

Systematic Trading Methodology

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There are three common methods of trading; systematic, discretionary, and gray-box (a hybrid of the first two methods). This article focuses on systematic trading and not to be confused with systematic risk. Systematic trading is a structured method of trading. Systematic risk also known as market risk relates to a portfolio's "market" exposure, frequently measured by beta.¹ The two terms use the same word, but relate to different concepts.

Introduction:

The Systematic trading methodology is based on the premise of automated rules-based strategies² usually generated from a computerized model (algorithms), offer a probability-based predictive view of the markets constructed from backtesting historical data. These systems are frequently called a "black-box" system due to its computerized methodology.

Background:

The concept of rules-based trading systems are not recent concepts derived for computers, but instead, technology embraced an age-old trading methodology. The equity markets can easily trace rules-based trading back to the 1880s original Dow Theory.³ Smart beta ETFs are an example of objective rules-based trading systems for equities using various fundamental factors such as the Fama-French factors to determine equity allocations and rebalancing.⁴

In the futures or global macro universe, rules-based trading can be traced back to at least 1948 when Richard Donchian began Futures, Inc., one of the first known managed futures funds based on rules-based trading to identify trends.⁵

Details:

Systematic trading analyzes data to generate entry and exit signals. The signals could be a single moment of trade execution (the entire trade is executed at one time) or it could be multiple signals as the strategy enters or exits positions over a given period of time. The duration of holding positions may vary from intra-day to several months.

These systems frequently incorporate risk management controls that may include

stop-loss orders, profit targets, and/or adjusting position size. The trading signals may be derived from one or multiple inputs. Examples of market input factors may include price, volume, or volatility. Examples of fundamental market-related factors are supply, demand, and USDA reports. Examples of macro-related factors include interest rates, the unemployment rate, and forex pricing.

Systematic strategies are considered conditional models because they require specified conditions or criteria to appear in the input data for a signal to be generated. For example, if a model needs a market breakout above a previous high of the last 60 days to generate a buy signal, the model won't go long (buy) until that condition occurs.

Systematic trading models may be based on technical analysis and / or quantitative or quantifying fundamental data sometimes known as "quantamental" to generate signals.⁶ The strategy input factors could be given equal weighting or the strategy may give greater weight to some factors relative to others. Technical analysis is defined as the study of market action to determine future price direction⁷ and can be traced back to at least 18th century rice trading with the use of Japanese Candlestick charting.⁸

A rules-based trading system may be applied to most asset classes and allows a fund manager to trade multiple markets simultaneously offering potential opportunities to diversify their fund's portfolio. Managed futures funds are often perceived as systematic trading. However, some managed futures strategies are discretionary. Systematic traders have the largest proportion of assets under management in managed futures.⁹ Trend following is considered the primary strategy in managed futures^{10,11} 64% of fund managers identify as trend followers.¹² Hedge funds are often considered discretionary, but not all hedge funds are discretionary.¹³ An estimated 20% of hedge fund assets are allocated to quant strategies.¹⁴

Advantages / Disadvantages:

Some of the benefits of systematic trading involve the ability to backtest the system on past data to determine its potential robustness in various market environments. Systematic trading usually removes the day-to-day human interaction and behavioral biases that strengthen strategy discipline, but trading systems are designed by a person or group of people, integrating their risk management and market perspective. The disadvantage may include increased frequency of false signals when the system does not function as designed in some market environments.

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