



Demystifying Commodity Futures: Contango and Backwardation

Season 1: Episode 6

Welcome to the Real Spiel with Ryan and Kurt. This is Ryan Katz with USCF Investments. And this is Kurt Nelson with Summer Haven.

KATZ: Let's get real about contango and backwardation. Which are terms that get thrown around quite a bit when talking about investing and commodity futures, but really any futures market.

What are contango and backwardation and why do they matter?

NELSON: These are confusing terms that unfortunately are sticky and they are part of the commodity industry but they are not meant to be confusing. Contango, if you were to rewind ten to fifteen years, used to be called normal. It's just another word for upward sloped futures prices over time. If copper is \$4 a pound right now, it's going to be \$4.05 a month from now and \$4.10 two months after that and it's going to steadily increase in price over time. That's what is known as contango. Maybe a corollary would be to think about interest rates that you are used to in most markets. An upward sloping yield curve where three-month interest rates are at 2 ½% and one year rates are at 2.7% and five year is at 2.9% and ten years at 3.5%, you have an upward sloping interest rate curve. In commodities, normal is an upward sloping price curve over time. Backwardation is the converse. It's when prices are falling over time, and you can think of that as an inverted yield curve. It's not impossible and it has actually happened in the interest rate markets here in 2022 as we see important macroeconomic dynamics affect interest rate decisions from the Fed and inflation. But it's not as normal as upward sloping prices and interest rates. So, to try to dispel for investors this whole notion of backwardation and contango, it is a very simple idea to understand. When prices are increasing over time, as futures maturity go further and further out, that's contango – also called normal. When prices are declining over time, so like the price of a commodity like copper is cheaper three months from now or six months from now than it is in the spot market – that decreasing price is what we call backwardation.

Katz: So, the shape of the futures curve is an important consideration but you mentioned contango is really normal because the price of the commodity should be higher in the future than it is today because there is the cost of storage, the cost of carrying insurance, etc. But it's also important to point out that there are three sources of return for futures investors. Aside from the real yield which we are talking about with contango and backwardation, you have the spot price appreciation or depreciation, and the collateral yield. With contango being normal, let's talk a little bit about the commodities that we have data for right now, of which about 80% are in backwardation. Why is that?

NELSON: It's a strange environment right now. We had supplies being drawn down as well as increasing demand as we've faced this unprecedented event of Covid 19 over the last two years. So, we saw demand for physical goods rather than services go up over the last sort of 18 months as this transition from going on trips and traveling and hotels and service industry became demand for things like refrigerators and computers and new cars. So, we saw demand for physical goods which are very intensive on commodities and at the same time we had supply disruptions. So even before the events of the last two months we were already seeing increasing signs of inflation which were leading to shortages in these markets and that leads this idea of backwardation. What we are seeing right now in

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April of 22, is kind of 4 out of 5 or roughly 80% of the commodity markets are actually showing signs of backwardation and we've never seen that in the data before. Our belief, based on all of our research, is that a market in commodities goes into backwardation when inventories are running out, when there's a risk of a supply shortage. The normal, what we called contango situation, is when prices are increasing over time. So, let's use corn as an example. If corn costs \$4 a bushel and someone says I want to buy that bushel of corn from you three months from now. A farmer or a long owner of physical corn has to store it, insure it, make sure it doesn't spoil and carry that cost as well as their cash carrying cost for the next three months so that when your future expires you can take delivery and I will sell it to you at that fixed price. If the price of corn today is \$4 in the spot market, I might say well I have to carry that, insure it, do all those things so I'm going to sell it to you for \$4.10. So that's an upward sloping futures curve and that's what we call normal and there's a whole body of literature called the theory of storage which says that this is predictable and explicable. What gets odd is when the price of corn is \$4 today but I'm willing to sell it to you three months from now for \$3.90 so the price is lower than the spot market, what causes that to happen. What happens is that when you have the risk of a stock out or shortage in a commodity the very front end, say the spot month very short-term delivery goes way up to the moon because of supply and demand. We have not enough supply and increased demand and the only thing that will give is price. So, we will see the front end of that curve jump up really high. But three months from now, six months from now, a year from now the expectation is I'm really short on corn right now but I can figure out some ways to come up with more corn in three months or six months or maybe you are going to come up with a different raw ingredient you can use that's cheaper. A replacement for example. In the oil seed market, you might use soybean oil but you can also use canola oil. Or Malaysian palm oil or some other cooking oil. So, if things get out of whack there's nothing to do in the short term and prices go really high but in the longer term prices will mitigate a bit. The price impact and supply and demand shortage. So, this is a long way of saying that backwardation is a sign of a stock out or risk of a stock out of a commodity where people are kind of ready to pay whatever they have to get it. We think that's an important kind of a fundamental signal for when commodities of a particular market can become attractive relative to another one.

Katz: So contango is really somewhat of a head wind for returns for commodities investors and backwardation is a bit of a tail wind. It can go either way and there are other variables that can affect return for futures investors but again contango is a headwind and backwardation is a tail wind is a good way to think about it.

NELSON: I think that is useful at an individual commodity level. But what I would highlight is that over long periods of time, over decades, roughly only 30 – 40% of the commodity markets are in backwardation. And so somewhere around 60-70% are in what we call contango. But that's normal. And even in that environment our data shows that diversified commodity futures are comparable to diversified equities in their risk generation for a portfolio as well return generation. So if you're expecting to get 5-7% above a risk-free rate in equities over long periods of time our data going back 150 years to the beginning of the commodities futures exchange says commodities deliver something comparable – roughly 5-7% above the risk-free rate with around a mid-teens, call it a 15% volatility which is comparable to equities. So, I think backwardation and contango are very important when trying to form a portfolio and figure out among the different choices of commodities I can allocate to how might I differentiate between them. But I think when it comes to long-term asset allocation forecasting

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inflation and asset class returns is very difficult. It's hard in stock and bond markets. It's just as hard in commodities so I wouldn't use that as a fundamental or factor signal to allocate to the asset class, but I would use it as something to help you across commodity assets allocate in an optimal way.

Katz: Absolutely. Thank you for joining us. This has been the Real Spiel with Ryan and Kurt. We will talk to you soon.

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