

Risk Management

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Risk management is a fundamental component of systematic trading, as the performance of a trading strategy depends not only on the accuracy of its signals but also on how exposure is established, adjusted, and controlled under changing market conditions. This article presents the risk management framework employed by Eularon, that combines model-driven signals with asset-specific position sizing and conditional position layering.

Rather than relying on conventional stop-loss orders, the framework controls exposure through predefined position sizes that vary according to the typical price movement characteristics of each asset. When an existing position moves adversely, additional exposure is permitted only when the quantitative model generates a subsequent signal in the same direction, and the adverse price movement remains within a predefined threshold. If the model produces a signal that is contradictive to the ongoing trades, the trades are ultimately closed.

The underlying rationale is that adverse price movements may be followed by market pullbacks and the firm's quantitative models have a high edge price accuracy. By maintaining relatively small asset-specific position sizes and conditionally layering positions, the framework seeks to improve the aggregate entry price of the position while keeping absolute exposure controlled. Historical observations within the current trading record indicate that the largest realized loss has been approximately 1% of account equity.

The framework illustrates an alternative approach to risk management in which downside control is achieved through the interaction of position sizing, model confirmation, adverse-movement thresholds, and aggregate exposure rather than through a single predetermined exit mechanism. The article further examines the theoretical rationale, implementation, empirical performance, and limitations of this approach.

Disclaimer: *This document describes the risk management framework used by Eularon. The framework has been developed with consideration of internationally recognised risk management principles, including ISO 31000:2018. It is an independent implementation designed specifically for the firm's trading activities in accordance with the firm's predeveloped proprietary models.*

Introduction

In quantitative trading, considerable attention is often given to the ability of a model to generate accurate trading signals. However, signal accuracy alone does not determine the risk characteristics of a trading strategy. Two strategies may generate identical signals while producing substantially different outcomes because of the differences in position sizing, exposure, trade management, and responses to adverse market movements. Risk management therefore represents a fundamental component of the investment process rather than a secondary layer applied after a trading signal has been generated. A systematic framework must determine not only when to enter a position, but also how much capital to expose, under what conditions additional exposure may be introduced, and how the resulting aggregate position behaves when market prices move against the initial thesis.

The risk management framework developed by Eularon approaches these questions through four principal mechanisms: asset-specific position sizing, model confirmation, adverse-movement thresholds, and conditional position layering. The framework does not employ a conventional fixed stop-loss as its primary mechanism for terminating positions. Instead, position sizes are deliberately calibrated to the typical movement characteristics of individual assets. This reflects the observation that a uniform position size across instruments does not imply uniform exposure to market movements. Assets exhibiting larger typical price fluctuations require different position sizing from assets exhibiting comparatively smaller movements.

When a position moves adversely, the framework does not automatically increase exposure. Additional exposure is conditional upon a subsequent model signal in the same direction as the existing position and the adverse movement remaining within a predefined threshold. This creates a distinction between price-based adverse movement and model-based confirmation: adverse price movement alone is insufficient to justify adding to a position. The framework is based on the premise that financial markets can experience temporary adverse movements before subsequently undergoing a pullback. When additional positions are established at progressively more favorable prices in the direction of the original model signal, the aggregate entry price changes. Consequently, a subsequent reversal may allow the combined position to reach breakeven or profitability even when the initial position experienced an adverse movement.

Importantly, this mechanism does not eliminate risk. Position layering can increase aggregate exposure when a market continues moving against the underlying position. The risk-management objective is therefore not to assume that every adverse movement will reverse, but to constrain exposure through relatively small position sizes and predefined conditions governing additional positions. The empirical component of this framework is particularly relevant. Within the current trading history, the largest realized loss observed by the strategy has been approximately 1% of account equity. While historical performance does not establish a guarantee of future outcomes, this observation provides an empirical reference point for evaluating the relationship between the framework's exposure controls and its realized downside.

The purpose of this document is therefore to formally describe Eularon's risk management framework, explain the rationale underlying its design, establish a mathematical representation of its principal mechanisms, and evaluate both its strengths and limitations. Rather than treating risk management as synonymous with the use of stop-loss orders, the framework is examined as a broader system of exposure control and conditional position adjustment.

Framework Overview

Eularon’s risk management process can be represented as a sequential decision framework shown on the left side of this page. At each stage, the objective is to ensure that additional market exposure is conditional rather than automatic.

The framework begins with a quantitative model generating a directional signal. Once the signal satisfies the applicable trading criteria, an initial position is established using the predefined position size for the relevant asset. If the market subsequently moves against the position, the existing position is not automatically closed through a conventional stop-loss. Instead, the system continues to evaluate market conditions through the quantitative model.

A subsequent signal in the same direction as the existing position creates the possibility of adding another position. However, this addition is subject to an adverse-movement threshold. The threshold is intended to prevent the system from continuously increasing exposure solely because a position is losing.

For the assets currently considered within the framework, the thresholds include approximately:

Asset	Adverse-Movement Threshold
XAUUSD	\$5 price movement
EURUSD	5 pips / 50 points
GBPUSD	5 pips / 50 points

These thresholds should be understood as position-addition conditions rather than stop-loss levels.

*A losing position does not independently justify additional exposure. Additional exposure requires both continued **model confirmation** and an **acceptable level of adverse price movement**.*

Risk Management Framework

Eularon’s risk management framework is designed around the principle that market exposure should be established and increased conditionally rather than indiscriminately. The framework combines **asset-specific position sizing**, quantitative **signal confirmation**, **predefined adverse-movement thresholds**, and **conditional position layering**.

The process begins when the quantitative model generates a directional signal. An initial position is then established using a predefined position size for the relevant asset. Position size is not identical across all instruments; instead, each asset is assigned a position size according to its typical price movement characteristics. This allows the framework to account for differences in the magnitude of price fluctuations across markets. Once a position has been established, the market continues to be evaluated by the quantitative model. If the market moves against the position, the framework does not automatically close the position through a conventional stop-loss. Instead, the existing position remains subject to continued model evaluation.

Additional exposure is only introduced when the model generates another signal in the same direction as the existing position and the adverse price movement satisfies the predefined conditions for that asset. This distinction is fundamental to the framework: a losing position alone does not trigger another trade. The subsequent model signal provides the directional confirmation required before additional exposure is considered.

For a long position, adverse movement can be represented as:

$$D_t = P_{\text{entry}} - P_t$$

while for a short position:

$$D_t = P_t - P_{\text{entry}}$$

Where P_{entry} is the relevant entry price and P_t is the current market price. Under these definitions, D_t represents the magnitude of price movement against the position.

The additional-position decision can therefore be represented conceptually as:

$$A_t = \begin{cases} 1, & \text{if } S_t = S_0 \text{ and the adverse-movement condition is satisfied} \\ 0, & \text{otherwise} \end{cases}$$

Where S_t represents the current model signal, S_0 represents the direction of the existing position, and A_t represents whether an additional position is established.

The adverse-movement conditions are asset-specific. For XAUUSD, the framework currently uses an approximately **\$5 price movement** as the relevant threshold, while for EURUSD and GBPUSD the corresponding threshold is approximately **5 pips, or 50 points**. These values should not be interpreted as stop-loss levels. Rather, they form part of the conditions governing the potential addition of another position.

When the conditions are satisfied, the additional position is established using the predefined position size for that asset. This creates a layered position, with multiple entries established in the same direction at different market prices. The purpose of this layering mechanism is to alter the aggregate entry price of the overall position. For a set of positions with entry prices $P_1, P_2, \dots, P_n$ and corresponding position sizes $L_1, L_2, \dots, L_n$, the aggregate entry price can be expressed as:

$$P_{\text{avg}} = \frac{\sum_{i=1}^n L_i P_i}{\sum_{i=1}^n L_i}$$

When positions have equal sizes, this simplifies to the arithmetic mean of their entry prices:

$$P_{\text{avg}} = \frac{P_1 + P_2 + \dots + P_n}{n}$$

Consequently, when additional positions are established at progressively more favorable prices, the aggregate entry price moves closer to the prevailing market price. A subsequent market pullback can therefore allow the combined position to reach breakeven or profitability even though the original position may have experienced an adverse movement. This mechanism is based on the observation that market prices do not necessarily move continuously in one direction. An adverse movement can be followed by a pullback, and the layered structure allows the strategy to participate in that pullback using an improved aggregate entry price.

However, position layering does not eliminate market risk. If the market continues moving against the underlying position, each additional position increases aggregate exposure. The framework therefore relies heavily on relatively small asset-specific position sizes to limit the magnitude of exposure introduced by each layer.

Total exposure across a set of positions can be represented as:

$$E_{\text{total}} = \sum_{i=1}^n L_i$$

where L_i represents the size of each individual position.

The framework's historical trading record provides an empirical observation of how this exposure structure has behaved in practice. The largest realized loss observed to date has been approximately 1% of account equity. This figure is an observed historical outcome rather than a theoretical maximum loss or a guarantee that future losses cannot exceed this level.

The central principle of the framework can therefore be summarized as follows:

- ✓ Market adversity alone does not justify increasing exposure.
- ✓ Additional exposure requires continued quantitative confirmation, while the size of each position is constrained according to the characteristics of the underlying asset.
- ✓ This creates a risk-management structure in which position sizing controls the magnitude of individual exposure, model confirmation controls whether exposure should be increased, and adverse-movement conditions determine when additional exposure may be considered.

At the same time, the absence of a conventional stop-loss means that the framework has a materially different risk profile from strategies that impose a predetermined maximum loss on every individual position. This makes the analysis of aggregate exposure, drawdown, loss distributions, and performance under extended adverse market movements particularly important when evaluating the framework. Those considerations are examined in subsequent sections.

Asset specific position sizing

A central component of Eularon's risk management framework is the use of asset-specific position sizes. Rather than applying a uniform lot size across all instruments, the framework assigns different position sizes according to the typical magnitude of price movements observed in each asset.

The rationale is straightforward: financial instruments do not exhibit identical price-movement characteristics. A position size that may be appropriate for one instrument can create substantially different exposure when applied to another instrument. Consequently, position sizing must be considered in conjunction with the underlying asset's movement characteristics. For example, within the current framework, a \$1 million account uses an approximate position size of 1.10 lots for XAUUSD. For instruments such as EURUSD and GBPUSD, where the typical nominal price movement is substantially smaller, the corresponding position size can be approximately 11.10 lots per trade.

The difference between these position sizes does not represent a difference in the conviction of the trading signal. Rather, it reflects the different price-movement characteristics of the instruments.

Conceptually, the relationship can be expressed as:

$$\text{Position Sizing} \propto \frac{1}{\text{Typical Price Movement}}$$

where the position size assigned to asset decreases as the typical magnitude of its price movement increases.

This relationship illustrates the underlying principle of the framework: assets with larger typical price movements require smaller position sizes, while assets with smaller typical price movements can accommodate larger position sizes.

For example,

Asset	Approximate Position Size	Account Size
XAUUSD	1.10	\$1,000,000
EURUSD	11.10	\$1,000,000
GBPUSD	11.10	\$1,000,000

These values represent the current framework's position-sizing configuration rather than universal recommendations for the respective instruments.

1. Relationship Between Position Size and Layering

Asset-specific position sizing becomes particularly important because the framework permits conditional position layering. Each additional position represents another increment of market exposure. Therefore, the size of each individual position directly affects the rate at which aggregate exposure increases as positions are layered.

For n positions with individual position sizes $L_1, L_2, \dots, L_n$, total nominal position size can be represented as:

$$L_{Total} = \sum_{i=1}^n L_i$$

If the framework uses a constant position size for a particular asset, this simplifies to:

$$L_{Total} = nL$$

where L represents the predefined position size for that asset and n represents the number of active layers.

For example, if the predefined XAUUSD position size is 1.10 lots, three layers would produce:

$$L_{Total} = 3(1.10) = 3.30 \text{ Lots}$$

Similarly, three EURUSD positions at 10 lots each would produce:

$$L_{Total} = 3(11.10) = 33.30 \text{ Lots}$$

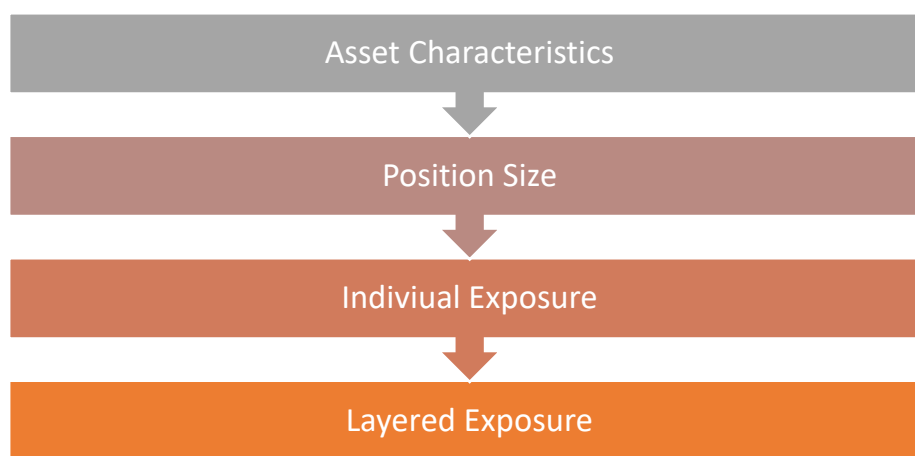
This demonstrates why position sizing cannot be evaluated independently from the layering mechanism. A larger nominal lot size on an asset with smaller typical price movements may be consistent with the framework's exposure objectives, while the same lot size on an asset with substantially larger price movements could produce a very different risk profile.

2. Position Size as an Exposure-Control Mechanism

The primary purpose of asset-specific position sizing within the framework is therefore to control the magnitude of exposure associated with each model signal. The model determines the directional opportunity, while the position-sizing framework determines the amount of exposure introduced when that opportunity is acted upon.

This separation is important because a model can generate a high-confidence signal without necessarily justifying an arbitrarily large position. By maintaining predefined position sizes for each asset, the framework prevents the position size itself from becoming an uncontrolled source of risk. Furthermore, because the position size remains fixed for a given asset, additional exposure is introduced in discrete and predictable increments. This allows the aggregate exposure of a layered position to be quantified directly from the number of active positions.

The resulting structure can therefore be summarized as:



This asset-specific approach forms the first major layer of the Eularon's risk management framework. The subsequent sections examine how predefined position sizes interact with model confirmation, adverse price movements, and the conditional layering mechanism.

Signal-Driven Position Layering and Aggregate Entry Price

Eularon's framework does not treat each trading position as an entirely independent event. When market conditions move against an existing position, the quantitative model continues to evaluate the market. If the required adverse-movement condition is present and the model subsequently generates another signal in the same direction, an additional position may be established. This process creates a layered position, consisting of multiple entries at different price levels.

The key principle is that an additional position is not opened solely because the existing position is experiencing a loss. The decision requires renewed directional confirmation from the quantitative model. Consequently, the layering mechanism combines two conditions: **an adverse market movement** and a subsequent **model signal** supporting the original directional thesis.

1. Formation of a Layered Position

Consider a simplified XAUUSD long position.

Assume the model generates an initial BUY signal at:

$$P_1 = 3,400$$

An initial position of 1.10 lots is opened.

The market subsequently moves against the position by approximately \$5:

$$P_2 = 3,395$$

If the model generates another BUY signal and the relevant position-addition conditions are satisfied, a second position of 1.10 lots may be opened.

The strategy now has two long positions:

$$P_1 = 3,400$$

And

$$P_2 = 3,395$$

Because both positions have equal sizes, the aggregate entry price becomes:

$$P_{\text{average}} = \frac{3,400 + 3,395}{2} = 3,397.5$$

The combined position therefore reaches breakeven at approximately \$3,397.5, excluding transaction costs and other execution effects. This is lower than the original entry price of \$3,400. Therefore, the market does not need to recover fully to the original entry level for the combined position to reach breakeven.

2. Effect of Additional Layers

Suppose the market continues to move adversely and another model-confirmed BUY signal results in a third position at:

$$P_3 = 3,390$$

The aggregate entry price, assuming equal position sizes, becomes:

$$P_{\text{average}} = \frac{3,400 + 3,395 + 3,390}{3} = 3,395$$

The combined position now requires the market to recover only to approximately \$3,395 to reach breakeven before accounting for transaction costs.

This demonstrates the primary mathematical effect of layering: **each additional entry at a more favorable price can alter the aggregate entry price of the overall position.**

In general, for n positions:

$$P_{\text{average}} = \frac{\sum_{i=1}^n L_i P_i}{\sum_{i=1}^n L_i}$$

where:

P_i is the entry price of position i

L_i is the position sizing of position i

Since Euleron's framework uses a predefined position size for a given asset, equal-sized positions simplify the calculation to:

$$P_{\text{average}} = \frac{P_1 + P_2 + \dots + P_n}{n}$$

3. Pullback and Recovery

The rationale behind this structure is based on the possibility that an adverse market movement may be followed by a pullback. For example, using the three XAUUSD entries:

$$3,400 \rightarrow 3,395 \rightarrow 3,390$$

the average entry price becomes:

$$3,395$$

If the market subsequently rises from \$3,390 to \$3,396, the original position opened at \$3,400 remains individually below its entry price. However, the aggregate position can potentially move into profit because the combined entry price is lower. This is an important distinction between evaluating positions individually and evaluating the aggregate exposure of the layered structure.

The objective is therefore not necessarily for every individual position to return to profitability. Instead, the relevant outcome is the performance of the combined position.

4. Risk Implications of Layering

While layering can improve the aggregate entry price, it simultaneously increases total market exposure. For example, three XAUUSD positions of 1.10 lots result in:

$$L_{\text{Total}} = 3 \times 1.10 = 3.30 \text{ Lots}$$

Consequently, the strategy becomes increasingly sensitive to additional adverse price movements as new layers are added.

The framework therefore involves a fundamental trade-off:



Additional positions can reduce the price movement required for the aggregate position to recover, but they also increase exposure if the market continues moving against the directional thesis.

This trade-off is central to the risk profile of the framework.

The purpose of the model-confirmation requirement is to prevent the strategy from mechanically increasing exposure at every predefined price interval. Each additional layer requires a new directional signal supporting the existing market thesis. Nevertheless, model confirmation does not eliminate the possibility of continued adverse movement. A market can remain in a persistent trend or experience a structural regime change that invalidates the assumptions underlying the original and subsequent signals. For this reason, the effectiveness of the layering mechanism must ultimately be evaluated not only through its ability to improve aggregate entry prices, but also through its behavior during extended adverse market conditions.

Risk Considerations of Position Layering

The position-layering mechanism introduces an inherent trade-off between improving the aggregate entry price and increasing market exposure. Each additional position established at a more favorable price can reduce the price movement required for the combined position to reach breakeven. However, every additional position also increases the capital exposed to subsequent adverse movements.

This relationship can be expressed conceptually as:

Recovery Efficiency $\uparrow$ $\leftrightarrow$ Aggregate Exposure $\uparrow$

The mechanism therefore should not be interpreted as eliminating downside risk or guaranteeing recovery. Its effectiveness depends on the market eventually producing a favorable movement and on the quantitative model continuing to provide useful directional information. A prolonged movement against the model's directional thesis can increase the number of active layers and consequently increase aggregate exposure.

The risk profile of the strategy is therefore dependent not only on the size of individual positions but also on the behavior of the market following successive model signals. This makes the distinction between historical performance and theoretical risk particularly important. The fact that the largest realized loss in the current trading record has been approximately 1% of account equity provides evidence regarding the framework's observed historical behavior, but it does not establish a theoretical maximum loss.

The framework should consequently be understood as a system for controlling and structuring exposure, rather than a mechanism for eliminating market risk. Its validity ultimately depends on the empirical relationship between the model's signals, subsequent market movements, position accumulation, and the resulting distribution of portfolio outcomes.

Conclusion

Eularon's risk management framework is built around controlled exposure, asset-specific position sizing, and model-confirmed position layering. Rather than relying on a conventional stop-loss as its primary mechanism, the framework evaluates adverse price movements alongside subsequent quantitative signals before allowing additional exposure. By assigning different position sizes according to the movement characteristics of each asset, the framework seeks to maintain appropriate exposure across instruments. Conditional layering can then improve the aggregate entry price when the market experiences a pullback, while keeping each individual position relatively small.

The framework does not eliminate market risk, and continued adverse movement can increase aggregate exposure. However, the observed trading record, including a largest realized loss of approximately 1% of account equity, provides an initial indication of its historical downside characteristics.

Ultimately, the framework reflects the principle that effective quantitative risk management is not dependent on a single mechanism, but on the interaction between position size, model confirmation, exposure, and disciplined trade management.