Dynamic Commodity Strategies

Devraj Basu

The hedging pressure theory of Keynes (1930) provides the theoretical foundation for passive long-only commodity investing by postulating a risk premium based on risk transfer from hedgers to speculators. However its empirical validity is still debated, thus questioning the basis for traditional long-only indices. Indeed the recent precipitous decline of these benchmarks in the third quarter of 2008 only underscores this point. A dynamic theory of commodity futures pricing, the generalized hedging pressure hypothesis of Cootner (1960), Stoll (1979) and Hirshleifer (1989, 1990), grew out of linking the theories of Keynes (1930) and Working (1949) to the positions of hedgers. The generalized hedging pressure hypothesis assumes that risk premiums are present in both backwardated and contangoed markets and has more empirical support . We first analyze whether simple dynamic strategies based on this hypothesis could provide an alternative to long-only commodity indices.To that end, we construct three types of dynamic hedging pressure strategies that are based on the positions of large hedgers and large speculators provided by the CFTC. The basis for these strategies is to "time" backwardation and contango in a given futures market as predicted by the generalized hedging pressure hypothesis, where backwardation follows from net short hedging and contango follows from net long hedging.

The first strategy we propose, the so-called generalized hedging pressure (hereafter GHP) strategy, buys backwardated and shorts contangoed commodity futures. The GHP active strategy is split into two types depending on whether the positions of hedgers or speculators are used as a signal on which to trade. More specifically, we construct a hedger-based GHP strategy that buys commodity futures when hedgers were previously net short (in backwardated markets) and shorts commodity futures when hedgers were previously net long (in contangoed markets). We also construct a speculator-based GHP strategy that buys commodity futures when speculators were previously net long (in backwardated markets) and short commodity futures when speculators were previously net short (in contangoed markets). These strategies endeavor to apply the basic principle underlying the generalized hedging pressure hypothesis, which is to go long when hedgers are short and go short when hedgers are long and vice versa for speculators and may be regarded as being free from data snooping biases.

Aside from the two GHP strategies that go long and short we consider long-only and short-only strategies. The backwardated hedging pressure (hereafter BHP) strategy attempts to pick up the return that long speculators demand for taking on the price risk of short hedgers. As such, it buys backwardated contracts and invests in risk-free securities otherwise. As with the GHP strategies, the BHP strategy is split into two: the hedger-based BHP strategy goes long commodity futures when hedgers were previously net short, while the speculator-based BHP strategy goes long commodity futures when speculators were previously net long. This strategy attempts to capture the returns that speculators demand for taking on the price risk of hedgers. Finally, the third type of active strategy we consider, called the contangoed hedging pressure (hereafter CHP) strategy, attempts to capture the returns that short speculators demand for taking on the quantity risk of long hedgers. As such, it shorts contangoed contracts and invests in risk-free securities otherwise. As for the GHP and BHP strategies, it is also split into two: the hedger-based CHP strategy shorts commodity futures when hedgers were previously net long, while the speculator-based CHP strategy shorts commodity futures when speculators were previously net short. The CHP strategies follow directly from Cootner's (1960) extension of the Keynesian hedging pressure hypothesis. All of the strategies are basically non-parametric in nature and are not based on specific distributional assumptions for the underlying futures returns.

The second set of dynamic commodity strategies is based on a more recent phenomenon, namely the influx of investment into commodity index funds and ETFs since 2000, and the observation that this seems to have distinct "phases" of backwardation and contango involving the entire cross section of commodity futures. We study this phenomenon by considering the performance of simple "timing" strategies over the 1994-1999 and the 2000-2009 period. These are based on sorting the cross section of commodities into a winner and a loser portfolio based on previous returns and then going long the winner or short the loser over the next period according as the commodity market was in a state of backwardation or contango over the previous week. The market was in a state of backwardation if the return on the BHP index discussed earlier was positive and in contango if the return on the CHP index was positive. The first set of strategies are based on thirteen liquid commodity futures in the agricultural, energy and metals sectors while the second is based on a wider cross section of twenty five commodities, both using weekly data.