Metals Strategy: Metal Floors - Where Are They?

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While animal spirits are trending strongly into month-end, causing many to question why there's a mismatch between the data and the SPX tape (its usually always about liquidity and sentiment – the Fed and 'reopening hopes'…), precious metals have largely remained rangebound led by Gold pinned at $1700, while the fundamentally tighter base metals have tagged along with risk.

Given, the largely sideways price action in metals, we thought its worthwhile to develop a framework and thinking around price floors; are they near, breached or far away? The table below summarizes the price floors for most metals which essentially aggregates 3 estimated floors through various macro & commodity specific lenses → 1. the commodity implied price floor (model implied floor with Oil at $20), 2. a macroeconomic price floor (with global growth in recessionary levels) and 3. a fundamental price floor (cost of production floors).

Precious:

- **Golds aggregated price floor is $450 lower vs current price, at ~$1250**. While we heavily weighted the 'macroeconomic' contribution, given that its increasingly being driven more so by CB and macro financial policies (vs commodity specific influences such as physical Asian demand), prices are still trading at a 'premium' to floors. That is expected (any premium) given its inherent role of a fear/uncertainty hedge; the point is the extent of the fear premium which is outlined in the recent snapshot attached. IE: Golds macro/fear premium is currently $130 (vs other FX & real interest rates inputs), and remains cheap IF the belief is that uncertainty may reaccelerate (recent peaks were >$200, and >$400 during 2011 European debt crisis).

- **Silver and Platinum have already repriced through their aggregated price floors this year, of $16.20/oz and $800/oz;** that sets up a solid argument that they're very underpriced liquidity assets/hedges or Gold proxies. Both receive tailwinds from (expected) Gold outperformance with fundamentals firming up in in medium term (Platinum tighter supplies & substitution; Silver peak above ground surplus could be behind us).

- **Palladiums floor is a mega $1300/66% below current prices as its fundamental backdrop continues to defy most rational arguments;** that is perhaps accentuated by its by-product nature (as producers respond to all in Rand PGM basket prices, not specific palladium price floors which is overly simplified).

Precious Metal Price Floor Analysis

	Gold	Silver	Platinum	Palladium
Current Price*	$ 1,704	$ 15.1	$ 782	$ 1,965
Commodity Implied Floor** (WTI at $20)	$ 1,171	$ 9.8	$ 611	$ 1,132
Macroeconomic Implied Floor (Global Econ at recessionary levels with output gap at 6% of GDP)***	$ 1,310	$ 18.8	$ 1,391	$ 756
Fundamental Floor (cost of production)****	$ 1,024	$ 10.4	$ 800	$ 433
Weighting				
Commodity Implied Floor	20%	20%	30%	30%
Macroeconomic Implied Floor	70%	70%	10%	10%
Fundamental Floor	10%	10%	60%	60%
All In Price Floor	**$ 1,253**	**$ 16.2**	**$ 802**	**$ 675**
Percentage Difference From Current Price				
Commodity Implied Floor	-31%	-35%	-22%	-42%
Macroeconomic Implied Floor	-23%	25%	78%	-62%
Fundamental Floor	-40%	-31%	2%	-78%
All In Price Floor	-26%	7%	3%	-66%

Source: Scotiabank Commodity (Metals) Strategy, Bloomberg, World Bank

Note:

*** Current prices as of April 30 2020**

**** Single variate Robust OLS model** regressing oil prices on all metals over the past 10 years (see previous simulation table/note). Commodity implied price is estimated with WTI trading at $20.

*****Multivariate Robust OLS model regressing Scotiabanks variable of the global weighted output gap and US 10 year yields on all metals over the past 26 years.** Scotiabanks global weighted output gap variable captures the amount of spare/excess capacity in US, China, Japan, Eurozone, UK, Canada and ROW weighted as a share of world GDP. The model assumes all global economies experience an output gap of 6% of real GDP and that US 10 year yields, proxy for global interest rates, are at 0.8%.

****** Fundamental cash costs are VERY rough proxies but each cash cost is represented as follows:**
See Tanya Jakusconeks Full Report on Golds average AISC (including sustaining capital); Silver is the cash cost for only primary Silver producers (Silver Institute)

PGM cost curve is the 6E AISC curve of global producers, currently estimated at R26,0000/ PGM oz, and assuming ZARat 18 per USD, with 55%/30% PT/PD split

Base:

- **Coppers aggregate price floor is $4770**, after attributing a relatively higher macro weighting (Dr Copper). Current prices have already pierced through both the macro implied floor (of $5100) and the fundamental/cost of production floor ($4900) while remaining a good 24% / ~1300 above where the oil implied price floors (sub $4000). That has not gone unnoticed, with plenty of enquiries around why Copper hasn't fallen as much as crude – i.e.: well through cost of production floors and into distressed territory; a few reasons to close that loop:

    - Copper entered 2020 with relatively tighter fundamental balances vs oil (Cu deficits were expected for 2020 for the first time in several years, vs surpluses for crude which is evident in diverging inventory trends – Copper inventories near cyclical lows, while crude inventories are growing to cyclical highs inducing storage & capacity issues)
    - Crude demand takes a relatively larger hit due to diminished air travel and impact on transportation (vs Copper & other base metals where transportation is smaller share of global demand)
    - Supply in Cu has responded to COVID-19 (2% of annual supply is offline due in Latam countries), whereas Oil was relying on (OPEC) intervention to balance the market (over actual production cuts/producer discipline).
    - Logistically, there aren't major storage constraints in copper (vs oil), and the supply-response in Copper (closing mines) is much faster than temporarily shutting a well

- Overall, Copper has found and respected its fundamental floors and probably has the best longer-term profile of the 'metals lot'; 2020 may be another frustrating year for bulls, but the interesting medium-term supply picture (largescale underinvestment during the bear market years, grade declines etc) is being brought forward as producers recently announce cuts to capex (eg: Glencore cut 2020 Capex by $1.5bn, KAZ Minerals cuts capex/delays Cu expansion project etc), adding bullish tailwinds to the "reawakening" story

Base Metal Price Floor Analysis

	Copper		Zinc		Aluminum		Nickel	
Current Price*	**$**	**5,208**	**$**	**1,945**	**$**	**1,493**	**$**	**12,260**
Commodity Implied Floor** (WTI at $20)	$	3,938	$	2,546	$	1,548	$	6,129
Macroeconomic Implied Floor (Global Econ at recessionary levels with output gap at 6% of GDP)***	$	5,103	$	1,764	$	1,609	$	12,305
Fundamental Floor (cost of production)****	$	4,900	$	1,784	$	1,360	$	5,335
Weighting								
Commodity Implied Floor		20%		20%		40%		40%
Macroeconomic Implied Floor		30%		10%		10%		10%
Fundamental Floor		50%		70%		50%		50%
All In Price Floor	**$**	**4,769**	**$**	**1,934**	**$**	**1,460**	**$**	**6,350**
Dollar Difference From Current Price								
Commodity Implied Floor	-$	1,270	$	601	$	55	-$	6,131
Macroeconomic Implied Floor	-$	104	-$	181	$	116	$	45
Fundamental Floor	-$	308	-$	161	-$	133	-$	6,925
All In Price Floor	-$	439	-$	11	-$	33	-$	5,910
Percentage Difference From Current Price								
Commodity Implied Floor		-24%		31%		4%		-50%
Macroeconomic Implied Floor		-2%		-9%		8%		0%
Fundamental Floor		-6%		-8%		-9%		-56%
All In Price Floor		-8%		-1%		-2%		-48%

Source: Scotiabank Commodity (Metals) Strategy, Bloomberg, World Bank

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****** Fundamental cash costs are VERY rough proxies but each cash cost is represented as follows:**

See Orest Wowkodow Full Report on Copper 90th percentile cash cost (plus sustaining capex),
Nickel is the 80th percentile on a C1 composite cost curve, Zinc is the 80th percentile c1 composite cost (Woodman Mackenzie),
Current Ali profitability is still largely OK given energy repricing and poses a downside risks; cost curve estimated at RMB11,000 (level in which Chinese closures will accelerate), or $1360 (ex-China smelter closures) - CRU

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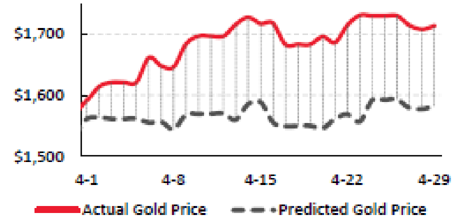
Commodity (Metals) Strategy

Gold Fear Premium Daily Report

April 29, 2020

Regression Results			Current Prices	
Intercept	$	2,223	Gold Price	$ 1,710.17
US10Real	$	(229)	US10Real	(0.51)
DXY	$	58	DXY	99.63
USDJPY	$	(15)	USDJPY	$ 106.82
USDEUR	$	(4,867)	USDEUR	$ 0.92
USDGBP	$	(490)	USDGBP	$ 0.80
R Squared		83.80%		

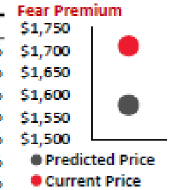
Actual vs Predicted Gold Price



Source: Scotiabank Commodity Strategy (Metals), Bloomberg

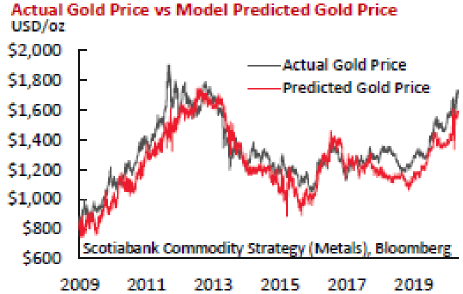
Predicted Prices & Premium		Variable Share of Predicted Gold Price		
Gold Price	$ 1,577.96	Intercept	$ 2,223.25	140.89%
Fear Premium	$ 132.21	US10Real	$ 116.68	7.39%
		DXY	$ 5,768.96	365.60%
		USDJPY	$ (1,653.95)	-104.82%
		USDEUR	$ (4,482.93)	-284.10%
		USDGBP	$ (394.05)	-24.97%
		Predicted Gold Price	$ 1,577.96	100.00%

Fear Premium



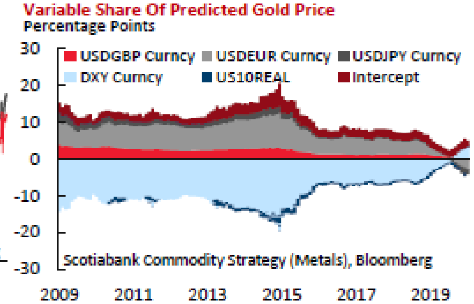
Actual Gold Price vs Model Predicted Gold Price

USD/oz



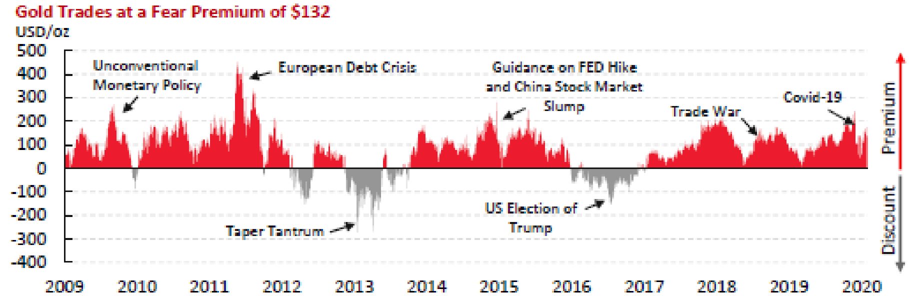
Variable Share Of Predicted Gold Price

Percentage Points



Gold Trades at a Fear Premium of $132

USD/oz

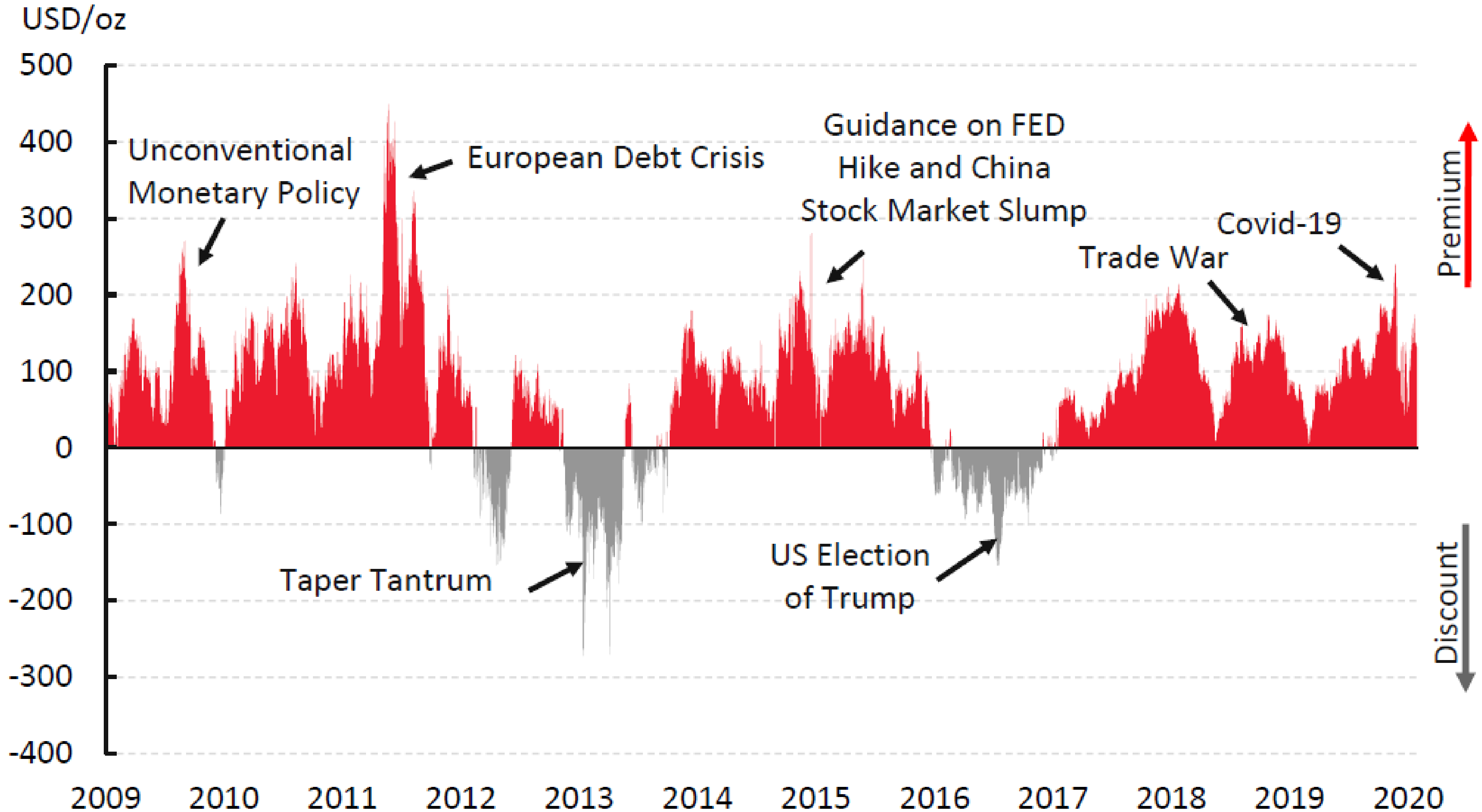


Source: Scotiabank Commodity Strategy (Metals) Calculations, Bloomberg

Note: Note: Premium/discount is estimated using a multi variate OLS robust regression model with a 10-year rolling window approach. Our features include the DXY, USDJPY, USDEUR, USDGBP, and the US 10-year real yield derived off the US 10-year treasury and 10-year breakeven. Our model explains 95% of the variation in gold since 1999. A positive (negative) number indicates Gold is trading at premium (discount) versus where our current endogenous variables are indicating.

Scotiabank Commodity (Metals) Strategy | Prices as of 29-04-2020

Gold Trades at a Fear Premium of $132



Source: Scotiabank Commodity Strategy (Metals) Calculations, Bloomberg
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