

FINE WINE VERSUS ALTERNATIVE ASSETS

2024



CONTENTS

FINE WINE	3
AN ALTERNATIVE ASSET MERGING PASSION AND REASON	3
WHY ALTERNATIVES?	5
POTENTIAL BENEFITS OF ALTERNATIVE ASSETS	6
RISKS	7
FINE WINE VS. NON-CORE ALTERNATIVES	8
FINE WINE'S CREDENTIALS	9
RETURN POTENTIAL	9
STABILITY	10
REAL ASSET DURING INFLATION	11
LOW CORRELATION	13
FINE WINE'S IMPACT ON A PORTFOLIO	14
PORTFOLIOS	15
COMPARISON: BENEFITS AND CHALLENGES	16

AN ALTERNATIVE ASSET MERGING PASSION AND REASON



A fine wine portfolio means different things to different people. For some, it is a chance to indulge in a passion by collecting some of the world's finest and rarest wines. Others will recognise how fine wine can form a valuable part of an investment portfolio, leading to its increased acceptance in discussions about alternative assets.

The main reasons investors turn to fine wine and other alternative assets include enhancing the return potential of their portfolios, increasing diversification, and/or hedging against market risks.

Including fine wine in a portfolio offers the distinct advantage of lowering overall portfolio risk due to its low volatility despite sometimes delivering comparatively lower absolute returns than more established investments. Looking at the performance across different asset classes for 2024, we observed that the Cult Wines Global Index, a measure representing the fine wine market, has a negative return of -1.32% year to date and -6.67% over the last twelve months.

However, Fine Wine exhibits remarkably low volatility compared to traditional asset classes yet delivers solid performance over the long term.

Over the last 5-year period, the fine wine index showcases a volatility of 3.84%, significantly lower than Fixed Income, equities like the S&P 500 and Nasdaq Composite, or alternative assets like Bitcoin or even Commodities (as expressed by the Bloomberg Commodity index). While other assets may offer higher nominal returns, their elevated volatility comes at a greater risk to the portfolio.

In contrast, fine wine's stable performance and low volatility contribute to reducing the overall risk profile of the portfolio, making it an attractive option for investors seeking to diversify their holdings and preserve capital.

FIGURE 1 - FINE WINE VS OTHER ASSETS
TOTAL RETURNS OF CULT WINES GLOBAL INDEX AND SELECT FINANCIAL INDICES

Asset Type	Q1 2024 Return	12-month %	3-year %	5-year %	5-year Volatility*
Cult Wines Global Index	-1.32%	-6.67%	23.13%	28.66%	3.84%
S&P 500 (TR)	6.53%	25.30%	28.92%	89.82%	18.24%
FTSE 100 (TR)	5.12%	4.60%	27.12%	28.67%	13.65%
Nasdaq Composite (TR)	6.02%	32.29%	24.05%	116.59%	7.64%
iShares 7-10 US Treasury Bond	-3.17%	-6.35%	-18.06%	-11.80%	7.64%
iShares High Yield Corporate Bond	-1.38%	1.39%	-12.61%	-12.11%	9.33%
iShares MSCI All Country Asia ex Japan ETF	7.64%	1.74%	-26.75%	-3.99%	19.30%
Gold (in USD)	12.31%	14.99%	29.36%	78.28%	14.83%
Bitcoin	57.60%	129.41%	14.20%	1535.87%	73.11%
Bloomberg Commodity index	3.56%	-2.15%	22.32%	25.87%	15.91%
S&P Cryptocurrency BDM Ex-LargeCap Index	-24.66%	47.77%	-62.30%	254.75%	N/A

*Volatility = Rolling 5-year standard deviation of monthly returns.

Source: Wine-Searcher, Investing.com as of 31 Mar 2024. Past performance does not guarantee future results.

When compared to financial assets such as equities, which have delivered superior returns, fine wine may appear less appealing. However, its stability and low correlation with broader financial markets position it as a valuable hedge against market volatility and economic uncertainty, whilst long-term performance matches some of the more traditional asset classes.

Here at Cult Wines, we believe fine wine remains an attractive long-term component of a diversified portfolio. In this report, we look at fine wine's credentials as an alternative asset and its role in an investment portfolio.

WHY ALTERNATIVES?



The alternative investment market on a global scale is experiencing swift expansion. While estimates differ, the majority of studies indicate a continuous growth trend in the market. According to PWC, global assets under management (AUM) will soar to \$145.4 trillion by 2025, almost doubling the \$84.9 trillion recorded in 2016. The same research also anticipates that alternative investments will surge to \$21.1 trillion by 2025, constituting 15% of total AUM. In times of economic instability, alternative investment avenues offer individuals an appealing opportunity to broaden their investment portfolios. With advancements in industry and technology, now is an opportune moment to explore the realm of alternative investing.

Alternative assets typically include any asset other than ‘traditional’ equity, bond and currency investments. One type covers financial instruments that take alternative approaches to investing, such as hedge funds, private equity and debt, or distressed funds. Another category involves ‘real’ or physical assets ranging from commodities, precious metals, infrastructure projects or real estate.

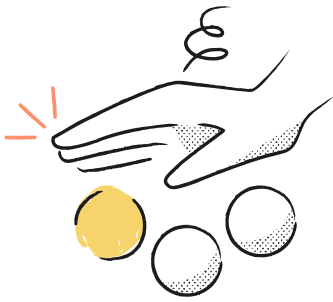
Cryptocurrencies and non-fungible tokens are among the more recent markets that have made recent inroads with wider audiences.

Another category falls under the term ‘collectibles’ and includes items such as art, antiques, watches, classic cars and, of course, fine wine.

The current period of uncertainty stemming from the wars in Ukraine and the Middle East, rising inflation, cost-of-living concerns, and high-interest rates is prompting more investors to seek diversification to manage risk. Before this, many investors looked to alternatives as a source of returns amid the extended period of low interest rates and high equity valuations that pervaded in the wake of the Global Financial Crisis and the more recent COVID outbreak.

This greater demand could add to the performance potential of many alternatives, especially the so-called collectibles. These tangible assets generally have fixed supply levels, and growing demand exerts upward price pressure.

POTENTIAL BENEFITS OF ALTERNATIVE ASSETS



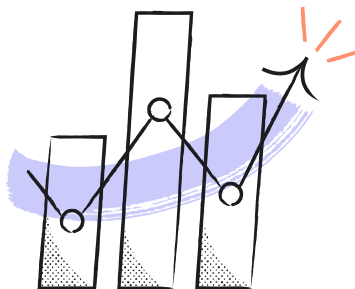
DIVERSIFICATION

Alternative assets can help de-link an investment portfolio's performance from the ups and downs of the economic cycle. Alternative assets often have different drivers of performance to traditional 60-40 portfolios, which means they may have lower correlation, or sometimes negative correlations, to equity or bond investments.



HEDGE AGAINST MARKET RISKS

Alternative assets' different drivers of performance often mean the risks facing equities or bonds will not impact them in the same way. This is not to say alternatives are completely insulated from market risks, but their different market dynamics can provide a degree of insulation in the event of a sudden shock to the macroeconomic environment.



POTENTIAL ENHANCED RETURNS

Alternative assets can offer new frontiers for investors to identify alpha opportunities and boost the return potential of their portfolio. The market for many alternatives is often less developed and less efficient than traditional financial markets, opening the door for selective investors to uncover growth and arbitrage opportunities.

RISKS

Despite these possible benefits, collectible alternative assets carry their own set of risks. They are often less regulated than mainstream markets and can have shorter track records or less data available for transparent decision-making.

The plummeting prices of most cryptocurrencies in 2022 illustrate the risks involved in some alternative asset classes. It is of the utmost importance for investors to conduct rigorous research before selecting which alternatives match their specific requirements.

Here, we outline the characteristics of fine wine as an alternative investment and explain why we believe it can make an essential component of an investment portfolio.

“In the specialist world of alternative assets, seasoned investors understand that knowledge isn’t merely advantageous—it’s essential. These markets, some of which nascent, in comparison to traditional investment classes, display a lot of inefficiency. This is advantageous to those who know how to navigate these markets and take advantage to deliver outsized returns. The increased interest in alternatives has seen a proliferation of new platforms and vehicles which increase the accessibility of these assets and enable everyday investors take advantage”

— Tom Gearing, Cult Wines Co-founder & CEO



FINE WINE VS. NON-CORE ALTERNATIVES SUCH AS LUXURY WATCHES & ART



In today's dynamic investment landscape, discerning investors seek alternative assets that not only preserve wealth but also offer substantial growth potential. While art and luxury watches have traditionally captured attention, we advocate for a shift towards fine wine as a superior investment choice.

Unlike the art market, where valuations are subjective and susceptible to fluctuating trends, and the luxury watch market, which faces brand perception challenges and technological advancements, the fine wine market thrives on more predictable factors. Demand for top-quality wines from renowned regions like Bordeaux and Burgundy remains consistently high, with prices often driven by vintage quality and scarcity rather than fleeting trends.

While the art market's liquidity can be constrained by the niche pool of buyers and the subjective nature of valuations, and luxury watches may require time to find the right buyer, the fine wine market benefits from established trading platforms and global demand from enthusiasts and a vast network of distribution for consumption. Exchanges such as Liv-ex, [CultX](#), or Live Trade facilitate seamless transactions, offering investors liquidity in a manner similar to traditional financial markets.

Fine Wine liquidity, whilst not on par with financial assets, is high amongst collectibles as an individual unit of wine, bottles or cases can be traded, whilst unique pieces of art or watches are not fractionable and might have very high individual prices.

The storage and maintenance requirements for fine wine, albeit meticulous, are considerably more straightforward compared to the delicate handling and storage demanded by artworks.

Unlike art, which incurs significant maintenance costs, fine wine's storage needs are manageable, with widely available professional storage facilities ensuring optimal conditions for ageing and preserving value.

Diversification is paramount in investment strategy, and fine wine offers a unique avenue for portfolio diversification. While art investments may carry higher risk due to market volatility and subjective valuations, and luxury watches may lack the depth of the fine wine market, investing in wine provides a balanced approach, complementing traditional asset classes with steady returns and lower volatility.

In addition, investing in fine wine offers potential tax benefits in the UK. Current HMRC practice generally exempts fine wines from Capital Gains Tax (CGT), enhancing their attractiveness as a tax-efficient investment option.

The barriers to entry in the fine wine market are also lower compared to art and luxury watches. While art and luxury watches may demand substantial upfront investments, fine wine offers flexibility, with initial commitments ranging from modest purchases of individual bottles to widely diversified portfolios of investment-grade wines, accommodating investors of varying financial capacities.

With a market characterized by enduring demand, established trading platforms, manageable storage requirements, and accessible entry points, fine wine presents a compelling opportunity for investors looking beyond traditional asset classes.

FINE WINE'S CREDENTIALS

Typically, the value of a bottle of wine is based on the following factors:

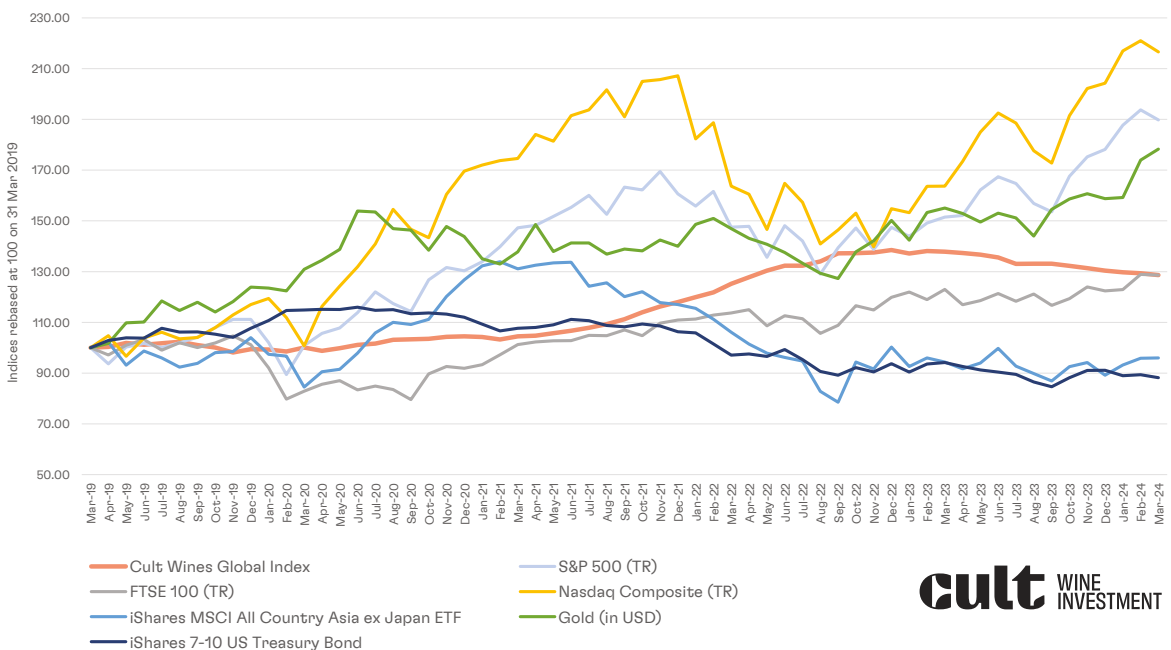
- SUPPLY AND DEMAND
- BRAND RECOGNITION AND PRESTIGE
- VINTAGE QUALITY AND VOLUME
- CRITIC SCORES
- DRINKING WINDOW
- RELATIVE VALUE VS OTHER WINES
- COSTS ASSOCIATED WITH PRODUCTION & DISTRIBUTION

These internal market dynamics are the primary drivers of fine wine prices, enhancing its suitability for many of the objectives of alternative asset investing in different macroeconomic environments. Fine wine's main advantages include the following:

1. RETURN POTENTIAL

The primary purpose of investing is to create and build wealth by generating a return on investment. In this regard, fine wine has posted some appealing figures. The [Cult Wines Global Index*](#), a benchmark measurement of the global fine wine market, tracks wine prices going back to the beginning of 2014 and showed a return of 69.8% through the end of March 2024, equating to a compound annual growth rate of 5.30%.

FIGURE 2 - HEALTHY LONG-TERM PERFORMANCE
CULT WINES GLOBAL INDEX VS OTHER FINANCIAL ASSETS



Source: [Cult Wines Index*](#) pricing data from Wine-Searcher as of 31 Mar 2024. Performance was calculated in GBP and may vary in other currencies. Past performance is not a guarantee of future returns.

WHAT MAKES FINE WINE PRICES RISE?

Fine wine's return potential stems from a supply-demand imbalance that increases over time after a wine is released. Investment-grade wine improves as it ages, meaning demand typically grows as it approaches its drinking window. Wines also become scarcer with time as bottles are consumed, damaged, or not stored properly. The combination of decreasing supply and stronger demand establishes the core engine of price appreciation.

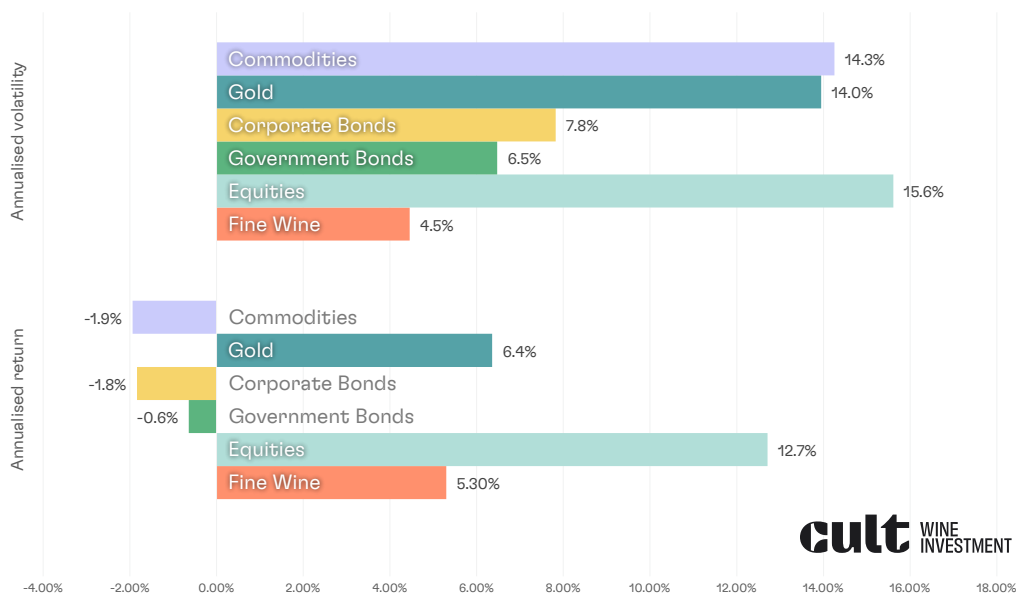
The growth of the global market can lead to intensified periods of expansion. Advancements in technology and increased recognition of fine wine, both as a consumable and investment asset, in emerging markets like Asia and Latin America, may attract a larger pool of prospective buyers. However, the supply of fine wine cannot readily expand to match a sudden surge in demand, potentially resulting in gradual price appreciation over time.

Only a handful of certain regions around the world are recognised as top wine growing regions and production levels are tightly regulated by local appellation rules. An influx of demand alongside constrained supply drives prices higher, leading to periods of strong returns for those holding the in-demand bottles, such as we've seen from Burgundy and Champagne wines from 2020 to 2022 (+70.12% and +54.08%, respectively, 31 Dec 2019-31 Dec 2022).^[1]

2. STABILITY

Fine wine has also displayed relative stability alongside its rate of return. Figure 1 above shows that the S&P 500 (TR) has delivered higher returns since 2013. Other alternatives, at times, can also provide outsized returns, such as when commodity prices spike. However, fine wine's pace of growth has come with lower volatility than many mainstream and other alternative assets.

FIGURE 3 - FINE WINE RETURNS COME WITH LOWER VOLATILITY
ANNUALISED VOLATILITY AND RETURNS ACROSS FINANCIAL ASSETS AND FINE WINE
(31 MAR 2019 – 31 MAR 2024)



Source: Investing.com, Wine-Searcher as of 31 Mar 2024. Fine wine = Cult Wines Global Index; Equities = S&P500(TR); Gov't bonds = iShares 7-10 US Treasury Bond; Commodity = Bloomberg Commodity Index; Gold = USD/oz. Past performance is not a guarantee of future returns.

^[1] Source: [Cult Wines Indices](#), pricing data from Wine-Searcher as of 31 Mar 2024. Past performance is not a guarantee of future returns.

THE THREE MAIN FACTORS THAT UNDERPIN FINE WINE'S STABILITY



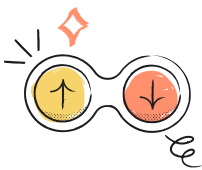
REAL ASSET

Like other rare collectibles, fine wine benefits from scarcity and value as a consumer product and collectible, which helps support demand during different market environments.



NOT LEVERAGED

The fine wine market does not use leverage. Therefore, investors are not forced to sell holdings to meet margin calls, limiting the degree of panic selling and removing a need to sell into a down market.



LOWER LIQUIDITY

Collectible alternatives are typically characterized by lower liquidity than mainstream markets or even other alternatives. This means they can take more time to buy or sell quickly. While this does have downsides, reduced liquidity can also provide an advantage by insulating assets from panic selling. Fine wine holdings are not typically sold off to the same degree when there is a shift in the macroeconomic outlook.

3. REAL ASSET DURING INFLATION

Fine wine's pace of growth has outpaced inflation rates during periods of both low and high inflation, which we saw coming back post-COVID-19.

This is important because during periods of high inflation, some investors will chase higher returns with higher-risk investments. However, increasing your portfolio risk may not align with long-term investment priorities, making real assets an interesting option.

Over the long term, and through cycles, the price of Fine Wine tends to increase with the global increase in global wealth, which outstrips inflation.

FIGURE 4 - FINE WINE'S RETURNS

LIV-EX 1000 AND CPI INFLATION (31 DEC 2003 – 28 FEB 2024)



Source: OECD.com, UK Office of National Statistics, Liv-ex data as of 28 Feb 2024. Real return based on Cult Wines Global Index returns in excess of UK CPI inflation 31 Dec 2017 - 28 Feb 2024. Returns calculated in GBP and may vary in other currencies. Past performance is not a guarantee of future returns.

WHY CAN FINE WINE PERFORM DURING PERIODS OF HIGHER INFLATION?

Wine's ability to form a stable storage of value during inflation and other market shocks stems from its nature as a collectible and a consumer product.

Demand for fine wine goes beyond just market speculation – rare, quality wine has an intrinsic value as a high-end beverage.

Additionally, the associated costs of producing a bottle of wine – packaging, transport, etc – filter through to the price of the wine. Consequently, when prices of these elements are rising due to inflation, the price of wine can also trend higher.

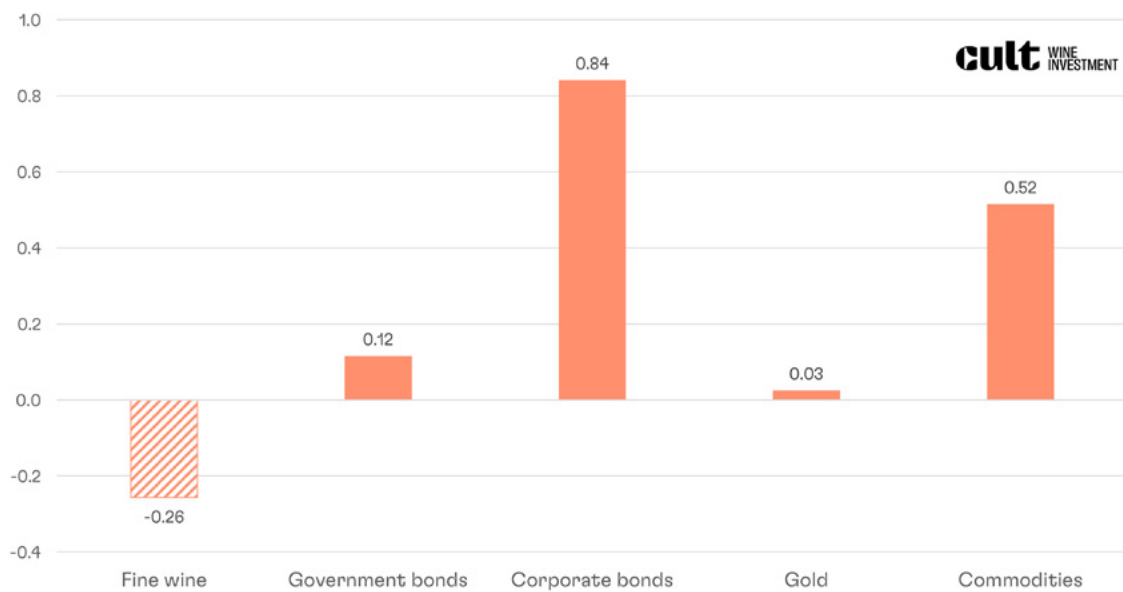
Wine holdings are more likely to absorb periods of inflation than other assets whose inherent value is more speculative.

4. LOW CORRELATION

Fine wine holdings can help de-link a portfolio with swings in wider financial markets. The primary drivers of fine wine prices are the internal market dynamics (listed above), meaning prices don't necessarily rise and fall in line with wider sentiment. This contributes to the Cult Wines Global Index's negative correlation with equities and other risk assets (investments that do well during times of positive macroeconomic sentiment).

Not all alternatives offer the same diversification; some assets are more closely linked to macro sentiment than others. For example, oil and other commodities are directly impacted by geopolitical events and the economic outlook (low growth expectations typically lead to lower oil prices due to falling demand and vice versa).

FIGURE 5 - FINE WINE GOES ITS OWN WAY
 5-YEAR CORRELATION TO THE S&P 500 (TR) ACROSS ASSET CLASSES
 (31 MAR 2019 – 31 MAR 2024)



Source: Investing.com, Wine-Searcher as of 31 Mar 2024. Fine wine = Cult Wines Global Index; Equities = S&P500(TR); Gov't bonds = iShares 7-10 US Treasury Bond; Corporate bonds = iShares High Yield Corporate Bond; Commodity = Bloomberg Commodity Index; Gold = USD/oz. Past performance is not a guarantee of future returns.

HOW CORRELATED IS YOUR PORTFOLIO?

Traditionally, bonds have been part of a portfolio diversified in a 60%(equity)-40%(bond) portfolio based on the old axiom that bond prices will rise when stocks fall. However, the two assets can also be positively correlated, which is what we saw in 2022-2023, when both declined or earlier in the mid-2010s when central bank stimulus buoyed both stock and bond prices. If stocks and bonds are positively correlated, investors will need to look elsewhere to provide true diversification. Fine wine's low correlation to equities and its track record of consistent positive returns make it an appealing diversifier in different market backdrops.

FINE WINE'S IMPACT ON A PORTFOLIO



We've created a series of model portfolios to illustrate these twin benefits of including fine wine in an investment portfolio. Portfolio modelling can shine light on how fine wine holdings have impacted a diverse portfolio rather than just show its track record in isolation.






We believe fine wine can satisfy this description of a favourable alternative investment. Its stability and low correlation make an investment portfolio more defensive against market risks. Fine wine's track record of providing returns through different market backdrops demonstrates its ability to generate alpha, a term describing an investment's outperformance versus the wider market.

This is illustrated in the following exhibit, showing five hypothetical portfolios with different risk profiles and how a diversified multi-alternatives allocation has the potential to improve long-term portfolio outcomes whether funded from fixed income, equities, or fine wine.

"And defensive alpha strategies delivering both negative correlation to stocks and positive expected returns over cash represent even more favorable alternative portfolio diversifiers in this environment of zero to positive stock/bond correlation."

— BlackRock

FIGURE 6 - INCLUSION OF FINE WINE IMPROVES RISK-ADJUSTED RETURNS
 MODEL PORTFOLIO PERFORMANCE 31 MAR 2019 – 31 MAR 2024

	 Public Equities	 Government Bonds	 High Yield Corporate Bond	 Commodity	 Fine Wine	Sharpe Ratio	Portfolio Risk	Portfolio Return
Portfolio A	60.0%	40.0%	-	-	-	0.74	4.9%	7.3%
Portfolio B	55.0%	30.0%	15.0%	-	-	0.54	5.3%	6.5%
Portfolio C	45.0%	30.0%	-	25.0%	-	0.49	6.2%	6.7%
Portfolio D	45.0%	30.0%	-	-	25.0%	0.90	3.5%	6.8%
Portfolio E	45.0%	25.0%	10.0%	10.0%	10.0%	0.58	4.7%	6.4%

cult WINE INVESTMENT

Source: Investing.com, Wine-Searcher as of 31 Mar 2024. Fine wine = Cult Wines Global Index; Equities = S&P500(TR); Gov't bonds = iShares 7-10 US Treasury Bond; Corporate bonds = iShares High Yield Corporate Bond; Commodity = Bloomberg Commodity Index. Model portfolios are for illustrative purposes only. Actual performance may vary. Past performance is not a guarantee of future returns. Risk is measured in a portfolio by determining its standard deviation. However, it is not one hundred percent sufficient for calculating risks as a whole. You must also assess the correlation and covariance among various assets in the portfolio and this is how it is calculated.

As shown in the table above, the recommended portfolio for investors seeking optimal risk-adjusted returns is Portfolio D, boasting a Sharpe ratio (a measure used to quantify the risk-adjusted return of an investment or portfolio) of 0.90. Its allocation of 45% to Public Equities, 30% to Government Bonds, and 25% to Fine Wine reflects a balanced approach to risk management and return generation.

This diversified asset mix aligns with a strategic investment strategy, capturing potential upside opportunities while mitigating risks associated with long-term market volatility. The inclusion of Government Bonds provides stability and income, while exposure to alternative assets like Commodity and Fine Wine enhances portfolio diversification. By prioritizing Portfolio D, investors can achieve their financial objectives with confidence, benefiting from its superior risk-adjusted performance and well-diversified allocation across asset classes.

Of course, fine wine and other alternatives bring unique investment challenges, such as lower liquidity, storage, or fixed increments to invest.

However, compared to some other alternatives, fine wine can offer relative flexibility.

For one, wine offers a relatively accessible entry point; investors can gain access to fine wine markets in the US starting at \$10,000. Many other tangible assets must be sold at once, whereas wine investments can easily be sold in variable sizes at different times.

As with any investments, past performance does not mean results will be replicated in the future. The Cult Wines Global Index* history shows that fine wine does experience ups and downs in performance and will do again like any investment.

We believe fine wine can continue to enhance the return potential and reduce risk in a diversified portfolio over a long-term period.

Rather than increasing or decreasing exposure depending on the prevailing outlook, fine wine works best as a long-term component of a portfolio through shifts in macroeconomic conditions.

BENEFITS AND CHALLENGES OF INVESTING IN DIFFERENT ALTERNATIVES

Asset class	Benefits of Investing	Challenges/Risks
Real Estate	<ul style="list-style-type: none"> • Diversification • Relatively stable income return • Relatively low volatility (if holding direct real estate) 	<ul style="list-style-type: none"> • Substantial initial investment • Mismatch between pricing and valuation • Limited transactional information • Involves substantial operational and maintenance fees
Commodities	<ul style="list-style-type: none"> • Diversification • Inflation protection 	<ul style="list-style-type: none"> • Volatility • Risk in losing more than initial amount invested (derivatives)
Hedge Funds	<ul style="list-style-type: none"> • Diversification across multiple hedge fund strategies available 	<ul style="list-style-type: none"> • Long-term commitment required • Unfamiliarity with different strategies • Management fees
Fine Wine	<ul style="list-style-type: none"> • Long-term stability in different macro environments • Less correlated to equity market • Real asset • Unique supply and demand mechanism • Possible tax benefits 	<ul style="list-style-type: none"> • Possible difficulties securing allocation • Liquidity • Market still in early stage of development
Art	<ul style="list-style-type: none"> • Diversification benefit • Possible tax benefits 	<ul style="list-style-type: none"> • Liquidity • Price discovery • Limited market data • Unregulated market • Price realisation • Unregulated market • Can only be traded as one whole piece
Luxury Watches	<ul style="list-style-type: none"> • Diversification benefit • Specialised storage not required 	<ul style="list-style-type: none"> • Subject to changes in consumer preference • Regular servicing and upkeep required • Can only be traded as one undividable unit
Cryptocurrencies	<ul style="list-style-type: none"> • Potential for rapid growth • Easy to access and trade 	<ul style="list-style-type: none"> • High risk due to significant swings in pricing • Highly speculative • Limited track record

Past performance is not indicative of future success; the performance was calculated in GBP and will vary in other currencies. Any investment involves risk of partial or full loss of capital. The results depicted here are not based on actual trading and do not account for the annual management fees that may be charged to a Cult Wine Investment customer which range from 2.00% to 2.95% depending on the size of the portfolio, and there is no guarantee of similar performance with an investor's particular portfolio.

LONDON OFFICE

The Clockwork Building,
45 Beavor Lane,
London W6 9AR
T: +44(0)207 1000 950
E: info@cultwines.com

NEW YORK OFFICE

35 West 31st Street,
New York,
NY, 10001
T: +1 855 808 2858
E: us@cultwines.com

SINGAPORE OFFICE

9 Battery Road,
#09-01 MYP Centre,
Singapore 049910
T: +65 6909 8170
E: singapore@cultwines.com

TORONTO OFFICE

110 Cumberland Street
Suite 333
Toronto, Ontario, M5R 3V5
T: +1 855 808 2858
E: canada@cultwines.com

HONG KONG OFFICE

OF107, 4/F, WeWork,
9 Queen's Road,
Central, Hong Kong
T: +852 2818 0899
E: hongkong@cultwines.com

SHANGHAI OFFICE

2411 CITIC Square,
1168 Nanjing West Road,
Shanghai 200041
T: +86 21 6085 3559
E: china@cultwines.com

DUBAI OFFICE

EO2, Sheikh Rashid Tower,
Dubai World Trade Centre,
Dubai
E: info@cultwines.com

wineinvestment.com

Co. Reg No. 6350591