

**You**

in technical analysis, what's the difference between Relative Strength Index (RSI) and Chande Momentum Oscillator (CMO) indicators?

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Both the Relative Strength Index (RSI) and the Chande Momentum Oscillator (CMO) are momentum indicators commonly used in technical analysis to assess the strength and direction of a price trend. While they share the same broad goal, there are key differences in how they are calculated and interpret market information.

**Relative Strength Index (RSI):**

1. **Calculation:**
   * RSI is calculated based on the average of up days and down days over a specified period (commonly 14 days).
   * The formula for RSI is: ���=100−1001+��*RSI*=100−1+*RS*100​,



where RS (Relative Strength) is the average gain divided by the average loss over the chosen period.

1. **Interpretation:**
   * RSI values range from 0 to 100.
   * Typically, an RSI reading above 70 suggests that an asset may be overbought (potentially due for a price correction), while an RSI below 30 suggests oversold conditions (potentially due for a rebound).

**Chande Momentum Oscillator (CMO):**

1. **Calculation:**
   * CMO calculates the difference between the sum of gains and the sum of losses over a specified period.
   * The formula is ���=Sum of Up Days−Sum of Down DaysSum of Up Days+Sum of Down Days×100*CMO*=Sum of Up Days+Sum of Down DaysSum of Up Days−Sum of Down Days​×100.

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1. **Interpretation:**
   * CMO oscillates around a centerline, usually at zero.
   * Readings above zero indicate bullish momentum, while readings below zero suggest bearish momentum.
   * CMO can also be analyzed for divergences and crossovers to identify potential trend changes.

**Key Differences:**

1. **Calculation Method:**
   * RSI focuses on the average gains and losses, incorporating a smoothing factor to provide a normalized indicator.
   * CMO directly calculates the difference between the sums of gains and losses without normalization.
2. **Range and Centerline:**
   * RSI always ranges between 0 and 100, with commonly used overbought and oversold levels.
   * CMO oscillates around the zero centerline, with positive and negative values indicating bullish and bearish momentum, respectively.
3. **Sensitivity:**
   * Due to its smoothing factor, RSI may be less responsive to recent price changes compared to CMO, which reacts more quickly to market shifts.
4. **Interpretation Approach:**
   * While both indicators can signal potential trend reversals, traders may prefer one over the other based on their unique characteristics and interpretation preferences.

Ultimately, the choice between RSI and CMO, or the use of both in conjunction with other indicators, depends on the trader's preferences, the specific market conditions, and the goals of their technical analysis strategy.



**You**

Who invented RSI and who invented CMO?

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The Relative Strength Index (RSI) was developed by J. Welles Wilder. Wilder introduced the RSI in his book titled "New Concepts in Technical Trading Systems," which was published in 1978. The RSI has since become one of the most widely used momentum indicators in technical analysis.

As for the Chande Momentum Oscillator (CMO), it was created by Tushar Chande. Tushar Chande introduced the CMO in his book "The New Technical Trader," which was published in 1994. The Chande Momentum Oscillator is designed to measure momentum in a way that addresses some of the limitations of other momentum indicators.

Both Wilder's RSI and Chande's CMO are valuable tools in technical analysis, helping traders assess the strength and potential reversals in price trends.

Tushar S. Chande is a prominent figure in the field of finance and technical analysis. He is known for his contributions to the development of technical indicators and trading strategies. While comprehensive biographical information might not be readily available, here's an overview of his background and accomplishments based on publicly available information:

* **Education:** Tushar Chande holds a Bachelor's degree in Electrical Engineering from the Indian Institute of Technology (IIT) in Kanpur, India. He later pursued graduate studies in Computer Science at the University of Florida.
* **Career:** Chande has a diverse professional background. He has worked in various roles in the finance industry, including as a financial engineer, trader, and consultant. He has also served as an educator, teaching courses and conducting workshops on trading and technical analysis.
* **Contributions:** Tushar Chande is best known for his work on technical indicators. He is the co-creator of several widely used indicators, including the Chande Momentum Oscillator (CMO), the Aroon indicator, and the Stochastic RSI. These indicators are utilized by traders and analysts worldwide to analyze market trends, momentum, and volatility.
* **Authorship:** Chande has authored or co-authored several books on trading and technical analysis. His books often focus on practical trading strategies and the application of technical indicators in financial markets. Some of his notable works include "Beyond Technical Analysis" and "The New Technical Trader."
* **Innovation:** Throughout his career, Chande has been known for his innovative approaches to trading and technical analysis. He has developed unique methodologies and tools aimed at helping traders make informed decisions in dynamic market environments.

While specific details about Chande's personal life or early career might not be widely documented, his professional contributions to the field of finance and technical analysis have made a significant impact on traders and investors globally.

J. Welles Wilder Jr. was a significant figure in the world of technical analysis, particularly known for his contributions to the development of trading indicators. Here's a brief biography:

* **Early Life and Education:** J. Welles Wilder Jr. was born on June 23, 1930. Not much is publicly known about his early life. He studied mechanical engineering, which equipped him with a strong analytical mindset.
* **Career:** Wilder had a diverse career, including working as a mechanical engineer and later as a technical analyst. He became fascinated with the financial markets and began to apply his engineering background to develop mathematical models for analyzing market behavior.
* **Contributions:** Wilder is best known for his groundbreaking work in technical analysis. He introduced several popular technical indicators, including the Relative Strength Index (RSI), the Average True Range (ATR), and the Parabolic SAR (Stop and Reverse). These indicators revolutionized the way traders analyzed price movements and market trends.
* **Publications:** Wilder's most famous book, "New Concepts in Technical Trading Systems," was published in 1978. In this book, he introduced many of his innovative concepts and indicators to the wider trading community. His writing style was clear and accessible, making complex technical concepts understandable to traders of all levels.
* **Legacy:** Wilder's contributions to technical analysis have had a lasting impact on the financial industry. His indicators remain widely used by traders and analysts around the world. He is regarded as one of the pioneers of modern technical analysis, and his work continues to influence trading strategies and market analysis to this day.
* **Personal Life:** Unfortunately, there is limited public information available about Wilder's personal life, including details about his family, upbringing, or later life outside of his professional contributions to technical analysis.

Overall, J. Welles Wilder Jr. is remembered as a visionary in the field of technical analysis, whose innovative ideas and indicators have stood the test of time and continue to be instrumental in guiding trading decisions for many traders and investors.

Below is an example of how you could implement a simple function in Go to calculate the Relative Strength Index (RSI) indicator for a given set of price data:

goCopy code

package main

import (

"fmt"

"math"

)

// calculateRSI calculates the Relative Strength Index (RSI) for a given set of price data.

func calculateRSI(prices []float64, period int) []float64 {

if len(prices) <= period {

return nil

}

// Initialize variables

var (

gains []float64

losses []float64

rsis []float64

)

// Calculate initial gain and loss

prevPrice := prices[0]

for i := 1; i <= period; i++ {

priceDiff := prices[i] - prevPrice

if priceDiff >= 0 {

gains = append(gains, priceDiff)

losses = append(losses, 0)

} else {

gains = append(gains, 0)

losses = append(losses, -priceDiff)

}

prevPrice = prices[i]

}

// Calculate average gain and loss

avgGain := average(gains)

avgLoss := average(losses)

// Calculate RSI for the first period

if avgLoss == 0 {

rsis = append(rsis, 100)

} else {

rs := avgGain / avgLoss

rsis = append(rsis, 100 - (100 / (1 + rs)))

}

// Calculate RSI for subsequent periods

for i := period + 1; i < len(prices); i++ {

priceDiff := prices[i] - prices[i-1]

var gain, loss float64

if priceDiff >= 0 {

gain = priceDiff

loss = 0

} else {

gain = 0

loss = -priceDiff

}

avgGain = ((avgGain \* float64(period-1)) + gain) / float64(period)

avgLoss = ((avgLoss \* float64(period-1)) + loss) / float64(period)

var rsi float64

if avgLoss == 0 {

rsi = 100

} else {

rs := avgGain / avgLoss

rsi = 100 - (100 / (1 + rs))

}

rsis = append(rsis, rsi)

}

return rsis

}

// average calculates the average of a slice of float64 numbers.

func average(numbers []float64) float64 {

sum := 0.0

for \_, num := range numbers {

sum += num

}

return sum / float64(len(numbers))

}

func main() {

// Example usage

prices := []float64{50, 55, 52, 48, 45, 47, 49, 51, 50, 53, 55}

period := 5

rsis := calculateRSI(prices, period)

fmt.Println("RSI values:", rsis)

}

This code defines a **calculateRSI** function that takes a slice of float64 prices and a period as input and returns a slice of RSI values calculated based on the provided price data. The **average** function is used internally to calculate the average gain and loss. Finally, in the **main** function, an example usage is demonstrated with sample price data and a period of 5.