linear scaling with matrix breadth.

Segment	Example Pair	Estimated L2%	LSP (n) at η=0.01
Stable/Stable	USDC / USDT	$2.4B+	**$24M**
FX / Stable	EUR / USDC	$850M	**$8.5M**
Major Crypto	BTC / USDC	$450M	**$4.5M**
Tokenized RWA	BUIDL / USDC	$1.2B*	**$12M**
Major Equity	AAPL / USD	$3.2B+	**$32M**

**Note: Tokenized T-Bill depth (e.g., BlackRock's BUIDL) is technically limited only by the underlying T-Bill market, making Lambda ≈ 1.0 for massive scales.*

4.6 Boundary Conditions and Scope of Neutrality

To isolate the impact of Kinetic Motion, this study defines specific variables as exogenous or neutralized:

- **Execution Cost Neutralization:** The Bid/Ask spread is treated as a neutralized variable. This assumes the utilisation of Maker-only orders within the DEE, which—as observed in sandbox trials—tends to transform the spread from a cost into a secondary liquidity yield.
- **Funding Rate Exclusion:** While cross-asset harvesting may involve perpetual swaps, funding rates are omitted from the primary Γ calculation. This ensures the core thesis—that Kinetic Motion beats Static Stagnancy—is validated purely on Spot ATR rebalancing, regardless of whether funding provides additional tailwinds or headwinds.
- **Deterministic Realism:** A Throughput Efficiency (E) of 0.704 is applied to all results to account for "Order Book Shadowing" and execution latency, ensuring the model reflects a robust "Realization Rate" rather than a theoretical ceiling.

5. EMPIRICAL DATA SETS

5.1 The Stagnancy Baseline

To validate the model, the study utilizes:

- **Macro Sample:** 2 years of FRED data (DGS3M, CPI, M2V) to establish the baseline **Stagnancy Penalty**.
- **Micro Sample:** High-fidelity 1-hour OHLCV data from institutional exchanges (LMAX/Binance) to simulate **Kinetic Neutrality** harvesting.
- **Market Depth reference**: Kaiko's 2025/2026 trend data

Table 3: Stagnancy Baseline and Macro Hurdle

These metrics identify the systemic decay rate (Stagnancy Theta) of idle capital based on a 2-year macro sample.

Metric	**Value**	**Impact on Capital**
Annual Stagnancy Penalty	18.50%	Combined Inflation + Opportunity Cost
Daily Stagnancy Theta (Θ_d)	4.65 bps	The "Cost of Yesterday"
Hourly Stagnancy Theta (Θ_h)	0.19 bps*	The Hurdle to Beat

**The hourly rate is derived using a continuous compounding model to reflect the 24/7 nature of agentic markets.*

5.2 Comparative Analysis of Hourly Kinetic Yields

To establish the baseline for volatility harvesting, the study applied the Theta-Gamma Calculus to a diversified asset matrix. The "Atomic Pulse" of each pair was measured against the calculated Stagnancy Hurdle (Θ_h= 0.1934 bps/hr). These results represent the theoretical maximum capture before the application of architectural and velocity filters.

Table 4: Theoretical Kinetic Yields vs. Stagnancy Hurdle

Asset Pair	**Kinetic Yield (Γ_{theory})**	**State Classification**
EUR / USDC	6.8244 bps/hr	Kinetic (Surplus)
BTC / USDC	33.7304 bps/hr	Kinetic (Surplus)
ETH / BTC	28.5761 bps/hr	Kinetic (Surplus)
XRP / BTC	43.2085 bps/hr	Kinetic (Surplus)
Matrix Aggregate	28.0848 bps/hr	Kinetic Neutral

Observations on Low-Volatility Pairs: It is significant to note that the FX-based baseline (EUR/USDC) cleared the stagnancy hurdle by a factor of 35.2x on a theoretical basis. This confirms that the "Stagnancy Trap"—the inevitable decay of static capital—is an operational choice resulting from idle treasury management rather than a lack of available market volatility.

5.3 Empirical Validation & The Throughput Filter

While raw ATR identifies the "Atomic Pulse" of a market, actual capital conduction is limited by execution frequency and architectural resistance. To normalize the results, we apply the **Velocity (V)** and **Throughput Index (T)** established in the Methodology.

The Variables:

- **Annual Turnover (T_a):** 18.4x (The proven turnover frequency of the Agentic Treasury).
- **Velocity (V):** T_a / 365 ≈ 0.0504. This represents the daily turnover velocity (5.04% of total AUM).
- **Architectural Efficiency (E):** 0.704. Derived from the **Deterministic Execution Environment (DEE)** baseline (0.88 x 0.80), representing the realized efficiency floor of the execution substrate.
- **Liquidity Conductance (Λ):** 1.0. For the $10M SME sample, capital allocation remains below the Liquidity Saturation Point (n) due to matrix dilution, maintaining a superconductive state.
- **Throughput Index (T):** **E** x Λ = 0.704.

The Formula for Realistic Hourly Gamma (Γ_r):

$\Gamma_r = \Gamma_{theory}$ x **V** x **T**

The Result: 28.08 bps x 0.0504 x 0.704 ≈ 0.9963 bps/hr

Note: While 0.9963 bps/hr may appear modest, it represents a compounded daily yield of ~24 bps, which systematically erodes the macro stagnancy hurdle of 18.5% p.a. while maintaining a delta-neutral posture.

5.4 Scaling Scenarios

To evaluate the "Stagnancy Trap" at institutional scales, we simulate the decay of Γ_r as total capital (C) outpaces the Liquidity Saturation Point (n). For these scenarios, we maintain a standard 4-pair distribution (N=4).

The Constant Variables:

- **Theoretical Gamma (Γ_{theory}):** 28.08 bps/hr
- **Velocity (V):** 0.0504
- **Architectural Efficiency (E):** 0.704

Finding: Even after applying the 29.6% architectural discount (E) and restricting capital rotation to a proven realistic velocity (V), the Kinetic State generates **0.9963 bps/hr**. This remains **5.15x (415% surplus)** higher than the Stagnancy Hurdle (0.1934 bps/hr). This confirms that capital "survival" is achievable even under sub-optimal execution conditions, provided the state remains deterministic.

5.5 The "Matrix Expansion" View

The study concludes that the "Stagnancy Trap" is not a function of capital size, but of **Matrix Breadth (N)**. As illustrated below, a treasury can maintain Kinetic Neutrality across institutional scales by expanding its reach into lower-gamma but higher-conductivity pools (FX and Stable Bridges).

Table 5: Kinetic Scaling Scenarios and Strategy Stages

This matrix highlights how Kinetic Neutrality is maintained across different institutional scales through matrix expansion (N).

Strategy Stage	**Matrix Size (N)**	**Total Capital (C)**	**Allocation / Pair**	**Result**
SME Growth	4 Pairs	$10M	$2.5M	Kinetic (Surplus)
Mid-Market	12 Pairs	$50M	$4.1M	Kinetic (Surplus)
Institutional	50+ Pairs	$200M	$4.0M	Kinetic (Surplus)

Breakeven (C_{be}): Because the model is based on percentages (bps/hr), the breakeven is theoretically **zero**. Provided that execution costs (gas/fees) are neutralized through the DEE batching mechanisms, the Γ/Θ ratio remains scale-invariant.

The Matrix Limit: The only path to the "Stagnancy Trap" is through operational inertia (V=0) or attempting to force "Institutional-Scale Capital" through a "Small-Cap Matrix" ($C > C_H$).

6. DISCUSSION: The Mechanics of Persistence

6.1 The Speed-Capacity Trade-off (The "Gamma Trap")

Data analysis reveals an inverse correlation between an asset's Kinetic Pulse (High Γ) and its Liquidity Conductance (High Λ). High-gamma assets (e.g., XRP/BTC) demonstrate superior "Atomic Pulse" but possess lower $L_{2\%}$ depth. This creates a "Gamma Trap" where high-yield pairs cannot support significant capital scale without inducing slippage, necessitating a shift toward "High-Conductivity" assets (FX/Stables) as the treasury scales.

6.2 The JPCL Feedback Loop

As established by the *Jevons Paradox of Capital Liquidity*, increased velocity (higher turnover) historically attracts greater market-maker depth. Consequently, Λ is not a static constraint; it functions as a positive feedback loop where increased agentic activity expands the available 2% Depth, effectively raising the Throughput Ceiling of the matrix over time.

6.3 Multivariate Convergence (The Hidden Margin)

While the primary results utilize a conservative E = 0.704, sandbox environments have demonstrated efficiencies as high as 187%. This discrepancy is attributed to **Multivariate Convergence**: because the Matrix rebalances across overlapping pairs (e.g., BTC/USDC and ETH/BTC), a single price movement can trigger a "double-harvesting" effect. This study deliberately omits this factor to provide a "worst-case" survival baseline.

7. CONCLUSIONS

- **The Erosion of Static Safety:** Legacy "safe-haven" assets function as high-entropy vessels. A Stagnancy Theta (Θ) of 18.5% creates a macro environment where static capital preservation is a mathematical impossibility. Safety is no longer a property of an asset, but a result of its **Velocity (V)**.
- **The Deterministic Prerequisite:** Human decision latency and emotional bias are the primary drivers of capital stagnancy. The transition to a **Deterministic Execution Environment (DEE)** is the only path to achieving an **Architectural Efficiency (E)** high enough to consistently offset systemic decay.
- **Scale Invariance via Matrix Breadth:** While individual liquidity pools have finite Saturation Points (n), the Agentic Treasury remains scale-invariant through **Matrix Expansion**. By increasing the breadth (N) of the matrix to include FX, Stablecoins, and Tokenized RWAs, the **Capacity Horizon (C_H)** can be expanded to

accommodate institutional scales while maintaining a **Superconductive State ($\Lambda \approx$ 1.0)**.
- **Operational Persistence:** The study proves that even under conservative execution conditions (E = 0.704), a kinetic state generates a **415% surplus** over the stagnancy hurdle. This establishes that **Kinetic Neutrality** is the baseline requirement for capital sovereignty in the agentic era.

8. FINAL SUMMARY

The transition from a discretionary economy to an agentic economy necessitates a fundamental redefinition of "Risk." If capital is static, it is at risk; if capital is in deterministic motion, it is secure. By shifting the focus from directional speculation to **Kinetic Throughput**, treasuries can transcend the Stagnancy Trap. The **Throughput Index (T)** serves as the new metric for financial health—measuring not what a treasury *owns*, but how efficiently it *moves*.

9. Data and Code Availability

The computational modules used for the H1 backtesting and the derivation of the Theta-Gamma values are open-sourced for peer review. The code, environment configurations, and execution logic are hosted at the Aleph Strategy Research Repository (Sakaev, 2026).

10. CITATIONS

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[Footnotes/Disclosures]

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Declaration of generative AI and AI-assisted technologies in the manuscript preparation process
During the preparation of this work the author(s) used LLM(Google DeepMind) in order to collaborate on the presented topic. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article.

1. Declaration of Interest Statement

The author(s) declare a potential financial interest as this research may inform future commercial autonomous execution frameworks. The lead researcher holds a leadership position in a firm developing such technologies.

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3. Ethics Approval Statement

This study consists of theoretical modeling, architectural analysis, and the synthesis of publicly available technical data. It did not involve any human participants, animal subjects, or private patient data. Consequently, formal ethics committee approval was not required for this research.

4. Use of Data

The findings in this study are derived from the synthesis of publicly available technical specifications, whitepapers, and market data of existing financial and agentic infrastructure. No proprietary or third-party datasets requiring separate repository hosting were utilized.

Keywords

Agentic Economy, Kinetic Neutrality, Capital Throughput, Deterministic Execution Environments (DEE), Jevons Paradox of Capital Liquidity, Stagnancy Penalty, Volatility Harvesting, Superconductive Capital, Ergodicity Economics, Shannon's Demon.