The *Art* of Portfolio Diversification

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Abstract

Diversification benefits have decreased over recent years and there is a fight to find alternative investment vehicles to boost returns whilst minimising risk. Recently available data has enabled the construction of an annual art index dating back to 1875[2] and the potential for investors to invest in Art as an additional asset class. Art indices tend to have high volatility whilst not gaining significantly greater gains than the stock market. At first glance it would appear that Art is a highly risky investment strategy. In this paper we take a closer look at the benefits from investing in Art. The extremely low (and even negative) correlation with other asset classes results in a highly beneficial investment vehicle for an investors' portfolio.

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[2] See Mei and Moses (2002) Art as an Investment and the Underperformance of Masterpieces. American Economic Review, December.

1. Introduction

Until recently, investment in art has not been considered a mainstream asset class. The market for art is rather opaque and highly illiquid, characterised by the heterogeneity of artwork and infrequency of trading. Prices fluctuate even more widely than stocks, so with higher volatility than stock markets and high transaction costs, investing in the art market could be seen as a highly risky investment strategy. With the demand for art depending on the vogue for art, prices and returns depend solely on the whims of society's tastes. With no dividend being paid[3], it would appear that Art, as a new asset class, is an inconceivable concept. However, there is currently a move towards Art investment funds, which would provide a highly fruitful avenue for investment strategies.

The benefits arising from investing in an Art Index arise from the low correlation between Art and an investors' traditional portfolio allocation. The lower the correlation the greater the diversification benefits. Low correlation is therefore highly desirable from a diversification perspective. Even though art is highly volatile if art is held in conjunction with stocks and bonds in the portfolio then the investor is able to render higher expected returns than previously for a given level of risk.

In this paper we highlight these benefits, providing correlation statistics and portfolio allocation strategies from investing in art indices from a portfolio management perspective. In the following section we outline the Art Indices used. Section 3 provides the optimal portfolio allocation for a US investor. The final section provides practical implications for investors, before conclusions are drawn in section 5.

[3] Only the dividend of 'enjoyment' to the art fund manager.

2. Art Indices

The beauty of an Art piece may be in the eye of the beholder, but it is the market for Art that sets the price. This market has been booming, with a staggering amount of $23.4 billion changing hands in 2001 in the fine art and decorative art sales markets. As global equity markets were falling prior to September 11th, the Art market was thriving, with colossal prices being obtained on particular pieces[4]. An independent survey[5] commissioned by The European Fine Art Foundation (TEFAF) shows that in 2001 the US accounted for nearly 50% of the almost 30 billion dollar global art market, with a market share for the first time having surpassed Europe's, and gaining almost a 7 % share from the European market in recent years.

Due to the thriving market, there has been a move towards the creation of art-price indices, which aids the comparison of art to other investment grade assets, such as equities and real estate. Indeed the Fine Art Fund[6] already invests over $0.1 billion in paintings and sculptors for a period of up to 10 years. Holding such a large chunk of the Global Art market will inevitably have knock-on consequences for prices in the market in general, and may open the way for more Art investment funds.

Due to the lack of data on any such Art investment fund we focus on the repeat sales data set provided by Mei and Moses (2002) to analyse the benefits to portfolio management from investing in the Art market.

[4] Stratospheric prices included $38.5 million for Cézanne's ravishing rendition of "La Montagne Sainte Victoire"; $5.6 million for Jeff Koons' ceramic figure of Michael Jackson; and $22.5 million for Max Beckmann's brooding self-portrait. See Kusin & Company (2002).

[5] See Kusin & Company (2002) for further results.

[6] Managed by Dresdner Kleinwort Capital of the Dresdner Bank Group.

2.1 Mei & Moses All Art Index

The development of a new repeat sales data set by Mei and Moses (2002) enables us to analyse the portfolio implications of investing in art as an alternative asset class with two major advantages over previous approaches. The index is estimated with 4896 pairs of repeated sales prices[7]. It does not cover sales by private dealers, or artworks that are put on the block not selling, however, it does represent a highly significant part of the US art market[8].

The database is created for the American market and therefore from an optimal portfolio perspective it is of interest to derive the optimal portfolio for an investor holding both stocks and art in the US. Since the Mei/Moses art index dates back to 1875 we use the S&P500 which also has a long history for US equity Indices dating back to this time. Using data from Global Financial Data and Datastream we provide results for the total sample period and a sub-period for a variety of asset classes: the S&P500, the Mei/Moses Art Index, and US government Bonds. Summary statistics are given for the series in Table 1.

Insert Table 1

Table 1 provides summary statistics for the data over various sub-periods. The returns are not adjusted for inflation as described in Mei and Moses (2002). However the various sub-periods are taken for comparison to earlier studies of art indices. We see that over the whole sample period stocks outperformed the art index even though the volatility on the stock market was much lower than for art. Taking the last 40 years however even thought the stock market

[7] See Mei/Moses (2002) for a description of how the index is constructed.
[8] In a similar manner the S&P500 only represents a segment of the whole market for US equities.

provided higher returns than over the whole sample period we see that the art index did indeed provide returns slightly higher on average than the stock market. Again the volatility for the period was higher than for the stock market, however much lower than when taking the whole sample period. This is represented in Figure 1 where we have plotted the performance of the various assets classes over the period 1965-2002.

Insert Figure 1

To gage just how significant the impact of the high volatility coupled with the high average returns is on portfolio allocation, we need to look at the correlations statistics for the 2 periods. Only then can we see whether including Art into the portfolio results in a higher expected average return for a given level of risk. Taking the whole period for which data is available, 1875-2002 we see that the correlation between the Art index and the S&P 500 is 4.19%. This low correlation with the US stock market provides an indication that benefits from investing in Art indices do indeed exist.

Insert Table 2

The effect is even more pronounced over the more recent period with an even lower correlation between the Art and stock markets. The correlation for the 1965-2002 period is almost zero at 1.92%. Interestingly the correlation between the Art Index and the Government Bond Index over both sample periods is negative. These low and negative correlations between the 3 asset classes would therefore lead us to believe that even though Art provides a highly volatile investment strategy when coupled with assets, which are almost uncorrelated, or slightly negatively correlated the gains achieved from portfolio diversification may be

highly significant. We shall now turn to the optimal portfolio allocation using the 3 asset classes.

3. Optimal Portfolio Allocation

In constructing the optimal portfolio allocation in the art market we use the mean-variance approach, which given the statistically insignificant estimates for skewness and kurtosis measures for both Art and the S&P500 should provide a consistent framework for portfolio allocation. We first look at the optimal asset allocation between stocks and bonds for the period 1985 –2002. We then include the asset art into the optimal portfolio choice and see how the risk-return profile can be improved through holding a percentage of the portfolio in art. The optimal allocation in stocks and bonds is 19.34% stocks and 80.66% in bonds. Even though the volatility over this period is extremely high from a portfolio management perspective the low correlation renders a small allocation of the portfolio (2.74%) as beneficial to the investor providing a superior portfolio return, and a less risky portfolio. This result is even more pronounced for the more recent period 1965-2002. Allocating 18.21% into the Art market would have provided a 9% average annual return on the portfolio over the period instead of the 8.6% return when investing in only stocks and bonds, and an almost 1% reduction in the level of risk on the portfolio. These results can be seen in Table 3.

Insert Table 3

If we include Art as an additional asset class then the portfolio is optimised for the same level of risk as the 36:64 portfolio in stocks and bonds. Indeed for the same level of risk the return would have been 9.47% an additional return of 1% on the portfolio would have been attained.

In a similar manner we can take the same expected return for the portfolio on stocks and bonds and see how the low correlation with art enables the diversification benefits to be attained and hence reduce the risk of the portfolio to a standard deviation of 6.84%, a reduction of almost 2%. In Figure 2 we have plotted the efficient frontier of Art and the S&P500. This enables us to see the risk-return trade-off occurring between these 2 asset classes.

Insert Figure 2

We also provide Granger Causality Tests for the All Art index along the lines of Goetzman (1993). We do not find any evidence of Granger Causality for the S&P500 and the All Art Index using both 2 and 3 lags. This highlights that it is not the Stock market which is driving the periods of high returns in the Art market, as postulated by a wealth creation effect. These results are presented in Table 4.

Insert Table 4

4. Implications for the Investor

At present Art investment tends to form only a part of estate planning of private investors and a part of the assets of many international institutions, however as an asset class open to private and institutional investors not wishing to hold works of art themselves, then there is a high demand for these investors to invest in Art funds. At present the Mei/Moses All Art Index enables us to assess the diversification benefits for the investor not wishing to hold art pieces himself, but wishing to invest in an Index. From the results it would at first sight appear that

Art, in the form of funds and indices, appears to be a highly beneficial, yet underrated, asset class. The superior returns and lower volatility offered by a more diversified portfolio containing an Art Index highlights the benefits accruing to such an Art investor. These results are driven by the extremely low and even negative correlations occurring with the 2 major lines of financial investment, stocks and bonds. Caution must however, be aired on the implications of the results presented in this study. From an investment perspective the highly volatile nature of the Art market leads us to maintain a positive however somewhat lower allocation into the Art market than the results would suggest given the returns over the previous 40 years. A second line of caution lies in the more long-term nature of the Art market. High volatility stems from the whimsical nature of the Art market to current trends and fads in society's taste for Art. The nature of Art shall always be subject to such trends and as such results in a higher volatility portrayed in the prices and returns found in the Art market. A more prudent investor can alleviate the peaks and troughs from the returns on the Art market by focussing on the longer-term investment. Moreover, the high transaction costs involved with investing in Art result in the benefits tending to be reaped on the longer term.

It can also be shown that the downside risk is in fact less than on the stock market, so a failure to invest, albeit a small fraction of the portfolio in Art indices, would seem to result in inferior portfolio returns. At present there is a severe lack of indices in the market for the Art market, and hence an important step is the creation of more Art investment funds in general for the Art market. No doubt we shall therefore see a huge growth in the type of Art indices on offer in the near future.

5. Conclusions

In this paper we highlight the importance of Art as an additional asset class. The extremely low correlation between the All Art Index and Equities and Bonds results in Art being a highly beneficial avenue down which the private and/or the institutional investor can diversify his portfolio. Due to the high volatility and significant transaction costs involved then Art should be seen as a longer-term investment. However, with the growth of Art funds and Indices we advocate that in order to reap superior returns and lower risk then a significant proportion of the investment portfolio should be devoted to Art investment. This has important implications on current portfolio management practices and in particular for the longer-term investor such as the Pension Fund manager. In this paper we hope to have shed some light on these issues in light of past performance, however the unpredictable nature of future returns renders the art of portfolio diversification and how much to invest into the Art market in the future an art in itself!

References

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Table 1

Summary Statistics

This table provides the summary statistics for the All Art Index from Mei/Moses using annual data over the period 1875-2002 and from 1965-2002.

	Average Return	Variance	Min	Max	Skewness	Excess Kurtosis
1875-2002						
Mei/Moses All Art Index	0.0723	0.1788	-1.2283	1.2869	-0.377	0.6833
S&P 500	0.0880	0.0331	-0.5727	0.4249	-0.7219	0.8455
Government Bonds	0.0457	0.0036	-0.0922	0.3585	2.1383	8.5939
1965-2002						
Mei/Moses All Art Index	0.1094	0.0418	-0.4501	0.4703	-0.5064	0.1418
S&P 500	0.1049	0.0235	-0.3074	0.3190	-0.6801	-0.1083
Government Bonds	0.0753	0.0090	-0.0922	0.3585	0.9927	1.6748

Table 2

Correlation Statistics

This table provides the correlation estimates for the various indices, using both annual data over the periods 1875-2002 and 1965-2002 using data from Mei/Moses, Global Financial Data and Datastream.

Annual Data 1875-2002

Correlation	Art	S&P 500	Gov. Bonds
Mei/Moses All Art Index	1.0000		
S&P 500	0.0419	1.0000	
Government Bonds	-0.0400	-0.00367	1.0000

Annual Data 1965-2002

Correlation	Art	S&P 500	Gov. Bonds
Mei/Moses All Art Index	1.0000		
S&P 500	0.0192	1.0000	
Government Bonds	-0.1577	0.0221	1.0000

Table 3

Optimal Portfolio Weights

This table provides the optimal portfolio allocation for equity and bond indices in the US over the period 1875-2002, excluding and including art as an asset class for the various portfolios, using annual data from Mei/Moses and Global Financial Data, and Datastream over the period 1875-2002 and 1965-2002. We have assumed short selling constraints.

1875-2002	Art	S&P 500	Gov. Bonds	Portfolio Return	Portfolio Standard Dev
Excluding Art	-	19.34%	80.66%	0.0539	0.0587
Including Art	2.74%	18.46%	78.80%	0.0543	0.0579

1965-2002	Art	S&P 500	Gov. Bonds	Portfolio Return	Portfolio Standard Dev
Excluding Art	-	36.11%	63.89%	0.0860	0.0776
Including Art	18.21%	27.69%	54.10%	0.0897	0.0687

Table 4

Granger Causality Tests

Date: 02/04/04 Time: 12:47
Pairwise Granger Causality Tests
Date: 02/04/04 Time: 12:48
Sample: 1875 2002
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Probability
SPRET does not Granger Cause ARTRET	125	0.69189	0.50261
ARTRET does not Granger Cause SPRET		0.37403	0.68876

Pairwise Granger Causality Tests
Date: 02/04/04 Time: 12:47
Sample: 1875 2002
Lags: 3

Null Hypothesis:	Obs	F-Statistic	Probability
ARTRET does not Granger Cause SPRET	124	0.31629	0.81357
SPRET does not Granger Cause ARTRET		0.54509	0.65242

Performance Indices

Figure 1

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This figure provides the performance of the All Art Index from Mei/Moses, and the S&P500, US Government Bond Index and the 30 year Treasury Bill using Annual data from Datastream over the period from 1965-2002.

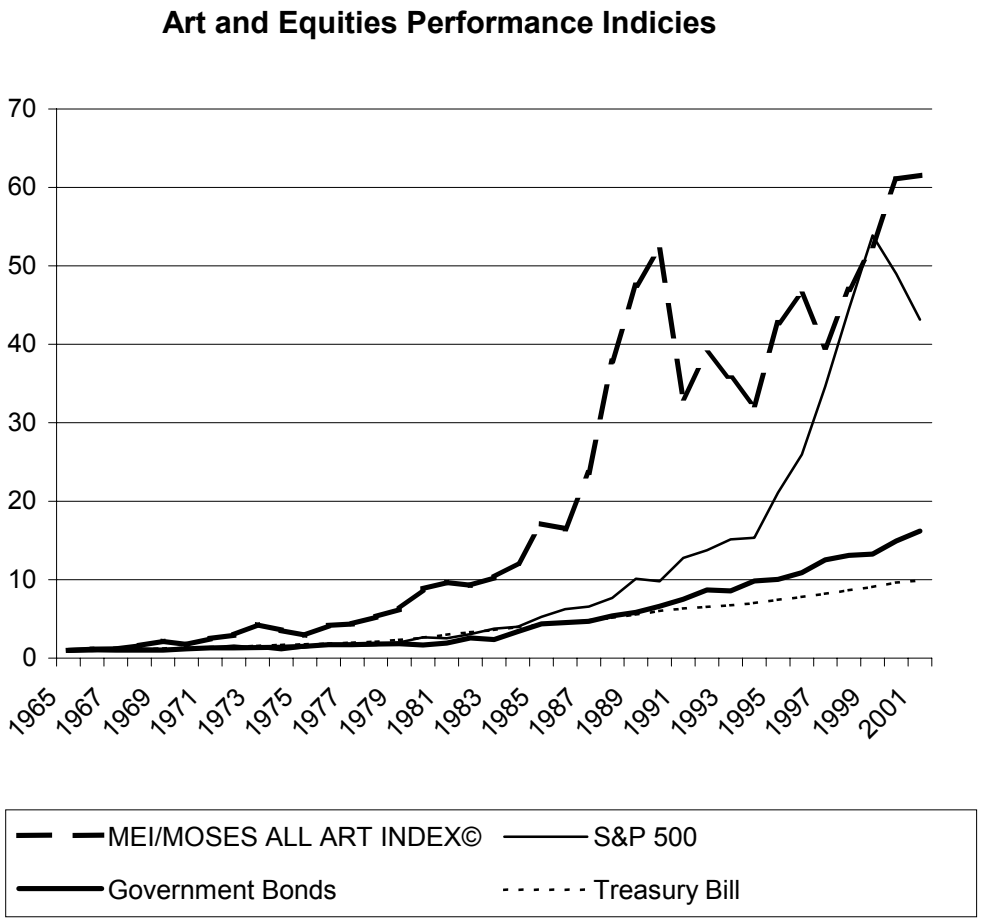

Figure 2

Efficient Frontier

This figure provides the risk-return trade off for the All Art Index from Mei/Moses and the S&P500 using Semi-Annual data over the period from 1965-2002.