# A Hedge Fund's Perceptions on Precious Metals

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Thank you for having me here to speak today; it's a real pleasure and an honour. I work for Paul Jones of Tudor Investment Corporation as his commodities strategist. I'm telling you this because I want to make clear that my perspective may be an unusual one in this group. My precinct includes energies, grains, meats, softs, and base metals as well as precious metals. This is also something of a disclaimer because due to my personal limitations I am not a true expert in any of the commodities I track, but rather a relayer and synthesizer of expertise from specialists in each subject area. Some of those true experts are here in this room, and I apologise in advance for anything I present as an insight which is either trivial or well-known.

Also, although I am an employee of Tudor Investment Corporation, nothing I say here is necessarily endorsed by Tudor, and certainly nothing should be construed as a trading recommendation. Tudor may be long or short any of the commodities we will be discussing, and those positions may change at any time, including during this talk.

When Tudor examined the problem of commodities analysis, it became clear to us that we needed to reduce the commodities data universe from a vast and diverse array of mine closures, cattle placements, and crop conditions to a set of statistics which could be compared on an apples-to-apples basis across trading instruments.

When I'm in farm country, I sometimes attract a hostile glare from people who work with corn or soybeans for a living, because they see the attempt to distil their data as a devaluation of their expertise. But an analyst who compiles detailed information through exhaustive detective work makes the compressed, synthesised summaries that I offer possible.

When Mr Jones is surveying the whole marketplace from equities to fixed income, and from currencies to commodities worldwide, the last thing he needs to see is every soybean emergence number. Therefore, Tudor has come up with a number of measures which allow a comparison of various diverse commodities on common terms.

Following is a table of the commodities we analyse as commodities. As you can see, they range from grains to metals to energies to meats. Maybe our attempt to condense the data makes more sense now.

| | |
|---|---|
| Coffee C Arabica | Nickel |
| Corn, No. 2, Yellow | **Platinum** |
| Copper, High Grade | **Silver** |
| Cotton, No. 2 | Soybean Meal |
| Crude Oil, Lt. Sweet | Soybean Oil, Crude |
| **Gold** | Soybeans |
| Heating Oil, No. 2 | Sugar, No. 11 |
| Live Cattle | Unleaded Gasoline |
| Lean Hogs | Wheat |
| Pork Bellies | Zinc |
| Natural Gas | |

We have decided that there are three primary non-chart-based areas of concern: volatility, liquidity, and fundamentals. Without sufficient volatility and/or liquidity, there is no potential for a trading return. Without fundamentals on our side, we are fighting the long-run pricing tendency of the market most of the time.

## Liquidity

First of all, liquidity is a big concern. For big accounts, the liquidity of a position can mean the difference between booking a small profit and getting stuck in a Roach Motel – which as you know is a place into which a roach can check in, but is unable to check out.

This table displays the liquidity measure we use to assess the tradability of a commodities future:

| Tudor Turnover | Liquidity |
|---|---|
| Pork Bellies | 11 |
| Cocoa | 44 |
| **Platinum** | **116** |
| Coffee C Arabica | 154 |
| Soybean Oil, Crude | 163 |
| **Silver** | **166** |
| Lean Hogs | 180 |
| Copper, High Grade | 198 |
| Wheat | 237 |
| Cotton, No. 2 | 325 |
| Sugar, No. 11 | 385 |
| Live Cattle | 390 |
| Soybean Meal | 414 |
| Corn, No. 2, Yellow | 465 |
| **Gold** | **538** |
| Nickel | 636 |
| Zinc | 987 |
| Soybeans | 994 |
| Unleaded Gasoline | 1174 |
| Heating Oil, No. 2 | 1797 |
| Brent Crude Oil | 2543 |
| Natural Gas | 4041 |
| Aluminium | 4125 |
| Crude Oil, Lt. Sweet | 6930 |

As you can see, gold fits in right in the lower middle of the table, with a sufficient turnover to allow easy entry and egress from the market. Silver is less commodious, and platinum is relatively untradeable to a fund of our size.

## Volatility

Another issue for us is volatility. If a commodity future doesn't move around in price, we can't make any money on it without using options. We prefer simple directional bets, and that method has been successful for us.

Here's a ranked table of volatility as measured by the average % change per week. Gold looks fairly stationary, and silver and platinum are progressively better, if good is defined as volatile.

| % per Week | Average Change |
|---|---|
| Live Cattle | 1.27 |
| **Gold** | **1.54** |
| Aluminium | 1.66 |
| Zinc | 1.84 |
| **Silver** | **1.99** |
| Copper, High Grade | 2.26 |
| Soybeans | 2.32 |
| Corn, No. 2, Yellow | 2.35 |
| Cotton, No. 2 | 2.43 |
| **Platinum** | **2.53** |
| Soybean Oil, Crude | 2.54 |
| Wheat | 2.60 |
| Soybean Meal | 2.62 |
| Cocoa | 3.15 |
| Nickel | 3.22 |
| Lean Hogs | 3.74 |
| Sugar, No. 11 | 4.04 |
| Brent Crude Oil | 4.22 |
| Crude Oil, Lt. Sweet | 4.27 |
| Heating Oil, No. 2 | 4.33 |
| Unleaded Gasoline | 4.34 |
| Coffee C Arabica | 4.59 |
| Pork Bellies | 4.84 |
| Natural Gas | 5.41 |

### Historical Volatility

And here's the same table using a more standard volatility measure, the standard deviation of historical price change. If anyone has any questions as to how we calculate these measures, I'll be happy to address that afterwards, but in the interest of brevity I ask you to accept these figures as they are.

| 60-day % Sigma | Historical Volatility |
|---|---|
| **Silver** | **9.72** |
| Live Cattle | 10.02 |
| **Gold** | **10.46** |
| Aluminium | 11.51 |
| Zinc | 11.67 |
| Copper, High Grade | 14.34 |
| Soybean Oil, Crude | 16.91 |
| Corn, No. 2, Yellow | 19.98 |
| Soybeans | 22.08 |
| Wheat | 22.69 |
| Soybean Meal | 22.98 |
| Nickel | 23.46 |
| Lean Hogs | 23.53 |
| Cotton, No. 2 | 23.79 |
| Cocoa | 25.70 |
| **Platinum** | **26.79** |
| Pork Bellies | 32.11 |
| Unleaded Gasoline | 35.36 |
| Brent Crude Oil | 36.08 |
| Heating Oil No. 2 | 36.72 |
| Sugar No. 11 | 38.58 |
| Crude Oil, Lt. Sweet | 39.30 |
| Natural Gas | 44.30 |
| Coffee C Arabica | 69.95 |

The results are similar to the earlier method of volatility calculation, but show that silver is less volatile than gold.

### Days Remaining of Supply

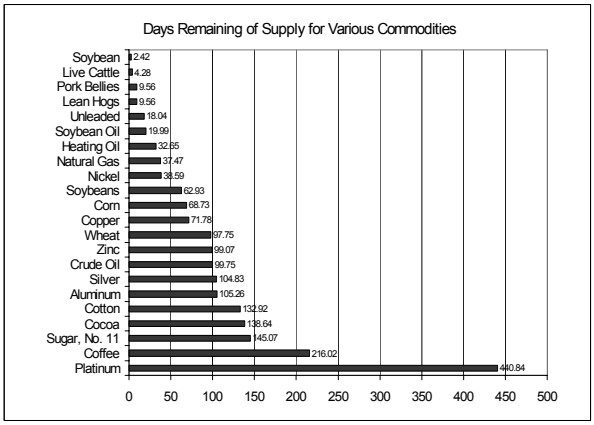
The third cross-commodity metric that we like to use is DR or "days remaining of supply". This measure is equivalent to a stocks-to-use ratio expressed in these terms: how many days of supply are in storage given no further production and continuing demand at a constant pace.

Here's the table of those. You may notice that the three precious metals I'm discussing are clustered at the top.

| Days Remaining | Fundamentals |
|---|---|
| **Gold** | **6,677.41** |
| **Platinum** | **295.76** |
| **Silver** | **259.89** |
| Coffee C Arabica | 184.74 |
| Cocoa | 178.78 |
| Sugar, No. 11 | 155.04 |
| Cotton, No. 2 | 141.43 |
| Brent Crude Oil | 103.28 |
| Crude Oil, Lt. Sweet | 103.28 |
| Corn, No. 2, Yellow | 76.71 |
| Nickel | 74.38 |
| Aluminium | 71.36 |
| Wheat | 69.49 |
| Zinc | 57.00 |
| Soybeans | 54.12 |
| Copper, High Grade | 41.84 |
| Soybean Oil, Crude | 39.96 |
| Heating Oil, No. 2 | 34.69 |
| Natural Gas | 33.14 |
| Unleaded Gasoline | 18.59 |
| Lean Hogs | 9.09 |
| Pork Bellies | 9.09 |
| Live Cattle | 4.65 |
| Soybean Meal | 2.59 |

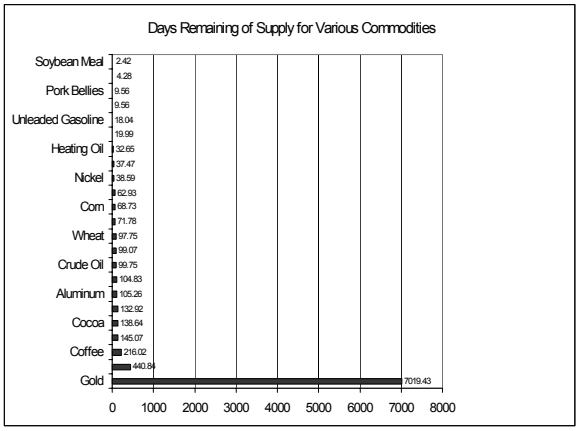
To summarise all three comparisons of commodities – our trading interest within this analytic framework indicates that we have a difficult time finding trades in gold, and difficulty executing in platinum, whereas silver offers a fair compromise between an interesting market and adequate tradeability.

Let's look at the days-remaining data in another way:




The commodities in the upper half of the table have the lower numbers of days remaining of supply. In some sense, this indicates how "on edge" the market is, or how easily perturbed it can be by real world events. You may have noticed that platinum has the largest stocks to consumption ratio on the chart. Silver appears in the lower half but ahead of such items as coffee, cocoa, and sugar.

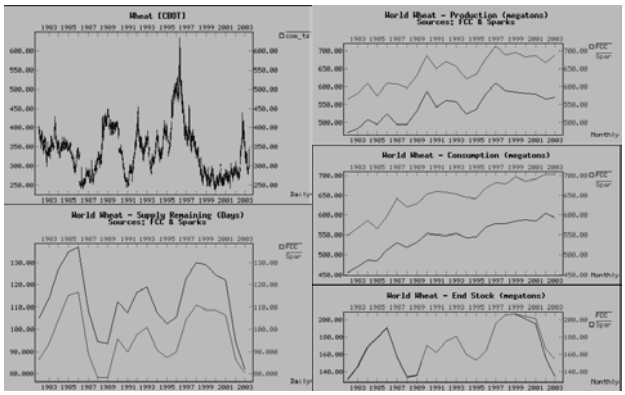
I have conspicuously omitted one commodity in my list. Here's the chart with gold left in:




Now we can see graphically the huge difference between gold and all of the other commodities. It's fair to say that nothing else even comes close. This leads us to a proposition that I'm sure some of you have thought about before: the right way to trade gold is as a foreign currency, not as a commodity. Now you will need to bring in someone else to give you a trading recommendation; I abdicate my duty to declare myself bullish or bearish flat price in the face of what I consider overwhelming evidence that gold resides outside my supply/demand analytical framework.

Let's go into the process of the days remaining calculation a little more.

The Tudor Investment Corporation supply/ demand analysis front end gives a good insight into the method behind the analysis. The right-hand panel of the display contains the three elements of a supply sufficiency forecast: production, consumption, and stocks. The left-hand panel contains a price chart and a chart of the changing supply situation over time. The lower left-hand box is the history of days remaining for this commodity – wheat, which varies from about 140 days to a current level around 80 days. This implies that with no further production, and with constant consumption, the world will run out of wheat in 80 days.




Silver has a less urgent supply situation, with a current level of between 100 and 400 days of supply remaining.

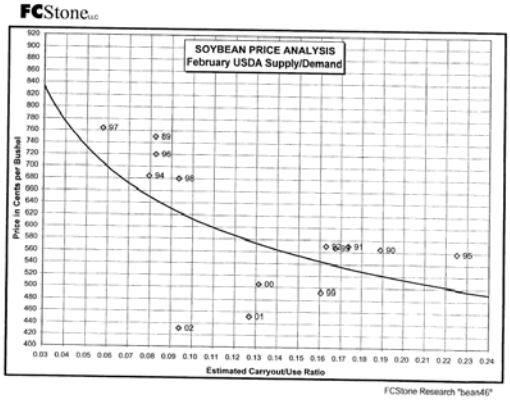
Platinum has a little less urgent supply situation, with a maximum of 1800 days remaining in 1986, and a minimum of between 400 and 700 days.

Gold, on the other hand, is out of the park: the current level of 7,019 days of supply remaining is low for gold, but still quite amazingly high for a commodity. This level is so high that almost no event in the world can substantively affect a consumer's ability to fill his or her need for metal in a physical sense. In some commodity markets, there are such tight physical constraints on supply that some hypothetical events could mean that consumers could not get the material at any price. This is simply not true in the case of gold.

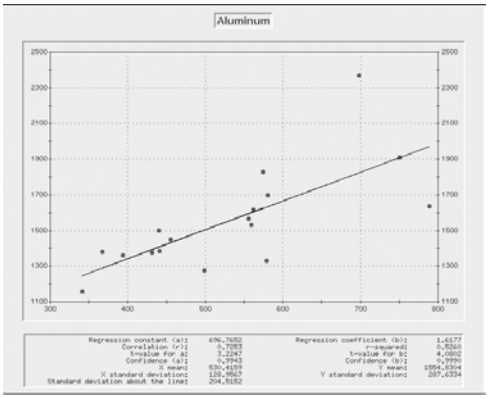
It's generally accepted in the commodities trading world that price is related to supply sufficiency. Traders in general believe that if supplies decline or demand increases prices will

rise, and that the opposite is true as well. Testing this proposition is tricky, however.

Just to show you that I'm not crazy, here is a plot from a well-known (in agricultural circles) forecaster showing the relationship between supplies of soybeans and soybean prices. As the stocks/use ratio (or carryout/use ratio) increases, the price decreases in a curvilinear fashion described by the black line on the chart.

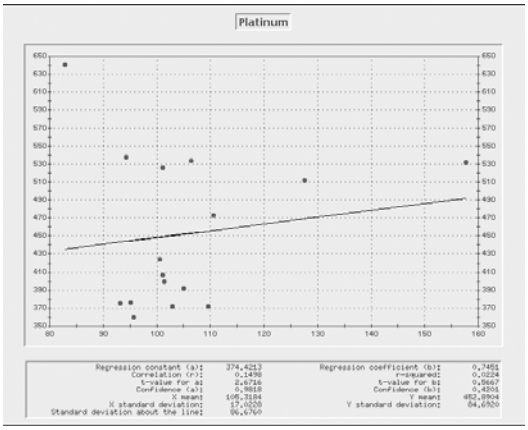



I've taken a stab at a similar analysis with our commodities. Using the statistical method of linear regression, the computer drew a line through the middle of the data. By inverting the stocks/use relationship, I've removed the need for a curved line, so the computer could more easily fit a line to the data. I want to make it clear that this will show a linear relationship between the two data series if there is one to show, but the usual caveats apply. When you attempt to replicate this regression at home, your mileage may vary.



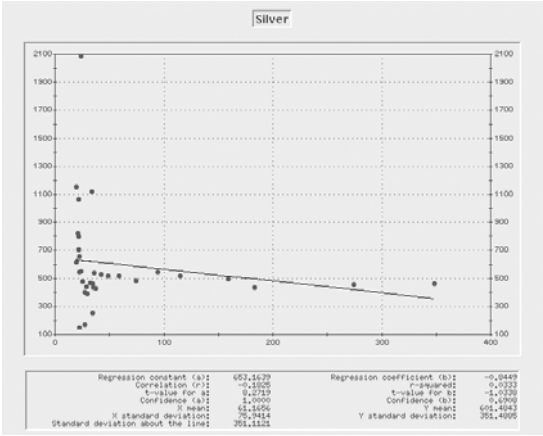

This is a solid regression featuring aluminium prices – as supply became tighter in the past, prices rose. As supply became looser, prices fell – behaviour we expect from a commodities market.

Platinum prices show a looser relationship with supply, but it's visible nonetheless.



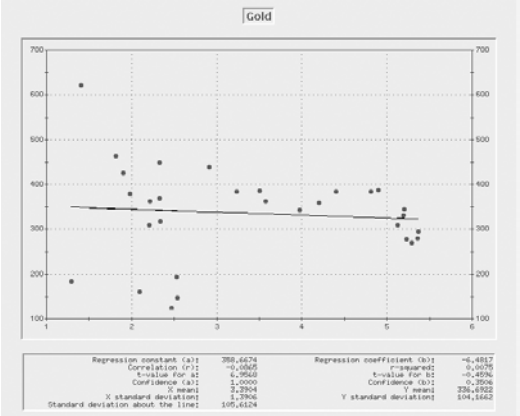

As we expect, the line slopes upward. There are more outliers and a much less significant regression line.

Silver is a mess. According to this line, as consumption grows relative to supply, prices go down.



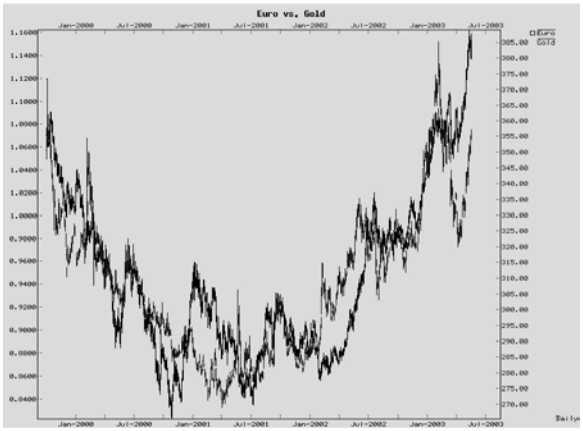

When a regression result contradicts what we know of reality, we throw it away and start over. In this simple case, the regression technique is not working for silver.

The same thing for gold: this shows no significant relationship between supply and price. I contend that the reason for this failure is that supply hasn't varied enough for the relationship to become visible. As supply draws down or consumption grows, I think you would start to see a relationship between the two, but since we have no data showing that, we can't know for sure.




The next chart of gold and the euro is where we find a strong relationship, at least from visual inspection.

I'm going to go back to something I said earlier: gold is not a commodity. My fundamental analysis framework is inappropriate for forecasting gold prices. Obsessively following mine production and demand are valuable only as a way of anticipating actions of other traders. Gold trades as a form of foreign exchange.




To summarise: silver has a commodity-like set of fundamentals, decent volatility and decent liquidity. Platinum is ruled out by severely constricted liquidity – it would take a stupendous investing opportunity to justify a foray into such an illiquid commodity. And last but not least, I don't classify gold as a commodity at all. ■