

Exploring The Benefits of International Diversification and Currency Hedging for International Fund Portfolios

by *Stephanos Papadamou*, and *Stavros Tsopoglou*, University of Macedonia

Abstract

We studied empirically three categories of investment funds of Union Bank of Switzerland (UBS), in order to investigate the optimal asset allocation of internationally diversified fund portfolios and the performance of currency hedged versus unhedged fund portfolios, from the different points of view of the investors. More specifically we considered a money market fund, a bond fund and an equity fund in US dollars, British Pounds and Japanese Yen. According to maximum Sharpe ratio criteria the optimum asset allocation is around 80% local currency funds and around 20% of the investment in foreign funds. However, when the investor prefers risk, the benefits from international diversification are considered higher. With a clear downward trend of domestic currency, stock, and money markets (e.g. Japanese) for any specified level of risk; the benefits are also higher for investors. The performance of hedged international funds show that currency hedging can reduce the volatility of foreign fund portfolios. However in the case of equity funds, static hedging with currency forwards does not lead to the expected rise of the return and if we take the transaction costs into account the benefits from static hedging disappear. Finally in special economic situations (e.g. Japan) hedging can lead to negative results.

JEL classification: F3, G1

Keywords: International Diversification; Asset Allocation; Currency hedging; Mutual Funds.

I. Introduction

Research in international portfolios is focused mainly on methods of reducing foreign exchange risk. The first studies on the benefits from international diversification were from Grubel (1968) and Levy and Sarnat (1970). They found substantial benefits for investors with international diversified portfolios. Gramer and Hakansson (1987) based on a t-test found that international portfolios had greater performance than pure US portfolios. DeSantis and Gerard (1997) found that diversification is valuable despite increased financial integration. Wickens (1999) mentioned that although international diversification had potential benefits for UK and US investors, there is still evidence of the home bias.

Another method of research has involved tests of reducing foreign exchange risk in an international portfolio with hedging. Jorion (1985) and Eun and Reusnick (1988) showed that currency hedging with forward contracts against foreign exchange risk could lead to remarkable profits. However they focused mainly on the stock market. There has also been another team of researchers who examined the bond markets. Thomas (1989), Hauser and Levy (1991a,b) and Annaert (1995), as well as many others, found that a US investor could have achieved higher mean rate of return compared to a pure domestic bond portfolio. They also focused on interest rate effect between short and long maturity

bonds. Longer maturity bonds can more effectively reduce portfolio risk. Glen and Jorion (1993) analyzed the performance of mean variance efficient stock and bond portfolios from the G5 countries, when hedging currency risk with forward contracts.

This paper does not aim to contribute to any methodological aspects concerning optimum international asset allocation, but rather to investigate international diversification on different investment fund categories (money market, bond fund, equity fund) and the performance of currency hedged and unhedged funds, from the different aspect of a UK, a US and a Japanese investor. Instead, this paper wishes to contribute to the international markets literature in several aspects. First, by testing the benefits of diversification in an international investment fund context. Evidence for the international diversification has been found in several papers¹. However the majority of these studies have taken into account only the point of view of the US investor and a specified market (i.e. stock or bond market). In our study we extend the research to different investors and different markets. The data used in this study comes from the investment fund market. Studies in this special market are rare, with the exception of Cumby and Glen in (1990).

Second, this work involves risk consideration by constructing behavioral portfolios in every market. And finally, it directly identifies the presence of factors that affect investment fund performance, factors that were not mentioned in previous studies. Performance results depend on factors like:

- Time period investigated
- Different asset markets
- Different behavioral portfolios (behavior to risk)
- Different economic situation of the country
- Different investors point of view
- Transaction costs

The paper is organized as follows: In section II we present briefly the statistical formulae used to calculate the portfolio returns and variance on each currency and to apply the currency hedging strategy. In Section III we present our data and basic statistics that lead to the selection of the particular asset to the portfolio construction estimated in Section IV. Section IV also consists of the currency hedging assessment results for the returns and their volatility. We conclude in Section V presenting some general comments.

II. Methodology

In this section we establish our notation and we introduce briefly the basic formulae used to give the returns of an international portfolio with currency hedging or not. With r_t we denote the weekly return² at time t , and p_t is the price of the fund series. The volatility $Var(r_t)$ is measured by the conditional variance as $Var(r_t) = E(r_t^2 / \mathbf{J}_{t-1})$, where \mathbf{J}_t denotes an appropriate information set up to time t . With S_t being the price of local currency per unit of foreign currency, e_t gives the foreign exchange rate³. The general form of the rate of return of the mutual fund in terms of the numeraire j currency⁴ (US dollar or British

Pound or Japanese Yen), denoted r_t^j . Following Eun and Reusnick(1988) we can obtain an approximation for expected return and variance in terms of the numeraire currency⁵ j . The same applies if we consider the case of an investor who hedges currency risk with a forward transaction. For example in case of a US dollar investor a synthetic dollar asset can be constructed by combining a short dated forward exchange contract with a US mutual fund. By setting F_t the forward price of the domestic currency per unit of foreign currency, and denoting h_t as the relative forward premium⁶, we obtain the expected return and variance in the case of hedged strategy⁷.

The two important points when we compare hedged and unhedged expected return and variance are the following: First, if $F_t = S_t$ then hedged and unhedged strategies will be equal. Second, variance of the hedged position will be less than unhedged, unless the return of the fund and exchange rate will be negatively correlated. The preceding analysis can be extended into a portfolio context⁸. According to this analysis there are three major factors affecting the variance of an international portfolio. First the covariance between assets returns. Second the covariance of exchange rates and third the covariance between assets returns and exchange rate changes.

The methodology of Markowitz (1952) is utilized to show if there are common patterns in asset allocation across investors of different countries and different behavior. Markowitz taught us to build a mean-variance-efficient portfolio by taking into consideration the correlation between assets. In our case assets are the UBS investment funds. The location of the efficient frontier depends on mean and variance estimation. Although Annaert (1995) found sample evidence for the presence of estimation risk, he finds that several estimators like James - Stein, Bayes - Stein do not always outperform the historical mean vector. Based on these results we used realized parameters as estimates of expected return and variance parameters.

III. Data Presentation.

In our study we examine weekly data from three different categories of investment funds of Union Bank of Switzerland (UBS). More specifically we examine one Money Market, one Bond fund and one Equity fund investing only in the United States, or Japan or the United Kingdom. In table 1 and in the remainder of this paper, we shall refer for brevity to the time series of the study with the following symbols: (1) MMUSD (2) BFUSD, (3) EFUSD, (4) MMGBP (5) BFGBP, (6) EFGBP, (7) MMYEN (8) BFYEN, (9) EFYEN, (MM: money market fund, BF: bond fund, EF: equity fund). The data source was UBS AG. The series consists of weekly observations by taking the value of the fund on Friday, except in case of a holiday. In such cases the series is corrected for the missing value by substituting the value of the last preceding available date. All series cover the period from 1/13/95 to 5/29/98, which makes a sample size of 178 observations. For simplicity, we will continue to call it the series of returns and use the same notation r_t .

In table 1 we can see some statistics for the series of returns. It presents the mean rate of return, variance and the cross correlation of the investment funds tested. Low correlation between the fund returns may justify the case for international diversification. In some cases there also occurs negative correlation, such as in the cases between the US, UK stocks markets and foreign Bond funds also as in the case of the negative correlation (-0.14), (-0.18) between bond, equity UK funds and exchange rate USD/BP. Even if in general, correlation levels are low, in the case of the similar category funds in the UK and

US there is the comparative higher correlation (0.45, 0.59), which can imply that the markets in the two countries are more integrated.

As one expects, correlation between money market funds and exchange rate returns is higher than the correlation between other funds and exchange rates. These properties indicate that foreign bonds and foreign equities are more effective in reducing exchange rate risk than money market instruments. Another important point is that exchange rates correlations are comparatively higher than others; implying that an amount of the exchange risk is not diversifiable. A positive relationship between US exchange rate and US stock market was found only in the case of an upward trend. When the US stock market increases compared to Japanese stock market, the US dollar also increases. In the opposite situation, when the US dollar decreases the effect on the stock market is almost zero.

IV. Empirical Results

The effect of fund type and currency risk, on the optimal asset allocation of International Fund Portfolios.

In this section we investigate international diversification benefits for different behavioral portfolios and from different currency perspectives. The real lesson from the recent performance of foreign assets is about the construction of behavioral portfolios. We also assess, the problem of dependency between the optimal currency allocation and the type of funds included in the portfolio.

In table 2, the expected return and standard deviation from each country perspective and the decomposition of portfolio risk in each case, can be displayed. As we expect money market and bond funds can offer safer investment than equity funds.

First by looking at the results from different currency perspective we can say that the Japanese investor had great benefits from international diversification for the time period examined in this study. The Japanese investor could be seen as an investor (e.g. Greek investors for the year 2000) who has a "local investment" problem. When interest rate policy is more and more restrictive, stock markets follow a downward trend and there are no investment alternatives. In case of the US investor there are also potential benefits by investing within the UK, but we cannot say that the inverse applies as well, except for the US stock market.

Second, by investigating the portfolio risk we can see that over 75% of the total risk in case of MM and Bond funds is due to exchange rate volatility independent of each investor perspective. In case of money market funds, the 99% of the portfolio risk is due to exchange rate risk. However, in case of equity funds for the Japanese and the US investor, the variability of portfolio returned is divided between fund volatility and exchange rate volatility (45%, 45% or 65%, 35%). The covariance factor between equity fund returns and exchange rate returns can explain on average, approximately 10% of the total variability.

According to tables 1 and 2 money market funds returns have the lower volatility, but they are comparatively more correlated with exchange rate returns. By investigating which effect is more important in constructing international fund portfolios, we compare different behavioral portfolios. In table 3 are displayed the Markowitz variance-minimizing efficient portfolios, composed of funds from different markets and countries,

from the perspective of American, British and Japanese investors, by taking proper account of correlation between funds. However the typical investors in the 90s bought foreign assets not for their mean-variance benefits but in order to become rich.

In table 3 we take into account risk preferences of every investor by categorizing them from conservative (minimum variance portfolios, mvp) to aggressive (higher expected return - higher risk). As we expect (table 2) the mvp is almost totally (99%-100%) composed of the local currency money market fund. However, as we move towards more risk, the portfolio composition is changing in a similar way across different currency denominated investors. Firstly, moderately conservative investors invest above 70% of their wealth in local currency funds by moving from money market fund to bond and equity funds. Secondly, in case of moderate, and moderately aggressive investors, we can see more clearly the benefits from international diversification. Finally, aggressive investors in any country invest 100% of their wealth in US stock market that offers higher returns. This could be explained by the fact that the US stock market was a "Bull market" for the period tested. According to maximum Sharpe ratio⁹ criteria the optimum asset allocation is about 80% local currency funds and about 20% of the investment is foreign funds.

In order to test any dependency of optimal asset allocation with the characteristic of the market, we constrain the investment to a certain fund market. In table 4 we find Markowitz' efficient fund portfolios of a given fund type. Four different efficient frontiers are obtained; see fig. 1, 2, and 3. The investor has the opportunity to invest only in bond funds or equity funds or the opportunity to mix these funds with money market funds, something that is more realistic in practice.

In the case of bond and fixed income markets for American and Japanese investors the benefits of international diversification are higher, proportional to the risk they undertake. Common across all investors in these markets is the asset allocation of an aggressive investor. He invests all his wealth in UK bond funds. In equity fund markets, investors undertaking low and medium risk put their money between the UK and USA to an almost similar proportion; mainly (around 35%-45%). When the money market is also taken into account, domestic money market funds play a major role in asset allocation. Another important point across these markets is the dominance of the high level of risk in the US stock market.

Performance comparison between currency hedged and unhedged foreign fund portfolios.

In this section we investigate the performance of various international fund portfolios by using two different methods of exchange risk reduction: multicurrency diversification and hedging with forward exchange contracts. According to table 5, currency hedging can reduce the volatility of foreign funds portfolios, except when we constrain the market to equity fund only. Currency hedged fund portfolio outperform the domestic fund portfolios. In this case the specific fund type is irrelevant.

Meanwhile the effect on their returns depends on the currency trend, country of investor and period of investigation. Although for UK, and US investors, where for the period investigated the exchange rate (US/£) was stable, with no clear trend, currency hedging can increase expected return. Furthermore currency hedging can substantially improve Sharpe ratio, without depending on any fund market constraint. For the Japanese

investor with specific country economic market conditions, and a currency with a clear downward trend; currency hedging can have negative effect on expected return and Sharpe ratio. Finally when transaction costs are being considered, the comparison is more difficult for the static hedging strategy. The above can be easily seen in table 5.

V. Conclusions

In general we can conclude that investors with clear downward trend of currency, stock, and money markets (e.g. Japanese) benefit greatly from international diversification for any specified level of risk. The importance of including foreign bond funds in an international fund portfolio has also been stressed. Foreign bond funds effectively reduce the portfolio risk; see also Hauser and Levy (1991). Another important point is the inclusion of US Equity Funds that increases the portfolio return. However this factor depends on the period investigated (Bull or Bear market).

According to maximum Sharpe ratio criteria the optimum asset allocation is around 80% local currency funds and around 20% of the investment in foreign funds. However when we examine the case of investors who prefer risk, the benefits from international diversification are considerably higher for risk lovers. The performance of hedged international funds show that currency hedging can reduce the volatility of foreign fund portfolios. However in case of equity funds static hedging with currency forwards does not lead to improvements of the expected return and when transaction costs are considered the benefits from static hedging disappears. Finally in special economic situations (like Japan) static hedging can lead to negative results. In conclusion, we found dependency of optimal asset allocation on the characteristic of the fund market, risk preferences and various investors' perspectives.

Endnotes

1. Grubel (1968), Elton and Gruber (1995), Bekaert and Urias (1996).

2. $r_t = h(p_t) - h(p_{t-1})$

3. $e_t = \ln(S_t) - \ln(S_{t-1})$

4. $(1 + r_t^j) = (1 + r_t^{lc})(1 + e_t)$

5. Eun and Resnick (1988):

$$E(r_t^j) = E(r_t^{lc})E(e_t) + Cov(r_t^{lc}, e_t)$$

$$E(r_t^j) \approx \mu + \mu_e$$

$$Var(r_t^j) = Var(r_t^{lc}) + Var(e_t) + 2 \cdot Cov(r_t^{lc}, e_t)$$

Where $\mu = (r_t^{lc})$ is the mean return of the fund in local currency, $\mu_e = E(e_t)$ is the mean return of the currency rate and $Cov(r_t^{lc}, e_t)$ is the covariance between the returns.

6. $h_t = \ln(F_t) - \ln(S_{t-1})$

7. Hedged strategy:

$$E(r_t^{j,h}) = E(r_t^{lc}) + h_t + Cov(r_t^{lc}, e_t)$$

$$E(r_t^{j,h}) \approx \mu + F_t$$

$$Var(r_t^{j,h}) = Var(r_t^{lc})$$

8. $Var(r_{p,t}^j) = \sum_i x_i^2 Var(r_{i,t}^j) + \sum_i \sum_{k \neq i} x_i x_k Cov(r_{i,t}^j, r_{k,t}^j) \quad (1)$

$$Cov(r_{i,t}^j, r_{k,t}^j) = Cov(r_{i,t}, r_{k,t}) + Cov(e_{i,t}, e_{k,t}) + Cov(r_{i,t}, e_{k,t}) + Cov(r_{k,t}, e_{i,t}) \quad 2)$$

By using equations 1 and 2, the variance of the portfolio can be approximated as:



$$\text{Var}(r_{p,t}^j) = \sum_i \sum_k x_i x_k \text{Cov}(r_{i,t}, r_{k,t}) + \sum_i \sum_k x_i x_k \text{Cov}(e_{i,t}, e_{k,t}) + 2 \cdot \sum_i \sum_k x_i x_k \text{Cov}(r_{i,t}, e_{k,t})$$

9. $\frac{E(r_i^j) - r_f}{\sigma_i}$, where r_f is the return of the domestic money market fund and σ_i is the standard deviation of the mutual fund.

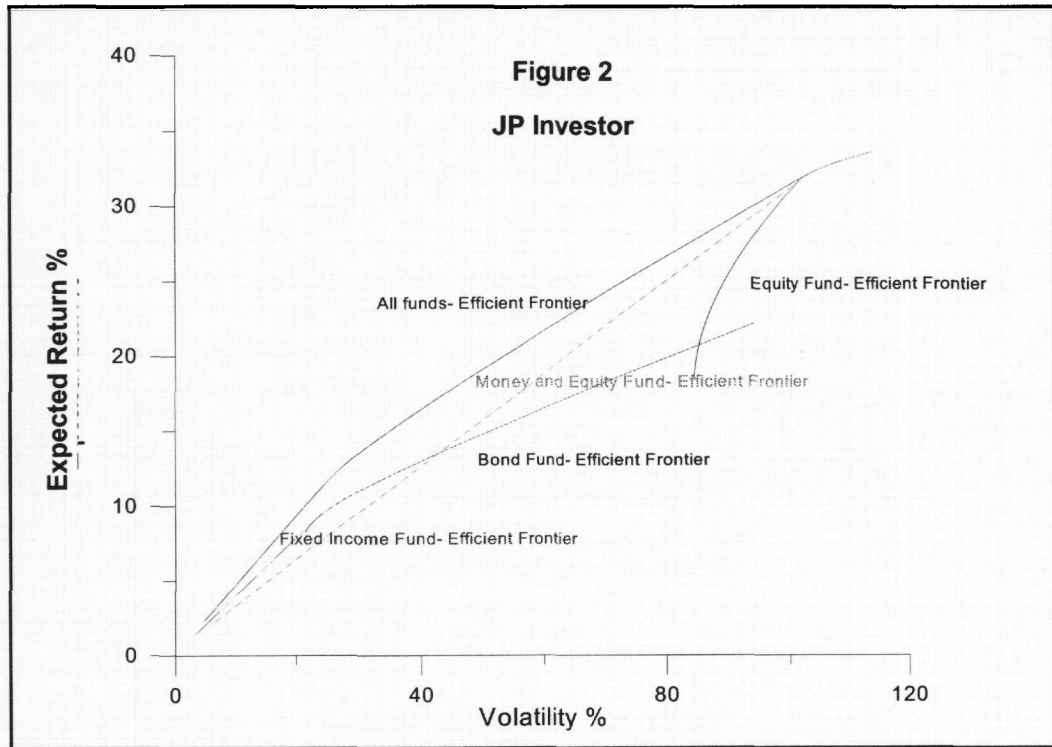
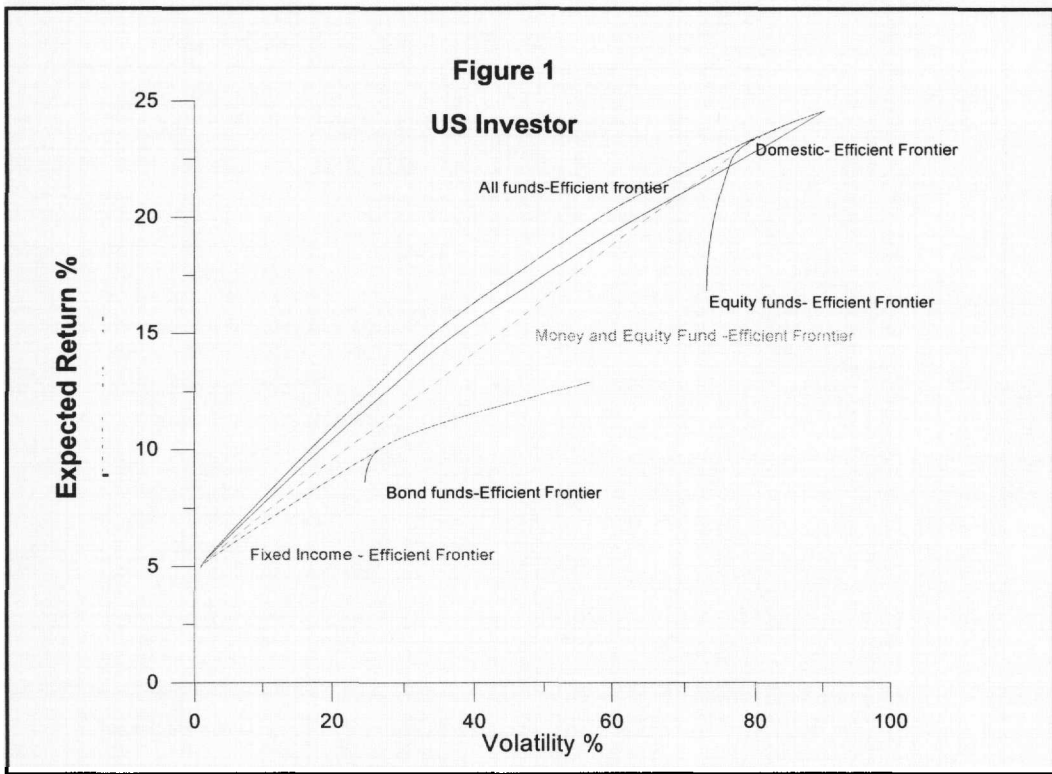
References

- Annaert, A. 1995. Estimation Risk and International Bond Portfolio Selection. *Journal of Portfolio Management*. 5: 47-71.
- Bekaert, G., and Urias, M. 1996. Diversification, integration and emerging market closed-end funds. *Journal of Finance*. 51: 835-870.
- Chen, Z., and Knez, P.J. 1996. Portfolio Performance Measurement: Theory and Applications. *Review of Financial Studies*. 9(2): 511-556.
- Cumby, R.R., and Glen, J.D. 1990. Evaluating the performance of International Mutual Funds. *Journal of Finance*. 45(2): 497-521.
- De Roon F., Nijman T., and Werker B., 1999. Currency Hedging for International Stock Portfolios: A General Approach. Discussion Paper 123. Center for Economic Research: Tiburg University.
- DeSantis, G., and Gerrard, B. 1997. International Asset Pricing and Portfolio Diversification with time-varying risk. *Journal of Finance*. 52: 1881-1912.
- Elton, E. J., and Gruber, M. J. 1995. *International Diversification*. In *Modern Portfolio Theory and Investment Analysis*. John Wiley & Sons. New York.
- Eun C., and Resnick B. 1988. Exchange Rate Uncertainty, Forward Contracts, and International Portfolio Selection. *Journal of Finance*. XLIII: 197-215.
- Flavin T., and Wickens M. 1998. Optimal International Asset Allocation and Home Bias. Working Paper. Dep. Of Economics: National University of Ireland and Maynooth.
- Glen, J., and Jorion, Ph. 1993. Currency Hedging for International Portfolios. *Journal of Finance*. 48(5): 1865-1886.
- Grauer, R., R., and Hakansson, N.,H. 1987. Gains from international diversification: 1968-1985 Returns on Portfolios of Stocks and Bonds. *Journal of Finance*. 42(3): 721-741.
- Grubel, H. 1968. Internationally Diversified portfolios: Welfare gains and Capital Flows. *American Economic Review*. 58: 1299-1314.
- Hall, A., and Knez, P.J. 1995. Testing Portfolio Performance. Working Paper. North Carolina State University.
- Hauser S., and, Levy A. 1991a. Effect of Exchange Rate and Interest Rate Risk on International Fixed-Income portfolios. *Journal of Economics and Business*. 43: 375-388.
- Hauser S., and, Levy A. 1991b. Optimal Forward coverage of international fixed-income portfolios. *Journal of Portfolio Management*. 17: 54-59.
- Levy, H., and Sarnat, M. 1970. International Diversification in Investment Portfolios. *American Economic Review*. 60: 668-675.
- Markowitz 1952. Portfolio Selection. *Journal of Finance*. 7: 77-91.

Statman M., 1999. Foreign Stocks in Behavioral Portfolios. *Financial Analysts Journal* March/April: 12-16.

Thomas L., 1989. The Performance of Currency-Hedged Foreign Bonds, *Financial Analysts Journal*. May/June. 25-31.

Jorion, Ph. 1985. International Portfolio diversification with Estimation Risk. *Journal of Business*. 58 (3): 259-278.



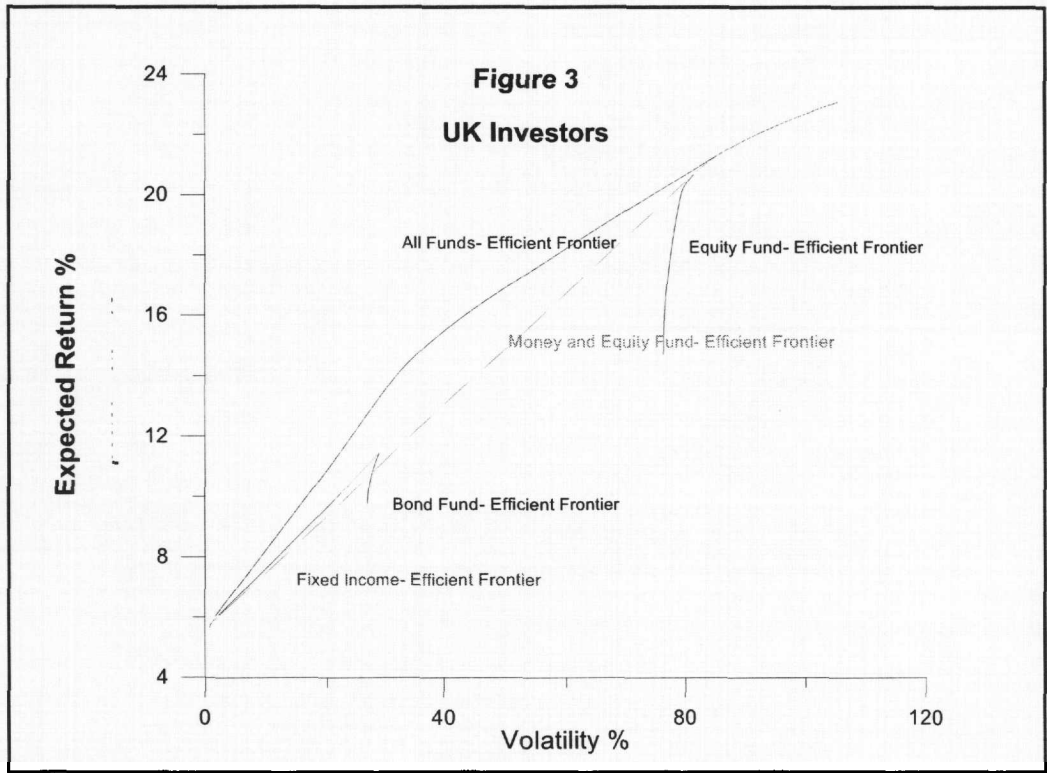


Table 1 Expected Return and Volatility in each currency - Correlation matrix

Asset	Exp Return	Volatility	MMUSD	BFUSD	EQFUSD	MMGBP	BFGBP	EQFGBP	MMYEN	BFYEN	EQFYEN	USD/JPY	USD/BP	JPY/BP
MMUSD	4.95%	0.79%	1.00	0.05	0.09	0.49	-0.02	-0.03	0.19	0.10	0.05	0.10	0.11	-0.03
BFUSD	9.04%	26.09%	0.05	1.00	-0.05	0.02	0.59	-0.01	0.14	0.13	0.14	-0.01	-0.09	-0.04
EQFUSD	24.60%	90.29%	0.09	-0.05	1.00	0.03	-0.01	0.46	0.05	-0.05	0.16	0.12	-0.01	-0.12
MMGBP	5.66%	0.74%	0.49	0.02	0.03	1.00	0.06	0.04	-0.03	0.04	0.02	-0.02	-0.02	0.01
BFGBP	11.45%	29.05%	-0.02	0.59	-0.01	0.06	1.00	0.09	0.02	0.16	0.09	-0.21	-0.14	0.11
EQFGBP	18.41%	84.40%	-0.03	-0.01	0.46	0.04	0.09	1.00	-0.02	-0.04	0.11	0.07	-0.18	-0.17
MMYEN	0.24%	0.49%	0.19	0.14	0.05	-0.03	0.02	-0.02	1.00	0.30	-0.13	0.19	0.01	-0.17
BFYEN	6.69%	22.35%	0.10	0.13	-0.05	0.04	0.16	-0.04	0.30	1.00	-0.23	0.14	0.09	-0.07
EQFYEN	-4.27%	126.29%	0.05	0.14	0.16	0.02	0.09	0.11	-0.23	-0.23	1.00	-0.06	-0.04	0.03
USD/JPY	-9.13%	80.34%	0.10	-0.01	0.12	-0.02	-0.21	0.07	0.14	0.14	-0.06	1.00	0.22	-0.80
USD/BP	1.51%	52.96%	0.11	-0.09	-0.01	-0.02	-0.14	-0.18	0.01	0.09	-0.04	0.22	1.00	0.41
JPY/BP	10.65%	85.86%	-0.03	-0.04	-0.12	0.01	0.11	-0.17	-0.17	-0.07	0.03	-0.80	0.41	1

Table 2 Expected Return and Risk Analysis from each Investor perspective

US Investor Perspective				Japanese Investor Perspective							
Fund Type	E(R\$)	SD(R\$)	Fraction of the volatility due to			Fund Type	E(Rjp)	SD(Rjp)	Fraction of the volatility due to		
			Var (Ri)	Var(Si)	2*Cov(Ri, Si)				Var (Ri)	Var(Si)	2*Cov(Ri, Si)
MMUSDR	4.95%	0.79%	100.00%	0.00%	0.00%	MMUSDR	14.09%	80.34%	0.01%	99.98%	0.01%
BFUSDR	9.04%	26.09%	100.00%	0.00%	0.00%	BFUSDR	18.20%	84.96%	9.43%	89.42%	1.15%
EFUSDR	24.60%	90.29%	100.00%	0.00%	0.00%	EFUSDR	33.61%	113.91%	50.21%	39.75%	10.04%
MMGBPR	7.17%	53.01%	0.01%	99.92%	0.08%	MMGBPR	16.32%	85.97%	0.01%	99.12%	0.88%
BFGBPR	12.93%	56.85%	10.94%	83.65%	5.41%	BFGBPR	22.18%	93.94%	9.57%	84.48%	5.96%
EFGBPR	19.77%	91.54%	47.09%	42.67%	10.24%	EFGBPR	28.85%	109.98%	41.75%	43.70%	14.55%
MMJPYR	-8.89%	80.44%	0.01%	99.43%	0.56%	MMJPYR	0.24%	0.49%	100.00%	0.00%	0.00%
BFJPYR	-2.41%	86.43%	13.08%	73.42%	13.50%	BFJPYR	6.69%	22.35%	100.00%	0.00%	0.00%
EFJPYR	-13.50%	145.59%	79.90%	14.05%	6.05%	EFJPYR	-4.27%	126.29%	100.00%	0.00%	0.00%
UK Investor Perspective											
Fund Type	E(Rbp)	SD(Rbp)	Fraction of the volatility due to			Fund Type	E(Ri)	SD(Ri)	Fraction of the volatility due to		
			Var (Ri)	Var(Si)	2*Cov(Ri, Si)				Var (Ri)	Var(Si)	2*Cov(Ri, Si)
MMUSDR	3.43%	52.93%	0.0%	99.8%	0.1%	MMUSDR	14.09%	80.34%	0.01%	99.98%	0.01%
BFUSDR	7.55%	61.24%	18.1%	74.8%	7.1%	BFUSDR	18.20%	84.96%	9.43%	89.42%	1.15%
EFUSDR	23.09%	105.29%	73.5%	25.3%	1.2%	EFUSDR	33.61%	113.91%	50.21%	39.75%	10.04%
MMGBPR	5.66%	0.74%	100.00%	0.00%	0.00%	MMGBPR	16.32%	85.97%	0.01%	99.12%	0.88%
BFGBPR	11.45%	29.05%	100.00%	0.00%	0.00%	BFGBPR	22.18%	93.94%	9.57%	84.48%	5.96%
EFGBPR	18.41%	84.40%	100.00%	0.00%	0.00%	EFGBPR	28.85%	109.98%	41.75%	43.70%	14.55%
MMJPYR	-10.41%	85.95%	0.00%	99.09%	0.90%	MMJPYR	0.24%	0.49%	100.00%	0.00%	0.00%
BFJPYR	-3.94%	90.35%	6.12%	91.32%	2.56%	BFJPYR	6.69%	22.35%	100.00%	0.00%	0.00%
EFJPYR	-14.97%	150.13%	65.72%	30.72%	3.56%	EFJPYR	-4.27%	126.29%	100.00%	0.00%	0.00%



Table 3 Asset Allocation for any risk level

Find Portfolio Matching Expected Return						
US Investor						
	Max Sharpe Ratio	Conservative (MVP)	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Expected Return	13.71%	4.95%	10.00%	15.00%	20.00%	24.60%
Volatility	29.31%	0.79%	16.89%	34.15%	58.35%	90.29%
Sharpe Ratio	0.2990	-	0.2990	0.2943	0.2579	0.2176
Asset	Portfolio Composition					
MMUSD	0.00%	100.00%	42.38%	0.00%	0.00%	0.00%
BFUSD	56.40%	0.00%	32.50%	45.09%	1.13%	0.00%
EQFUSD	22.31%	0.00%	12.85%	29.17%	55.86%	100.00%
MMGBP\$	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BFGBP\$	15.83%	0.00%	9.12%	19.61%	34.31%	0.00%
EQFGBP\$	5.47%	0.00%	3.15%	6.13%	8.71%	0.00%
MMYENS\$	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BFYENS\$	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EQFYENS\$	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table 3 Asset Allocation for any risk level (continued)

BP Investor	Find Portfolio Matching Expected Return					
	Max Sharpe Ratio	Conservative (MVP)	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Expected Return :	13.76%	5.67%	10.00%	15.00%	20.00%	23.09%
Volatility :	30.96%	0.74%	16.63%	37.10%	74.42%	105.29%
Sharpe Ratio :	0.2618	0.0135	0.2616	0.2520	0.1928	0.1657
Asset	Portfolio Composition					
MMUSDbp	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BFUSDbp	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EQFUSDbp	13.22%	0.02%	7.09%	21.57%	55.15%	100.00%
MMGBP	0.00%	99.90%	46.37%	0.00%	0.00%	0.00%
BFGBP	75.80%	0.08%	40.66%	63.54%	14.26%	0.00%
EQFGBP	10.98%	0.00%	5.88%	14.89%	30.59%	0.00%
MMYENbp	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BFYENbp	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EQFYENbp	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table 4a Asset Allocation for specific fund category

(a) US Investor						
BOND MARKET	Max Sharpe Ratio	Conservative (MVP)	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Expected Return	10.12%	8.61%	9.50%	10.50%	11.50%	12.93%
Volatility	27.10%	24.61%	25.24%	29.52%	39.18%	56.85%
Sharpe Ratio	0.1909	0.1489	0.1803	0.1880	0.1672	0.1403
Asset	Portfolio Composition					
BFUSD	72.14%	84.27%	84.09%	62.47%	36.74%	0.00%
BFGBP\$	27.86%	8.95%	14.87%	37.53%	63.26%	100.00%
BFYEN\$	0.00%	6.78%	1.04%	0.00%	0.00%	0.00%
EQUITY MARKET	Max Sharpe Ratio	Conservative (MVP)	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Expected Return	23.05%	16.85%	17.50%	20.00%	24.00%	24.60%
Volatility	78.19%	73.11%	73.16%	74.21%	84.41%	90.29%
Sharpe Ratio	0.2315	0.1627	0.1715	0.2028	0.2257	0.2176
Asset	Portfolio Composition					
EQFUSD	67.98%	42.93%	44.41%	50.12%	87.57%	100.00%
EQFGBP\$	32.02%	42.06%	42.32%	43.30%	12.43%	0.00%
EQFYEN\$	0.00%	15.01%	13.27%	6.59%	0.00%	0.00%
MONEY & BONDS	Max Sharpe Ratio	Conservative (MVP)	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Expected Return	10.12%	4.96%	6.50%	8.50%	10.00%	12.92%
Volatility	27.10%	0.80%	8.21%	18.63%	26.45%	56.85%
Sharpe Ratio	0.1909	0.0074	0.1889	0.1906	0.1909	0.1403
Asset	Portfolio Composition					
MMUSD	0.00%	99.71%	69.90%	31.30%	2.34%	0.00%
BFUSD	72.14%	0.29%	21.79%	49.64%	70.53%	0.00%
MMGBP\$	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BFGBP\$	27.86%	0.00%	8.31%	19.06%	27.13%	100.00%
MMYEN\$	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BFYEN\$	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
MONEY & EQUITIES	Max Sharpe Ratio	Conservative (MVP)	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Expected Return	22.33%	4.95%	10.00%	15.00%	20.00%	24.60%
Volatility	75.22%	0.79%	21.93%	43.53%	65.14%	90.29%
Sharpe Ratio	0.2311	0.0002	0.2303	0.2309	0.2310	0.2176
Asset	Portfolio Composition					
MMUSD	0.00%	99.96%	70.97%	42.10%	13.24%	0.00%
EQFUSD	66.40%	0.00%	19.28%	38.39%	57.50%	100.00%
MMGBP\$	4.84%	0.00%	1.35%	2.87%	4.40%	0.00%
EQFGBP\$	28.76%	0.04%	8.41%	16.64%	24.86%	0.00%
MMYEN\$	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EQFYEN\$	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table 4b Asset Allocation for specific fund category

(b) JP Investor						
BOND MARKET	Max Sharpe Ratio	Conservative (MVP)	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Expected Return	9.09%	7.65%	10.00%	15.00%	17.50%	22.18%
Volatility	23.15%	21.06%	26.03%	51.14%	65.70%	93.94%
Sharpe Ratio	0.3825	0.3521	0.3750	0.2886	0.2627	0.2335
Asset	Portfolio Composition					
BFUSDjp	9.67%	8.35%	9.41%	8.00%	7.30%	0.00%
BFGBPjp	8.32%	0.00%	14.36%	47.70%	64.37%	100.00%
BFYEN	82.01%	91.65%	76.23%	44.30%	28.33%	0.00%
EQUITY MARKET	Max Sharpe Ratio	Conservative (MVP)	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Expected Return	31.79%	17.80%	22.50%	24.60%	30.00%	33.61%
Volatility	101.80%	84.21%	86.36%	88.65%	97.79%	113.91%
Sharpe Ratio	0.3099	0.2085	0.2578	0.2748	0.3043	0.2930
Asset	Portfolio Composition					
EQFUSDjp	61.67%	25.06%	35.88%	40.72%	53.15%	100.00%
EQFGBPjp	38.33%	37.96%	39.78%	40.59%	42.68%	0.00%
EQFYEN	0.00%	36.97%	24.34%	18.69%	4.18%	0.00%
MONEY & BONDS	Max Sharpe Ratio	Conservative (MVP)	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Expected Return	9.09%	0.30%	5.00%	10.00%	15.00%	22.18%
Volatility	23.15%	0.52%	12.48%	26.03%	51.14%	93.94%
Sharpe Ratio	0.3825	0.1172	0.3815	0.3750	0.2886	0.2335
Asset	Portfolio Composition					
MMUSDjp	0.00%	0.11%	0.00%	0.00%	0.00%	0.00%
BFUSDjp	9.67%	0.00%	5.21%	9.41%	8.00%	0.00%
MMGBPjp	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
BFGBPjp	8.32%	0.15%	4.50%	14.36%	47.70%	100.00%
MMYEN	0.00%	99.54%	46.33%	0.00%	0.00%	0.00%
BFYEN	82.01%	0.20%	43.95%	76.23%	44.30%	0.00%
MONEY & EQUITIES	Max Sharpe Ratio	Conservative (MVP)	Moderately Conservative	Moderate	Moderately Aggressive	Aggressive
Expected Return	1.44%	0.33%	10.00%	15.00%	24.60%	33.61%
Volatility	3.84%	0.53%	31.45%	47.59%	78.59%	113.91%
Sharpe Ratio	0.3123	0.1630	0.3103	0.3101	0.3100	0.2930
Asset	Portfolio Composition					
MMUSDjp	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
EQFUSDjp	2.30%	0.13%	19.03%	28.80%	47.56%	100.00%
MMGBPjp	0.10%	0.08%	0.29%	0.41%	0.62%	0.00%
EQFGBPjp	1.45%	0.11%	11.75%	17.76%	29.31%	0.00%
MMYEN	96.15%	99.68%	68.93%	53.03%	22.50%	0.00%
EQFYEN	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Table 5a Asset Allocation for unhedged and hedged portfolios

US Investor	Unhedged Portfolios			Hedged Portfolios		
ALL MARKETS	Benchmark (EQW)	Maximum Sharpe Ratio	(MVP)	Benchmark (EQW)	Maximum Sharpe Ratio	(MVP)
Exp. Return	5.96%	13.71%	4.95%	11.64%	14.10%	4.99%
Volatility	41.98%	29.31%	0.79%	38.35%	27.22%	0.79%
Sharpe Ratio	0.0241	0.2990	-	0.1744	0.3361	0.0467
Asset	Portfolio Composition					
MMUSD	11.11%	0.00%	100.00%	11.11%	0.00%	99.47%
BFUSD	11.11%	56.40%	0.00%	11.11%	58.03%	0.23%
EQFUSD	11.11%	22.31%	0.00%	11.11%	19.74%	0.00%
MMGBP\$	11.11%	0.00%	0.00%	11.11%	0.00%	0.00%
BFGBP\$	11.11%	15.83%	0.00%	11.11%	0.00%	0.04%
EQFGBP\$	11.11%	5.47%	0.00%	11.11%	2.22%	0.08%
MMYEN\$	11.11%	0.00%	0.00%	11.11%	0.00%	0.00%
BFYEN\$	11.11%	0.00%	0.00%	11.11%	20.01%	0.17%
EQFYEN\$	11.11%	0.00%	0.00%	11.11%	0.00%	0.00%
BOND MARKETS						
Expected Return	6.52%	10.12%	8.61%	12.16%	11.47%	10.06%
Volatility	38.66%	27.10%	24.61%	34.22%	26.69%	23.65%
Sharpe Ratio	0.0406	0.1909	0.1489	0.2108	0.2441	0.2161
Asset	Portfolio Composition					
BFUSD	33.33%	72.14%	84.27%	33.33%	73.40%	80.58%
BFGBP\$	33.33%	27.86%	8.95%	33.33%	0.00%	8.47%
BFYEN\$	33.33%	0.00%	6.78%	33.33%	26.60%	10.95%
EQUITY MARKETS						
Expected Return	10.29%	23.05%	16.85%	16.03%	23.14%	18.26%
Volatility	77.99%	78.19%	73.11%	76.24%	82.26%	71.48%
Sharpe Ratio	0.0685	0.2315	0.1627	0.1453	0.2211	0.1862
Asset	Portfolio Composition					
EQFUSD	33.33%	67.98%	42.93%	33.33%	82.54%	41.90%
EQFGBP\$	33.33%	32.02%	42.06%	33.33%	17.46%	41.61%
EQFYEN\$	33.33%	0.00%	15.01%	33.33%	0.00%	16.48%
FIXED INCOME MARKETS						
Expected Return	3.80%	10.12%	4.96%	9.45%	11.47%	4.98%
Volatility	35.75%	27.10%	0.80%	31.31%	26.69%	0.79%
Sharpe Ratio	-0.0322	0.1909	0.0074	0.1436	0.2441	0.0327
Asset	Portfolio Composition					
MMUSD	16.67%	0.00%	99.71%	16.67%	0.00%	99.58%
BFUSD	16.67%	72.14%	0.29%	16.67%	73.40%	0.16%
MMGBP\$	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
BFGBP\$	16.67%	27.86%	0.00%	16.67%	0.00%	0.11%
MMYEN\$	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
BFYEN\$	16.67%	0.00%	0.00%	16.67%	26.60%	0.16%

Table 5a(continued) Asset Allocation for unhedged and hedged portfolios						
US Investor	Unhedged Portfolios			Hedged Portfolios		
MONEY & EQUITIES	Benchmark (EQW)	Maximum Sharpe Ratio	(MVP)	Benchmark (EQW)	Maximum Sharpe Ratio	(MVP)
Expected Return	5.81%	22.33%	4.95%	11.38%	19.99%	4.97%
Volatility	49.13%	75.22%	0.79%	46.42%	63.50%	0.79%
Sharpe Ratio	0.0176	0.2311	0.0002	0.1385	0.2369	0.0191
Asset	Portfolio Composition					
MMUSD	16.67%	0.00%	99.96%	16.67%	0.00%	99.75%
EQFUSD	16.67%	66.40%	0.00%	16.67%	60.98%	0.00%
MMGBP\$	16.67%	4.84%	0.00%	16.67%	0.00%	0.00%
EQFGBP\$	16.67%	28.76%	0.04%	16.67%	9.17%	0.09%
MMYENS\$	16.67%	0.00%	0.00%	16.67%	29.86%	0.15%
EQFYENS\$	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
DOMESTIC MARKETS						
Expected Return	12.86%	13.39%	4.95%			
Volatility	30.95%	30.75%	0.79%			
Sharpe Ratio	0.2559	0.2749	0.0116			
Asset	Portfolio Composition					
MMUSD	33.33%	0.00%	99.87%			
BFUSD	33.33%	72.03%	0.13%			
EQFUSD	33.33%	27.97%	0.00%			

Table 5b Asset Allocation for unhedged and hedged portfolios

JP Investor	Unhedged Portfolios			Hedged Portfolios		
ALL MARKETS	Benchmark (EQW)	Maximum Sharpe Ratio	(MVP)	Benchmark (EQW)	Maximum Sharpe Ratio	(MVP)
Expected Return :	15.10%	11.49%	0.32%	0.14%	6.92%	0.25%
Volatility :	56.61%	24.70%	0.52%	55.01%	22.00%	0.50%
Sharpe Ratio :	0.2625	0.4553	0.1586	-0.0019	0.3037	0.0121
Asset	Portfolio Composition					
MMUSDjp	11.11%	0.00%	0.00%	11.11%	0.00%	0.00%
BFUSDjp	11.11%	0.00%	0.01%	11.11%	0.00%	0.00%
EQFUSDjp	11.11%	12.01%	0.09%	11.11%	5.50%	0.00%
MMGBPjp	11.11%	0.00%	0.00%	11.11%	0.00%	0.00%
BFGBPjp	11.11%	3.16%	0.09%	11.11%	0.00%	0.00%
EQFGBPjp	11.11%	4.84%	0.08%	11.11%	0.00%	0.00%
MMYEN	11.11%	0.00%	99.54%	11.11%	0.00%	99.82%
BFYEN	11.11%	80.00%	0.18%	11.11%	93.40%	0.13%
EQFYEN	11.11%	0.00%	0.02%	11.11%	1.11%	0.04%
BOND MARKETS						
Expected Return :	15.69%	9.09%	7.65%	0.69%	6.69%	6.39%
Volatility :	56.67%	23.15%	21.06%	54.92%	22.35%	22.18%
Sharpe Ratio :	0.2726	0.3825	0.3521	0.0082	0.2887	0.2772
Asset	Portfolio Composition					
BFUSDjp	33.33%	9.67%	8.35%	33.33%	0.00%	0.00%
BFGBPjp	33.33%	8.32%	0.00%	33.33%	0.00%	3.41%
BFYEN	33.33%	82.01%	91.65%	33.33%	100.00%	96.59%
EQUITY MARKETS						
Expected Return :	19.40%	31.79%	17.80%	4.50%	13.06%	2.88%
Volatility :	84.61%	101.80%	84.21%	84.55%	118.80%	83.47%
Sharpe Ratio :	0.2265	0.3099	0.2085	0.0504	0.1079	0.0316
Asset	Portfolio Composition					
EQFUSDjp	33.33%	61.67%	25.06%	33.33%	100.00%	21.19%
EQFGBPjp	33.33%	38.33%	37.96%	33.33%	0.00%	38.73%
EQFYEN	33.33%	0.00%	36.97%	33.33%	0.00%	40.08%
FIXED INCOME MARKETS						
Expected Return :	12.95%	9.09%	0.30%	-2.04%	6.69%	0.24%
Volatility :	53.82%	23.15%	0.52%	51.29%	22.35%	0.49%
Sharpe Ratio :	0.2362	0.3825	0.1172	-0.0445	0.2887	-0.0012
Asset	Portfolio Composition					
MMUSDjp	16.67%	0.00%	0.11%	16.67%	0.00%	0.00%
BFUSDjp	16.67%	9.67%	0.00%	16.67%	0.00%	0.00%
MMGBPjp	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
BFGBPjp	16.67%	8.32%	0.15%	16.67%	0.00%	0.00%
MMYEN	16.67%	0.00%	99.54%	16.67%	0.00%	100.00%
BFYEN	16.67%	82.01%	0.20%	16.67%	100.00%	0.00%

Table 5b(continued) Asset Allocation for unhedged and hedged portfolios						
JP Investor	Unhedged Portfolios			Hedged Portfolios		
MONEY & EQUITIES	Benchmark (EQW)	Maximum Sharpe Ratio	(MVP)	Benchmark (EQW)	Maximum Sharpe Ratio	(MVP)
Expected Return :	14.81%	1.44%	0.33%	-0.14%	13.06%	0.25%
Volatility :	61.08%	3.84%	0.53%	59.68%	118.80%	0.52%
Sharpe Ratio :	0.2385	0.3123	0.1630	-0.0063	0.1079	0.0223%
Asset	Portfolio Composition					
MMUSDjp	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
EQFUSDjp	16.67%	2.30%	0.13%	16.67%	100.00%	0.09%
MMGBPjp	16.67%	0.10%	0.08%	16.67%	0.00%	0.00%
EQFGBPjp	16.67%	1.45%	0.11%	16.67%	0.00%	0.00%
MMYEN	16.67%	96.15%	99.68%	16.67%	0.00%	99.91%
EQFYEN	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
DOMESTIC MARKETS						
Expected Return :	0.89%	6.49%	0.24%			
Volatility :	41.05%	21.54%	0.49%			
Sharpe Ratio :	0.0158	0.2903	-0.0049			
Asset	Portfolio Composition					
MMYEN	33.33%	0.00%	99.96%			
BFYEN	33.33%	98.17%	0.00%			
EQFYEN	33.33%	1.83%	0.04%			

Table 5c Asset Allocation for unhedged and hedged portfolios

JP Investor	Unhedged Portfolios			Hedged Portfolios		
ALL MARKETS	(EQW)	Max Sharpe Ratio	(MVP)	(EQW)	Max Sharpe Ratio	(MVP)
Expected Return	4.48%	13.76%	5.67%	13.81%	16.11%	5.66%
Volatility	48.57%	30.96%	0.74%	39.31%	30.42%	0.74%
Sharpe Ratio	0.087	0.4366	0.0225	0.3452	0.5216	0.0195
Asset	Portfolio Composition					
MMUSDbp	11.11%	0.00%	0.00%	11.11%	0.00%	0.00%
BFUSDbp	11.11%	0.00%	0.00%	11.11%	0.00%	0.00%
EQFUSDbp	11.11%	13.22%	0.02%	11.11%	15.67%	0.00%
MMGBP	11.11%	0.00%	99.90%	11.11%	0.00%	99.92%
BFGBP	11.11%	75.80%	0.08%	11.11%	57.48%	0.06%
EQFGBP	11.11%	10.98%	0.00%	11.11%	6.49%	0.01%
MMYENbp	11.11%	0.00%	0.00%	11.11%	0.00%	0.00%
BFYENbp	11.11%	0.00%	0.00%	11.11%	20.35%	0.01%
EQFYENbp	11.11%	0.00%	0.00%	11.11%	0.00%	0.00%
BOND MARKETS						
Expected Return	5.02%	11.45%	9.77%	14.33%	13.72%	12.35%
Volatility	44.21%	29.05%	27.06%	34.40%	29.30%	26.70%
Sharpe Ratio	0.0142	0.1998	0.1523	0.2522	0.2755	0.2510
Asset	Portfolio Composition					
BFUSDbp	33.33%	0.00%	0.00%	33.33%	7.27%	14.09%
BFGBP	33.33%	100.00%	89.08%	33.33%	66.94%	75.38%
BFYENbp	33.33%	0.00%	10.92%	33.33%	25.78%	10.54%

Table 5c (continued) Asset Allocation for unhedged and hedged portfolios

BP Investor	Uhedged	Portfolios		Hedged	Portfolios	
EQUITIES	EQW)	Max Sharpe Ratio	(MVP)	(EQW)	Max Sharpe Ratio	(MVP)
Expected Return	8.84%	20.80%	14.63%	18.22%	24.10%	19.35%
Volatility	84.19%	81.99%	76.31%	78.25%	82.11%	71.85%
Sharpe Ratio	0.0379	0.1848	0.1177	0.1607	0.2247	0.1907
Asset	Portfolio Composition					
EQFUSDbp	33.33%	51.02%	21.67%	33.33%	67.97%	28.21%
EQFGBP	33.33%	48.98%	63.98%	33.33%	32.03%	55.88%
EQFYENbp	33.33%	0.00%	14.35%	33.33%	0.00%	15.90%
FIXED INCOME MARKETS						
Expected Return	2.29%	11.45%	5.66%	11.60%	13.72%	5.66%
Volatility	40.74%	29.05%	0.74%	30.57%	29.30%	0.74%
Sharpe Ratio	-0.0824	0.1998	0.0116	0.1947	0.2755	0.0144
Asset	Portfolio Composition					
MMUSDbp	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
BFUSDbp	16.67%	0.00%	0.00%	16.67%	7.27%	0.00%
MMGBP	16.67%	0.00%	100.00%	16.67%	0.00%	99.96%
BFGBP	16.67%	100.00%	0.00%	16.67%	66.94%	0.04%
MMYENbp	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
BFYENbp	16.67%	0.00%	0.00%	16.67%	25.78%	0.00%
MONEY & EQUITY MARKETS						
Expected Return	4.20%	10.63%	5.66%	13.55%	20.69%	5.66%
Volatility	55.60%	26.97%	0.74%	47.54%	61.62%	0.74%
Sharpe Ratio	-0.0260	0.1848	0.0157	0.1662	0.2440	0.0135
Asset	Portfolio Composition					
MMUSDbp	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
EQFUSDbp	16.67%	16.77%	0.02%	16.67%	44.62%	0.00%
MMGBP	16.67%	67.14%	99.98%	16.67%	0.00%	99.99%
EQFGBP	16.67%	16.09%	0.00%	16.67%	23.13%	0.01%
MMYENbp	16.67%	0.00%	0.00%	16.67%	32.25%	0.00%
EQFYENbp	16.67%	0.00%	0.00%	16.67%	0.00%	0.00%
DOMESTIC MARKETS						
Expected Return	11.84%	12.83%	5.66%			
Volatility	30.57%	29.84%	0.74%			
Sharpe Ratio	0.2025	0.2405	0.0145			
Asset	Portfolio Composition					
MMGBP	33.33%	0.00%	99.96%			
BFGBP	33.33%	80.22%	0.04%			
EQFGBP	33.33%	19.78%	0.00%			