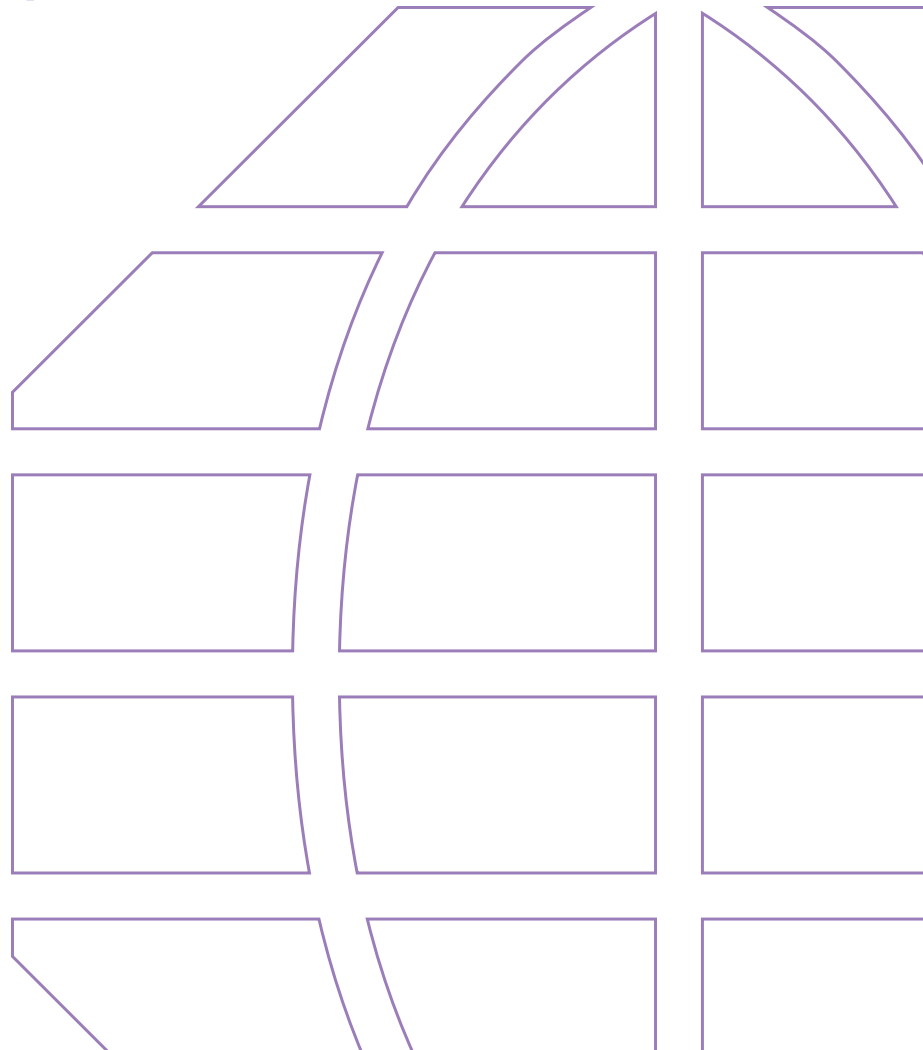


RESEARCH AND PRODUCT DEVELOPMENT

Hedging the Equal Weight (EW) S&P 500 Index

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This article discusses how to combine S&P Index futures to create an effective hedge for the increasingly popular Equal Weighted S&P 500 Index.

Any index that has achieved the broad market acceptance of the S&P 500 index is bound to become the basis of numerous popular variations. Accordingly, the Equal Weight (EW) S&P 500 index has attracted significant investor attention as evidenced by the \$1.4 billion in assets under management in the Rydex EW S&P 500 ETF (Ticker: "RSP"). The EW S&P 500 index references the same constituents as the mainstream S&P 500 index. But while the stocks in the mainstream S&P 500 index are weighted by reference to market capitalization, the stocks in the EW index are weighted equivalently per a quarterly rebalancing procedure. As such, the least capitalized stock has an influence equivalent to the most heavily capitalized stock in the index. But can a market participant hedge or replicate the performance of the EW S&P 500 index using existing stock index futures?

S&P 500 Futures Only

While the mainstream S&P 500 index and the EW version utilize different weighting schemes, they nonetheless exhibit high correlation. As such, market participants readily may hedge the EW S&P 500 index with the currently available S&P 500 index futures, albeit with a slight weighting adjustment.

EXHIBIT 1:

Correlation of Daily Returns
(Data Sampled from previous 61 months)

	S&P 500	S&P MidCap 400
EW S&P 500	0.9795	0.9554
S&P 500		0.9227

Combo Hedge

Note that the least capitalized stocks in the S&P 500 Index may very well perform more akin to mid-cap rather than large-cap stocks. As such, it is reasonable to consider a combination of S&P 500 and S&P MidCap 400 Index futures to hedge the EW S&P 500 Index. Our correlation analysis confirms this presumption, noting the generally high correlations among the indexes.

EXHIBIT 2:

Hedge ratios

Weights In	S&P 500 Only	Combo Hedge
S&P 500	1.0482	0.7045
S&P MidCap 400	0.0000	0.3392

Applying a hedge utilizing only S&P 500 futures, market participants may utilize 1.0482 units of S&P 500 futures to every single unit in the EW S&P 500 Index. This is intuitive to the extent lower-cap stocks tend to be a bit more volatile than higher-cap stocks. The combo hedge may optimally be applied using 0.7045 units of S&P 500 futures combined with 0.3392 units of S&P MidCap 400 futures.

Performance

Applying these hedge ratios, we simulated monthly performance for the two strategies including associated tracking errors. Tracking error is defined as strategy performance less performance of the EW S&P 500 Index. We ignore any differentials in dividend accruals and the fact that the hedge ratio is slightly larger than one. Note that some leverage is involved, implying finance cost, but this should not appreciably affect tracking error.

EXHIBIT 3:

Monthly Tracking Errors

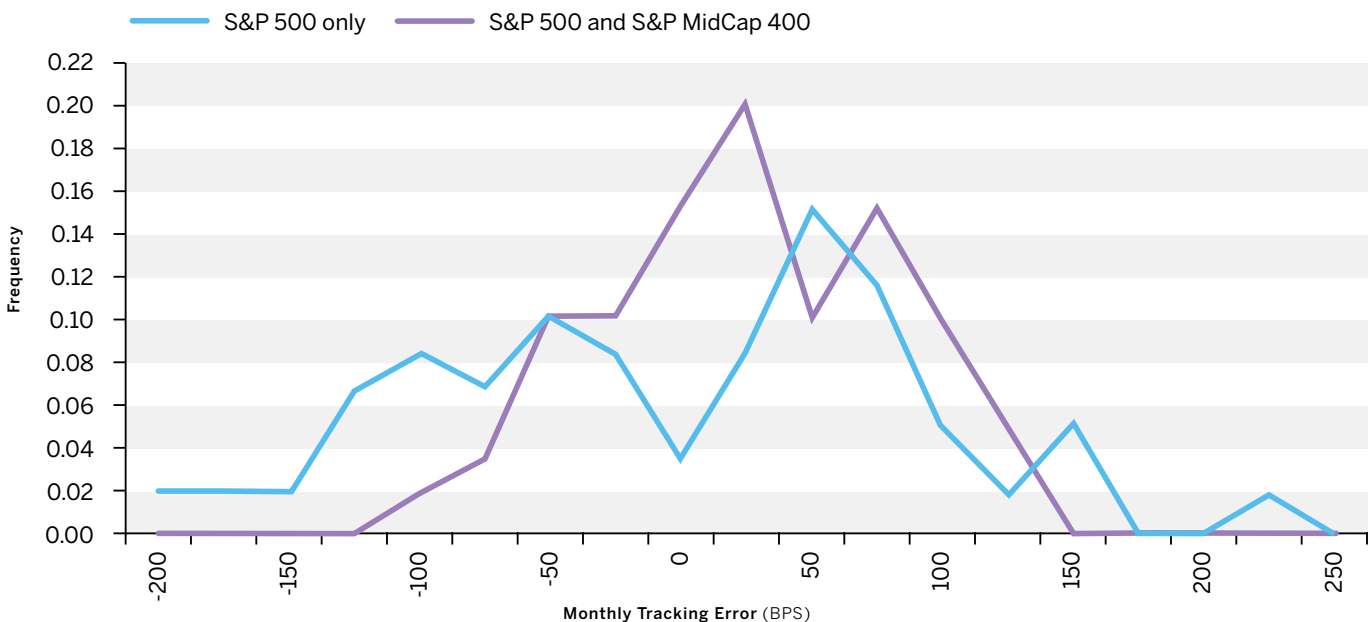
Hedging Strategy	S&P 500 Only	Combo Hedge
Average	-23.85 bps	13.69 bps
Standard Deviation	104 bps	55 bps

Exhibit 4 depicts the distribution of the monthly tracking error of our two hedging strategies. Note that the tail of the distribution using the combination of the two indexes is much lighter than the one using only the S&P 500 Index as a hedge, possibly indicating a better performance in situations in which the market is in distress.

The foregoing ignores any tracking error between the indexes and their corresponding futures. Note, however, that the S&P 500 Index futures contract enjoys outstanding liquidity and minimal tracking errors vs. the spot index. Accordingly, we believe that market participants might readily hedge or replicate the performance of the EW S&P 500 index with existing futures contracts.

Lower-cap stocks in the index may act more like mid-cap than large-cap stocks, making a combo hedge of S&P stocks an effective way to hedge exposure.

EXHIBIT 4:
Tracking Error Distribution



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