A primer on hedging foreign currency risk

By Neil Record

The early 1990s have seen a rapid and unprecedented export of capital by U.S. institutional investors to invest in non-U.S. equities and bonds.

The effect has been to raise dramatically the importance of changes in foreign currency values vs. the U.S. dollar in the performance of the overseas portfolio in particular, but also the whole investment portfolio.

For larger funds, the scale of overseas diversification now means they have in excess of 20% of their assets in non-dollar investments, and many plan to continue to increase this proportion further. Other funds plan to follow, and this weight of non-dollar assets forces plan sponsors to confront the impact of foreign currencies.

An unwanted nuisance

International bond managers have long been aware that decisions about non-dollar bonds cannot be made in isolation: They have to be made in the context of the monetary conditions prevailing in that currency, and an explicit currency decision (hedge/no hedge) has to be included in the decision-making process. International equity managers generally have not faced this issue squarely because a particular country's equity performance is not clearly related to that currency's monetary conditions. So what are the issues?

• Investing in non-dollar equities is inherently less attractive than investing in dollar equities because of the currency effect.

• Most studies have shown that foreign currencies offer zero long-term expected return but add an additional layer of volatility. Graph 1 shows returns of weighted currencies in the Morgan Stanley Capital International Europe Australasia Far East Index from 1978 to 1992.

The historically low overseas investment percentage of most U.S. funds is eloquent testimony to the force of the first point. However, the weight of international equity research in the late 1980s forced sponsors to recognize that expected returns in a variety of non-U.S. equity markets were significantly higher than U.S. domestic equity returns; and the margin very adequately compen-

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sated for the additional unwanted volatility that exposure to foreign currencies brought.

At a macro level, most plan sponsors recognized the U.S. was the world's most mature economy and one of the slowest growing of all the major Organization for Economic Cooperation and Development economies. They recognized that not only were a number of potentially stable and easily accessible economies offering higher expected returns than U.S. equities, but also that there was a new sector of very rapidly growing non-OECD countries whose capital markets were developed to allow for the first time the large-scale investment U.S. institutions needed. These could broadly be called the emerging markets.

This recognition has meant a century of isolationist investment policy by U.S. institutions finally has been broken, and thus the foreign currency issue has arisen.

A gallop through the literature

There is a mass of academic literature on the behavior of foreign currencies in the 23 years since the breakdown of the fixed exchange rate system of Bretton Woods. There is a great deal less on the impact of currency movement on U.S. funds' overseas equity portfolios, but academics and market practitioners are making amends.

A crude summary of the literature on currency market behavior over 20 years is as follows:

• There is no consensus model explaining exchange rate movements.

• There is no evidence that holding stable long or short positions in any currency will systematically deliver positive returns.

• There is a consensus that exchange rates can deviate from long-term norms by substantial amounts for several years.

Similar generalizations can be made about the new literature on the impact of currency movements on U.S. funds' overseas investments.

• Unless there is negative correlation between foreign currency denominated portfolio returns and foreign currency returns, foreign currency exposure will increase the foreign asset portfolio volatility.

• Most work has shown no such negative correlation; correlations between typical overseas portfolio returns in foreign currency and returns on the foreign currency vs. the dollar have been shown to be insignificantly different from zero. Graph 2 illustrates this point.

• A fund may be able to improve its Sharpe ratio (reduce its volatility without affecting portfolio returns) by systematically hedging foreign currency risk.

No consensus

Unfortunately, this is where the consensus breaks down. The prescriptions suggested by the various studies are almost all different, ranging from proposals to always hedge 100% passively (it will reduce portfolio volatility with no diminution of return), to never hedge (hedging involves transaction costs, which should be avoided). The debate is wider than this, however, encompassing all of the following questions:

• Not only what hedge ratio should a fund adopt, but also, what process should it employ in getting there?

• Should asset allocation across countries itself be determined by hedging policy?

• How does a fund decide whether it wants active or passive currency hedging?

• If a pension fund chooses to actively hedge its currency exposure, how should the plan sponsor decide what style of active manager to employ, and how will it know whether the manager can deliver?

The sponsor's dilemma

A plan that has been recently increasing its overseas holdings may only just have broken the 10% mark; exposure below this is frequently ignored as being de minimus. This plan sponsor may have had no prior exposure to foreign currency hedging issues, and therefore will be unfamiliar with the markets, the instruments available and all but the basic arguments. He or she most naturally will respond by embarking on a process of education in these matters, and by a determination to not enter any investment activity that could end in either tears or disaster. For many, the best decision seems to be to continue the process of learning about foreign currencies, and remain unhedged.

If this path is at odds with the logic of currency overlay, how can this dilemma be resolved?

A practical blueprint

The overseas-invested plan sponsor has a real need to become familiar with currency overlay. For many plan sponsors, using a currency overlay manager should be treated initially like the purchase of the first work of art — it may not provide real value, but the process will lay foundations that will allow real value to be generated in the future. So the first prescription is start — but start small if necessary.

Concurrent with this, plan sponsors should examine the currency benchmarks they establish for overseas managers. If currency overlay is to be handled by overlay specialists, as it almost certainly should be, there are very good arguments for treating all of your equity managers as if their investments were fully currency hedged. Tell your equity manager he has to beat the free-market forward discount or premium of the foreign currency before he can say he has made any return at all.

You could even try a simple rule here: "If a forward market to sell the currency does not exist, do not invest." Such a prescription has a great advantage of consistency and testability. It also encourages the development of forward markets in these currencies.

Several commentators have noted that rigid application of benchmarks like these would radically change many overseas managers' asset allocations. The only logical response to this is that if country allocations were made either ignoring currency risk, or for a speculative position in that currency, then a re-allocation can only be a good thing.

Passive vs. active overlay

Whether or not the plan sponsor's decision-making is just the initial "toe-dipping," or establishing a 100% hedge ratio, the plan sponsor will wish to approach that decision-making as scientifically as possible.

Let us look first at the active/passive dichotomy. As conventionally used, "passive" means a constant hedge ratio consistently and systematically applied without forecasting (almost always using rolling forward sales of the foreign currency). Passive strategies are assumed to generate zero expected return. In contrast, active strategies are usually assumed to involve forecasti[illegible]d are justified on the groun[illegible]erating positive expected r[illegible]s.

But there are a number of other strategies that do not use forecasting, and that can be consistently and systematically applied. One example is the consistent rolling purchase of foreign currency put currency options; another is the consistent creation of synthetic currency options — a subclass of dynamic hedging.

The outcome of forwards, options and dynamic hedging will, in many circumstances, be very different, and the extent of this differentiation in one example currency is illustrated in Graph 3. The graph shows the return vs. a fully hedged asset of systematic rolling option purchases, and of creating rolling synthetic options (dynamic hedging). The rolling forwards passive strategy is the hedged benchmark, so its returns are by definition zero.

While none of these strategies requires forecasting, and all are applied in this example to 100% of the assets, the differences in the results illustrate the assumption that passive strategies produce a standard result is misplaced. I propose to abandon the passive/active split and substitute instead systematic vs. non-systematic.

Systematic vs. non-systematic

The systematic/non-systematic distinction is this: a systematic overlay is one whose position, and results, can be accurately calculated from any foreign currency behavior vs. the dollar over time. This means past results [illegible] calculated even where an [illegible] was not in place; it means [illegible] results can be simulated with 'what ifs'; and it means the results of a particular period of live overlay can be clearly seen to be the direct result of the particular behavior of the foreign currency market. Such systematic overlay may include the following styles:

• Passive hedging (rolling sales of foreign currency forward contracts);

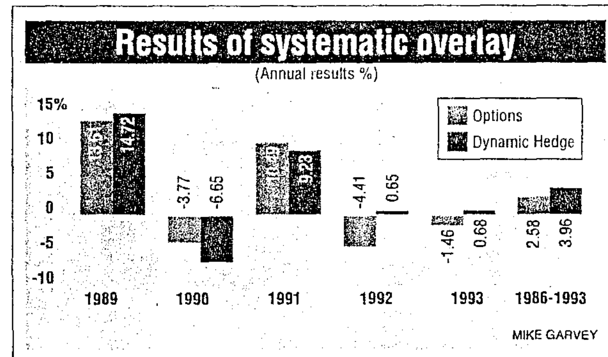
• Options purchasing (rolling purchases of foreign currency puts);

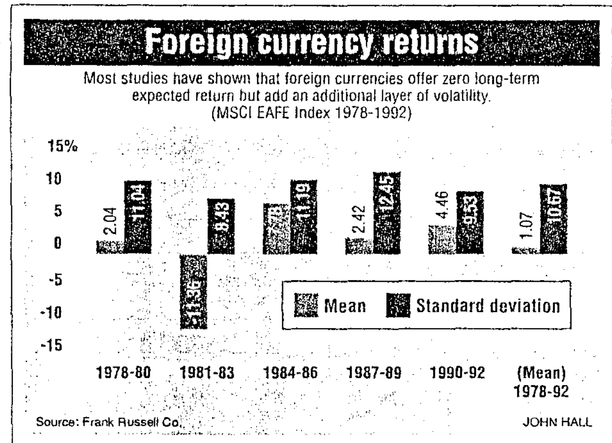
• Dynamic hedging (rolling synthetic purchases of foreign currency puts); and

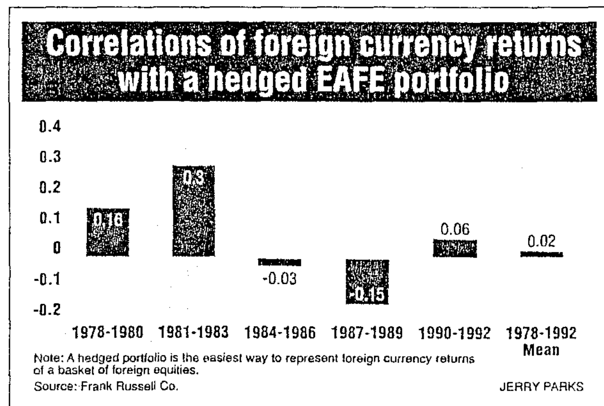
• Technical trading — but dependent on stable model parameters.

A non-systematic approach is any overlay strategy that cannot be reconstructed accurately from openly observable data, and for which future performance is not a deterministic result of future currency behavior. The vast majority of fundamental styles fall into this category, as do most of the techni-

See Overlay on page 22







Overlay

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cal, chartist and opportunistic hedging strategies. Any strategy that relies on a continuous refining of models from recent data, or that relies on the judgment of traders, is by this definition non-systematic.

Choose systematic

A plan sponsor now in the process of considering overlay can greatly reduce the "nasty surprise" and the "regret syndrome" in currency overlay by adopting the following key points.

• Choose systematic overlay; unsystematic styles can, by definition, deliver nasty surprises.

• Hire a currency overlay manager that offers a clear, definable strategy. Don't shrink from hiring a currency manager even for 'passive' rolling forwards; a good overlay manger will save his fees in efficient transaction costs, and will bring collateral benefits such as analysis and reporting.

• Demand that your overlay manager sticks rigidly to the strategy he or she has been hired to follow.

• Do not allow your overlay manager's claims for positive returns to dominate your judgment. Be prepared to regard the overlay as a success even if it generates zero return.

• Get familiar with the overlay strategy before it has commenced. Prepare your arguments to defend the overlay strategy when it is worse than the unhedged alternative — there will be years when this is the case. ■