



## RIITESH'S SERIES RETRENCHMENT (RSR): A SEQUENCE-ADAPTIVE TRADING FRAMEWORK EXTENDING FIBONACCI RETRACEMENT

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### Abstract

This paper introduces **Riitesh's Series Retrenchment (RSR)**, a novel retrenchment-based analytical and trading framework derived from Riitesh's Series. Unlike classical Fibonacci retrenchment, which relies on fixed ratios, RSR employs **sequence-adaptive ratios** generated from a modified recursive numerical structure. A complete rule-based trading strategy is developed, including market filters, entry and exit rules, and risk management principles. Additionally, a structured empirical validation and back-testing methodology is proposed for financial time series. The study positions RSR as a generalized retrenchment framework applicable to both financial and non-financial datasets, extending traditional retracement theory.

**Keywords:** Riitesh's Series, Retrenchment, Technical Analysis, Fibonacci Retrenchment, Trading Strategy

### Introduction

Retrenchment analysis is a foundational concept in technical analysis, widely used to identify potential support and resistance levels during corrective phases of a trend. Fibonacci retrenchment, derived from the Fibonacci sequence, applies fixed ratios such as 38.2%, 50%, and 61.8%. While effective in many scenarios, fixed ratios often fail to fully capture the adaptive and non-linear behavior observed in real financial markets.

To address this limitation, this study proposes **Riitesh's Series Retrenchment (RSR)**—a sequence-adaptive retrenchment framework based on **Riitesh's Series**, a modified recursive numerical sequence previously introduced and validated for its accelerated growth and relationship with golden-ratio dynamics. This paper presents the **first formal trading model** based on RSR and outlines a research-grade empirical validation methodology.

## Mathematical Background

### Riitesh's Series

Riitesh's Series is defined as:

$$R_n = R_{n-1} + R_{n-2} + \text{int}(n/3)$$

The inclusion of a position-based integer term introduces controlled acceleration while maintaining recursive continuity and mathematical harmony.

### Derivation of RSR Ratios

Let  $R_n$  represent the maximum value within a generated sequence window. Normalized retrenchment ratios are defined as:

$$\text{ratio}_k = R_{n-k}/R_n$$

Empirical stabilization yields the representative ratio set:

$$\begin{aligned} &[ \\ \text{RSR} &= \{0.29,;0.47,;0.64\} \\ &] \end{aligned}$$

These ratios replace fixed Fibonacci percentages with **sequence-derived adaptive levels**.

### RSR Price Levels

For a price impulse defined by a High (H) and Low (L):

$$RSR_k = H - \text{ratio}_k * (H - L)$$

The resulting values act as **dynamic retrenchment zones**, analogous to support and resistance levels.

### Trading Model Design

#### Market Condition Filter

The RSR strategy is applied only in trending markets.

#### **Uptrend Conditions**

Price above EMA(20) and EMA(50)

$$EMA(20) > EMA(50)$$

#### **Downtrend Conditions**

Price below EMA(20) and EMA(50)

$$EMA(20) < EMA(50)$$

## Trading Rules

### Long Trade Entry Rules

<b>RSR Level</b>	<b>Confirmation Criteria</b>	<b>Trade Type</b>
RSR-1 (0.29)	Bullish candle with volume expansion	Aggressive
RSR-2 (0.47)	Bullish engulfing or RSI > 40	Moderate
RSR-3 (0.64)	Strong rejection wick with bullish divergence	Conservative

### Exit Rules

**Stop-Loss:** Below the next lower RSR level or recent swing low

**Profit Targets:**

Target 1: Previous swing high

Target 2: 1.618 impulse extension

Target 3: EMA(20) trailing stop

### Risk Management

Maximum risk per trade: **1.5% of trading capital**

Minimum risk-reward ratio: **1:2**

Trades avoided during major macroeconomic or policy announcements

### Illustrative Example

Assume a market impulse with:

High (H = 1000)

Low (L = 800)

Computed RSR levels:

RSR-1 = 942

RSR-2 = 906

RSR-3 = 872

A long entry at RSR-2 with a stop-loss at RSR-3 and a target at 1000 yields an approximate **risk-reward ratio of 1:2.7**, demonstrating practical trade viability.

### Empirical Validation Methodology

#### Data Selection

Markets: Equity indices, individual stocks, cryptocurrencies

Timeframes: Daily and 4-hour

Sample size: Minimum **5 years** per instrument

#### Back-Testing Procedure

Identify impulse highs and lows

Plot RSR retrenchment levels

Apply trend filters

Execute trades only at RSR zones

Apply uniform position sizing and risk rules

#### Performance Metrics

Win rate

Expectancy

Maximum drawdown

Average risk–reward ratio

Sharpe ratio

#### Benchmark Comparison

The RSR strategy is benchmarked against:

Classical Fibonacci retracement strategy

EMA pullback strategy

Comparisons focus on returns, drawdowns, and trade consistency.

#### Discussion

RSR introduces a **sequence-adaptive retrenchment paradigm**, enabling deeper alignment with evolving market structure. By replacing static Fibonacci ratios with dynamic sequence-based levels, RSR improves flexibility, reduces false retrenchment signals, and extends applicability beyond financial markets to other numerical and pattern-based domains.



## Conclusion

This study establishes **Riitesh's Series Retrenchment (RSR)** as a **novel theoretical and applied trading framework**. The proposed model extends classical retracement theory through sequence-driven adaptability, offering new avenues for empirical research, algorithmic trading, and interdisciplinary applications.

## Original Contribution of the Study

This paper presents the **first formal definition, trading strategy, and empirical validation framework** for Riitesh's Series Retrenchment (RSR), constituting an original contribution to applied mathematics and technical analysis.

## References

Sinha, R. (2025). *Riitesh's Series: Mathematical Analysis and Its Validation Using the Golden Ratio*. ShodhKosh: Journal of Visual and Performing Arts.

Fibonacci Retrenchment. Wikipedia.

Literature on retrenchment analysis and trend-correction models.