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Where Overlay Comes In

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INTRODUCTION

In 1995, the author was asked by the treasurer of the World Bank to review the currency management arrangements for the staff retirement plan. He believes that his only real qualification to make such an assessment was that he had traded derivatives, but had no prior knowledge in either pension fund management or currency overlay for asset management. As a result, the author searched out a few overlay firms (there are not many more today) to get his education in this business.

His education, while valuable, was limited in the fact that (a) currency management was a relatively new business (FX Concepts' first client, for instance, initiated its programme only in 1987); (b) currency overlay managers had never managed pension funds and hence had a limited knowledge of the value of the overlay at the overall fund level; (c) there was a marketing dichotomy between "active managers" and "risk control" managers, without either side realising that all currency management is active management and provides risk control; and (d) an attempt was made by some of the managers to show clients that currency management was essential because without currency management there would be

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huge embarrassment risk from large negative performance outcomes – such a negative approach had marketing appeal in certain markets but conveyed a wrong view of what currency management was about.

The world is different today and clients are much more sophisticated than we were in 1995 (see Mashayekhi-Beschloss and Muralidhar, 1997) and clients have implemented many innovative programmes to improve the overall return-risk characteristics of currency overlay programmes and their overall pension funds. This chapter will briefly summarise two approaches to overlay – the first we will call the 20th-century view of currency management and the second we will call the 21st-century view of currency management. In the latter, it will demonstrate how different clients have created innovative versions of currency overlay, while tapping into the positive attributes of currency management. In closing, this chapter will demonstrate important aspects of strategies employed by managers and how they can give pension clients the maximum value for the risk allocated to this activity.

THE 20TH-CENTURY VIEW OF CURRENCY MANAGEMENT

Currency overlay was born with some innovative clients (for example, Kodak and General Motors) realising that investing abroad carried with it some unique challenges – most equity managers were held to unhedged international equity managers and hence made little or no attempt to manage the "translation" risk of foreign currencies back into the base currency. For example, if the yen was going to be weak, equity managers would have an incentive to favour export-oriented companies in Japan, which would probably be a terrific equity trade, but the act of converting the client's base currency into yen to buy Japanese stocks would be a terrible currency transaction (since it would lead to lower returns in the base currency). Hence these clients realised that it was possible to hire managers with an expertise in only currency, which would not, in any way, intrude on the activities of the equity manager, to ensure that the currency composition of the international equity portfolio was managed. Prior to such a business's existence (and even many years after), there was a naïve view that if one had an unhedged international exposure it was synonymous with being "unmanaged".

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EVOLUTION OF THE INDUSTRY AND ITS IMPACT ON INVESTMENT STRATEGIES

The industry grew out of managing the translation risk with respect to international equity investments, and hence a number of biases began to creep into the investment strategies of managers as well as the "education" they imparted to clients. The first bias was that most pension plans looked at the currency management only as a risk management programme, and typically it pertained only to international equities. As a result, the early versions of the programme were such that currency managers were typically allowed to sell only foreign currencies in favour of base currencies (and were not allowed to enter into cross-hedges or trades where the two legs of the currency transaction did not include the base currency).

For simplicity, we will call this approach "selective hedge". This had many negative implications that we will explore later, but probably the most significant was that it caused most currency managers to build individual currency models for the major currency pairs (models for US dollar/French franc, US dollar/ Japanese yen and so forth). As a result, the creation of the euro would have interesting implications for a number of strategies and optimal portfolio construction.

The second naïve focus on purely embarrassment risk allowed currency managers to exploit the fact that currency returns had fat tails – in other words, there was a reasonably high probability that currency returns could be very negative, thereby embarrassing the client. In such a situation, clients felt the pressure to implement a currency programme for fear of being accused of being negligent. Figure 1 demonstrates how unmanaged currency returns from international equity portfolios, for Canadian clients are fat-tailed (light bars). The case was made to clients that hiring currency managers would generate excess returns and make the return distribution more normal. However, if large negative returns were an issue for clients, active management is not the only solution – a simple 50% passive hedge ratio would eliminate these tail events as shown in Figure 1 (dark bars).

The third naïve recommendation came from the fact that the primary roots of the business were in trying to manage large negative events and profiting from positive movements. The ideal instrument for such a transaction would be for the client to purchase an

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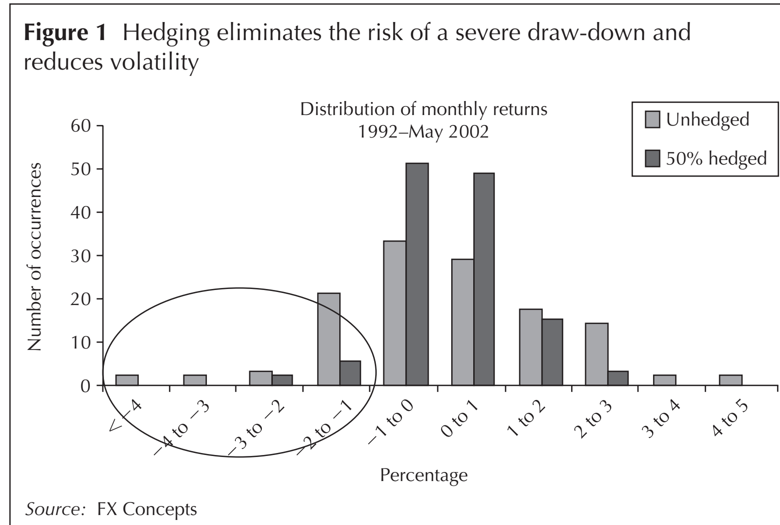
Figure 1 Hedging eliminates the risk of a severe draw-down and reduces volatility



Source: FX Concepts

option, but most managers realised early on that options are typically overpriced. Hence, the activities of most managers are in the form of creating options dynamically through the use of forward contracts. While most "active managers" would be loath to admit that they are "dynamically" creating options – as that is the reserve of the "options replicators" – there is nothing wrong with generating a call option profile, if the mean of the returns is higher than that of the benchmark – ie, the manager generates excess returns. The managers adopted three styles of management: *trend following*, *fundamental economic analysis* and *risk control* (a form of trend following with more focus on options replication than directional trading). Most clients early, on and even most managers, precluded the use of options in currency management programmes. However, by diversifying across managers, most clients diversified their risk of underperformance (Muralidhar and Tsumagari, 1999). Finally, most clients did not even bother to consider emerging market currencies, as most managers did not provide products to cover this market (see Muralidhar, 2001).

CURRENCY OVERLAY DELIVERED ON ITS PROMISE

In spite of these restrictions, currency managers had a reasonably strong performance over the first decade of their existence

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(Strange, 1998; Baldridge, Meath and Myers, 2000; Hersey and Ogunc, 2000). Most consultants by the end of the first decade had come out in favour of active management as a means of generating positive returns. What is interesting is that these studies did not focus on the risk management aspects of currency overlay, even though the industry grew out of a risk management focus. Most of these studies explicitly or implicitly recognised that currency management had a higher calling. Some simple analyses demonstrated that active currency programmes, by effectively eliminating the large negative tail events, were able to change the distribution of returns not only to shift the mean (ie, add excess returns), but also eliminate the left tails (see Muralidhar, 2000). Further, by examining the positions of all currency managers, it was possible to show that even those managers who classified themselves as "risk control" were taking off-benchmark positions with embedded directional views (see Muralidhar and Pasquariello, 2001). In short, all managers, regardless of marketing label, were active managers, and, by virtue of dynamically creating options through the use of forward contracts, were providing risk control as well. Moreover, even though the data on these programmes ranged from as little as three years to as many as ten years, it was possible to have a high confidence that there was skill in these investment processes (Muralidhar, 1999).

THE EVOLVING VIEW ON CURRENCY MANAGEMENT AND THE COMING OF THE EURO

Don't be cross with cross-hedging

As clients had more experience with currency management they began to realise that programmes could be improved from the selective-hedge programmes. The first realisation was that the exclusion of cross-hedging as a strategy to be used by currency managers could actually lead to more risk in the portfolio. For example, if an equity manager allocated more to British equities with a corresponding underweight in Japanese stocks, they were also implicitly taking a view on the pound–yen relationship. Not allowing a currency manager to implement a cross-hedge ran the risk of leaving a position in the portfolio that could be detrimental to the performance of the fund. In addition, currency managers were clamouring for the possibility to diversify risk in a market

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where, even prior to the creation of the euro, there were only 20 possible trades that could be implemented in selective-hedge programmes. Cross-hedging gave managers more possibilities and allowed them to generate higher information ratios (Muralidhar and Richmond, 1999).

Taking off the blinders – A portfolio view of currency management

The more important realisation was that just managing the currency risk in international equities with a view to lowering the risk from international equities and potentially raising returns was extremely naïve. Any activity made in the context of any part of a portfolio needs to be viewed from the perspective of what it provides to the total portfolio and not just to a microcosm. The realisation that active currency returns were uncorrelated with the returns of most asset classes (Muralidhar, 2000) – and, more important, because the lack of correlation with these assets would have a significant ability to lower asset-liability risks and lower potential contributions for a pension fund (Muralidhar, Prajogi and van der Wouden, 2000) – led to a much more refined view of the benefits of currency management. In effect, currency overlay could provide an uncorrelated source of alpha to the pension fund. Hence, limiting the contribution of such an alpha source to international equities (or worrying about whether it made one asset-class return more normal) would limit the overall benefit to a pension fund, especially in the 21st century, when many funds found that their risk to liabilities was increasing and potential contributions rising.

Europhobia, europhoria and adapting to the new world in currencies

The creation of the euro played a bad trick on currency managers. To begin with, currency managers had strong performance and information ratios, and this was managed with only 20 currencies (which, given cross-hedging, gave a fair opportunity set). A number of research studies highlighted earlier suggested that the alphas in currency management were approximately 150 bps annualised and information ratios ranged from 0.5 to 0.7. However, the arrival of the euro took 10 currencies off the table – this would be akin to

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an equity manager being told that the S&P500 was now suddenly just the S&P250!

Most currency managers reacted to this event by modifying their Deutschmark models with mixed results. However, the bigger problem for currency managers was that the markets were moving sideways more frequently and performance was becoming more lumpy (Muralidhar and Neelakandan, 2002 and 2003). Moreover, since currencies were moving sideways currency managers were struggling with another problem – building a strategy that was based on many individual currency-pair models required the manager to have a good sense of which currencies would be in motion or else the client's risk was being poorly allocated.

THE 21ST-CENTURY VIEW ON CURRENCY MANAGEMENT

The impetus to currency overlay management came from two fronts: first, a number of consultants verified that this activity was an alpha generator and that the industry as a whole had performed well; second, with mainstream markets starting to underperform, there came the recognition that even 150 bps of excess return (without any upfront funding) could be invaluable to improving the overall returns of the pension fund. Very quickly, the focus shifted from hedging exposures inherent in underlying equity exposures to a concept of budgeting risk to generate the highest possible uncorrelated return (uncorrelated to other asset classes).

The many virtues of currency management

The attractiveness of currency management was that (a) it was unfunded; (b) it was completely transparent; (c) it exploited a market inefficiency in that there were many nonprofit participants (unlike other asset classes where all participants are profit-oriented); (d) it was a very large market and hence could be exploited in size; (e) it was a pure cash-generation strategy; and (f) liquidity was not an issue as a programme could be terminated in as little as two days (Muralidhar, 2002).

Around this line of thinking, there are two schools of thought: (a) those clients who apply currency management to both international bond and equity allocations (increasingly clients are realising that most of the alpha from international bond investments can be attributed to currencies); and (b) those clients who realise that

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holding the base currency is an active currency decision and are willing to apply currency management to the entire portfolio. In the latter camp, one is likely to find innovative clients who realise that the absolute value of the fund needs to be protected. Hence, holding assets in the local currency may be detrimental to overall value and they want to reserve the right to sell the base currency as well. These mandates are implemented on either an unlevered or levered basis. Under this form of currency overlay, which we label "diversified currency overlay", discretion is given to managers to create optimal portfolios of currencies, with cross-hedging, net shorts and net longs permitted. Typically, restrictions, if any, are based on liquidity tiering, whereby the manager is constrained from allocating a large portion of the risk budget to illiquid currencies (see Muralidhar, O'Grady and Simotas, 2002). More sophisticated clients also tend to want managers who create portfolios dynamically (rather than on the basis of individual currency models) within a risk-budgeting framework. As one can see, within the space of a little more than a decade, the objectives – and thereby the focus of clients – have shifted, causing managers to evolve the strategies they offer.

ARE CURRENCY CLIENTS BEING SHORT-CHANGED?

As clients have begun to focus more on currency as a provider of a high return–risk ratio, the biggest challenge to managers continues to be the reduced opportunity set after the creation of the euro. Instruments and markets that currency managers had previously ignored are now vital to the success of the industry. As Figure 2 demonstrates, clients could have three types of objectives/desired mandates as shown on the vertical axis of the matrix: (a) standard overlay or selective hedge; (b) enhanced overlay or diversified currency overlay; and (c) leveraged versions of the diversified currency overlay. The sources of diversification are shown on the horizontal axis: (a) using forwards only in developed markets (current practice); (b) including options in developed markets; and (c) adding in emerging markets, which could provide as many as 22 additional currencies.

In the boxes of the matrix, we can see the number of managers, the alpha expectation and the expected information ratio. The chart shows that the industry is concentrated in the top left corner of the

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Figure 2 Innovative ideas in currency management

	Developed markets (forwards)	**Developed markets – options enhanced**	**Emerging markets (deliverable and non-deliverable forwards)**
Standard overlay			
❑ No of managers	20	Fewer than 5	Fewer than 5
❑ Return expectations	1–1.5%	1.75–2.25%	2–3%
❑ Information ratio	0.4–0.5	0.6–0.8	0.8–1.0
Enhanced overlay			
❑ No of managers	10–15	Fewer than 5	Fewer than 5
❑ Return expectations	2–2.5%	2.5–3%	3.5–5%
❑ Information ratio	0.6–0.8	0.8–1.0	1–1.25
Leveraged products			
❑ No of managers	5–10	Fewer than 5	Fewer than 5
❑ Return expectations	10–15%	15–20%	20–25%
❑ Information ratio	0.6–0.8	0.8–1.0	1.00–1.25

matrix, and, while that is acceptable given other asset classes, clients would probably want to be in the bottom right corner (Muralidhar, 2002). In short, clients could be getting short-changed by managers only because there are simple rules that make money in currency markets and allow for decent information ratios – decent from the perspective of what other asset classes offer (Muralidhar and Neelakandan, 2003). However, as one moves to the bottom right corner, the choice of managers, already somewhat limited in this industry, is likely to get even worse.

INCREASING YOUR OPTIONS

Research has shown that options strategies can clearly benefit currency clients (see Huang, Srivastava and Raatz, 2001; Colchester and James, 2003; Muralidhar and Neelakandan, 2002a; Muralidhar and Neelakandan, 2002b, 2003) and this will be a new growth area. Already, one innovative client has implemented an options-only overlay on an existing overlay strategy with a fundamental and technical manager as a way of increasing the information ratio of the mandate, without increasing the risk budget and severely

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reducing the number of negative months. As more clients realise that mandates that exclude the use of options provide less than adequate diversification and potentially lumpy returns, the scope of the industry is likely to expand greatly.

APPLICATIONS TO OTHER INVESTMENT AREAS

While the industry grew up around managing the risk of pension funds, increasingly providers of products to this client base have begun to realise that leaving currency risk unmanaged is bad for business. If one wants to provide products on a truly global basis, then products need to be provided which protect the value regardless of base currency. We have seen interest from real estate funds and hedge funds that want to offer their investors the choice of currency in which they would like to receive their returns – ie, investment made independent of the base currency of the client with currency overlays implemented to protect the base currency value for the client (see Mehrzad and Muralidhar, 2001). More important, even hedge funds fund-of-funds have begun to realise that the absolute level of their returns is impacted by the fact that they are benchmarked to a cash index (eg, LIBOR) and when US dollar LIBOR declines, as it did in the early 2000–03 period, the absolute value of the returns of these funds-of-funds declined dramatically. One way for these funds-of-funds to extract more value from their cash allocations is to implement currency strategies on the cash component to allow them to increase the return without having to liquidate other investments, while benefiting dramatically from the lack of correlation with other strategies (Krishnamurthi and Muralidhar, 2003).

SUMMARY

The industry has evolved from naïve risk management of currency exposures that were left unmanaged by equity managers, with minimal alpha expectations, to one where mandates are sophisticated versions of those one would typically find in hedge fund funds-of-funds portfolios. Increasingly, the focus is on budgeting risk to managers that create optimised portfolios with limitations on individual currency allocations based on liquidity rather than underlying allocation of equity managers. Moreover, the recognition that uncorrelated alpha strategies are desirable from the point of view of overall

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portfolio construction means that the industry will grow exponentially. For it to do so, strategies will need to evolve to include instruments and markets previously underexploited, such as options and emerging markets, and the challenge will be for research staff to be at the cutting edge as the desire for high return–risk strategies increases in coming years.

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