



The Case for Gold **Yield** in Investment Portfolios



EXECUTIVE SUMMARY: *A small allocation of gold to a diversified portfolio has a positive impact, reducing volatility and increasing returns. A yield on gold amplifies those benefits by removing the storage and insurance costs of conventional gold holdings, and paying income on the gold which compounds over time.*

INTRODUCTION | RISK ADJUSTED RETURNS IN PORTFOLIO MANAGEMENT

Capital allocators constantly face a tension between two competing objectives: increasing returns and decreasing investment risk. Often risk is considered the price one must pay for achieving a given investment return. Investors seek to “pay” as little risk for as much return as possible. This encapsulates the idea of *risk-adjusted return*. Risk is a broad concept, and can be difficult to define or quantify. In this paper, we assume price volatility as a measure of risk. If one can decrease volatility across the portfolio, without sacrificing returns, then the portfolio will offer better risk-adjusted returns.

GOLD AND RISK ADJUSTED RETURNS

Modern Portfolio Theory states that a diversified portfolio of assets with low correlations to one another helps to decrease risk in a portfolio without sacrificing returns.¹ By itself, gold is more volatile than other assets like stocks or bonds.² However, due to its low correlation to other assets,³ gold can be beneficial to the overall performance of a portfolio when deployed in a diversifying role. A growing body of research with contributions from firms including Bridgewater Associates,⁴ Goldman Sachs,⁵ Price Waterhouse Coopers,⁶ CPM Group,⁷ and Oxford Economics⁸ have documented the same or similar conclusions.⁹

“We like the fact that more often than not...gold is willing to zig when the rest of the portfolio zags. And for us trying to deliver a positive absolute return as long-only investors who cannot short, it’s a wonderful tool to have.”

Charles de Vault, Chief Investment Officer, International Value Advisors LLC



Charles de Vault in Bloomberg Studio, photo courtesy of Zimbio

A MORE REALISTIC REPRESENTATION OF GOLD IN A PORTFOLIO

While the existing research suggests that gold has a role to play in an investment portfolio, it often fails to account for the cost of carry of conventional gold investments.

Unlike stocks, which may pay a dividend, or bonds which pay interest, gold does not pay anything. In fact, one must pay to own it. This ongoing cost of ownership could be conceived of as a negative yield and must be factored into the total returns of the portfolio. This is true for nearly all methods of owning gold, some of which incur costs as high as 2% annually or more.¹⁰

Of course, it's not as simple as just cost. There are other factors to consider. Managers should be aware that not all gold investments are created equal. For further analysis on the risks and benefits of different methods of owning gold, please see the companion paper [The New Way to Hold Gold](#).

PROPOSITION | GOLD YIELD IMPROVES PERFORMANCE

Monetary Metals' brand promise is A Yield on Gold, Paid in Gold®. A yield on gold improves the performance of a typical gold-holding portfolio, by avoiding the costs of gold ownership—and adding a positive yield.

In this paper, the gold yield in the portfolios will come from gold bonds. These are bonds that are denominated in gold, and pay principal and interest in gold. Gold bonds have no storage cost. For the purposes of this paper, the gold bonds will have a fixed interest rate of 3.5% per annum, and will pay coupons on a semi-annual basis.

METHODOLOGY

This paper is organized in three sections. First, the existing research around the benefits of incorporating gold into a diversified portfolio will be reproduced through a series of model portfolios. Second, the models will adjust for the carry cost of gold. Finally, gold bonds with yield will replace the gold portions of the portfolios. The addition of gold bonds to the portfolio will dramatically improve returns.

There will be four different model portfolios: Traditional, Conservative, Aggressive, and Diversified Aggressive. The name of each portfolio refers to the size of the gold allocation¹¹ in that portfolio. Please refer to Figure 1 on the next page for the asset composition of each of these portfolios. In each section of this paper, a different set of returns for the gold portion of each portfolio will be reported. For section one, it's the raw LBMA PM Fix price data. In section two, a 50bps fee to account for the real-world costs of storage and insurance is added to the LBMA PM Fix price returns. In section three, gold bonds yielding a fixed interest rate of 3.5% per annum replaces the previous gold allocations in the portfolio.

The portfolios are simulated from January 1972 to August 2022 and calculate several key metrics including price performance, CAGR (Compound Annual Growth Rate), standard deviation, maximum drawdown, and Sharpe and Sortino ratios.¹² Table 1 provides an example and contains the historical results for each standalone asset class.

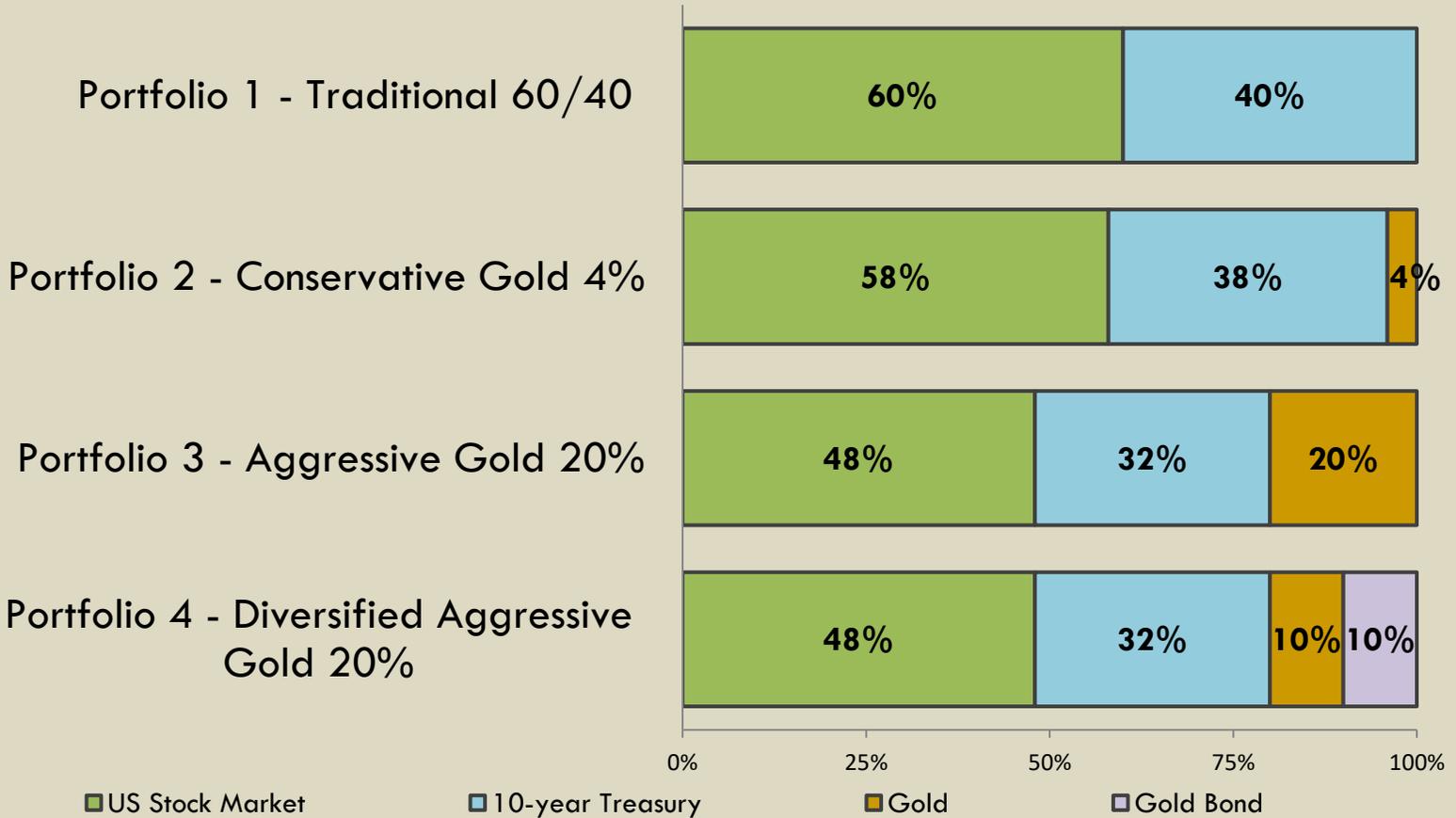
Table 1 - Key Metrics for Each Asset Class

| Asset Class | CAGR | StDev | Best Year | Worst Year | Max DD | Sharpe Ratio | Sortino Ratio | US Market Correlation |
|------------------|-------|--------|-----------|------------|--------|--------------|---------------|-----------------------|
| S&P 500 | 7.58% | 15.12% | 35.2% | -40.1% | -52.6% | 0.244 | 0.337 | 1.000 |
| 10 Year Treasury | 6.62% | 9.48% | 62.6% | -11.9% | -28.8% | 0.228 | 0.361 | 0.012 |
| Gold | 7.58% | 20.36% | 126.5% | -32.6% | -62.7% | 0.216 | 0.391 | -0.012 |

The first portfolio is the “Traditional Portfolio” with an allocation of 60% equities and 40% bonds. It is representative of a conventional investment portfolio without any gold investment. The next portfolio adds gold and is called the “Conservative Portfolio.” Although there is no “one-size-fits-all” answer to the question of asset allocation in portfolio construction,¹³ typical recommended allocations for gold range from 2-10%.¹⁴ The Conservative model portfolio contains a 4% gold allocation and represents this more mainstream view.¹⁵ However, there are statistical studies which show gold produces the greatest benefit at around a 20-25%¹⁶

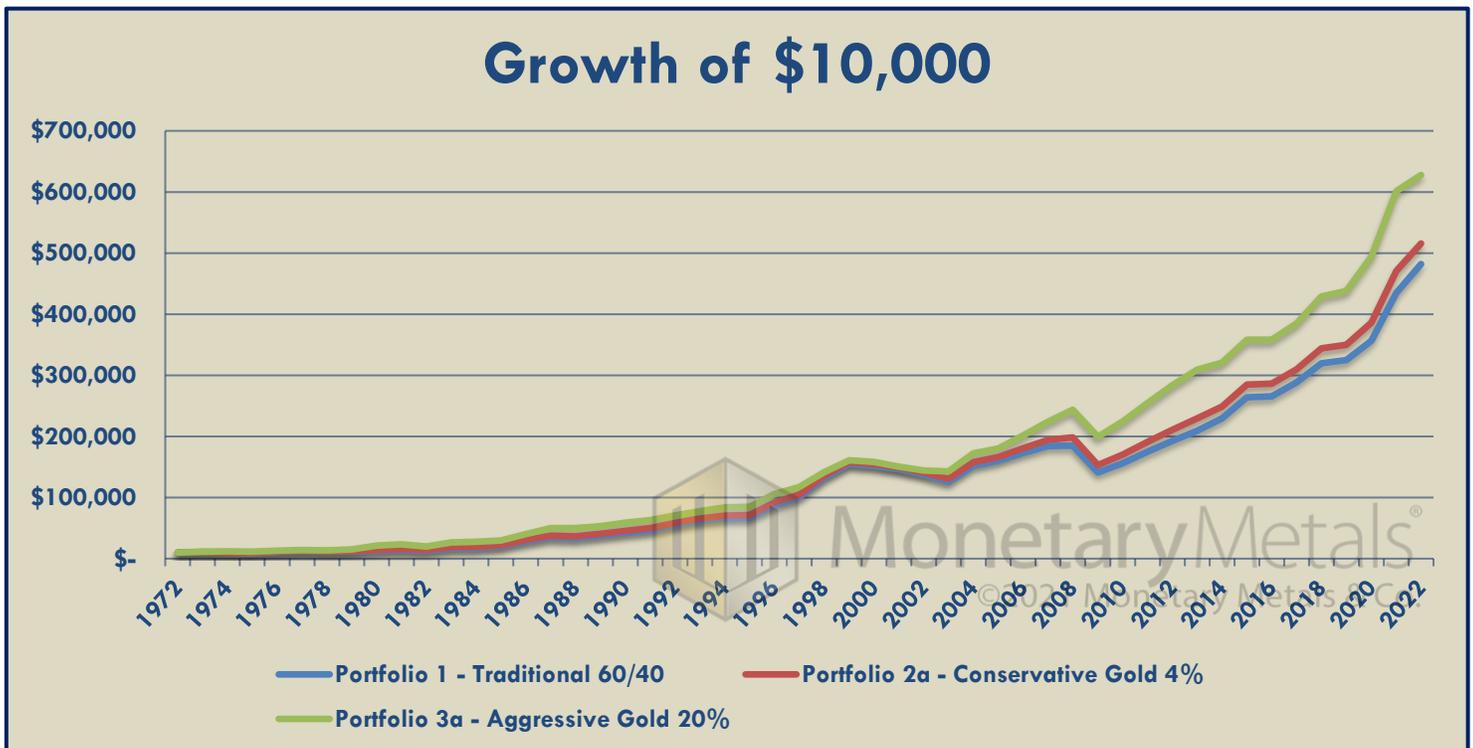
allocation. The “Aggressive Portfolio” captures this significantly higher recommendation with a 20% gold allocation. Finally, a fourth “Diversified Aggressive Portfolio” is added. It has a 20% gold allocation split evenly between conventional gold and gold bonds.

Figure 1: Asset Composition of Model Portfolios



ONE | REPRODUCING THE CURRENT RESEARCH ON GOLD

Figure 2 is a simplified reproduction of the research supporting gold’s role in reducing risk without sacrificing returns. Returns are improved in the Conservative 4% allocation to gold portfolio and the Aggressive 20% allocation to gold compared to the Traditional 60/40 portfolio.

Figure 2 – The Impact of Adding Gold to a Diversified Portfolio

- Adding gold, even at a modest 4%, improved the performance of the portfolio while reducing volatility (standard deviation and maximum drawdown).
- The Conservative portfolio outperformed the traditional portfolio by \$30,608, with lower risk.
- The Aggressive portfolio achieved the highest value in this test, the best CAGR, and the best volatility metrics. It also was the most diversified of the three portfolios.

Table 2 - Key Metrics of Model Portfolios with Gold

| Portfolio | Ending Value | CAGR | StDev | Best Year | Worst Year | Max DD | Sharpe | Sortino | Market Correlation |
|-------------------------------------|--------------|-------|-------|-----------|------------|--------|--------|---------|--------------------|
| Portfolio 1 - Traditional 60/40 | \$ 415,745 | 7.63% | 9.80% | 33.9% | -17.4% | -29.8% | 0.322 | 0.477 | 0.918 |
| Portfolio 2a - Conservative 4% Gold | \$ 446,353 | 7.79% | 9.40% | 33.1% | -16.6% | -24.9% | 0.346 | 0.508 | 0.915 |
| Portfolio 3a - Aggressive 20% Gold | \$ 551,160 | 8.23% | 8.82% | 30.1% | -13.1% | -19.4% | 0.408 | 0.599 | 0.803 |

While this data shows the benefits of adding gold it does not paint the entire picture. This first data series used the raw price of gold, i.e. gold with zero yield. This is unrealistic as all conventional gold vehicles have a carry cost. In section two, the true costs of owning gold are incorporated and the corresponding effect on portfolio performance is measured.

TWO | THE COSTS OF CONVENTIONAL GOLD IN A DIVERSIFIED PORTFOLIO

Allocated physical gold was the vehicle chosen to model the real-world costs of owning gold in the portfolios. Allocated gold is physical metal that is stored and insured in a depository. The costs of storage and insurance will vary depending on the account and the depository. 50bps is a representative cost for allocated gold. For larger institutional accounts the rate will likely be lower. For smaller individual retail accounts, it will likely be higher. Table 3 shows the results of accounting for the real-world cost of owning gold in the model portfolios.

Table 3 - Comparing the Realistic Costs of Owning Gold

| Portfolio | Final Value | CAGR | StDev | Best Year | Worst Year | Max DD | Sharpe | Sortino | Correlation Market |
|--|-------------------|--------------|-------|-----------|------------|--------|--------|---------|--------------------|
| Portfolio 2a - Conservative Gold at 4% | \$ 446,353 | 7.79% | 9.40% | 33.1% | -16.6% | -24.9% | 0.346 | 0.508 | 0.915 |
| Portfolio 2b - Conservative Gold at 4% with vault cost | \$ 441,735 | 7.76% | 9.40% | 33.1% | -16.6% | -24.9% | 0.343 | 0.504 | 0.915 |
| Portfolio 3a - Aggressive Gold at 20% | \$ 551,160 | 8.23% | 8.82% | 30.1% | -13.1% | -19.4% | 0.408 | 0.599 | 0.803 |
| Portfolio 3b - Aggressive Gold at 20% with vault cost | \$ 523,653 | 8.13% | 8.82% | 30.0% | -13.2% | -19.5% | 0.396 | 0.581 | 0.804 |

- Note the lower end values and lower compound annual growth rates when the vault cost is added.
- The end balance of the Conservative Portfolio is 1.03% lower than its zero-yield gold counterpart.
- The effect of this negative yield is amplified in the Aggressive Portfolio, which underperformed a marked 4.99% to its zero-yield counterpart.¹⁷

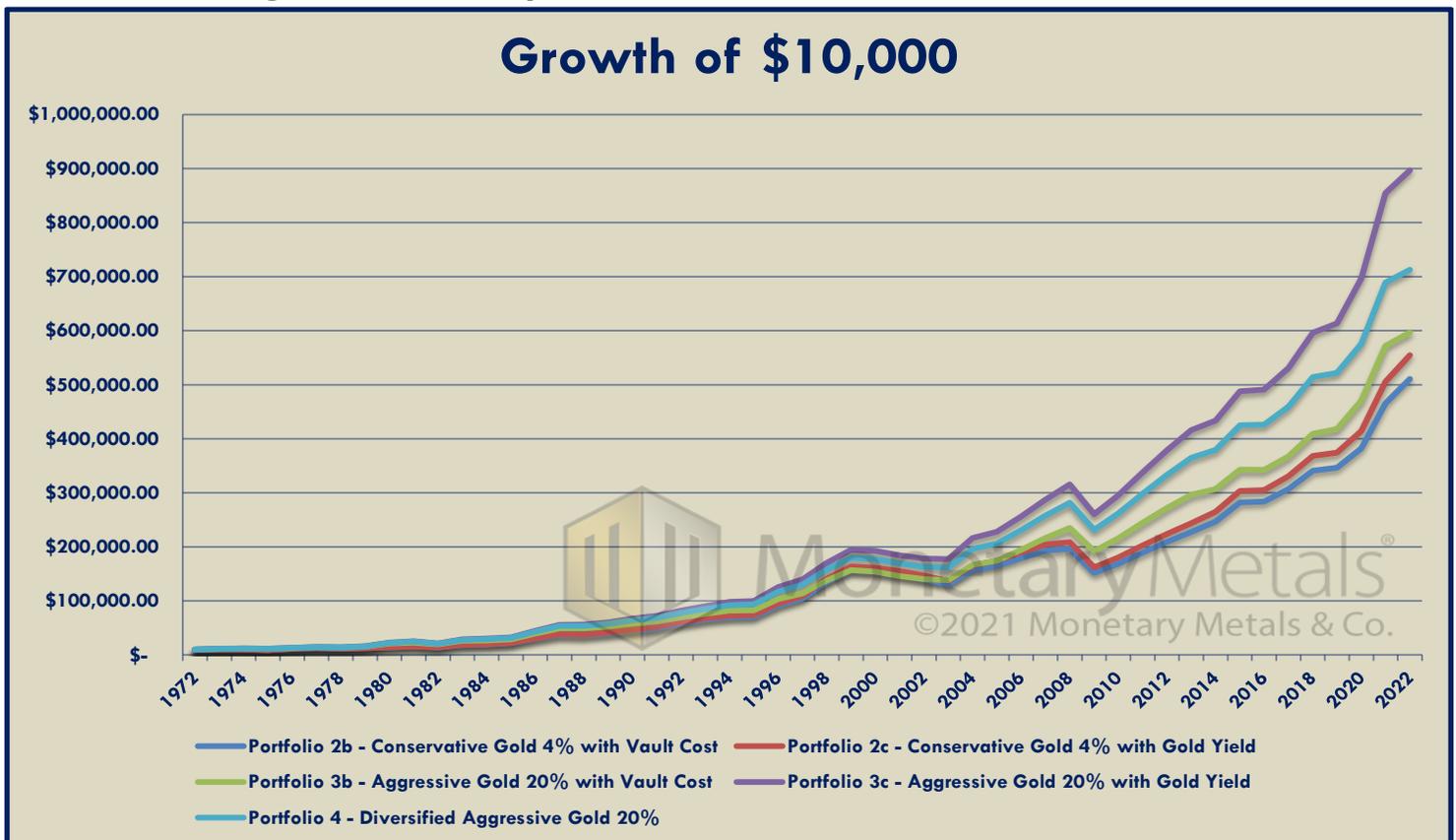
Costs and fees compound over time to erode a portfolio's value. Many portfolio managers avoid gold because of its cost, despite the promise gold offers as a portfolio diversifier. The final section introduces the idea of *A Yield on Gold, Paid in Gold®* and shows how it could change the game for gold as an asset class.

THREE | HOW GOLD YIELD IMPACTS THE PERFORMANCE OF A DIVERSIFIED PORTFOLIO

To deliver the gold yield, gold bonds paying a fixed 3.5% annual interest with semi-annual coupon payments were chosen. Since gold bonds have not been available to investors since 1933, several assumptions were required in the analysis, including an active secondary market, and continual reinvestment of the semi-annual coupons into identical gold bonds.¹⁸ Monetary Metals & Co. is reviving the gold bond market and [successfully completed its first issue in December of 2020](#).

Here the fourth model portfolio, Diversified Aggressive, is introduced. This portfolio shows how one might use a gold bond to diversify or offset the costs of an existing gold allocation. This portfolio has an overall 20% weighting to gold. Half of that (10%) is in gold bonds and the other half (10%) is in allocated gold with the 50bps storage cost. Figure 3 illustrates the improvement on the Conservative and Aggressive portfolios where the gold bond is held instead of conventional gold. Finally, Table 4 on the following page shows the key metrics across all model portfolios examined in this paper, including those featured in Figure 3.

Figure 3 - The Impact of Gold Yield on the Model Portfolios



DISCUSSION

| Model Portfolio | Asset Composition | Gold Investment Vehicle | End Balance | CAGR | St. Dev. | Best Year | Worst Year | Max. Drawdown | Sharpe Ratio | Sortino Ratio | US Market Correlation |
|--|--|---|-------------|-------|----------|-----------|------------|---------------|--------------|---------------|-----------------------|
| Portfolio 1 - Traditional 60/40 | 60% - S&P 500 40% - 10yr US Treasury | N/A | \$ 415,745 | 7.63% | 9.80% | 33.9% | -17.4% | -29.8% | 0.322 | 0.477 | 0.918 |
| Portfolio 2b and 2c - Conservative Gold 4% | 57.6% - S&P 500 38.4% - 10yr US Treasury 4% - Gold | Vault Cost 50 bps | \$ 441,735 | 7.76% | 9.40% | 33.1% | -16.6% | -24.9% | 0.343 | 0.504 | 0.915 |
| | | 3.5% Gold Yield Bond | \$ 480,381 | 7.94% | 9.40% | 33.3% | -16.4% | -24.6% | 0.362 | 0.530 | 0.915 |
| Portfolio 3b and 3c - Aggressive Gold 20% | 48% - S&P 500 32% - 10yr US Treasury 20% - Gold | Vault Cost 50 bps | \$ 523,653 | 8.13% | 8.82% | 30.0% | -13.2% | -19.5% | 0.396 | 0.581 | 0.804 |
| | | 3.5% Gold Yield Bond | \$ 790,375 | 9.01% | 8.85% | 30.9% | -12.3% | -19.1% | 0.491 | 0.725 | 0.800 |
| Portfolio 4 - Diversified Aggressive Gold 20% | 48% - S&P 500 32% - 10yr US Treasury 20% - Gold | 10% as Vault Cost and 10% as 3.5% Gold Yield Bond | \$ 630,185 | 8.52% | 8.80% | 30.5% | -12.7% | -19.3% | 0.440 | 0.644 | 0.804 |

Adding gold to a portfolio, even with a negative yield of -50bps for vaulting and insurance costs, improves the risk return metrics of the portfolio, resulting in higher end values and lower volatility.

When the gold portion of the portfolio is replaced with a Gold Yield product, like the Gold Bond, modeled performance improves across key metrics.

The Gold Yield modeled portfolios outperformed their counterparts by 8.75% in the Conservative Portfolio (4% Gold) and 50.93% in the Aggressive Portfolio (20% Gold)

CONCLUSION | GOLD YIELD HAS A POSITIVE IMPACT ON PORTFOLIO PERFORMANCE

When either a portion, or the entirety of the gold allocation in a portfolio has a positive yield, performance improves dramatically. Asset managers who incorporate gold bonds in their asset allocation strategy have the potential to outperform similar strategies. The difference with a yield is the costs of carry plus the yield itself, compounded over the investment period. Portfolios with an allocation to gold bonds benefit from gold's non-correlation to other assets, while generating a productive income on their gold capital.

Monetary Metals® Yield on Gold, Paid in Gold® investments enhance the case for gold in a diversified asset allocation strategy.

As with any investment, gold bonds and gold leases involve risk.

DISCLOSURES

This document is for information purposes only and should not be construed as an offer to buy or sell, or a solicitation of an offer to buy or sell, any security. Past performance may not be indicative of future results. Therefore, no current or prospective client should assume that the future performance of the Monetary Metals investment products or any other investments mentioned will be profitable or equal to corresponding indicated historical performance levels.

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Products available on our Gold Yield Marketplace™ platform

Gold Fixed Income - True Gold Lease™

With a [True Gold Lease](#), investors who want to earn gold for the use of their gold are matched with businesses that use gold productively. This innovative gold fixed-income product is designed to reduce risk for the investor and be tax-efficient.

Other ways to invest in Gold

Gold Fixed Income - Gold Bond

A [gold bond](#) is similar to a conventional dollar bond, except that the principal and interest are denominated and paid in gold ounces. The gold bond issuer amortizes the bond from income the same way that a conventional dollar bond issuer does. Prospective issuers of gold bonds include companies who have a gold income. They want to borrow gold, because then their income is matched to their debt service, with no price risk. Issuers may include refiners, depositories, miners, and other businesses.

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REFERENCES:

¹ This idea finds its original source in Harry Markowitz's seminal paper [Portfolio Selection](#), in particular see pages 14 and 15. For a more modern description, see the following links [here](#), [here](#) and [here](#).

² See Table 1 on page 4 for metrics as well as Table 4 on page 9.

³ Gold possess several unique attributes which make it ideal for portfolio diversification, including; Low/negative correlation to most other major asset classes, cross-cyclical performance in both inflationary and deflationary environments, asymmetric upside/downside relationship to other currencies including USD, a liquid, deep, global market, low to zero counterparty risk, a financial asset that cannot go "no-bid" unlike other assets e.g. sovereign debt, real estate etc., utility as an effective hedge against systemic or tail risk events, i.e. bank runs, sovereign defaults etc.

⁴ Dalio has historically recommended 5-10% in gold to hedge against a financial crisis. Additionally, he confirmed that gold plays a role in his All Weather portfolio. The All Weather portfolio is the result of his pioneering work in risk parity portfolio strategies, which aim for better risk adjusted returns for investors. For reference, please see the following sources: [Bloomberg Article](#), [Nasdaq Article](#), [All Weather Portfolio](#), [Bridgewater Risk Parity](#), [Bridgewater All Weather Story](#)

⁵ A cached version of the report can be found [here](#).

⁶ See their [Research Report](#)

⁷ See CPM Group's Special Report to Strategic Wealth Preservation and its Clients found [here](#)

⁸ See the report: [The Impact of Inflation and Deflation on the case for gold](#)

⁹ The quote by Charles taken from Bloomberg Video - [The Case for Gold as an Asset Class](#)

¹⁰ For more information on carry and de-carry rates, click [here](#).

¹¹ Apart from gold, the model portfolios contain only two other asset classes; the S&P 500 as a proxy for the US Stock Market and 10 YR US Treasuries for Government Bonds. For gold returns please refer to each corresponding vehicle as explained in the text.

¹² For the US Market we used the S&P 500 data from Yahoo Finance. For Bonds, we used the 10 YR Treasury Data provided by FRED. For our gold allocations, we used the following three custom data sets; One, gold "Zero Yield" we used the LBMA PM Price Fix. This is the data used in Table 1. Two, gold at 50bps storage and insurance costs. We added the storage costs to the LBMA monthly price data. Three, the 3.5% gold bond. There are several assumptions used in our gold bond data set; an active secondary market, 100% performance (0% default rates), reinvested coupons into an identical gold bond investment. See end note 18 for more information. The backtested results include annual rebalancing of portfolio assets to match the specified asset allocation. The results use total return and assume that all dividends and distributions are reinvested. Taxes and transaction fees are not included. Stock market correlation is based on the correlation of monthly returns. Drawdowns are calculated based on monthly returns. Sharpe and Sortino ratios are calculated and annualized from monthly excess returns over risk free rate (1-month treasury bill).

¹³ Another question might be – why only gold? Why not include some of the other precious metals – platinum, palladium and silver? For a definitive answer to that question we strongly recommend the reader consult CPM Group's Special Report to Strategic Wealth Preservation and its Clients found [here](#).

¹⁴ See the World Gold Council's Report, [Gold Investor Risk Management and Capital Preservation](#) – page 14

¹⁵ 4% is also interesting because it roughly corresponds to what a gold allocation would be in portfolio diversified based on total market capitalization across assets classes. For more information, see this article [here](#).

¹⁶ See both the CPM Report listed above and [The Role of Gold in Investment Portfolios](#) by Flexible Plan Investments, Ltd. Found [here](#) and [here](#)

¹⁷ Note that our simulations assume annual rebalancing into the desired asset allocations. This goes a long way to help portfolio returns. Without this perfect record of rebalancing, it's the authors' opinion that the returns would be lower for those portfolios which include the cost of carry for gold.

¹⁸ Since gold bonds have not been available as an investment since 1933, we had to make some assumptions in modeling our data. We use the LBMA monthly price return data and added the reinvested interest payments of a 3.5% bond with semi-annual coupons. Additional assumptions to those already cited include zero early repayment risk and zero interest rate risk. For more information on both our Gold Bonds and Gold Leases, please click [here](#).