Invesco Vision Case Study 8: Portfolio construction with alternative assets

Evaluating opportunities for improved risk-adjusted returns

In this case, we examine the impact of introducing alternative assets into a typical multi-asset portfolio. More specifically, we start by considering an efficient frontier comprised of a small set of fixed income and equity indices. We then consider a scenario where we allow for the inclusion of a handful of alternative asset classes, including Private Equity, Private Real Estate, Infrastructure, and Mezzanine Debt. This allows us to directly evaluate the impact of including alternatives. Also, given the complexities that are often involved with developing return, risk, and correlation estimates for illiquid asset classes, we have chosen to conduct the analysis using robust mean-variance optimization. This results in portfolio allocations that are more diversified and less susceptible to return estimate uncertainty. This also helps to avoid highly concentrated weights to alternatives that result as a function of their attractive risk to return characteristics. We have included a hypothetical portfolio that does not include alternative assets for comparison purposes.

In Figure C8a, the first thing to note is that the scenario efficient frontier that includes the alternative asset classes sits above the frontier of only traditional assets. This is to be expected as several of the alternative assets have higher expected returns as well as low correlations with the traditional assets. Second, when we examine the factor analysis for the selected efficient portfolio on the scenario frontier, we see that it provides the same return as the current portfolio with much better diversification across the macro factors. In this allocation, there is a very meaningful reduction in the equity risk that is replaced by direct real estate, pure private equity, and credit factor exposures. Finally, it is interesting to note that the exposure to alternatives is actually higher than public equities across the entire frontier. This could be a concern for an investor that has significant liquidity requirements. In such a situation, we could impose a constraint on the maximum allowable allocation to alternatives.

In Figure C8b, we present the underlying correlations for the asset universe considered. As can be seen, the correlation of alternatives with the other growth-oriented assets is lower than the correlations of the original growth assets among themselves. This is a direct result of the illiquid and idiosyncratic nature of these assets. It is interesting to note, however, that during stressed periods, such as during the Global Financial Crisis, the correlation of alternative assets with traditional assets does tend to increase. While this suggests that the benefits of alternatives may be somewhat overstated during stressed financial periods, there are benefits to investing in assets that provide access to a broad and differentiated set of return sources.

Figure C8a: Portfolio construction with alternative assets

Comparison of frontiers with alternative investments (scenario frontier) and without (frontier)

Construction

Covariance: Long (8y)
Reference: Absolute
Method: Robust

Display

Covariance: Long (8y)
Reference: Absolute
Lower section: Weights

Info

Currency: USD
Date: 08-31-2018

Run

Efficient frontier

Frontier
Frontier with alternatives
Selected portfolio
PE US SBO
Emerging market equity
Developed ex US equity
RE US MEZ
US large cap
Portfolio
Benchmark
RE US CORE
IFRE US RENEW
High yield
Corporate bond
Aggregate bond
Geometric return (%): 2, 4, 6, 8, 10
Total risk (%): 0, 5, 10, 15, 20, 25

Factor analysis

Isolated Risk
Benchmark
Portfolio
Rates
Inflation
Credit
Equity
Commodity
Real Estate
Private
Hedge Fund
Specific Risk
Currency
Total
Isolated risk (%): 0, 2, 4, 6, 8, 10

Frontier weights

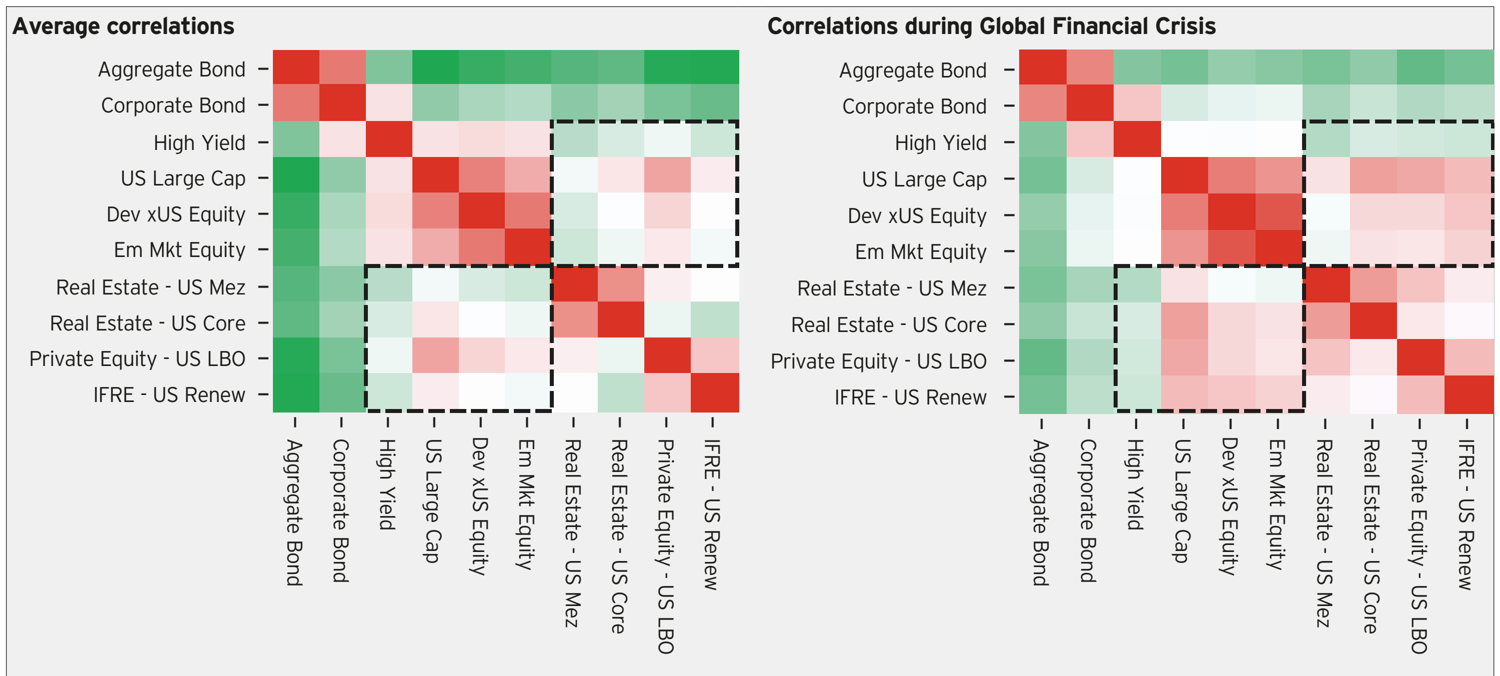
Weight (%): 0, 20, 40, 60, 80, 100
Total risk (%): 0, 5, 10, 15, 20, 25

Weights details

Agg Bond
Corp Bond
High Yield
US LC Eq
Dev xUS Eq
Em Mkt Eq
RE US Mez
RE US Core
PE US SBO
IFRE US Ren
Weight (%): 0, 10, 20, 30, 40, 50, 60

Figure C8b: Correlations of traditional and alternative assets

Comparison of alternative asset correlations on average and during the Global Financial Crisis



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