

# Building dynamic quantitative systems for investment firms

*Tirmann is a quantitative software studio specialising in the research, development and licensing of systematic algorithmic portfolios for investment firms.*



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Investment philosophy and  
operational model.

## OVERVIEW

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Tirmann was founded following five years of hands-on R&D and live operation of quantitative strategies across index and commodity futures. In systematic trading, theoretical knowledge sets the framework, but it is live market exposure that separates robust systems from well-constructed backtests. Everything built at Tirmann has been forged through years of direct market operation, iterative refinement, and continuous validation against real execution conditions.

Tirmann develops and licenses algorithmic frameworks and strategy architectures validated through exhaustive out-of-sample testing, walk-forward analysis, and Monte Carlo stress simulations, ensuring full auditability with zero discretionary override. Critically, every strategy licensed is traded simultaneously on proprietary capital. Full skin-in-the-game, and complete alignment of interests.

## THE PROBLEM: STATIC MODEL DECAY

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Most quantitative failures stem from "static model decay." A strategy optimized for a specific market regime (e.g., low volatility bull market) inevitably degrades when market structure shifts.

### **Dynamic lifecycle**

*We do not deliver static code; we manage a dynamic strategy lifecycle:*

*R&D → validation → Live deployment → Real-time monitoring → Automated decommissioning.*

### **Structural diversification**

*Our systems are designed to capture specific market anomalies across non-correlated markets, primarily indices and commodities. By balancing exposure across distinct asset classes and logic frameworks, the architecture is engineered to minimize cross-strategy correlation and eliminate single-point-of-failure risks.*

## ARCHITECTURAL CORE PILLARS

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*Surviving market regime shifts requires more than just a statistical edge; it demands an infrastructure built on absolute transparency, deep execution liquidity, and systematic risk containment. The Tirmann framework rests on three uncompromising pillars:*

### **Systematic rigor**

*Every parameter is grounded in structural market anomalies.*

### **Operational scalability**

*Our architecture is engineered exclusively for deep-liquidity futures (CME).*

### **Risk governance**

*Predefined mathematical "kill-switches" at the strategy and portfolio levels.*

The validation gauntlet and  
infrastructure.

## VALIDATION PROCESS

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Every model must pass through our proprietary validation funnel to ensure statistical significance.

### **Hypothesis-driven research**

*Strategies are built on economic or structural premises, not random data mining.*

### **Walk-Forward analysis**

*Dynamic optimization testing to ensure parameters adapt to changing market conditions without over-fitting.*

### **Statistical stress testing**

*This delivers a mathematically bounded risk profile within a strict 95% confidence interval.*

### **Out-of-sample validation**

*A data-lockout period to verify that the statistical edge observed in-sample remains present on unseen data and then in a live environment.*

## STRATEGY UNIVERSE AND STRUCTURAL DIVERSIFICATION

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*Tirmann maintains a proprietary reserve of over 150 rigorously validated algorithms across all futures markets, engineered for maximum cross-market diversification and low inter-strategy correlation. This pool is in constant evolution, new models are continuously developed on novel logic frameworks and updated market data, ensuring the reserve remains statistically robust and operationally relevant over time.*

### **Asset class**

*Our models span equity indices and commodity futures, balancing exposure between financial and physical delivery markets to mitigate single-sector concentration risk.*



### **Behavioral clusters**

*Algorithms are categorised by their underlying market logic. Trend following and mean reversion, ensuring the portfolio can capture structural anomalies across all market conditions.*

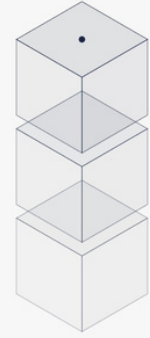
### **The rotational reserve**

*We do not force all 150+ models into the market simultaneously. Instead, this universe serves as a highly qualified dynamic reserve. As market regimes shift, our framework systematically deactivates decaying models and deploys reserve strategies that possess the highest mathematical alignment with the current volatility cycle.*

# 150+

Algorithms developed and validated

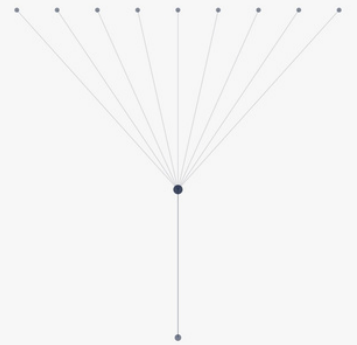
Equity indices & commodities  
CME deep-liquidity futures  
In constant evolution



# 15+

Years of market data tested per model

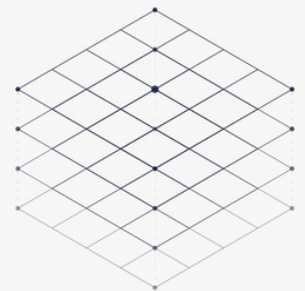
Since January 2010  
Multiple market regimes  
Walk-forward validated



# 5+

Independent validation layers

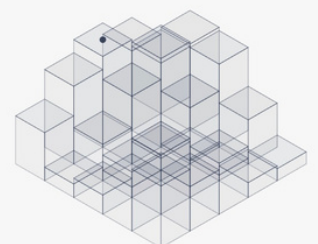
Hypothesis testing  
Monte Carlo stress test  
Out-of-sample validation



# 100%

Documented and fully auditable

Full Blueprint report  
Zero discretionary override  
Skin in the game



# We build algorithmic trading systems

## SYSTEMATIC SEAT CONFIGURATION & DEPLOYMENT

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*We assemble a cohesive strategy architecture tailored to your firm's technical setup and risk boundaries. Deployed software slots are mapped to your exact margin capacity, ensuring structural diversification and cross-market synergy.*

## STRATEGY DOCUMENTATION AND BLUEPRINT REPORT

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*Every configuration is accompanied by a detailed Blueprint report that is systematically re-issued at each monthly rotation. This continuous reporting delivers updated historical metrics and stress tests, providing your risk committee with permanent compliance auditability.*

## ALGORITHM LICENSING

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*Our proprietary software framework is accessible through a transparent, seat-based licensing structure built for complete autonomy. We enforce a clean tech-vendor model with zero profit-sharing, no discretionary control, and no capital lock-ins.*

## ONGOING MONITORING AND MONTHLY ROTATION

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*Markets evolve. So does your portfolio. Strategies falling below predefined performance criteria are systematically suspended and replaced: ensuring your portfolio remains aligned with current market regimes without requiring active management.*

## SERVICE AND OPERATIONAL CONTINUITY

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*A dedicated technical service layer runs alongside your deployment to ensure maximum system integrity. This infrastructure support provides direct-access debugging, stability oversight, and scheduled maintenance via secure VPS environments for seamless live execution.*

01

02

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04

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**LIVE PERFORMANCE AND DRAWDOWN ANALYSIS FROM JAN. 2024**

KEY PERFORMANCE INDICATORS

<p>TOTAL P&amp;L</p> <p><b>\$819,355</b></p>	<p>RET / DD</p> <p><b>14.26</b></p> <p>2.3 years</p>	<p>SHARPE RATIO</p> <p><b>2.83</b></p> <p>Sortino: 6.04</p>	<p>MAX DRAWDOWN</p> <p><b>-\$57,460</b></p> <p>5 neg. months</p>	<p>WIN RATE</p> <p><b>43.94%</b></p> <p>PF: 1.50</p>
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DETAILED METRICS

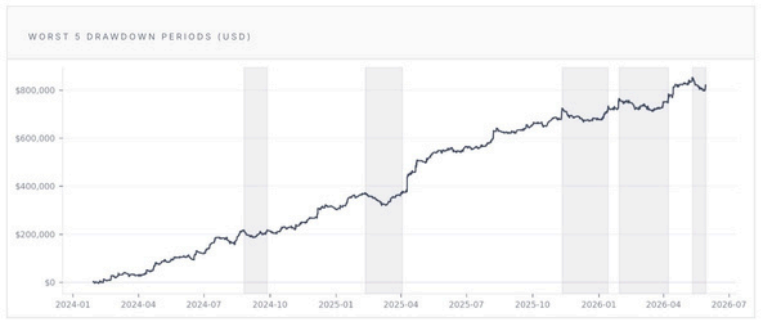
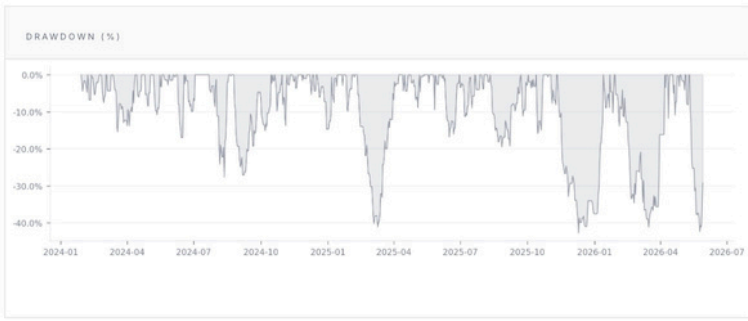
OVERALL PERFORMANCE	
Total P&L (USD)	\$819,355.00
Sharpe Ratio	2.83
Sortino Ratio	6.04
Calmar Ratio	52.42
Omega Ratio	1.92
Gain / Pain	0.92
Serenity Index	18.21
Recovery Factor	3623.69
Ret / DD	14.26
PERIODIC RETURNS (USD)	
Avg Monthly P&L	\$28,254
Best Month	\$133,120
Worst Month	<b>-\$21,775</b>
Positive Months	24 / 29

RISK	
Max Drawdown USD	<b>-\$57,460.00</b>
Ulcer Index	0.1556
% Time in Drawdown	79.6%
DISTRIBUTION	
Skewness	2.53
Kurtosis	15.93
TRADES	
Nb Trades	1930
Win Rate	43.94%
Profit Factor	1.50
Expectancy (USD)	\$327.57
R Expectancy	0.19 R
Payoff Ratio	1.72
Best Trade	\$29,990.00
Worst Trade	<b>-\$6,110.00</b>
Avg Win	\$2,896.76
Avg Loss	<b>-\$1,685.99</b>
Max Consec. Wins	8
Max Consec. Losses	11
Kelly %	11.31%

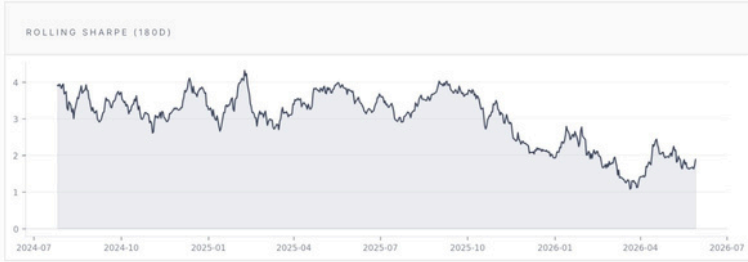
EQUITY CURVE



DRAWDOWN ANALYSIS



ROLLING METRICS - 180 DAYS



MONTHLY RETURNS (USD) - 1 STANDARD CONTRACT

MONTHLY RETURNS HEATMAP													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
2024	\$-3,425	\$22,315	\$8,750	\$46,105	\$29,795	\$16,715	\$63,550	\$12,695	\$18,190	\$10,260	\$41,830	\$37,190	\$303,970
2025	\$53,945	\$-20,050	\$33,515	\$133,120	\$41,375	\$19,235	\$14,480	\$43,460	\$30,705	\$31,945	\$2,880	\$-10,995	\$373,615
2026	\$77,820	\$-21,775	\$17,240	\$75,445	\$-6,960								\$141,770

STRATEGY P&L  
**\$819,355**

STRATEGY MAX DD  
**-\$57,460**

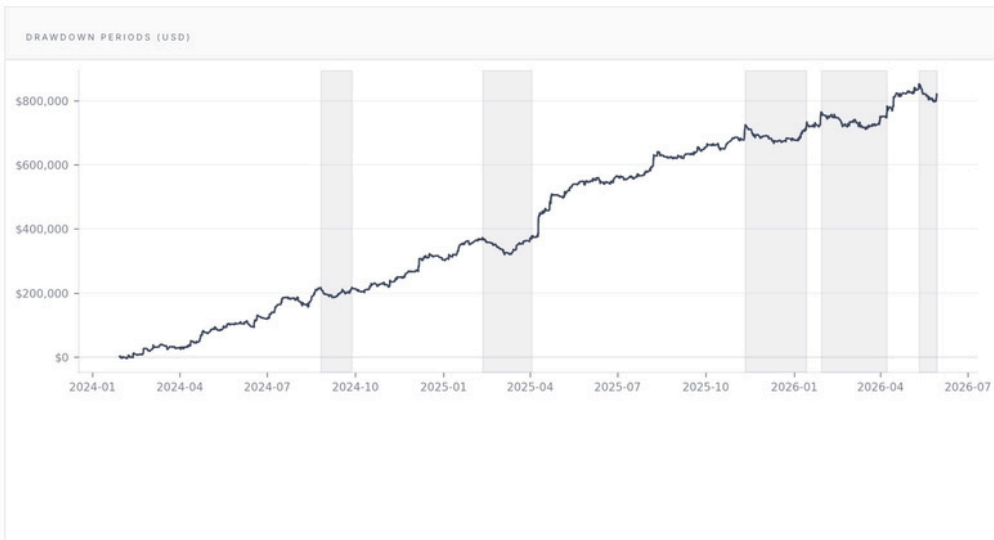
STRATEGY RET / DD  
**14.26**

B&H P&L  
**\$1,056,600**

B&H MAX DD  
**-\$840,900**

B&H RET / DD  
**1.26**

WORST 10 DRAWDOWN PERIODS



10 WORST PERIODS			
STARTED	RECOVERED	DRAWDOWN	DURATION
11 Nov 2025	13 Jan 2026	-\$57,460	63d
11 May 2026	In progress	-\$55,720	18d
29 Jan 2026	07 Apr 2026	-\$53,845	68d
10 Feb 2025	02 Apr 2025	-\$52,835	51d
25 Aug 2024	27 Sep 2024	-\$30,820	32d
01 Aug 2024	16 Aug 2024	-\$30,045	14d
17 Dec 2024	15 Jan 2025	-\$21,575	29d
11 Aug 2025	21 Sep 2025	-\$21,450	41d
13 Oct 2025	23 Oct 2025	-\$20,255	9d
11 Jun 2025	30 Jun 2025	-\$19,930	18d

Performance expressed on one standard futures contract per market traded. Past performance is not indicative of future results.

**PERCENTAGE RETURNS ON A \$1,000,000 INDICATIVE CAPITAL\***

*\*This supplementary analysis is provided for conventional reporting purposes only. All percentage figures are computed against an arbitrary reference capital of \$1,000,000 and carry no intrinsic meaning without that context.*

*In futures trading, the dollar P&L per contract is the only objective performance unit, determined solely by price movement and contract specifications, independent of any capital allocation. Percentage returns are therefore never standardised across traders without explicit disclosure of capital reference, margin usage and position sizing methodology. Ratio metrics (Sharpe, Ret/DD, Sortino, Calmar) are capital-reference-independent and constitute the correct basis for strategy comparison.*

KEY PERCENTAGE INDICATORS

<p>TOTAL RETURN</p> <p><b>124.9%</b></p> <p>base \$1,000,000</p>	<p>CAGR</p> <p><b>41.6%</b></p> <p>2.3 years</p>	<p>SHARPE RATIO</p> <p><b>2.83</b></p> <p>Sortino: 6.04</p>	<p>MAX DRAWDOWN</p> <p><b>-5.3%</b></p> <p>peak-to-trough</p>	<p>VOLATILITY ANN.</p> <p><b>8.6%</b></p> <p>annualised daily vol</p>
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PERCENTAGE METRICS — BASE \$1,000,000

RETURNS — BASE \$1,000,000	
Total Return	124.92%
CAGR	41.61%
Volatility (ann.)	8.55%
Sharpe Ratio	2.83
Sortino Ratio	6.04
Calmar Ratio	7.92
DRAWDOWN	
Max Drawdown %	-5.25%
Ulcer Index	0.0172
% Time in Drawdown	77.9%
VaR 95%	-0.58%
CVaR 95%	-0.79%
PERIODIC RETURNS	
Best Month	13.31%
Worst Month	-2.18%
Positive Months	82.8%
Best Year	37.36%
Worst Year	14.18%
Win Rate	43.94%

MONTHLY RETURNS (%)

MONTHLY RETURNS HEATMAP — BASE \$1,000,000													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
2024	-0.34%	2.23%	0.88%	4.61%	2.98%	1.67%	6.35%	1.27%	1.82%	1.03%	4.18%	3.72%	30.40%
2025	5.39%	-2.00%	3.35%	13.31%	4.14%	1.92%	1.45%	4.35%	3.07%	3.19%	0.29%	-1.10%	37.36%
2026	7.78%	-2.18%	1.72%	7.54%	-0.70%								14.18%

Dynamic rotation and regime  
governance.

## THE NECESSITY OF REGIME ALIGNMENT

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The core challenge in systematic trading is not finding an edge, but managing its inevitable decay. Most quantitative failures occur when a static portfolio remains exposed to a market regime that has fundamentally shifted.

Tirmann's architecture is built on the premise that alpha is a perishable asset. Rather than assuming market conditions will remain static, the framework deploys a dynamic rotation engine that continuously realigns the active strategy pool to the prevailing volatility regime.

## ROTATION ENGINE MECHANICS

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*Unlike traditional "Buy and Hold" algorithmic portfolios, our engine systematically filters the strategy universe based on real-time performance integrity:*

### **Regime detection**

*Continuous monitoring of market microstructure to identify shifts (e.g., from low-volatility trend to high-volatility mean reversion).*

### **Model health audit**

*Every active strategy is benchmarked against its historical statistical profile. If a model exhibits "Regime Drift" or structural decay, it is automatically returned to the reserve.*

### **Alpha replacement**

*The system selects replacement candidates from the 150+ validated models that show the highest mathematical alignment with the new market environment.*

## DYNAMIC ROTATION AND RISK GOVERNANCE

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### **Structural synergy**

*Pairing orthogonal logics (Trend vs. Mean Reversion) to offset individual drawdowns.*

### **Volatility protection**

*Dynamic weighting to maintain a stable risk profile, regardless of market noise.*

### **Microstructure integrity**

*Immediate removal of any model deviating from its original research thesis.*

**STATIC HOLDING VS. ACTIVE ROTATION**

AVERAGE DRAWDOWN REDUCTION\*

**-38.2%**

\*Close to close per model average

AVERAGE P&L CAPTURE

**42.9%**

Average P&L retained across all models

01 OVERVIEW

Portfolio equity & drawdown curve | OOS

<p>UNFILTERED MAX DD</p> <p><b>-247,845 \$</b></p> <p>Peak: 2,136,450 \$ → Trough: 1,888,605 \$ Recovery Factor: 13.51x</p>	<p>FILTERED 1M+5M MAX DD</p> <p><b>-146,955 \$</b></p> <p>Peak: 1,126,275 \$ → Trough: 979,320 \$ Recovery Factor: 16.95x</p>	<p>SAVINGS</p> <p><b>+100,890 \$</b></p> <p>40.7% max DD reduction Trade-by-trade - consolidated portfolio</p>
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04 PORTFOLIO ANATOMY

All dimensions consolidated portfolio (OOS)

METRIC	UNFILTERED	FILTERED 1M+5M	Δ
Episodes (distinct DD)	4	4	+0.0
Frequency (per year)	1.8	1.8	+0.0
Max DD (\$)	149,515 \$	53,870 \$	-64.0%
Avg DD (\$)	77,756 \$	28,882 \$	-62.9%
Max Duration	3m	2m	-1.0
Avg Duration	2.2m	2.0m	-0.2
Max Recovery	1m	1m	+0.0
Avg Recovery	1.0m	1.0m	+0.0
Time in DD (%)	33.3%	29.6%	-11.1%
Recovery Factor	22.4	46.24	+106.4%
Pain Index	0.988	0.536	-45.7%

05 KEY METRICS

Unfiltered vs filtered consolidated portfolio

<p>MAX DD (\$)</p> <p>Unfiltered: 149,515 \$ Filtered: 53,870 \$ -64.0%</p>	<p>MAX DURATION</p> <p>Unfiltered: 3m Filtered: 2m -1m</p>	<p>EPISODES / YEAR</p> <p>Unfiltered: 1.78 Filtered: 1.78 +0.0</p>	<p>TIME IN DD (%)</p> <p>Unfiltered: 33.3% Filtered: 29.6% -11.1%</p>	<p>RECOVERY FACTOR</p> <p>Unfiltered: 22.4 Filtered: 46.24 +106.4%</p>
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# The roadmap to your tailored infrastructure.

# 1

Consultation and proof of concept

This step lays the foundation for a licence configuration truly aligned with your setup, experience, and objectives.

# 2

Licence configuration and review

Your seats are configured around your margin capacity, followed by a full system review and Q&A session.

# 3

Documentation and delivery

You receive an initial Blueprint report detailing historical backtests and risk metrics, which is systematically re-issued at every monthly rotation.

# 4

Deployment and activation review

Technical documentation is provided for platform configuration. Deployment decisions and activation remain entirely under client control.

# 5

Algorithm monitoring and rotation

Underperforming models are systematically rotated out per our quantitative protocol, accompanied by an updated Blueprint report for continuous compliance.

# Timeline of the proof of concept.



## **01** DUE DILIGENCE AND ALIGNMENT

OBJECTIVE

Every engagement begins with a quantitative assessment. You provide your daily return history, we calculate the decorrelation score against our active strategy pool and simulate the combined portfolio across key risk metrics: drawdown profile, ratios, correlation regime stability.

*Confirm the mathematical synergy between your existing portfolio and ours before any deployment.*

DELIVERABLE

*Full decorrelation and a combined portfolio impact report.*

The output is a full impact report. If the figures confirm a structural interest on both sides, we proceed to the next step.

## **02** LIVE PHASE

OBJECTIVE

Over one calendar quarter, a defined set of strategies operates under live market conditions on a dedicated account. You observe execution quality, monthly rotation in real time with full access to trade-level data.

*Experience live performance first-hand, with complete visibility before any formal commitment.*

DELIVERABLE

*One full quarter of auditable live trade data. Monthly rotation reports. Full execution logs.*

No commitment is required. Deployment decisions remain entirely at your discretion.

## **03** LICENCE ACTIVATION

OBJECTIVE

Once both parties have validated the fit, quantitatively and operationally, the licence is formalised. Seat count, markets, and rotation schedule are confirmed, and the engagement moves to a long-term partnership.

*Formalise a long-term engagement built on verified performance.*

DELIVERABLE

*Signed licence configuration and first official Blueprint report for the active deployment.*

# Structural edge and over-fit prevention.

## **MULTI-LAYER VALIDATION GATE**

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*Models must pass sequential tests: historical dislocations, walk-forward stability, and out-of-sample validation. Failure at any independent layer triggers immediate, non-discretionary decommissioning.*

## **PARAMETER PARSIMONY AS A ROBUSTNESS CRITERION**

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*Deliberately simple algorithms capture genuine structural anomalies instead of over-fitted data. Minimizing parameters ensures logic transferability, serving as a direct proxy for out-of-sample robustness.*

## **SELECTIVE OPTIMISATION, NOT SYSTEMATIC OPTIMISATION**

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*Microstructure-driven filters exclude environment-mismatched trades. Optimisation is exclusively a final refinement layer applied to models with an already proven, standalone edge.*

# Strategic efficiency and resource allocation.

### **Capital efficiency**

*Licensing Tirmann replaces fixed overhead with a predictable software expense. It grants instant access to 150+ rotated models with zero profit-sharing, retaining 100% of your alpha.*

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### **Operational leverage**

*Internal quantitative infrastructure demands heavy fixed capital, continuous data-feed overheads, and specialized engineering teams exposed to key-person risk.*



# Alpha is perishable. Architecture is permanent.

*Tirmann is an independent quantitative research and development framework specializing in systematic trading architecture. Built on the premise that market regimes are fundamentally fluid, the infrastructure shifts the focus from static algorithm deployment to dynamic lifecycle governance.*

*By integrating exhaustive statistical validation, cross-market structural diversification, and automated risk protocols, Tirmann provides a highly resilient technological foundation for deep-liquidity futures markets.*

## **Universe**

*150+ validated algorithmic models*

## **Markets**

*Global index and commodity futures*

## **Execution**

*100% systematic and non-discretionary*

## **Risk control**

*Hard-coded limits and dynamic regime rotation*