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# *CME Market Sentiment Meter Historical Market Analyses:*

## Gold

## 2019 Federal Funds Rate Cuts

The CME Market Sentiment Meter (MSM) assigns market states from futures and options settlement data. There are four possible market states: Complacent, Balanced, Anxious, and Conflicted. This series of application notes provides detailed examples on how to use MSM by exploring economic events.

# Executive Summary


Periods of Anxious market states for Gold futures (GC[1]) tended to be either short-lived or long-lived in the eight year period ending in December 2019.

In the year 2018, the U.S. saw economic growth and the Federal Reserve hiked rates four times through the year. This year was dominated primarily by Balanced market states. GC consistently fell once the rate hikes were announced.

The year 2019 saw slowed economic growth and increased tensions with China, Iran, and Russia. This led to a large rise in GC from July to November. GC remained at a high relative to the beginning of the year. In 2019, the Federal Reserve made 3 rate cuts. During this time, the Market Sentiment Meter (MSM) indicated an extended period of Anxious market states from July to November.


## 1 COMEX Gold Futures (GC)

- GC is a physically delivered contract.
- GC is the world's leading benchmark for the price of gold.
- GC has the largest market share for gold futures.
- It is extremely liquid and trades $\sim$ 27 million ounces daily.
- Gold is widely seen and used as a hedge against inflation.

## 2 The 2019 Federal Funds Rate Cuts and the Rise in Gold

In the year 2018 the U.S. economy showed signs of growth:

- The U.S. unemployment rate decreased from 4.1% in January 2018 to 3.9% in December 2018
- The overall inflation rate hovered around 2% all year.
- The GDP per capita continued to increase in 2018.

The U.S. Federal Reserve increased the federal funds rate four times in 2018. It went from a range of 1.50% - 1.75% on March 21$^{st}$ 2018 to a range of 2.25% - 2.50% on December 19$^{th}$ 2018. For the December 19$^{th}$ increase, there was extended discussion and disagreement on whether to raise or maintain the existing rate. Initially nine reserve banks made requests to maintain the primary credit rate, while three made requests to increase the rate.

[1]The CME DataMine product codes are used in this work. See Appendix C.

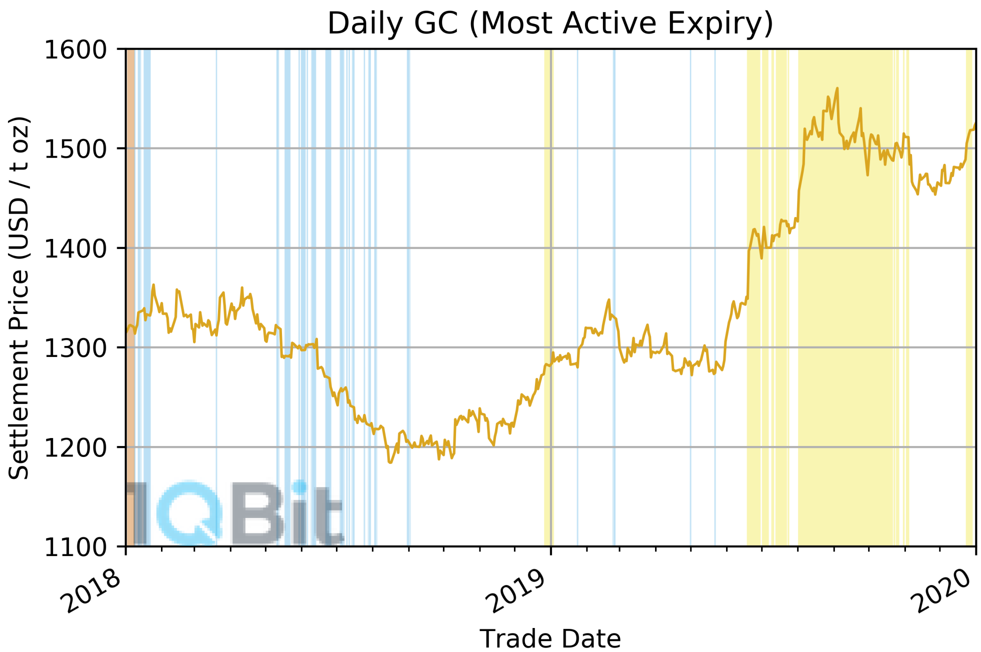


Figure 1: **Daily Settlement Price for GC** (most active expiry) (yellow line). The shading indicates the market state. Regions where the MSM is Complacent (Blue), Balanced (White), Anxious (Yellow), and Conflicted (Red) are highlighted.

After the first rate hike in March 2019 GC fell from 1321.5 USD / t oz and continued to fall with the two successive rate hikes in June 2018 and September 2018. GC then hovered around 1200 USD / t oz. The Federal Reserve chose to hike the rates to offset trade war tensions which began in 2018 and potentially losing the large Chinese market for U.S. commodities and industry.

In the weeks prior to and after the final rate increase in 2018, GC began to rise after hovering around 1200 USD / t oz. This rise in settlement price continued into 2019. At end of 2019 and at the beginning of 2019 fears of a slowing economic growth in the U.S., growing interest rates, and media coverage of tension in the government increased.

Prior to December 19th 2019, the market was largely dominated by Balanced market states (Fig. 1. There were no large price moves during this period. The day of the rate hike announcement and stating intentions to cease rate hikes going into 2018, the MSM began shifting from indicating Balanced market states to Anxious market states (Fig. 2). The Anxious market state is associated with having a wider risk-return curve than that of a Balanced market state's distribution. The broader Anxious distribution indicates a greater anticipated volatility than the Balanced state.

In January of 2019, the Federal Reserve did not increase the rate, and instead chose to maintain it. This lack of rate hikes continued until July of 2019, during the height of the trade war, in the context of a slowing U.S. economy. On July 31st 2019, the existing rate



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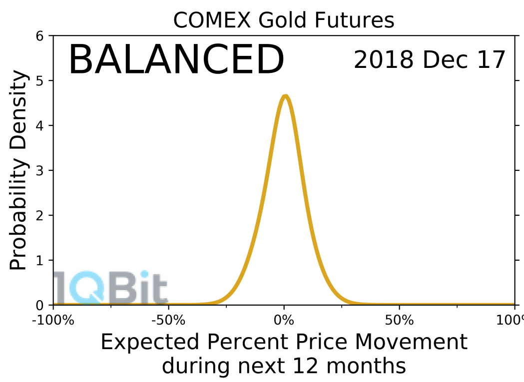


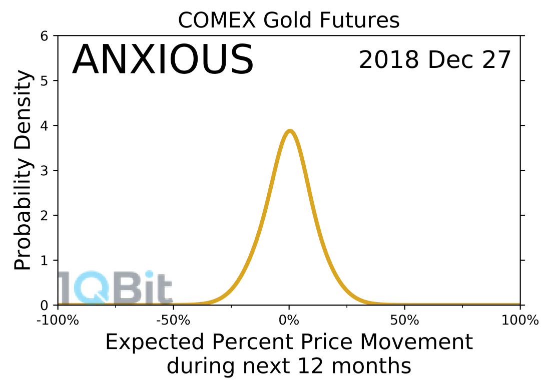


Figure 2: **Two Days in December 2018.** Left: The Balanced market state prior to the Dec. $19^{th}$ rate cut. Right: The Anxious market state following the rate cut.

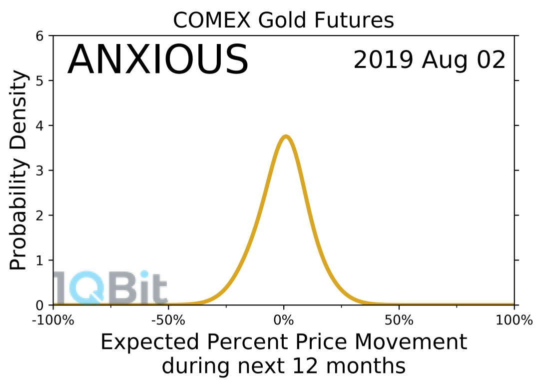


Figure 3: **August 2019.** An Anxious market state following the first rate cut of 2019, which preceded a large price move in GC and an extended period of anxious states.

range was cut from 2.25% - 2.50% to 2.00% - 2.25%. The settlement price for most actively traded gold futures rose by $\sim$100 USD / t oz.

From mid-July 2019 to the end of the month, the MSM indicated that the market state was consistently Balanced – the most common state with relatively few market worries. However, following the rate cut and rise in GC, the market state was consistently Anxious. There were reports of market worries about a potential imminent recession and worries of inflation.

Two more rate cuts followed in September 2019 and October 2019. Over this period GC remained at a high of around 1500 USD / t oz. During this period there was media coverage of sustained geopolitical worries in the form of deteriorating U.S. relations with China, Iran, and Russia.

It is important to note that the market state did not change during the September and October rate changes and consistently remained Anxious. Although there were fluctuations in GC, there were no significant price moves comparable to the rise at the end of July.

In the eight year period ending in December 2019, periods of Anxious market states for GC tended to either be long-lived or short-lived. This is exemplified by the extended period of Anxious market states from July 2019 to November 2019, in which the price was consistently at a high relative to the rest of 2019.

In summary:

- Periods of Anxious market states for GC tended to be either short-lived or long-lived in the eight year period ending in December 2019.
- During the extended period of Anxious market states from July 2019 to November 2019 the price was consistently at a high relative to the rest of 2019.
- There is no strict correlation between gold prices and the federal funds rate.
- Following certain changes to federal funds rate, the MSM indicated a shift from Balanced market states to Anxious market states and preceded price moves.
- For other rate changes, the market state did not change and did not precede any significant price moves.

# APPENDIX

## A About the Historical Market Analyses

This series of application notes describes notable historical events and times and how they affected market prices and trends. Each event considered is tailored to a specific product which is covered by the MSM product line. For each historical narrative, an analysis is provided making use of the data and features available through the MSM in order to gain an economic and financial insight into each situation.

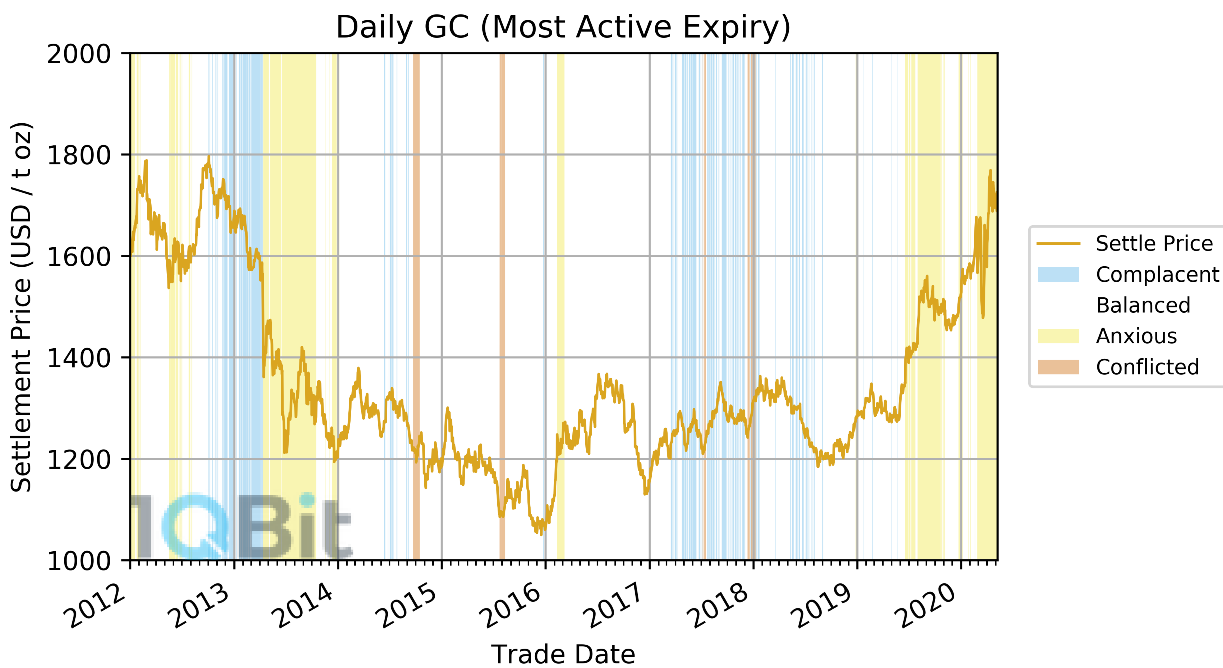


Figure 4: **2012-2019 Daily Settlement Price for GC** (most active expiry) (Yellow line). The shading indicates the market state. Regions where the MSM is Complacent (Blue), Balanced (White), Anxious (Yellow), and Conflicted (Red) are highlighted.

## B Market Sentiment Meter Market States

The CME Market Sentiment Meter models risk by allowing there to be multiple "schools of thought" for price movement. There are four possible "market states": **Complacent**, **Balanced**, **Anxious**, and **Conflicted**. Graphical representations of the market states are found in Figs. 4-5. These are represented in a single Mixture Distribution. The Mixture Distribution represents the expected price movement over the next twelve months, so that its standard deviation can be directly compared to an annualized volatility. However, the Mixture Distribution may change daily, evolving over time as new information arises. The MSM model works best for events in which the timing is known but the outcome is uncertain.

Edited by Anish R. Verma

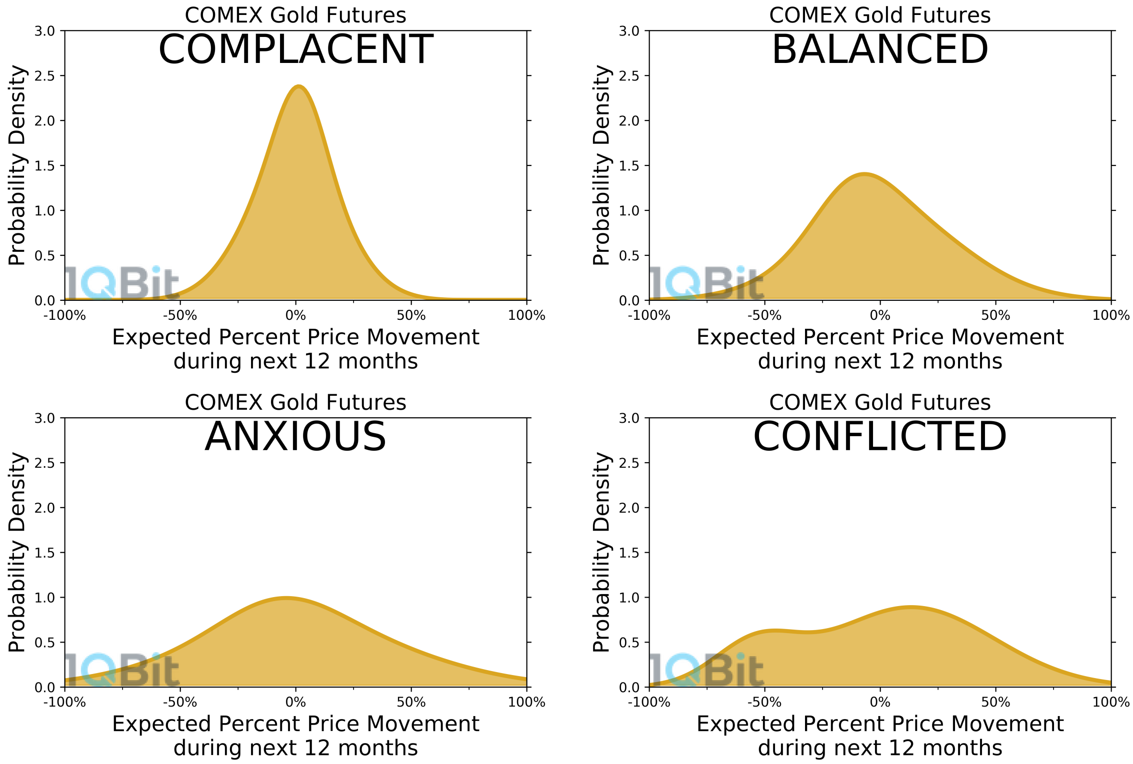


Figure 5: **MSM Market States.** Graphical representations of the risk-return curves for the four market states within the MSM: Complacent; Balanced; Anxious; and Conflicted states.

The **Complacent** market state is a "calm" state indicating that market participants have few concerns. Conceptually, it is when the schools of thought do not differ significantly, resulting in a tall and narrow distribution. The narrow width of the curve is a direct result of a small standard deviation, and generally indicates that there is only a small chance of a large price move.

The **Balanced** market state is the most common state. This distribution has a larger standard deviation than the Complacent state, indicating a larger difference in the schools of thought when compared to the Complacent state.

In the **Anxious** market state, the schools of thought are diverging, and result in a much broader risk-return curve. Indeed, the differing schools of thought can also skew the distribution and move the mean off centre, yielding information about the direction of a potential price move.

Most unique to the MSM model is the **Conflicted** market state. The defining feature of this, graphically, is the bi-modal nature of the distribution. For this situation, the schools of thought differ significantly and subsequently result in a large volatility. This may indicate a large price move.

# C CME DataMine Product Codes

Throughout the Historical Market Analyses, CME DataMine product codes are used to refer to the various products. For convenience, tabulated below is a list of CME DataMine product codes currently available through the Market Sentiment Meter.

| DataMine Code | Futures Product Name |
|---|---|
| C | CBOT Corn |
| CL | NYMEX WTI Crude Oil |
| EC | CME Euro FX (USD per EUR) |
| ES | CME E-Mini S&P 500 |
| GC | COMEX Gold |
| NG | NYMEX Henry Hub Natural Gas |
| S | CBOT Soybean |
| TYF | CBOT US Treasury 10-Year Note |