

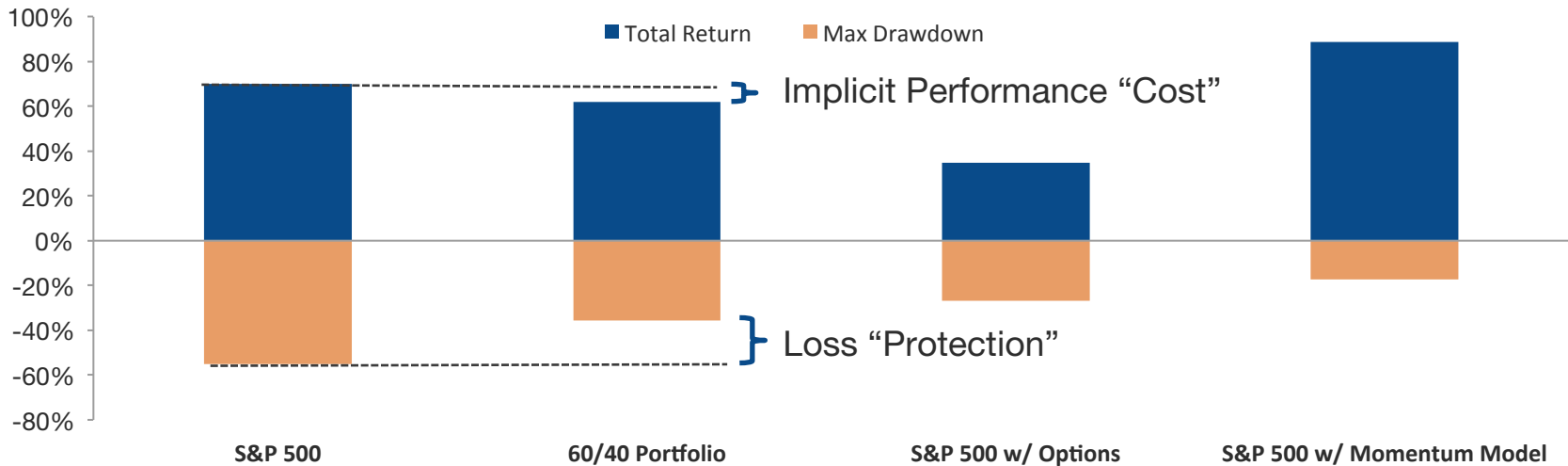


Education: Drawdowns

## Drawdowns: The Costs of Managing Risk

If investors did not care about risk of capital loss, they would invest entirely in high return – and high risk – instruments. Instead, investors tend to be highly risk averse and balance their portfolio with lower return, but lower volatility, fixed-income instruments.

Drawdown management is not free: it comes with either an implicit performance drag (e.g. the return differential between the S&P 500 and a 60/40 portfolio) or explicit premium cost (e.g. the cost of put options).



Performance statistics calculated from 10/1/2003 to 9/1/2013

S&P 500 represented by S&P 500 ETF “SPY”; 60/40 portfolio is 60% S&P 500 ETF “SPY” and Barclay’s Aggregate Bond Index ETF “AGG”, rebalanced monthly.

S&P 500 w/ Options uses a simple Black-Scholes model, entering 63 “trading-day” options, selling 2.5% OTM calls and buying 5% OTM puts.

S&P 500 w/ Momentum Model rebalances monthly, invested either in the S&P 500 ETF “SPY” or cash based on whether the S&P 500 ETF “SPY” is above its 10-month simple moving average



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