Investors flee gold as long positions hunker at their 2002 low

Gold has fallen out of favor with large speculators, according to data from Bank of America/Merrill Lynch, with positioning sliding to its lowest spot in nearly a decade.

Although gold is perched near its highest levels in nearly three weeks, investors remain wary of buying it. BofA analysts note that market players have largely liquidated their bullish bets on gold: at $2.1 billion, bullion long positions are hunkered at their lowest levels since 2002, the bank said.

Meanwhile, "speculative shorts in gold are their largest ever," BofA added.

Despite global central banks' having no intention of removing their collective foot from the monetary throttle anytime soon, gold bulls have been chastened by a dizzying selloff that has shaved more than 25 percent from bullion's value in 2013.

Hedge fund guru John Paulson's flagship gold fund has plummeted by more than 65 percent this year, according to reports.

(Read more: Paulson's gold fund plunges 65% through June)

Over the last week, gold has staged a modest rebound. Still, it is far from the heady days of 2011, when the Federal Reserve's loose monetary policy prompted gold bugs to bid bullion up to a record $1,900 an ounce.

BofA called market signals on gold "extreme" and said that positioning "remains in the contrarian buy zone," given that the metal has broken above a near-term resistance area at $1,270 an ounce. That creates a "near-term base and positioning-led squeeze higher," the bank added.

—By CNBC's Javier E. David