Physics-Based Sentiment Forecasts - US Stocks | Sep 6 2024

CPM INVESTING

S&P 500 Equal Weighted Index

Jeffrey Hansen
www.cpminvesting.com

We provide this three-week forecast of investor sentiment as an example of our perspective on stock market corrections and recoveries and our algorithmic forecasting models.

We provide clients with multi-month forecasts and strategy sessions followed by periodic status reports. We also offer technology transfer engagements for those wanting to make physics-based sentiment forecasts in-house.

Comment (data as of Sep 06 2024):

Investors associate fall with weaker stock market performance and the upcoming US presidential election adds uncertainty. Adding to this mix are the upcoming naturally occurring shifts in investor sentiment that we track. Within the three forecast horizon of this report we can see that the Short-Term Driver indicates greater optimism the week of Sep 27. However, just beyond the horizon our forecasts indicate abrupt shifts in investor sentiment. This period will be an interesting demonstration of our physics-based sentiment forecasts and how one can use them to more accurately assess economic, market, and political forces affecting the stock market.

Recent Performance: Recent market performance has been consistent with the predicted changes in sentiment as shown on page 2. The Short-Term and Long-Term Drivers (lower panel, formerly labeled Micro and Macro Drivers) recently indicated greater optimism. The Minor Flash Driver expected the week of Aug 23 appears to have taken place.

Graphs on Following Pages

The graph on page 2 has two panels. The upper panel shows the price of the index (S&P 500 EW) along with our Market Resilience Index® series. The MRI are based solely on the price of the index and measure the return acceleration of the index over different periods, lasting from a few weeks (Micro MRI) to several quarters (Macro MRI). They are shown with their current levels (levels from 0 to 100) and recent slope (Pos=Positive, Neg=Negative) in the legend.
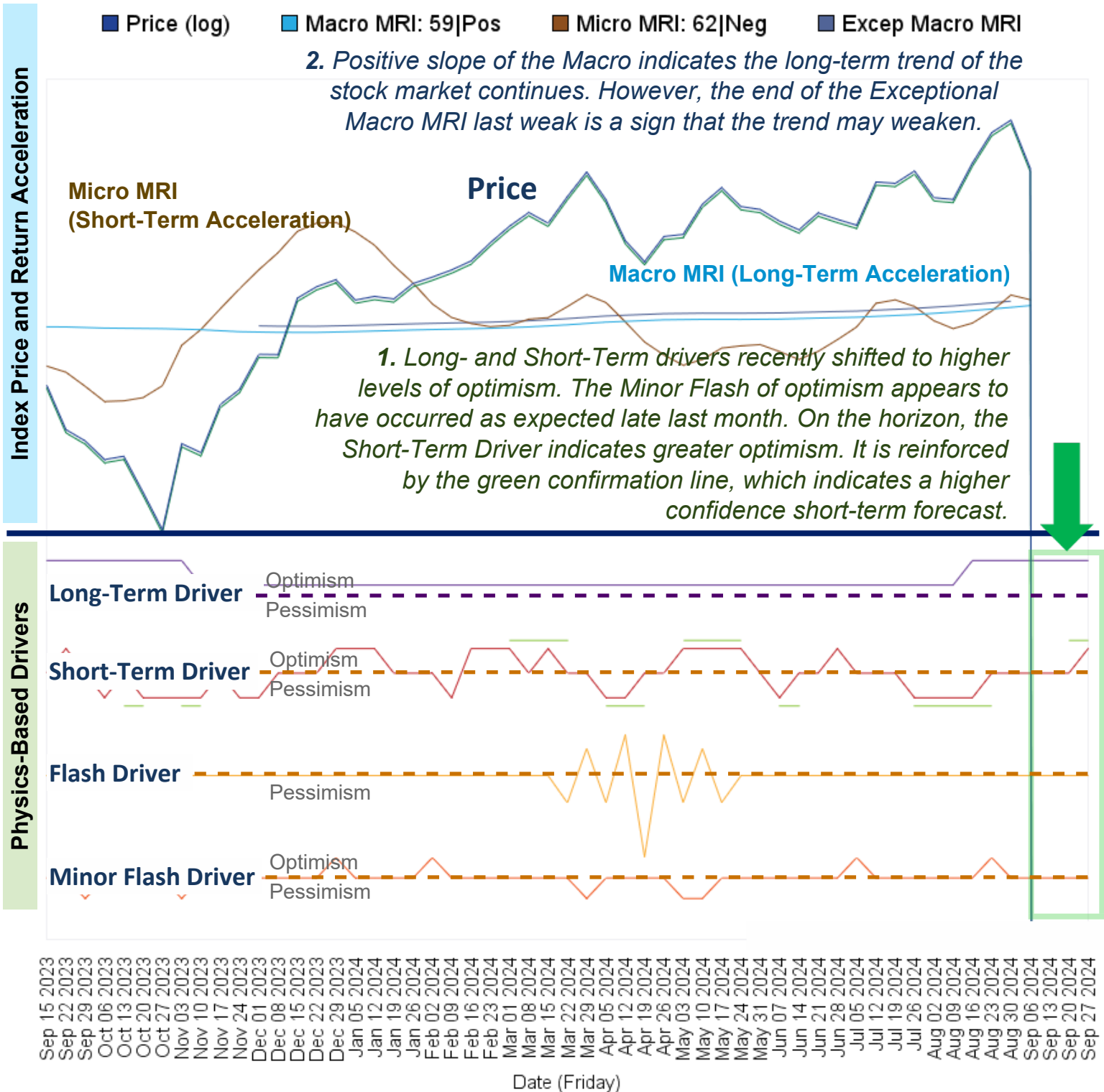
The lower panel on the following page shows physics-based drivers of investor sentiment that are calibrated to show naturally occurring shifts that are explanatory of the MRI shown in the upper panel over a multi-decade test period. The predicted status of each driver is shown in the light green box on the right. See Notes for more information: https://cpminvesting.com/notes.

We also show on pages 3 and 4 forecasted price momentum as measured by the 14-week RSI. The advantage of the RSI metric is that it is familiar to many investors. See Notes at end of this document for more information.
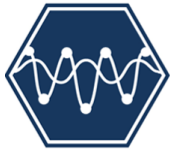
Physics-Based Sentiment Forecasts
SP500 EW as of Sep 06 2024
MRI and Their Drivers: Sep 8 2023 – Sep 27 2024

Legend: ■ Price (log) ■ Macro MRI: 59|Pos ■ Micro MRI: 62|Neg ■ Excep Macro MRI

Index Price and Return Acceleration

Micro MRI (Short-Term Acceleration)

Price

Macro MRI (Long-Term Acceleration)

2. Positive slope of the Macro indicates the long-term trend of the stock market continues. However, the end of the Exceptional Macro MRI last weak is a sign that the trend may weaken.

1. Long- and Short-Term drivers recently shifted to higher levels of optimism. The Minor Flash of optimism appears to have occurred as expected late last month. On the horizon, the Short-Term Driver indicates greater optimism. It is reinforced by the green confirmation line, which indicates a higher confidence short-term forecast.

Physics-Based Drivers

Long-Term Driver — Optimism / Pessimism

Short-Term Driver — Optimism / Pessimism

Flash Driver — Pessimism

Minor Flash Driver — Optimism / Pessimism

Date (Friday)

For more information about the MRI and their Drivers see: https://cpminvesting.com/notes

S&P 500 Equal Weighted Index
## 14-Week RSI - Actual and Predicted: Sep 19 2014 - Sep 6 2024
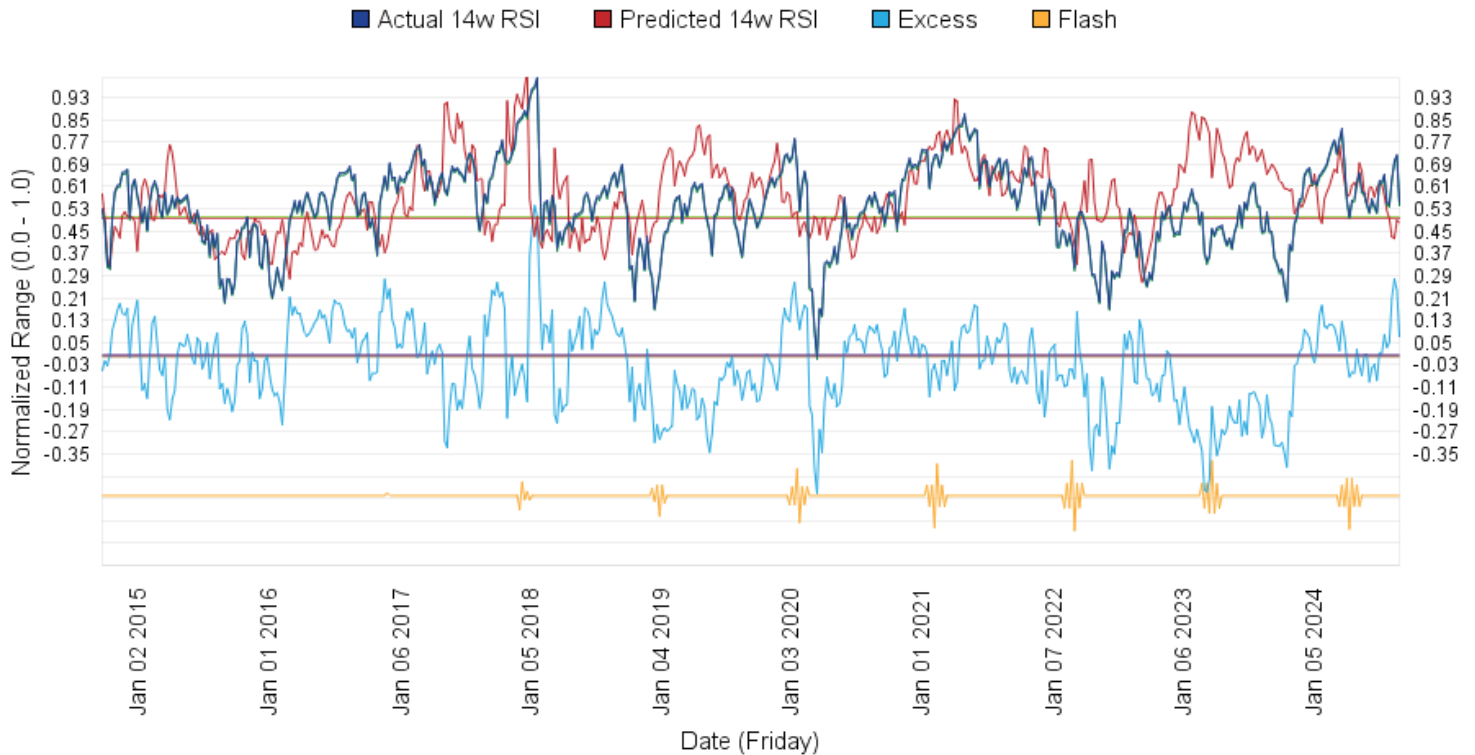
In the upper section of the figure above, we show the predicted and actual 14-week RSI for the market index (not shown) for the last 10 years. The light blue line in the middle of the figure indicates the difference ("Excess") between these two series. High values in the light blue line indicate that the market has stronger price momentum (as measured by the 14-week RSI) than could be expected from the natural shifts in sentiment indicated by the predicted RSI, presumably because of positive economic conditions. Low values indicate that the market has weaker price momentum than expected, presumably because of negative economic conditions. The Flash Driver is shown for reference.

Comment (data as of Sep 06 2024): At the far right of the graph, we see the light blue line with a positive spike, which indicates that market price momentum has been greater than what we expect from the naturally occurring shifts in sentiment. This suggests that investors have a positive view of economic and market forces. This stance will be a good reference point as we move through the fall.

S&P 500 Equal Weighted Index
Index Price, Predicted 14-Week RSI: Sep 8 2023 – Sep 27 2024
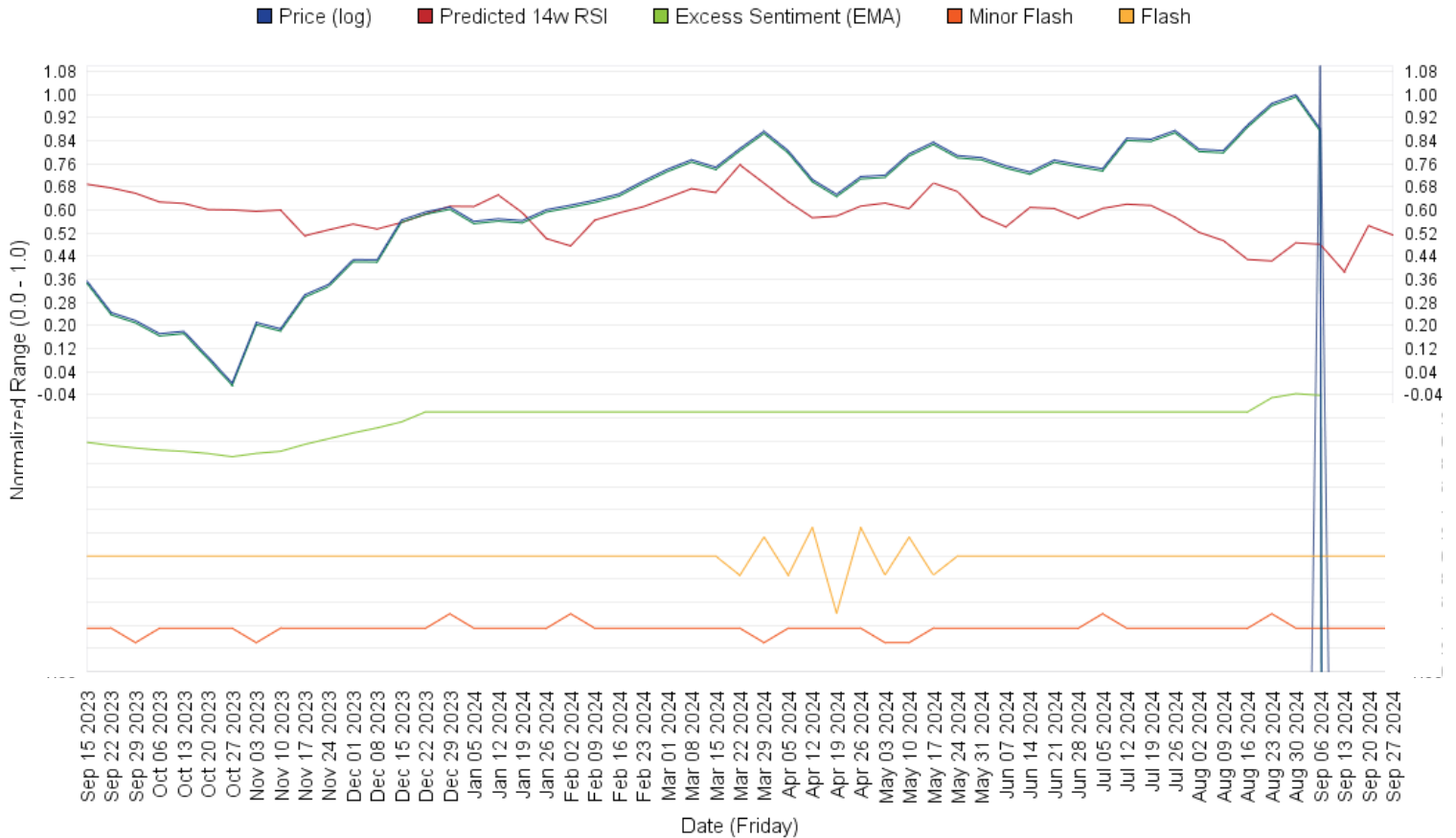
Index price (heavy blue line) and predicted price momentum measured as the 14w RSI (red) are shown in the upper panel. "Excess Sentiment (EMA)" is shown as the light green line. Conceptually, this line deviates from its neutral stance when the actual 14w RSI of the market (not shown) is meaningfully higher or lower than what can be expected from the natural shifts in sentiment as embodied in the predicted RSI. This line can call attention to economic conditions that are strong or weak based on the sustained deviation of the actual RSI relative to the predicted RSI. This is calculated as the exponential moving average (EMA) of the actual 14w RSI less the predicted 14w RSI (labeled "excess" on the prior page). Only values in excess of a z-score of +/-0.5 are shown to highlight meaningful deviations. When the line is horizontal, the actual 14w RSI is not meaningfully different than what we expect from natural shifts in sentiment.

Comment (data as of Sep 06 2024): After not having meaningful deviation from the predicted 14w RSI for several months, a positive deviation has recently occurred. This suggests that market sentiment is responding to positive economic conditions. It is important to note that the Minor Flash Driver indicated that the week ending August 23 would see a burst of optimism and this could be the cause of the positive deviation. Should the positive deviation persist for a few more weeks we can then draw stronger conclusions about the strength of economic and market conditions. Within the forecast horizon, the predicted RSI signals higher price momentum associated with higher investor optimism.

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Please contact us with questions at contact@cpminvesting.com, or visit www.cpminvesting.com.

Notes

Sentiment shifts occur periodically and are described as changes between:

Optimism|Pessimism   Risk-on|Risk-off   Resilience|Vulnerability   Euphoria|Panic   Aspirational thinking|Critical thinking

Total sentiment reflects economic forces and the naturally occurring forces that directly affect human behavior:
> Economic forces
   - Investor views on economic conditions
   - Investor views on market fundamentals
   - Investor behavior (e.g., trend following, mean reverting, calendar effects, response to current events)
> Natural forces - Our focus is here

Naturally occurring sentiment shifts have a bigger impact than many investors realize, and typically explain over 70% of the variability of widely used index price momentum measures such as the Relative Strength Index (RSI). In addition, systematically predicting the future strength of the natural forces can be done more easily and reliably than predicting the future strength of economic forces.

When total sentiment deviates meaningfully from the natural shifts, we can infer that economic forces have a higher impact. If we take the actual RSI, for example, which reflects both economic and natural forces, and subtract the effect of the natural forces (represented by the predicted series), the difference is a reasonable gauge of the impact of the economic forces.

In general, a key early indicator of an impending market correction is when an actual sentiment metric, such as one of our Market Resilience Indexes, converges with a negatively trending predicted metric.

Two types of Physics-Based Drivers: We maintain over two dozen physics-based drivers. There are two general types:
> Cyclic Drivers - sentiment changes gradually over time
> Episodic Drivers - sentiment change abruptly

Two Sentiment-Related Metrics: We use two different metrics in our forecasts of sentiment. We forecast the 14-week Relative Strength Index (RSI) to measure price momentum for a market index. Upward sloping RSI indicates positive sentiment.
       https://en.wikipedia.org/wiki/Relative_strength_index

We also forecast our own Market Resilience Index® (MRI) series. The MRI measure return acceleration. Upward sloping MRI indicate positive sentiment. MRI indicate short- and long-term shifts in market resilience for each market index:
> Micro MRI - short-term trends lasting several weeks
> Macro MRI - long-term trends lasting several quarters

The RSI and MRI have different features.
 RSI (Relative Strength Index)
   - Widely used in investment industry
   - Effective in identifying market bottoms
   - Less effective in identifying market tops. RSI can peak several months before the index price peaks

 MRI (Market Resilience Index)
   - Designed to identify accurately both market tops and bottoms