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T E C H N I C A L

How Systematic Trading Works

The methodology behind systematic strategies — signal generation, execution, risk management, and the mathematical foundations.

Structured Access to Systematic Trading Strategies

Avonbridge Capital acts as an introduction and access layer to third-party trading strategies. We do not provide investment advice, manage client funds, or take custody of assets. All onboarding, execution, and account management are conducted by regulated third-party providers. Past performance is not indicative of future results. Capital is at risk.

OVERVIEW

The Strategy Pipeline

Systematic trading strategies operate through a defined pipeline: data collection, signal generation, portfolio construction, execution, and risk management. Each stage is governed by mathematical models and rules that have been developed through extensive research and validated against historical market data.

STAGE 1

Data Collection & Processing

Strategies begin with the collection and processing of market data — prices, volumes, volatility measures, and other relevant inputs across the target markets (typically global FX and commodities). Data is cleaned, normalised, and prepared for analysis. The quality and integrity of input data is critical to strategy performance.

STAGE 2

Signal Generation

Mathematical models analyse the processed data to identify trading opportunities. These signals are generated using a variety of quantitative techniques including trend-following models, mean-reversion analysis, momentum indicators, and statistical pattern recognition. Each signal undergoes rigorous validation before being incorporated into the live strategy.

STAGE 3

Portfolio Construction

Signals are combined into a portfolio-level view that determines how capital is allocated across different positions and markets. This stage considers correlations between positions, overall portfolio risk, and the interaction between different strategy components. The goal is optimal capital deployment that maximises risk-adjusted returns.

STAGE 4

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Execution

Once the portfolio allocation is determined, trades are executed automatically. Algorithmic execution minimises market impact and ensures consistent order placement. In managed structures, execution is centralised for all accounts. In broker account structures, trades are mirrored to individual accounts automatically.

STAGE 5

Risk Management

Risk management operates continuously at every level — from individual position sizing to portfolio-wide exposure limits. Key risk controls include maximum drawdown limits, position concentration limits, correlation monitoring, and volatility-adjusted sizing. If market conditions become extreme, the strategy can reduce exposure or exit positions according to predefined rules.

FOUNDATIONS

Mathematical Foundations

While the specific models used by institutional strategy providers are proprietary, the mathematical principles underlying systematic trading are well-established.

Time Series Analysis

Statistical methods for analysing sequential data points to identify trends, cycles, and patterns. Includes autoregressive models, moving averages, and spectral analysis.

Risk-Adjusted Returns

The Sharpe Ratio measures return per unit of risk: $(\text{Return} - \text{Risk-Free Rate}) / \text{Standard Deviation}$. A Sharpe Ratio above 2.0 is considered institutional-grade. The strategies accessed through Avonbridge have a verified Sharpe Ratio of 2.13.

Diversification Theory

Modern Portfolio Theory (Markowitz, 1952) demonstrates that combining uncorrelated strategies and markets reduces overall portfolio risk without sacrificing return. Systematic strategies typically diversify across multiple independent trading systems and market sectors.

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Position Sizing

Mathematical frameworks like the Kelly Criterion and fractional Kelly determine optimal position sizes based on the probability and magnitude of expected outcomes. This ensures no single position can disproportionately impact the overall portfolio.

Volatility Modelling

Strategies use statistical measures of market volatility (such as GARCH models and realised volatility calculations) to adjust position sizes dynamically. When markets become more volatile, position sizes decrease; when volatility normalises, sizes increase — maintaining consistent risk exposure.

BENCHMARKS

Key Performance Metrics

The following metrics are commonly used to evaluate systematic trading strategies.

Metric	What It Measures	Institutional Benchmark
Sharpe Ratio	Return per unit of risk	> 2.0 (institutional grade)
Maximum Drawdown	Largest peak-to-trough decline	Strategy-dependent
Win Rate	Percentage of profitable trades	Varies by strategy type
Profit Factor	Gross profit / Gross loss	> 1.5 considered strong
Recovery Period	Time to recover from drawdown	Shorter is better
Sortino Ratio	Downside risk-adjusted return	> 2.0 considered strong

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