Investment Update
It may be time to replace bonds with gold

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Central banks have shifted to a new regime of easy monetary policy, thus reducing expected bond returns. As negative yielding debt increases alongside stock-to-yield valuations[1] to all-time highs, gold may become an attractive and more effective diversifier than bonds, justifying a higher portfolio allocation than historical performance suggests.

Re-optimising portfolio structures for lower future expected bond returns[2] suggests investors should consider an additional 1%-1.5% gold exposure in diversified portfolios.

High risks and low rates

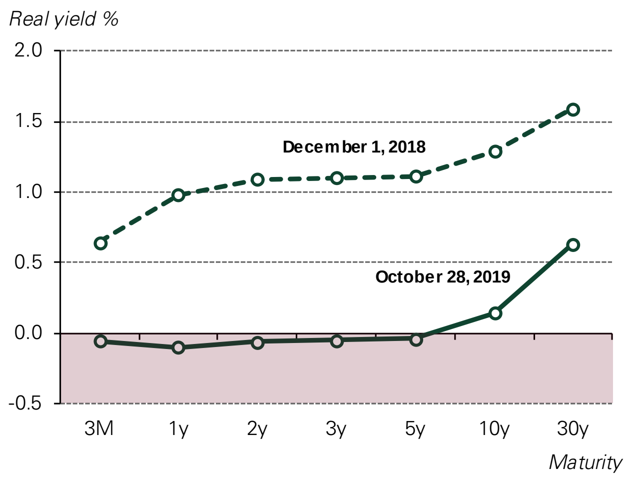
Investors are facing:

- an environment with flat to inverted yield curves (**Chart 1**) – often a signal of an impending recession;
- stock valuations at extreme levels, particularly when compared to the level of interest rates **(Chart 2)**, that has historically preceded meaningful stock sell-offs; and
- an increasing set of geopolitical concerns, including trade tensions, Brexit and Middle East turmoil. Within this context we believe that there are clear indicators for higher levels of safe-haven assets like gold.

But portfolio allocation should not be limited to safe-haven concerns, as expected future returns from extremely low or negative yielding bonds (**Chart 3**) could weigh on the overall performance as well. Our research suggests that lower expected bond returns favour additional gold exposure in well diversified portfolios. As bond yields fall, diversifiers with higher potential returns, like hedge funds, real estate and private equity, carry heavier weights in optimised portfolios. Our analysis also suggests that the historically higher volatility that accompanies these alternative investments, versus other assets such as stocks and bonds,[3] warrants increasing allocations of gold to serve as a ballast in the event of a stock market pullback.

Chart 1: The Treasury yield curve has flattened and even inverted for some tenors

US Treasury real yield curve.*



*Comparison of various tenors of Treasury real yields (defined as corresponding yield minus y-o-y US CPI) between 1 December 2018 and 28 October 2019.

Source: Bloomberg, World Gold Council

Chart 2: Stock P/E valuations are at record highs relative to interest rates

*As of 28 October 2019. Shiller's Cyclical Adjusted Price-to-Earnings (CAPE) ratio is a measure of relative valuation. Ratio relative to the constant maturity 10y Treasury yield.

Source: Robert Schiller, Federal Reserve, World Gold Council

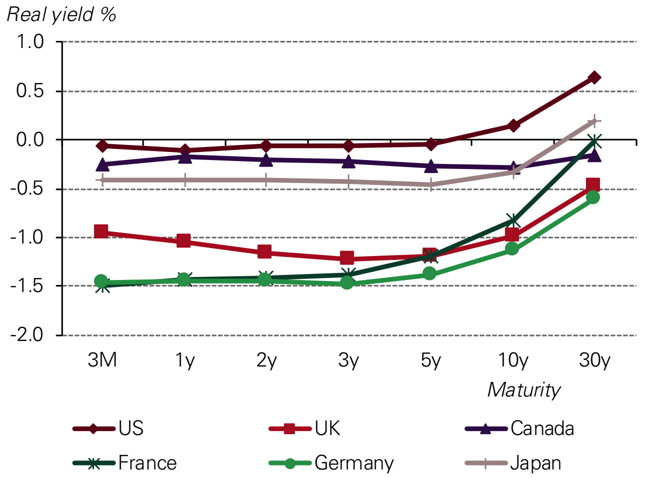
1 Stock to yield valuations are the relationship between Shiller's Cyclical Adjusted Price-to-Earnings (CAPE) ratio relative to the constant maturity 10-year Treasury yield.

2 See **Chart 7** on page 3.

3 *The role of Alternative Investments in a Diversified Portfolio*, Baird Private Wealth Management, April 2013.

Chart 3: Virtually all developed market (DM) sovereign debt is trading at negative real yields

Select DM Treasury real yield curves*

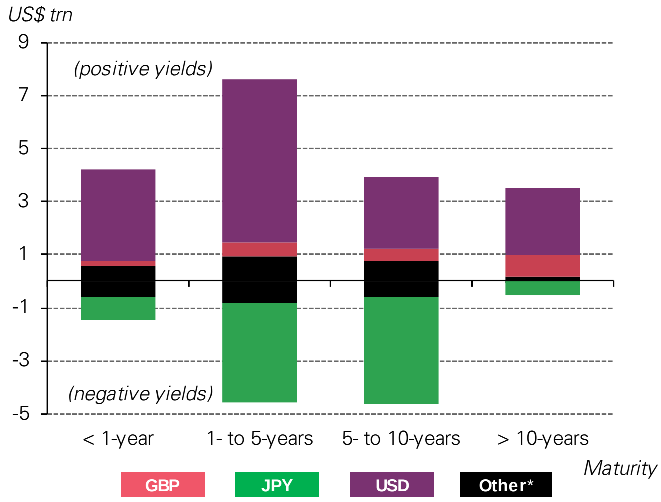


*As of 28 October 2019. Based on current yields for various maturities adjusted for inflation rates based on y-o-y changes of each respective country CPI.

Source: Bloomberg, World Gold Council

Chart 4: 26% of nominal debt is negative

Sovereign debt outstanding*



* As of 28 October 2019. Bars below zero represent amount of negative yielding debt, while bars above zero represent positive yielding debt. Includes investment grade sovereign debt from Euro area, Japan, the UK and the US. Real yields computed as nominal yield minus the most recently available y-o-y CPI inflation rate for each respective country. Totals may not equal 100% due to rounding. "Other" includes sovereign debt from Australia, Canada, Denmark, Sweden and Switzerland.

Source: Bloomberg, World Gold Council

Low opportunity cost makes gold attractive

One of the key drivers of gold, especially in the short and medium term, is the opportunity cost of holding it.[4] Unlike bonds, gold does not pay interest or dividends because it does not have credit risk. This lack of yield can deter investors. But in an environment where 26% of developed market sovereign debt is trading with negative nominal rates (**Chart 4**) and, once adjusted for inflation, a whopping 82% trades with negative real rates,[5] the opportunity cost of gold almost goes away, even providing what can be seen as a positive "cost of carry" relative to sovereign bonds.

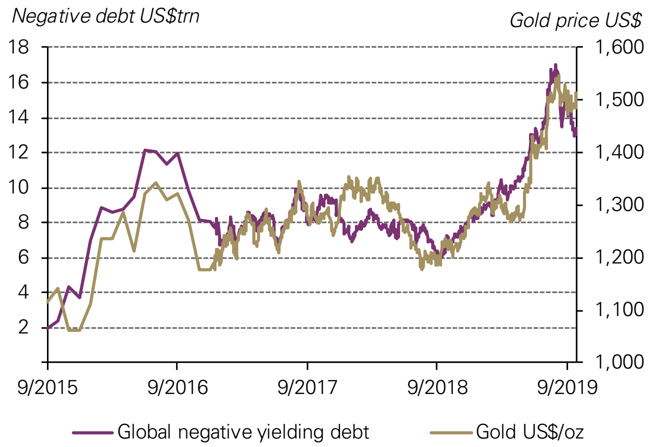
Gold prices have responded to the surge in negative real-yielding debt, as evidenced by the strong positive correlation between the amount of debt and price of gold over the past four years (**Chart 5**). To some degree, this illustrates the erosion of confidence in fiat currencies related to monetary intervention.

A race to zero

Countries around the world are arguably trying to competitively devalue their currency, most notably through loose monetary policy. The global currency depreciation is reflected in the performance of the price of gold in those currencies. While the price of gold in US dollars and Swiss francs is still some way from all-time highs, the price of gold in all other major G-10 currencies is at or near all-time highs.[6]

Chart 5: Global negative yielding debt vs gold prices

Gold prices have closely tracked total global negative yielding debt over the past five years.



Monthly numbers since September 2015. Negative yielding debt numbers based on Bloomberg Barclays Global Aggregate Negative Yielding Debt Market Level.

Source: Bloomberg, World Gold Council (as of 28 October 2019)

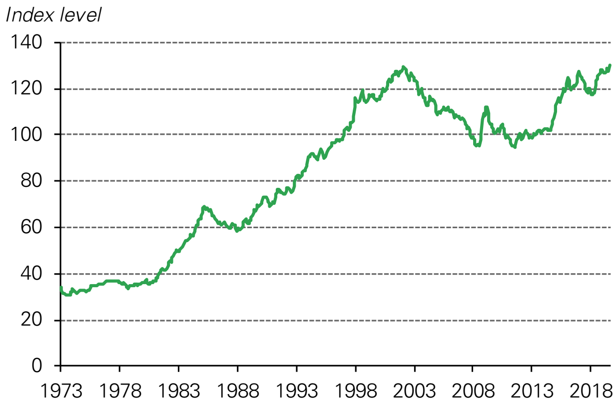
4 See *Mid-year outlook 2019: Heightened risk meets easy money*, July 2019.

5 As of 29 October 2019, almost all of the non-negative developed market debt in real terms is from the US, as most other non-US developed market real yield curves fall below zero (see **Chart 3** and **Chart 4**).

6 G-10 currencies are defined as British pound, Canadian dollar, Euro, Japanese yen, Swedish krona, Swiss franc, US dollar.

Chart 6: Traded at an all-time high recently

Trade weighted US dollar index*



*As of 28 October 2019. Index corresponds to a weighted average of the foreign exchange value of the US dollar against a subset of the broad index currencies that circulate widely outside the country of issue. These include the euro, British pound, Canadian dollar, Japanese yen, Swiss franc, Australian dollar, and Swedish krona. Index Jan 1997 = 100. For more information see Federal Reserve Economic Data (FRED).

Source: Bloomberg, FRED, World Gold Council

Not only has gold provided purchasing power to gold investors within those countries, but it has put the US at a significant disadvantage from a trade perspective, as the US trade-weighted index is at all-time highs signalling a stronger US dollar (**Chart 6**). US leaders have responded by calling for sharp reductions in rates, behaviour that could be repeated elsewhere globally. Simply put, there is evidence that suggest there is a 'race to zero, or negative' for interest rates, which should help support the price of gold.

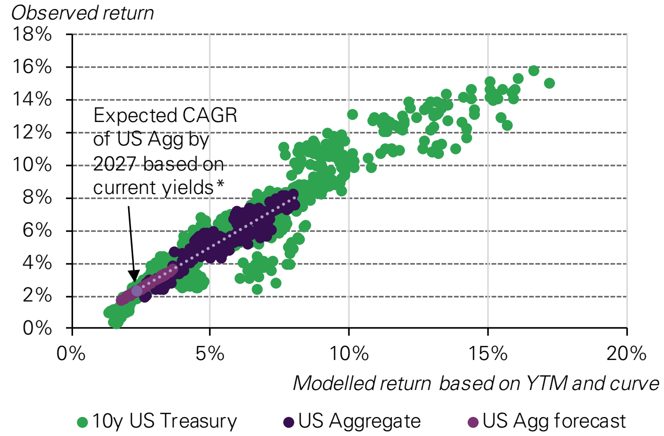
Portfolio risk is rising yet bonds may underperform

The low rate environment has also pushed investors to increase the level of risk in their portfolios, either by buying longer term bonds, lower-quality riskier bonds, or simply replacing them with riskier assets, like stocks or alternative investments.

In addition, we do not believe investors will achieve the same bond returns they have seen over the past few decades. Our analysis suggests that current bond yields and the shape of the curve are good predictors of future returns.[7] And based on this, historical data indicates that investors may see an average compounded annual return of approx. 2.3% (±0.6%) between now and 2027 for the Bloomberg Barclays US Aggregate Index (**Chart 7**).

For pension funds, this may be particularly tricky, as underfunded liabilities have increased yet many are still required to deliver annual returns between 7% and 9%.

Chart 7: Current yields and the steepness of the bond curve are good indicators of future returns*



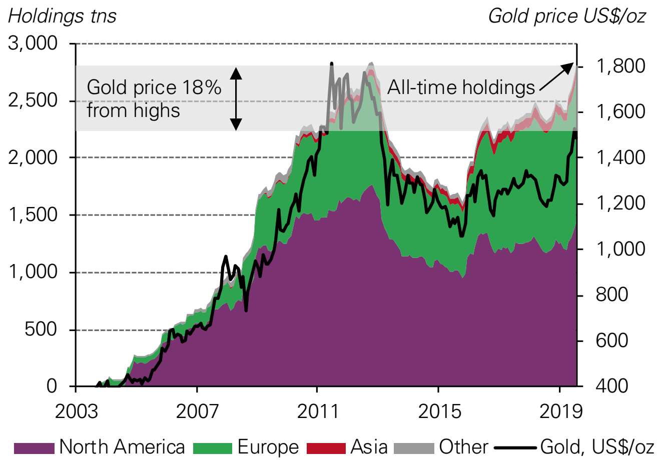
*10-year US Treasury data from January 1920 to September 2019; Bloomberg Barclays US Aggregate (US Agg) data from January 1992 and September 2019 due to availability. Expected hypothetical returns are based on a log-linear regression using monthly data for the US Agg. The explanatory variables are yield to maturity (YTM) of the US Agg and the steepness of curve (based on the difference in yields between the 7-10 year and 1-3 year US Agg sub-indices), while the response variable is the observed compounded return *n* years forward, where *n* represents the maturity of the US Agg corresponding to the explanatory YTM. The model's R-squared is 91% and has a std error of ~0.23%.

Source: Barclays Capital, Bloomberg, Federal Reserve, World Gold Council

Investors are adding gold to their portfolios

Central banks bought the most gold in history in 2018, with continued robust purchases y-t-d in 2019. And gold-backed ETF holdings have reached all-time highs in September (**Chart 8**) as investors respond to the high-risk, low rate environment.

Chart 8: Gold-backed ETF holdings reached new highs*



*Global holdings of gold-backed ETFs as of 30 September. For more information see ETF flows on Goldhub.com.

Source: Bloomberg, World Gold Council

7 Our research shows that the current yield of a 10-year high quality bond, in conjunction with the steepness of the bond curve, can predict with 95% accuracy the total return of that bond 10 years forward.

Gold excels when rates fall

A lower rate environment may make gold more effective than bonds in mitigating stock-market risk, providing portfolio diversification and helping investors achieve their long-term investment objectives.

Bonds usually make up a significant proportion of portfolios, and while it may not be feasible for investors to fully replace all bond exposure with gold, the environment warrants consideration of augmenting gold holdings.

Gold has historically performed well in the year following a shift in Federal Reserve policy from tightening to "on-hold" or "easing" – the environment in which we currently find ourselves.[8]

In addition, when real rates have been negative, gold has historically returned twice as much annually as the long-term average, or 15.3% **(Table 1)**. Even low positive real rates produce higher average returns. Effectively, it has only been during periods of significantly higher real interest rates – an unlikely outcome given the current market conditions – that gold returns have been negative.

Table 1: Gold performance nearly doubles in periods of negative interest rates

Gold performance in various real rate environments*

	Long Term	Low (<0%)	Moderate (0%-2.5%)	High (>2.5%)
Monthly Return	0.6%	1.2%	1.0%	0.3%
Yearly Returns	7.9%	15.3%	12.9%	-3.9%
Standard Error	0.2%	0.4%	0.4%	0.3%
Different from 0?	Yes	Yes	Yes	No

*Based on nominal gold returns between January 1971 and September 2019. Real rate regimes based on the 12-month constant maturity US T-bill minus the corresponding y-o-y CPI inflation. Difference from zero computed as a two-way T test at a 5% significance level.

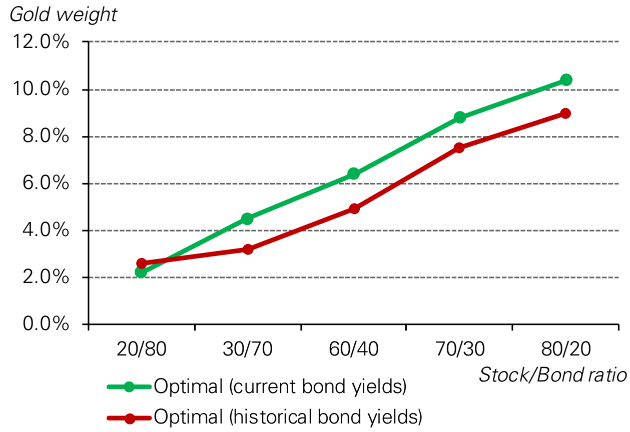
Source: Bureau of Labour Statistics, Federal Reserve, ICE Benchmark Administration, World Gold Council

Gold allocations should be higher when yields are low

An analysis based on historical returns for major asset classes suggests a 2%-10% optimal gold allocation for portfolios with various asset compositions, increasing as riskier assets are added.[9,10] *But when we include lower expected returns for bonds based on the results from our model, we find that across most portfolios the optimal gold allocation increases by an additional 1%-1.5%* (**Chart 9**). And for a hypothetical average pension fund portfolio, the optimal allocation with the maximum risk-adjusted return increases from 4.2% to 6.6% (**Chart 10**).

Chart 9: Portfolio optimisation using lower expected bond returns suggests a higher allocation to gold

Optimal gold weight comparing historical returns to lower expected bond returns*

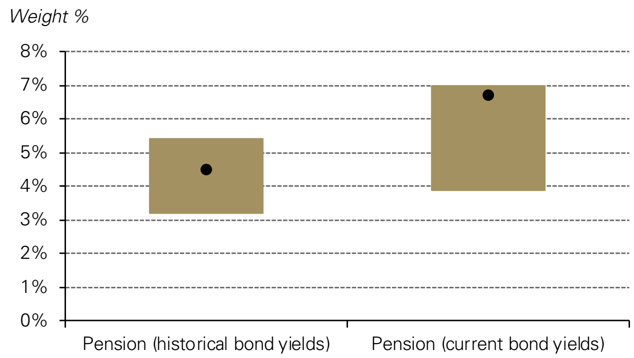


*Portfolio optimisation as described in *The relevance of gold as a strategic asset*, March 2019. Each hypothetical portfolio composition reflects a percentage in stock and alternative assets relative to cash and bonds. For example, 60/40 is a portfolio with 60% in stocks, commodities, REITs and gold, and 40% in cash and bonds. Analysis based on *New Frontier Advisors Resampled Efficiency*.

Source: Bloomberg, World Gold Council

Chart 10: For a hypothetical pension fund portfolio, the optimal gold allocation increased by more than 2%

Optimal gold weight under different expected bond returns



*The composition of the hypothetical average PF portfolio is based on Willis Tower Watson Global Pension Assets Study 2018 and Global Alternatives Survey 2017. Initially, it included a 30% allocation to the Russell 3000, 20% MSCI ACWI ex US, 22% Bloomberg Barclays US Aggregate, 1% Bloomberg Barclays Global Aggregate ex US, 1% JPMorgan EM Global Bond Index and 2% short-term Treasuries, 9% FTSE REITs Index, 7% HFRI Hedge Fund Index, 7% S&P Private Equity Index and 2% Bloomberg Commodity Index.

Source: Bloomberg, World Gold Council

8 *Investment Update: The impact of monetary policy on gold*, March 2019.

9 *The relevance of* gold as a strategic asset, March 2019.

10 Traditional portfolio is defined as a stock/bond mix of 20/80 to 80/20, with alternatives and gold grouped into the 'stock bucket.'

About the World Gold Council

The World Gold Council is the market development organisation for the gold industry. Our purpose is to stimulate and sustain demand for gold, provide industry leadership, and be the global authority on the gold market.

We develop gold-backed solutions, services and products, based on authoritative market insight, and we work with a range of partners to put our ideas into action. As a result, we create structural shifts in demand for gold across key market sectors. We provide insights into the international gold markets, helping people to understand the wealth preservation qualities of gold and its role in meeting the social and environmental needs of society.

Based in the UK, with operations in India, the Far East and the US, the World Gold Council is an association whose members comprise the world's leading gold mining companies.

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