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CURRENCY HEDGING POLICY

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Based on recently available evidence, a fairly broad consensus on hedging policy appears to be emerging. We have included a copy and commentaries on four key currency hedging policy articles. Also included is a critique on Black's Universal Hedging Formula and a paper on short-term investing. The focus of this discussion is on defining an appropriate currency hedging policy, and not on the benefits of actively managing currencies. These two decisions are independent. Hedging policy defines the desired benchmark for a passive currency management program as well as for measuring active currency management performance, much as equity market indexes are typically utilized as benchmarks. While there are many other important papers on currency hedging, these below span the policy spectrum.

100% Hedging Policy:

Andre Perold and Evan Schulman, 1988, "The Free Lunch in Currency Hedging: Implications for Investment Policy and Performance Standards," Financial Analysts Journal, May/June.

0% Hedging Policy:

Kenneth Froot, 1993, "Currency Hedging Over Long Horizons," National Bureau of Economic Research, Inc., Working Paper No. 4355.

Hedging Conditional on Percent of Non-Domestic Assets:

Philippe Jorion, 1989, "Asset Allocation with Hedged and Unhedged Foreign Assets," Journal of Portfolio Management, Summer.

Universal Hedging Formula:

Fischer Black, 1989, "Universal Hedging," Financial Analysts Journal, July/August.
Michael Adler and Bruno Solnik, 1990, "The Individuality of 'Universal' Hedging," Letter to: Financial Analysts Journal, May/June.

Short-Term Investing Issues:

Shlomo Benartzi and Richard Thaler, 1993, "Myopic Loss Aversion and the Equity Premium Puzzle," Working Paper: Johnson Graduate School of Management, Cornell University, Ithaca, NY.

EXECUTIVE SUMMARY

- 0% hedging is likely to be optimal for plan sponsors with long-term investment horizons; that is, those willing to ignore short-term currency volatility. Long-term, in this case, means a minimum of four years. On average, 0% hedging may result in substantial short-term volatility in non-domestic assets.
- For plan sponsors with shorter investment horizons, hedging is likely to reduce non-domestic asset volatility without changing expected return, except for costs, which are frequently modest. The benefits of a 100% hedging policy for equities may diminish significantly with time horizons beyond a year or two. While hedging may reduce short-term volatility, it may increase long-term volatility.
- Optimal short-term hedging policy, as measured by portfolio volatility, is conditional on the percent of non-domestic assets. Below a minimum exposure abroad, estimated at twenty percent for a typical portfolio, hedging may not be worth the costs. Above this level of exposure, the optimal hedging policy also depends on the nature of plan liabilities, fund status and corporate risk tolerance.

THE ARGUMENTS

A) *The case for 100% hedging.*

The pioneering article on hedging policy (Perold and Schulman, 1988) found that a 100% hedging policy was optimal. They examine ten years of recent quarterly data (1978-1987) and show that a 100% hedged equity portfolio for various countries would have had roughly 20% less volatility than an unhedged portfolio. Since currency return is a zero-sum game (what you gain is someone else's loss), 100% hedging reduces volatility at no loss of expected return (except for the cost of hedging). The impact of hedging policy on risk reduction depends on the percent and kinds (equities, bonds, etc.) of non-domestic assets held.

Criticism of the article has focused on the possible time-period dependent character of the results. The 1978-1987 time period may not be representative of the long-term currency market environment. The question is: How reliable are the size of the risk reduction estimates?

B) *The case for 0% hedging.*

Froot (1993) is a direct challenge to the widely held academic view that currency exposure of international investments should be entirely hedged. Using over 200 years of currency market data, the results show that while a 100% currency hedged policy over short horizons can reduce risk, over long horizons it may increase risk, without increasing return. The basic reason is that hedge returns are driven by different factors at different horizons. Over short horizons, hedge returns are dominated by changes in real exchange rates or the purchasing power of one currency versus another. However, over time, real exchange rates tend to purchasing power parity. At long horizons, hedge returns are dominated by surprises in inflation and (real) interest rates. Hedges on currency returns do not protect against the risk factors affecting long-term exchange rates. Because pension plans have long investment horizons, a 100% hedging policy, or any non-zero hedging policy, may not be beneficial to long-term funding of plan benefits.

It is of interest to note that Froot's data confirms, to some extent, the results in Perold and Schulman. Froot's estimate of short-term (one year) risk reduction from hedging for equities is 13%. Froot also shows that the benefit of short-term hedging for equities diminishes significantly beyond a year or two. The risk reduction estimates depend on whether the assets are fixed income or equities.

The most serious limitation of this analysis is that long-term results may have limited practical value for many institutional investors. This is because plan sponsors may have to consider near-term portfolio volatility to properly fund plan benefits. In addition, the nature of the firm and its liabilities, including tolerance for near-term volatility and funding status, need to be considered.

C) *Hedging conditional on asset mix.*

Jorion (1989) focuses on portfolio, instead of asset, volatility. This is a practical decision criterion since most U.S. investors are primarily invested in U.S. assets. Jorion's empirical study examines monthly data for the eleven year period from 1978-1988. He finds that the addition of international assets decreases portfolio risk, whether or not the assets are hedged. The effect of hedging currencies reduces asset volatility and increases the correlation with U.S. assets. Taking into account both a lower volatility and a higher correlation implies that hedging barely reduces aggregate portfolio risk, unless non-domestic assets are a substantial part of total assets. Roughly, Jorion finds that twenty percent was the minimum level of investment in non-domestic assets required to make currency hedging valuable.

As with Perold and Schulman, Jorion's results can be critiqued because they are time-period dependent. However, recent data appears to confirm these results.

D) *Universal (80%) hedging policy.*

Black (1988) uses a very different, essentially non-financial, framework for examining currency return. Black develops a single-period universal hedging policy formula which suggests that hedging increases expected return for both participants; that is, currency hedging is not a zero-sum game. His results are independent of the level of non-domestic assets, investment horizon or investor risk averseness. Using recent market data, Black estimates that 80% is an optimal universal hedge policy.

Black's single-period formula has been severely criticized by a number of financial economists, including two specialists in international markets: Adler and Solnik (1989). Basically, the critique centers on Black's non-financial and non-standard framework and key assumptions. In addition, Froot (1993) notes that investors must be willing to bear considerably more risk than normal if they wish to take advantage of the positive expected returns described in Black. While original and interesting, this paper has had limited practical acceptance as a valid prescription for hedging policy for plan sponsors.

E) *The Rationality of Short-Term Investing Objectives.*

As Benartzi and Thaler observe, the behavior of many investors is not rational; that is, it is not consistent with expected utility maximization. Investors are often forced to be "myopic" and overly "loss averse" due to many non-investment considerations. Many plan sponsors are likely to find that short-term asset risk is an important corporate concern in the context of: asset management monitoring, projected cash flows, plan liability and corporate risk and plan funding status. In such cases, investment horizon, risk-averseness and other assumptions are likely to impact hedging policy.

COMMENTS AND SUMMARY

If short-term currency risk is the overriding concern, then significant currency hedging is advisable. Significant here typically means a 50 to 100 percent hedging policy. Except for hedging cost, which is relatively minimal, a 100% hedging policy reduces the volatility of non-domestic assets and does not change expected return. However, the benefits of short-term hedging may diminish significantly beyond a year or two.

0% hedging is in the long-term best interests of plan participants if short-term currency volatility can be ignored. Long-term, any non-zero hedging policy may reduce the value and increase the volatility of plan assets. In addition, the impact of the hedge decision on portfolio volatility may not be very meaningful unless 20% or more of assets are non-domestic.