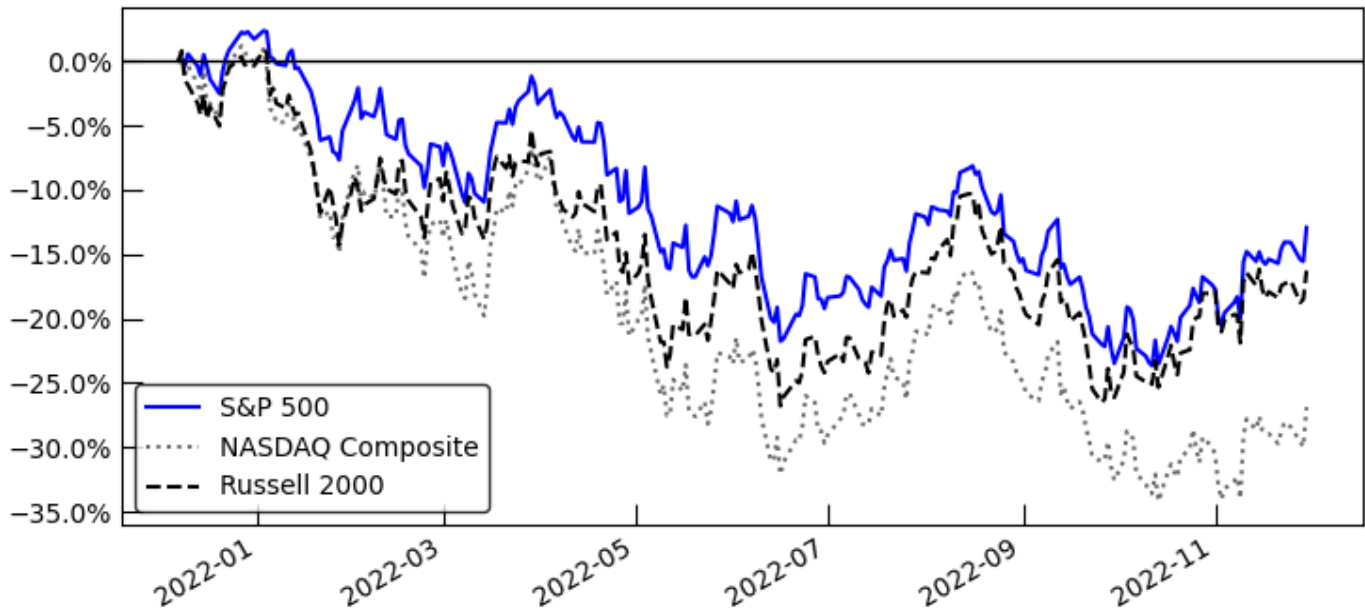


US Business Cycle Report

For the Month of November 2022

US Equity Indices Trailing 12 Month Cumulative Returns



Source: Yahoo Finance, as of 2022-11-30

Monthly Summary

Business Cycle Phase

Early Expansion

Late Expansion

Early Contraction

Late Contraction

Target Asset Allocation

Target Sectors: UT, CS, HC
Target Factor: Momentum

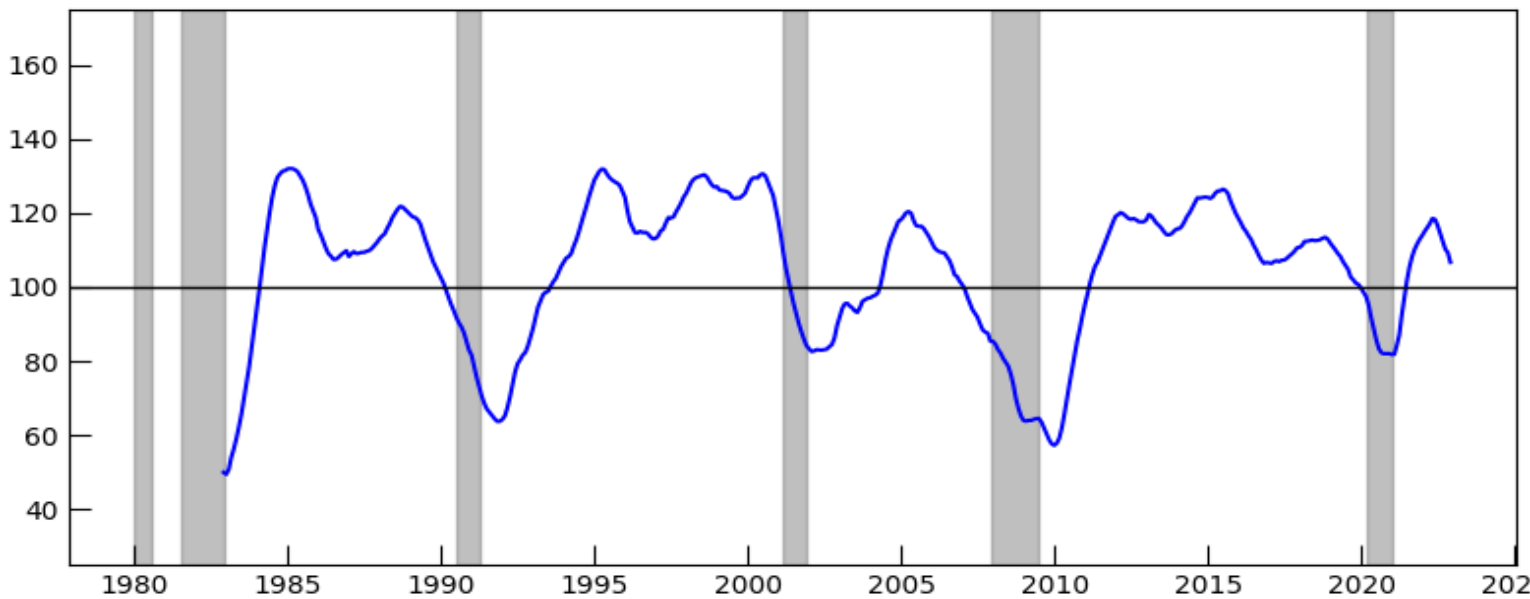
Target Sectors: MA, ID, HC
Target Factor: Low Volatility

Target Sectors: MA, CD, CS
Target Factor: Safe Haven

Target Sectors: EN, IT, HC
Target Factor: Growth

Composite Business Cycle Indicator

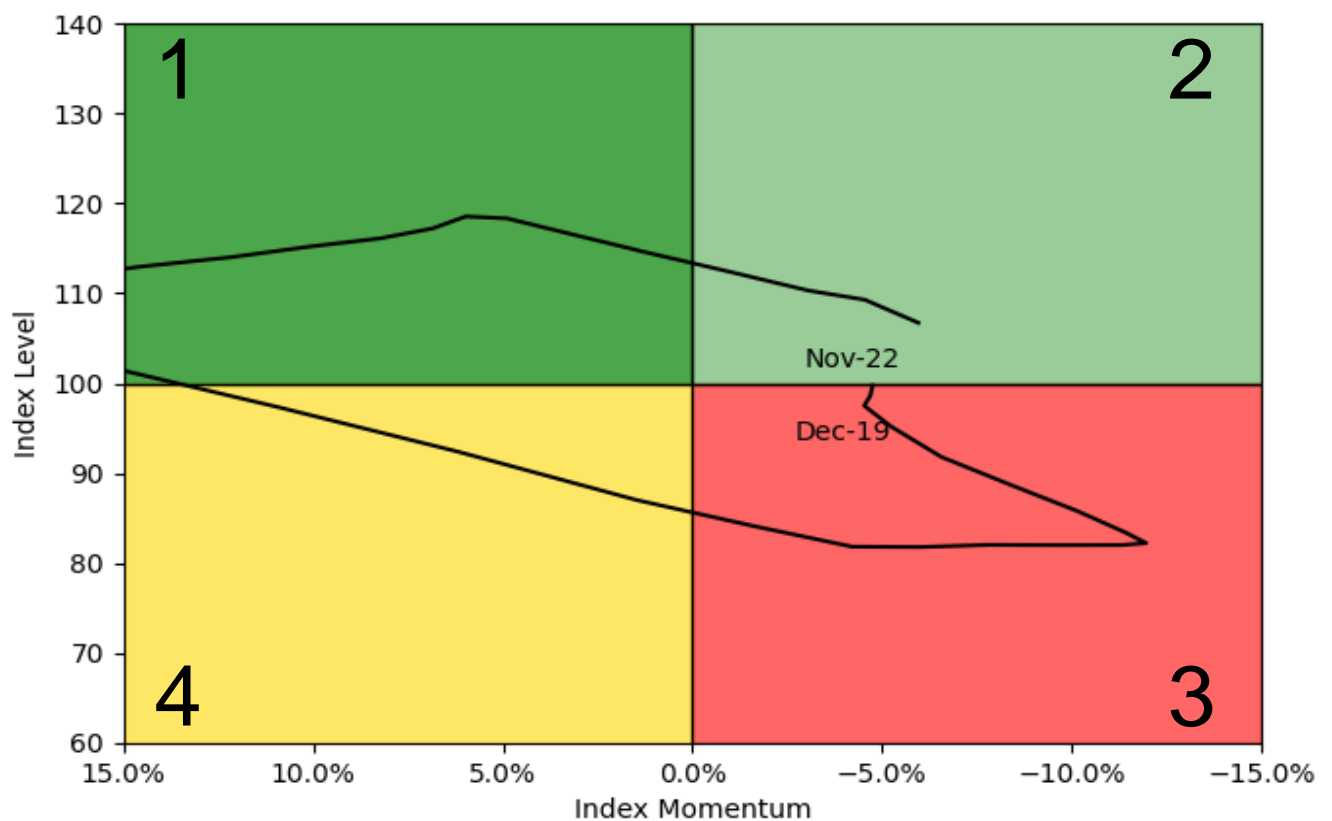
Composite Business Cycle Indicator



Note: Shaded areas represent US recessions as indicated by NBER.

Reading greater than 100 indicates expansion, less than 100 indicates contraction.

Business Cycle Compass

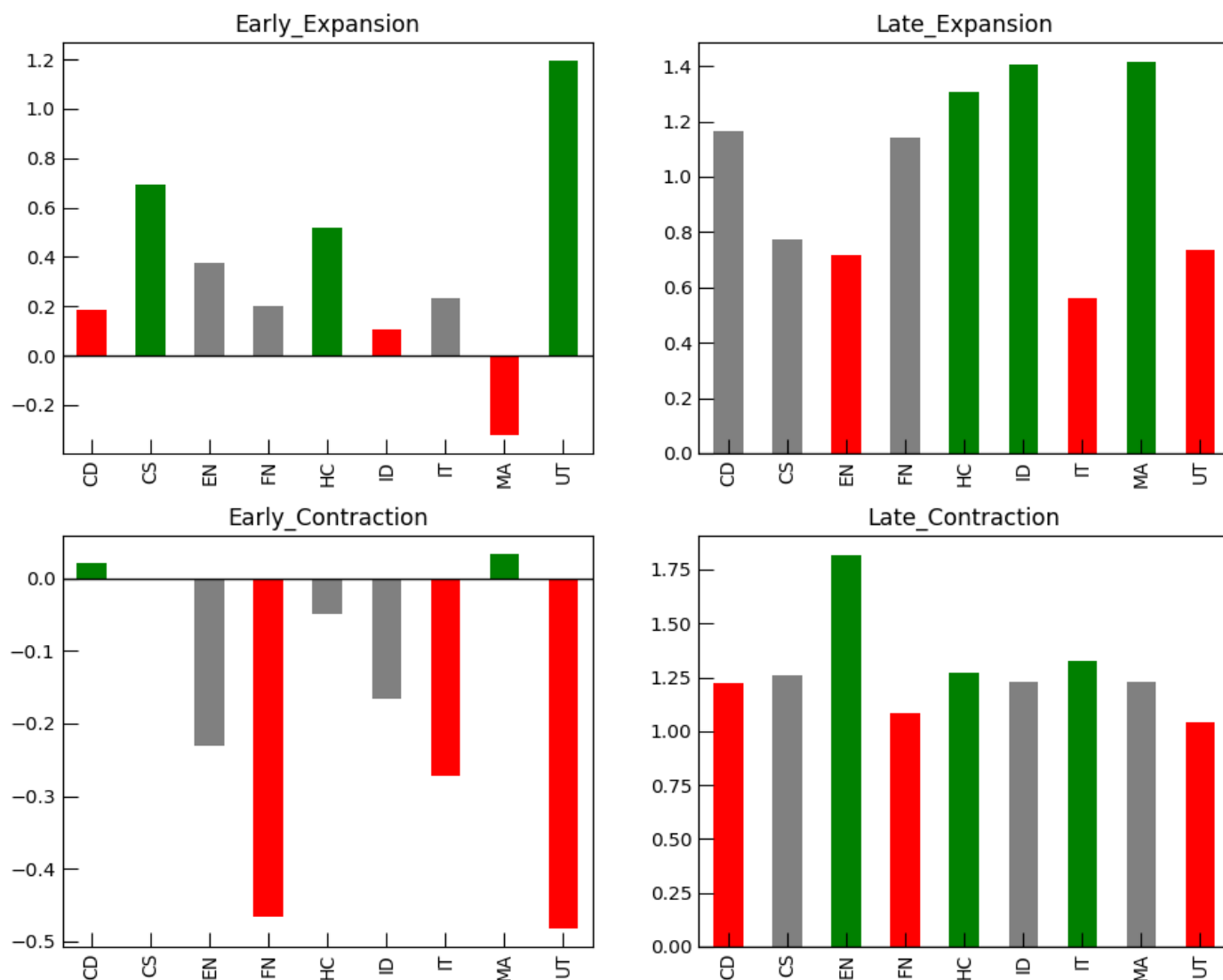


Note: Momentum calculated as 25% 6M Change, 75% 3M Average less 12M Average.

1 = Early Expansion, 2 = Late Expansion, 3 = Early Contraction, 4 = Late Contraction

US Sector Rotation Strategy

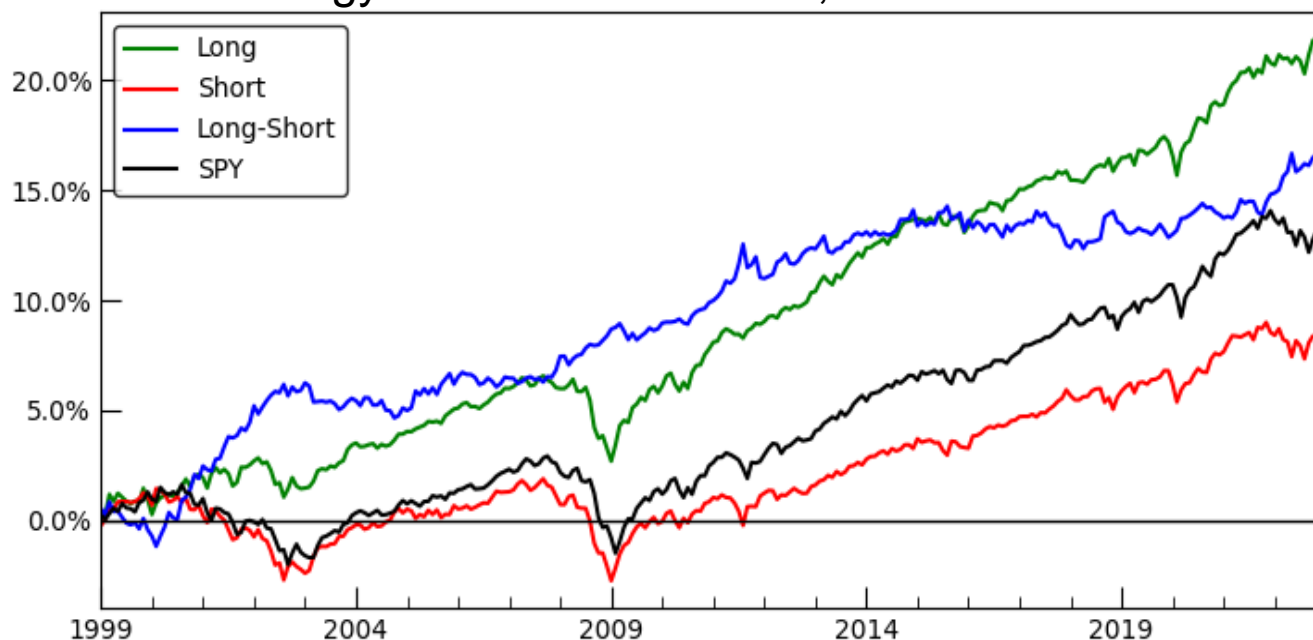
US Sectors Information Ratios by Phase of Business Cycle



Note: Green bars denote sectors with long position, red short, and grey neutral.

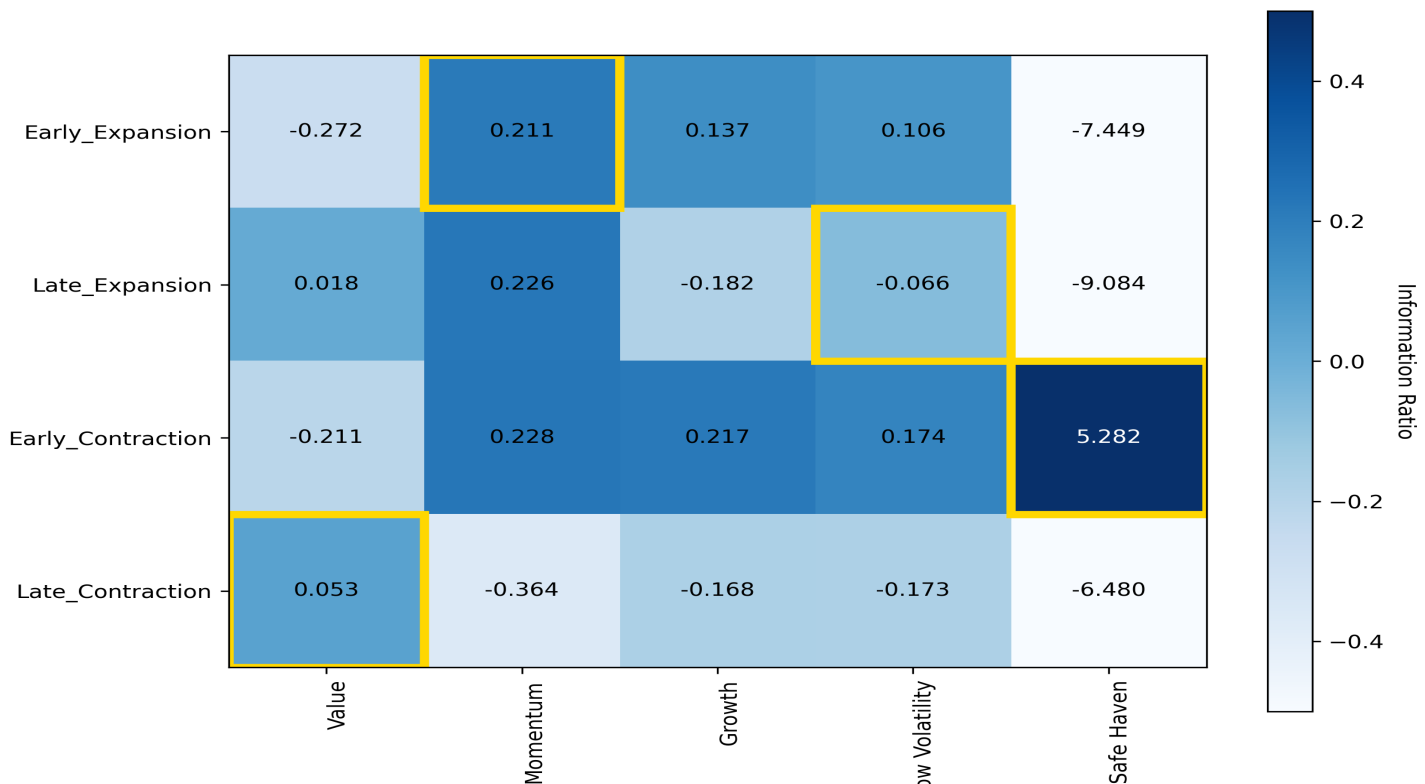
Sector returns based on SPDR Sector ETF returns from 1999-01-31 to 2022-11-30

Sector Strategy Cumulative Returns, Risk Level 1%



US Factor Rotation Strategy

US Factors Information Ratios by Phase of Business Cycle

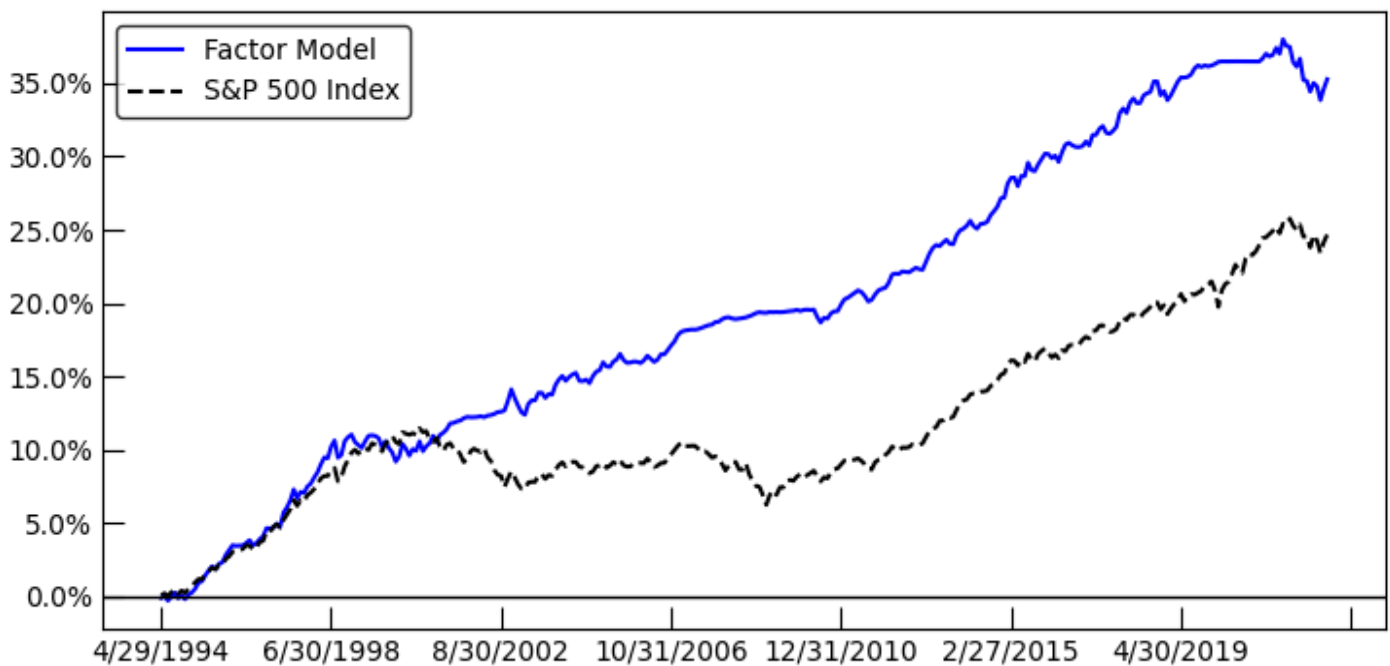


Note: Gold borders denote factors with long exposure during phase of Business Cycle.

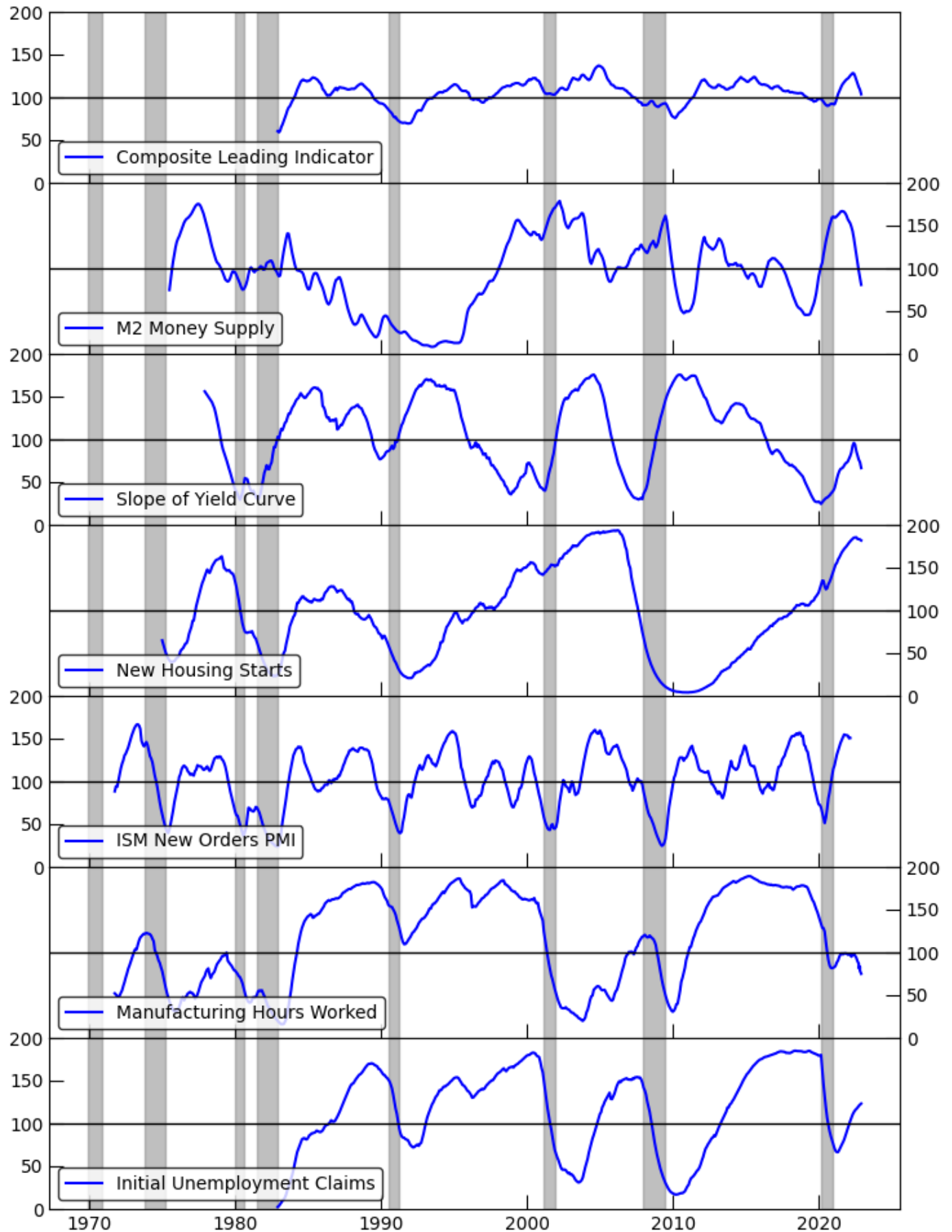
Information Ratio calculated as factor excess return to S&P 500 Index, scaled by annualized volatility.

Returns sourced from period 1994-02-28 to 2022-11-30

Factor Strategy Cumulative Returns, Risk Level 1%

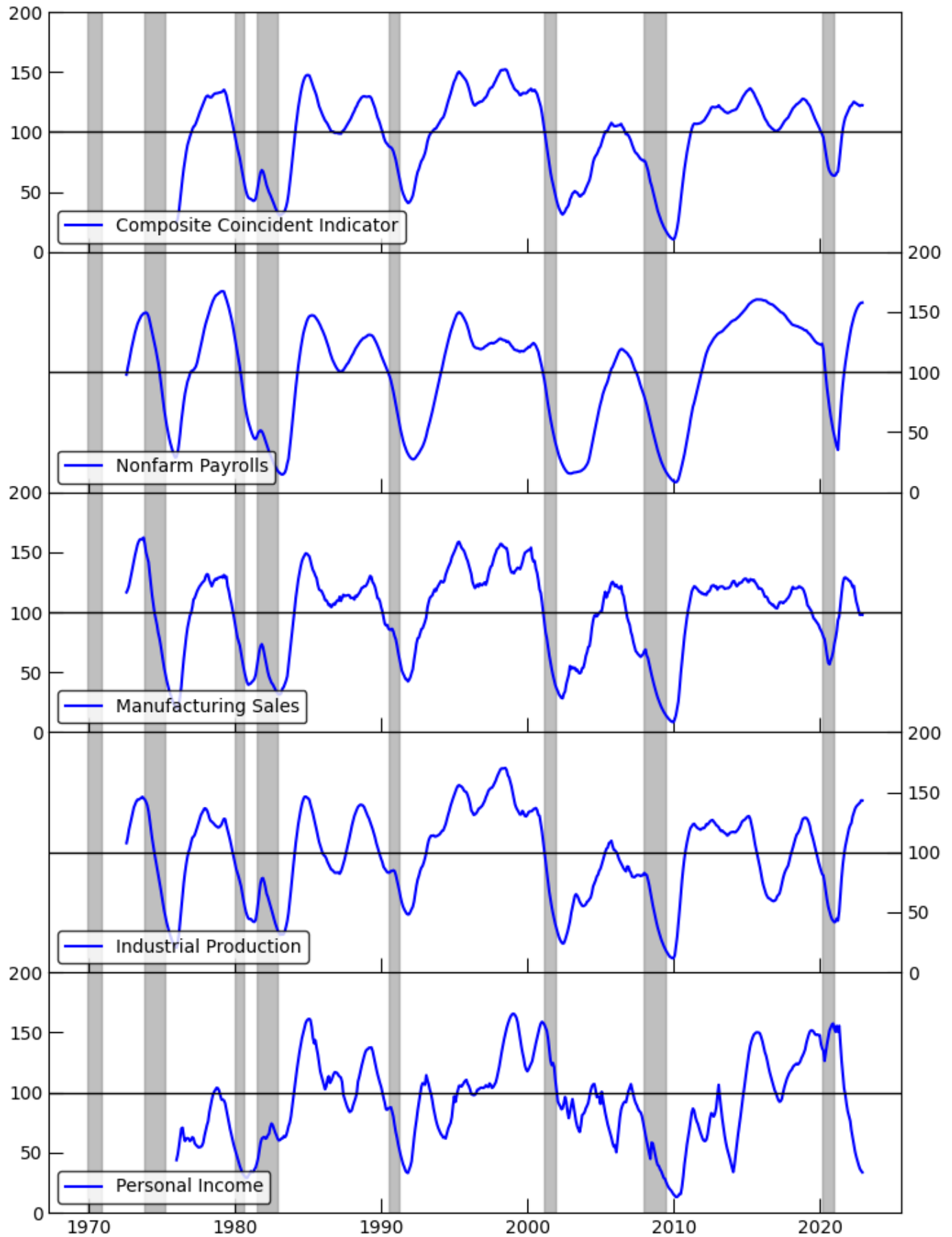


Composite Leading Indicators



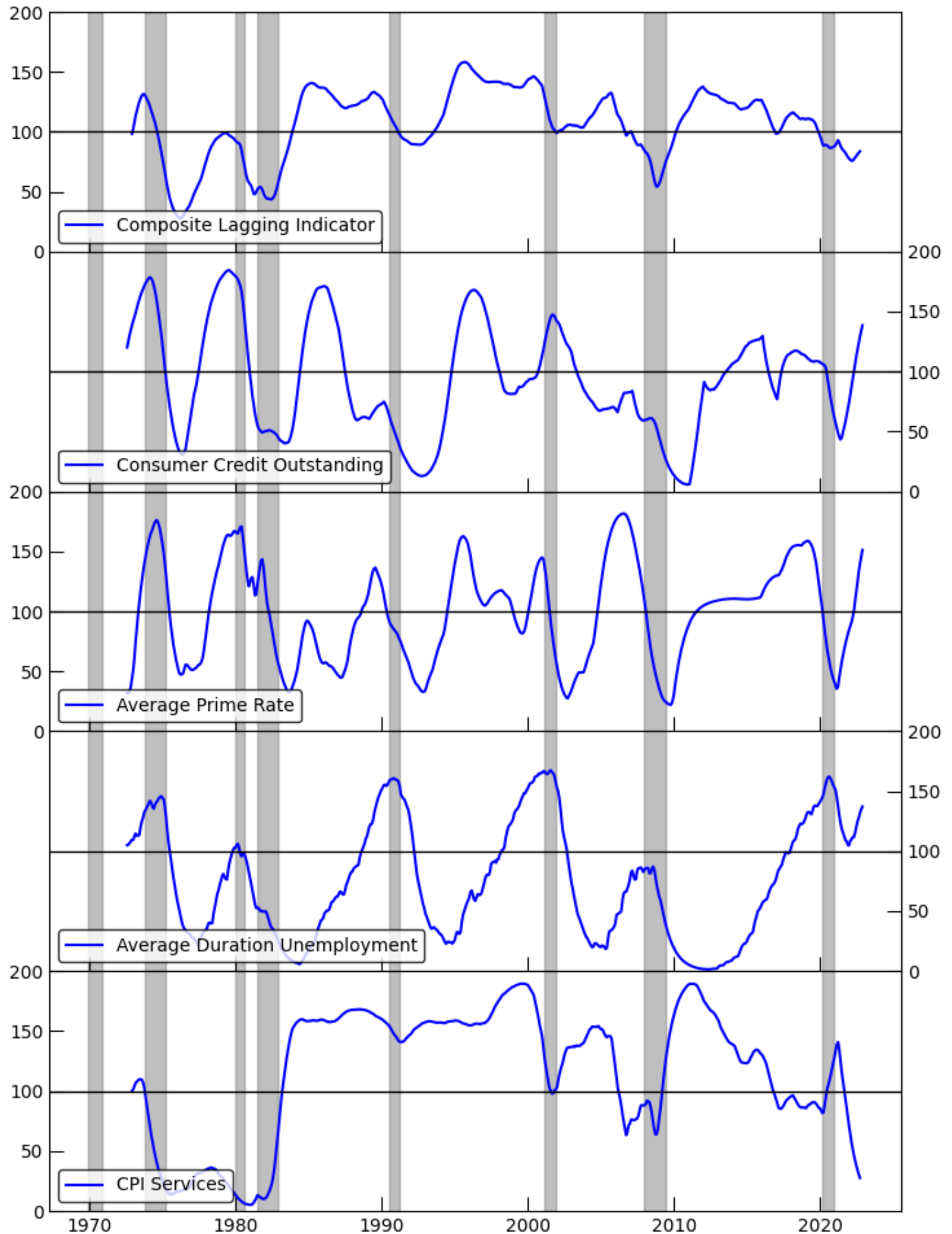
Note: Shaded areas represent US recessions as indicated by NBER.
Reading greater than 100 indicates expansion, less than 100 indicates contraction.

Composite Coincident Indicators



Note: Shaded areas represent US recessions as indicated by NBER.
Reading greater than 100 indicates expansion, less than 100 indicates contraction.

Composite Lagging Indicators



Note: Shaded areas represent US recessions as indicated by NBER.
Reading greater than 100 indicates expansion, less than 100 indicates contraction.