

Strategies
for
Investing
in the
S&P 500



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Hedging
Currency Exchange Rates

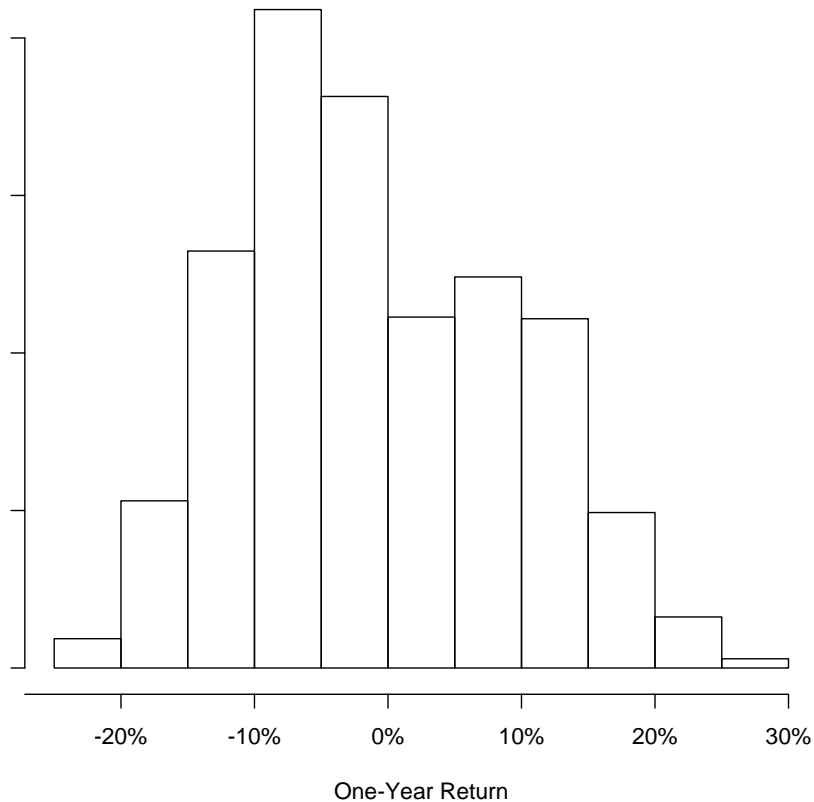
By

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What is Currency Hedging?

- Investing in foreign countries exposes you to changes in both the value of the investment and currency fluctuations.
- Hedging tries to lower the effect of currency fluctuations.
- Examples of currency hedged Exchange Traded Funds (ETFs) that invest in the S&P 500: Ticker symbols VSP and XSP for Canada, IGUS for UK, IUSE for Europe, IHVV for Australia.
- But currency hedging is not perfect and sometimes performs better or worse than un-hedged investments.

Annual Returns for USD-EUR (1999-2015)



Exchange from EUR to USD and
after one year back to EUR.

$$\text{Annual Return} = \text{Exch. Rate}_2 / \text{Exch. Rate}_1 - 1$$

The one-year returns were between
(25%) and 30%.

How To Hedge

Say we are European and have invested USD 10,000 in the S&P 500.

To hedge for currency fluctuations we first borrow USD 10,000 in USA and exchange them to EUR 8,000 at today's exchange rate of 0.8.

Then we invest the EUR 8,000 in European risk-free bonds.

After the year we get EUR 8,000 plus bond yield in Europe e.g. 5%.

We also have to pay USD 10,000 plus interest rate in USA e.g. 6%.

So we hedged USD 10,600 to EUR 8,400 at an effective rate of 0.792.

Hedging Costs

Cost depends on interest rate in USA and the bond yield in Europe:

$$\textit{Hedging Cost} = (1 + \textit{Interest Rate for USD}) / (1 + \textit{Bond Yield for EUR}) - 1$$

If interest rate on the debt in USD is 6% and bond yield in EUR is 5%:

$$\textit{Hedging Cost} = (1 + 6\%) / (1 + 5\%) - 1 \approx 0.00952 \approx 1\%$$

The hedging cost is negative, i.e. there is a profit, if USD interest rate is lower than EUR interest rate. E.g. if the USD interest rate is 4%:

$$\textit{Hedging Cost} = (1 + 4\%) / (1 + 5\%) - 1 \approx (0.00952) \approx (1\%)$$

The hedging cost is approximately the difference between the interest rates.

Malfunctioning Currency Hedge

Assume the value of our S&P 500 investment decreases to USD 7,000.

We still have to repay the USD 10,000 hedging loan (ignore interests).

If exchange rate is now 0.9 then we exchange EUR 2,700 to USD 3,000.

So now we only have: $\text{EUR } 8,000 - \text{EUR } 2,700 = \text{EUR } 5,300$

This means we have lost: $\text{EUR } 5,300 / \text{EUR } 8,000 - 1 = (33.75\%)$

That is, we lost (30%) on the S&P 500 and (3.75%) on the currency.

But currency gained 12.5% so the un-hedged loss was only (21.25%).

When Does Currency Hedge Malfunction?

The currency hedge gives a worse exchange rate than desired when:

A) There is a gain on the investment and a loss on the currency.

or

B) There is a loss on the investment and a gain on the currency.

In the latter case, an un-hedged investment would always be better.

Conclusion

- Hedging is useful if you believe the foreign currency may significantly decrease in value.
- Hedging lowers the impact of currency fluctuations but does not eliminate it.
- Hedges are reset monthly to lower side-effects.
- The cost of hedging depends on the difference in interest rates between the two countries.

The book gives more details.

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