Are All Currency Managers Equal?

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Comments welcomed

PRELIMINARY

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We present a post-sample study of currency fund managers showing that alpha hunters and especially alpha generators are more effective in providing diversification benefits for a global equity portfolio than currency managers who earn beta returns from popular style strategies or managers with high total returns regardless of their source. Our study is unusual in that we measure the alpha from currency investing using a simple factor model rather than based on total excess returns, that we use rankings of currency managers from an earlier published study and examine their performance truly out-of-sample, and finally that our data reflect actual trades and returns earned by these managers, so the data are not contaminated by the usual biases in hedge fund databases. Our results suggest that a factor model approach to analyzing currency fund returns, coupled with the revealed degree of alpha and beta persistence in our data, offer institutional investors with large equity exposure a useful tool for improving their performance.

Key words: Foreign Exchange, Hedge Funds, Manager Selection

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"All animals are equal, but some animals are more equal than others

George Orwell, Animal Farm, 1945

1. Introduction

Prior the financial crisis in 2007-08, the common wisdom was that market exposure (beta) is easy to generate, that alpha is hard to find and that taking correlation into account is important for enhancing overall investment performance. The implication of this thinking was that many institutional investors adopted a core-satellite investment approach. The bulk of their assets (the core) were invested in long-only managers with large exposure to equities and a small proportion of assets were invested in satellites, such as hedge funds, real estate, commodities etc. The historical correlation of these "satellites" with equities was nearly zero. Hence, the satellites were expected to provide uncorrelated alpha and diversification.

However, as the financial crisis unfolded investors discovered that they were less diversified than planned. The negative returns of many hedge funds in a period of declining equity markets suggests that what investors had perceived to be uncorrelated alpha turned out to behave like equity beta.[1] Allocations to commodities (another asset class presumed to provide diversification) were costly too, with crude oil crashing from over $145 in July 2008 to under $45 by December 2008.

[1] For example, the HFRX Equal Weighted Strategies Index declined 21.9% in 2008. The return is net of fees and based on returns of over 2,000 hedge funds. The Index is prepared by Hedge Fund Research, Inc. and available through Bloomberg as ticker HFRXEW.

The experience of 2008 confirmed what had been previously documented in academic research a decade earlier (see Chow, et al. 1999), i.e. in turbulent markets, all asset returns generally become more volatile and more highly correlated. Thus, diversification tends to fail exactly when it is most needed, i.e. in falling markets. For example, when both hedge funds and global equities produce returns greater than one standard deviation above their mean, their correlation is -11%. When both markets generate returns more than one standard deviation below their means, their correlation rises to 58%.[2] As another example, Table 1 (Panel A) shows the correlations between the weekly returns on the S&P 500 index, crude oil and spot AUD/JPY (a proxy for the carry trade) in the second half of 2008. These presumably "independent assets" exhibited very high correlation in a period of market stress, with correlation between the S&P 500 index and AUD/JPY measuring 84%. Correlation between the S&P 500 index and crude oil was 56% in this period, which is substantially higher than the long-term correlation of 2% (see Panel B).

The realization that correlations vary, and that average correlations tend to be misleading, has prompted investors to rethink asset allocation.[3] In this paper we investigate the following questions: First, can alternative investments provide meaningful diversification to investors with large equity exposure? Second, are all currency managers equally adept at offering diversification benefits or can we identify managers better suited to provide diversification for institutional managers with global equity exposure?

[2] These correlations are based on monthly return of the MSCI World Index (in local currencies) and the MSCI Hedge Fund Index from the period since inception of the MSCI Hedge Fund Index (January 1994) until June 2010. Kritzman and Li (2010) report similar pattern in the correlation between U.S. equities (S&P 500 Index) and non-U.S equities (MSCI World ex US Index), i.e.-17% and 76% respectively.

[3] In a recent *Financial Times* article ("Uncertainty changing investment landscape", August 2, 2010) Richard Clarida and Mohamed El-Erian from Pimco make the case that diversification should be complemented with tail hedging.

To address these questions we focus on currency managers as a category of alternative investment managers who are sometimes overlooked.[4] Our study is unusual in that we measure the alpha from currency investing using a simple factor model rather than based on total excess returns, that we use rankings of currency managers from an earlier published study and examine their performance truly out-of-sample, and finally that our data reflect actual trades and returns earned by these managers, so the data are not contaminated by the usual biases affecting hedge fund databases. In Section 2, we describe the unique dataset of currency fund returns on which we rely. We also review an earlier study which demonstrates that some currency managers earn beta-style returns that to a large extent mimic the returns on some commonly discussed trading strategy while other managers earn true alpha returns that are largely uncorrelated with the common strategies. We use a simple factor model to identify currency managers who are alpha hunters versus beta grazers. In Section 3, a post-sample analysis shows that there may be enough persistence in currency investment styles and performance to benefit institutional investors who add a currency component to their global equity positions. Performance enhancement appears greater when the currency managers are selected on the basis of in-sample alpha rather than on the basis of total return. In the final section, we summarize the policy implications these results have for both the currency fund managers and institutional investors.

[4] Professionally managed currency programs are a small segment of the overall hedge fund industry, but one that has shared in the growth of the overall market. While a mere handful of currency managers existed in the mid-1980s, at least 150 currency funds exist today and the actual number could be 300 or higher. In 2010, the Barclay Currency Traders Index tracked 119 managers in the currency domain. In 2010, Deutsche Bank FXSelect, a proprietary trading platform, offered 67 professionally managed currency funds. Other data bases such as Lipper Tass and CASAM/CISDM reveal an additional 200 or so currency funds, many of which are not included in the prior two sources

2. Data Description and Methodology

Evaluating hedge fund performance is challenging due to the usual biases affecting hedge fund databases. In particular, backfill and survivorship bias can be severe. Malkiel and Saha (2005) report that backfill bias averages 7.3 percent per year and survivorship bias averages 4.4 percent per year. To address backfill and survivorship biases, we make use of the same database as used in Pojarliev and Levich (PL, 2008b), i.e. daily return data for currency managers listed on the Deutsche Bank FXSelect trading platform.[5] The FX Select data is unique relative to other hedge fund databases as it provides actual return data, made possible because gains and losses are computed by Deutsche Bank based on real trades processed through Deutsche Bank prime brokerage. The return data are audited by an independent third party. In contrast, hedge fund databases simply collect return data submitted by managers and are affected by numerous biases.[6] This makes our dataset especially useful to study the currency management industry. Our data builds on a three-year weekly sample from April 6, 2005 until March 26, 2008 as in PL (2008b) and extended through June 30, 2010 or slightly more than 5 years overall.[7]

[5] Launched in March 2005, FXSelect is an open platform of managed accounts held by Deutsche Bank, which allows investors to allocate to different currency managers. According to information posted on its website, FXSelect has attracted $3.7 billion in AUM from pension funds, fund of funds, private banks, insurance companies, and other investors as of August 2010. Any currency manager can apply for registration in the platform and be accepted if he satisfies the following criteria: a) Managers must be able to provide a daily track record for at least the last 18 months verified by a third party, b) They cannot have had more than a 20% performance drawdown over the last 12 months, c) Assets under management must be at least 15 million USD, and d) Satisfactory criminal and regulatory searches on key individuals. We are grateful to Neville Bulgin and Rashid Hoosenally from Deutsche Bank for supplying the data. More information about FXSelect can be find in the brochure "FXSelect: An Asset Allocation Solution," Deutsche Bank, Global Markets Foreign Exchange, 2006.

[6] Fung and Hsieh (2000) examine various biases that impact the estimate of average hedge fund returns. More recently, Aggarwal and Jorion (2010) investigate bias that resulted from the merger of Tremont database into the TASS database. Aiken, Clifford and Ellis (2010) measure the self-reporting bias attributable to funds that choose to report versus those that do not.

[7] We obtained daily data, but to correct for accounting errors and eliminate data outliers, we transform the daily returns into 274 weekly returns by using Wednesday observations. We use Wednesday as fewer bank holidays fall on Wednesday. Managers are based in different locations (US, UK, Australia, Switzerland, Monaco, Spain, Sweden, Germany, Ireland and Canada).

During our sample period, 107 currency funds were active at some point on the platform.[8] Of these, only 67 funds were active as of June 30, 2010. We label these as "live" funds. Another 40 managers joined the platform and exited prior to the end of the sample period. We label these as "dead" funds. These 40 names include funds which no longer exist and funds that still exist, but have delisted from the platform.[9] Exhibit 1 plots the number of funds on the platform, along with the funds that joined the platform and those that delisted. Only 10 funds have a complete 63-month track record. However, there are 18 funds with more than 5 years of data, and 48 funds with 3 years or more data. Using the performance of the live and dead funds we compute the survivorship bias to be 5.30%, i.e. similar to the results reported by Malkiel and Saha (2005).[10]

2.1 Alpha Hunters and Beta Grazers

While both "alpha hunters" and "beta grazers" endeavor to earn investment returns, there is a considerable philosophical divide between the two groups.[11] Beta grazers follow a more passive approach, relying on indexed or semi-indexed funds, which could be easily replicated. Alpha hunters, on the other hand, seek to exploit market inefficiency and behavioral biases.

Under the hypothesis that currency returns are unpredictable or uncorrelated with the general market, many analyses treat all excess returns as unusual or part of alpha, implying that all

[8] We use the terms "manager" and "fund" as a substitute. Note that one currency management firm could have multiple funds or programs on the platform. Although we use the term "fund", currency programs do not have to be funded. In fact, many currency management firms offer currency programs via managed accounts, which require only minimal funding (about 10% of the notional). Indeed, the non-funding nature of currency investments is one of its advantages as portable alpha strategy.
[9] Funds may delist because they no longer satisfy the listing requirements, or delist voluntarily for some other reason.
[10] The mean annual return of all 107 funds (live and dead) while listed on the platform is 4 basis points. The mean annual return of only the live funds is 534 basis points.
[11] Leibowitz (2005) introduces the terms "alpha hunter" and "beta grazers."

currency managers are alpha hunters.[12] In contrast however, PL (2008a) show that four factors (or styles), which represent the return on three well-known currency trading strategies (carry, trend and value) and foreign exchange volatility explain a significant part of the variability of the returns of professional currency managers. In this framework, beta grazers earn returns passively by mimicking fairly simple strategies, but alpha hunters earn additional, and more genuinely excess returns through active bets, unrelated to the basic simple strategies.[13] In this setup, the alpha for fund manager *j* (α_j) is only that portion of excess returns that are not explained by risk factors (F_i), or

$$\hat{\alpha}_j = R_{j,t} - \sum_i \hat{\beta}_{i,j} F_{i,t} \quad (1)$$

where alpha and the betas are estimated from

$$R_t = \alpha + \sum_i \beta_i F_{i,t} + \varepsilon_t \quad (2)$$

and

R is the excess return generated by the currency manager, defined as the total return (R_t^*) less the periodic risk-free rate ($R_{F,t}$)

α is a measure of active manager skill,

F is a beta factor, that requires a systematic risk premium in the market,

[12] Numerous studies have examined the returns from technical trading models and tested whether realized returns are significantly greater than zero, implying that zero is a suitable benchmark. See Levich and Thomas (1993) and Neely, Weller, and Ulrich (2009) as illustrations, and Irwin and Park (2007) and Menkhoff and Taylor (2007) for surveys of technical trading studies in the currency market. Research into the carry trade, or forward bias strategy, has also examined this strategy versus a null hypothesis of zero profitability. See Froot and Thaler (1990) for a survey and Burnside, et al. (2010) for a recent study. Strange (1998) analyzes the performance of 152 currency overlay programs assuming that expected average excess returns relative to the benchmark are zero.

[13] Excess returns are by definition returns exceeding the risk-free rate for funded currency programs, and any return above zero for unfunded currency programs.

β is a coefficient or factor loading that measures the sensitivity of the manager's returns to the factor, and

ε is a random error term.

PL (2008a) and PL (2008b) use different proxies for the risk factors, but the results are strikingly similar.[14] Depending on the time period, periodicity, and model specification, four risk factors explain 50-75% in the variability of currency fund (index) returns. In this study we use the same variables as proxies for our risk factors (carry, trend, value, and volatility) as in PL (2008b).

As a proxy for the return on the carry factor, we use the Deutsche Bank G10 Harvest index. This index reflects the return of being long the 3 high-yielding currencies against being short the 3 low-yielding currencies within the G10 currency universe (the Bloomberg code for this factor is DBHVG10U Index).

As a proxy for the trend-following factor, we use the AFX Currency Management Index.[15] The AFX Index is based on trading in seven currency pairs weighted by their volume of turnover in the spot market, with returns for each pair based on an equally-weighted portfolio of three moving average rules (32, 61 and 117 days).[16]

[14] PL (2008a) used the Citibank Beta1 G10 Carry Index as a proxy for a carry factor, the AFX Currency Management index as a proxy for the trend factor, the Citibank's Beta1 G10 Purchasing Power Parity index as a proxy for the value factor and the average of the 1-month implied volatility for the EUR-USD exchange rate and for the USD-JPY exchange rate as a proxy for the volatility factor.

[15] Monthly data for this index are available at the AFX web site (http://www.ljmu.ac.uk/LBS/95327.htm). We are grateful to Pierre Lequeux from Aviva Investors for providing daily data. We transformed the daily returns into weekly returns by using the Wednesday observations.

[16] The seven currency pairs are EUR-USD, USD-JPY, USD-CHF, GBP-USD, EUR-JPY, EUR-GBP, and EUR-CHF.

We use the Deutsche Bank FX PPP Index as the proxy for the returns of a value strategy. To gauge relative value, Deutsche Bank prepares a ranking based on the average daily spot rate over the last three months divided by the PPP exchange rate as published annually by the OECD. The FX PPP index reflects the return of being long the 3 currencies with the highest rank (undervalued currencies) against being short the 3 currencies with the lowest rank (overvalued currencies) within G10 currency universe (the Bloomberg code for this factor is DBPPPUSF index).

Finally, we use the Deutsche Bank Currency Volatility Index as the proxy for foreign exchange volatility. This index is calculated as the weighted average of 3-month implied volatility for nine major currency pairs (as provided by the British Bankers Association) with weights based on trading volume in the BIS surveys (the Bloomberg code for this factor is CVIX Index).[17] We use the first difference for this factor in equation (1) as it is not a trading strategy. We use logarithmic returns for the carry, trend and value factors.

2.2 In-Sample Analysis

Table 2, Panel A summarizes the results of equation (2) for managers with a full track record from April 26, 2005 until March 26, 2008. These results, which constitute our in-sample estimates, were generated in late 2008 and reported in PL (2008b).

[17] The nine currency pairs are EUR-USD, USD-JPY, USD-CHF, USD-CAD, AUD-USD, GBP-USD, EUR-JPY, EUR-GBP, and EUR-CHF.

In the in-sample period, none of the managers were found to exhibit significant alpha.[18] However, point estimates for alpha vary from a high of 32 basis points per week (or 16.7% per year) for manager L29 to a low of -9 basis points (or -4.8% per year) for manager L15.[19] We define the top three managers with the highest alpha (L29, L42 and L28) as alpha generators (see Table 3, Panel A). Although, the alpha of these "stars" was not statistically significant, it is economically significant at 16.69%, 10.09% and 6.03% per year, respectively. The funds with the lowest alpha were managers L15, L50 and L6 (at -4.78%, -4.47% and -2.96% per year, respectively). We label these as underperformers, shown in Table 3, Panel A.

We also use the in-sample results to rank manager performance based on the R-square of equation 2. The R-square estimates vary from a high of 53.5% for manager L58 to a low of 5.5% for manager L30. We label the top three managers (L58, L52 and L50) with the highest R-square as "beta grazers" to suggest that a significant part of their returns could be replicated relatively cheaply through passive exposure to simple trading strategies, or via ETFs.[20] The managers with the lowest R-square (L30, L28 and L35) are labelled "alpha hunters" as only a small percentage of the variability of their returns could be explained by exposure to the risk factors. An "alpha hunter" is not necessarily an "alpha generator" as managers hunting for returns away from the simple, standard trading strategies might fail to perform well.[21] Manager L28 stands out as the best performing manager, with alpha significant at the 90% confidence level; he is both an alpha hunter and an alpha generator. Correspondingly, a beta grazer could still deliver positive alpha.

[18] Manager L28 delivered significant alpha at the 90% confidence level.
[19] L29 means that this is live manager #29 in the database. We use the same naming convention as in PL (2008b).
[20] For example, exposure to carry is available via an ETF PowerShares DB G10 Currency Harvest (Ticker: DBV)
[21] Leibowitz 2005 suggests that not everyone can be a winner as attested by the narrowness of the list of great investors and that most investors should treat the market as being highly efficient.

However, only part of his return is due to skill and part due to exposure to risk factors. These in-sample classifications of managers with the highest and lowest R-squares are also summarized in Table 3, Panel A.

Two important issues are whether our in-sample results (a range of excess returns that result from varying degrees of alpha hunting and beta grazing) persist out of sample, and whether our in-sample information could benefit the overall performance of institutional investment managers. We turn next to those topics.

3. Out-of-Sample Analysis

3.1 Currency Fund Performance

Table 2 Panel B extends the results from Table 2 Panel A using data from April 2, 2008 until June 30, 2010. The results are quite illuminating. The far right column in Table 2 reports the number of observations, i.e. weeks in which managers continued to be on the platform after March 26, 2008. We see that five managers (or 33%) did not survive until the end of our sample. This highlights the turbulent nature of the out-of-sample period that includes the Lehman bankruptcy in September 2008 and the "flash crash" in May 2010. Eleven out of the fifteen managers have a significant exposure to at least one factor, 3 of those have a significant exposure to two factors, and none have a significant exposure to three or four factors. Manager L28 and L52[22] deliver significant positive alpha in the out-of-sample period.

We also detect some alpha persistence. Managers L29 and L28 are again among the top 3 alpha managers (see Table 3). Also two from the three bottom alpha managers (L46, L6 and L50) are among the three bottom alpha managers in the first sample. This is helpful news for plan sponsors. It appears those who are strong performers are likely to remain top performers when gauged over 2 to 3 year horizons.[23] Managers in the bottom quartile are likely to remain in the bottom quartile.

[22] The results for L52 are based only on 13 observations so should be interpreted with caution.

[23] Levich and Pojarliev (2008) report similar results. They report results for 34 managers between 2001 and 2006 and identify 8 managers with positive and significant alpha in the first half of the sample (2001-2003), and 7 of those continue to make positive alpha in the second half (2004-2006). No manager showed significant alpha in the second half who did not also produce alpha in the first half.

Managers with the highest/lowest R-square in the first 3 years also tend to achieve the highest/lowest R-square in the following 2 years. It appears that beta grazers in-sample are likely to remain beta grazers out-of-sample and alpha hunters in-sample are likely to remain alpha hunters out-of-sample.

3.2 Measuring the Performance Impact of Currency Management on Global Equity Portfolios

Since the 1990s, institutional investors have been allocating resources less toward traditional assets like equities and bonds, and more towards alternative investments like hedge funds. A survey conducted by the National Association of College and University Business Officers (2008) found that US university endowments larger than $1 billion allocated more than 20% of their assets to hedge funds. This strategy was partly the result of a conventional belief that hedge funds could pursue more diverse strategies, that diversification is the key for successful investing and that the returns on alternative assets will have little or no correlation with returns on traditional investments. Nevertheless, the largest exposure of the typical institutional investor remains global equities.[24]

A question for plan sponsors is (a) whether diversifying somewhat into currency funds could benefit their performance, and if so, (b) which currency managers might be most worthwhile to add.

To explore this question, we consider a benchmark global equity portfolio evaluated against four alternative portfolios with some exposure to currencies. Each of the four alternative portfolios

[24] For example, the 2010 annual report of Harvard University, the largest U.S. university endowment fund, shows that 43% of its assets are allocated to equities in 2010. See http://www.hmc.harvard.edu/investment-management/policy_portfolio.html

allocates 2% of its assets to a cash margin account to obtain a 20% notional exposure to currencies. The resulting currency share in the total portfolio is 16.9%.[25]

Portfolios 1-4 all invest 98% of their assets in a fund which tracks the MSCI World Index but each one differs in terms of which currency managers, selected from the DB FX Select platform, are allocated the remaining 2% cash share.

- Portfolio 1: The Total-Return Portfolio: The currency allocation is invested in an equal-weighted exposure of the top 3 managers with the highest total return generated during the in-sample period.[26]
- Portfolio 2: The Beta-Chasing Portfolio. The currency allocation is invested in an equal-weighted exposure of the top 3 beta grazers from the in-sample period, i.e. those with the highest estimated R-square.
- Portfolio 3: The Alpha-Hunter Portfolio. The currency allocation is invested in an equal-weighted exposure of the top 3 alpha hunters, i.e. those with the lowest estimated R-square.
- Portfolio 4: The Alpha-Generator Portfolio. The currency allocation is invested in an equal-weighted exposure of the top 3 alpha generators during the in-sample period, i.e. those with the highest point estimate for alpha.

For all Portfolios 1-4, if a manager leaves the platform and is no longer available, the remaining cash margin is invested back in the MSCI Index.

[25] Assume that an investor has $100mn. He invests $98mn in the MSCI World index via a tracking fund and the other $2mn is used as margin to obtain $20mn notional exposure to three currency managers, allocating $6.66mn notional to each of the managers. The currency share in the total portfolio is then 20/118 or 16.9%.

[26] Managers L29, L52 and L42 generate the highest annual return in-sample, 16.10%, 9.16% and 8.34%, respectively.

As managers operate with different volatility profiles, comparisons without adjusting for volatility would not be appropriate.[27] Therefore, we adjust returns (up or down) so that they exhibit the same volatility as the MSCI World index during the in-sample period.

Our empirical results are summarized in Table 4. The out-of-sample period April 2, 2008 - June 30, 2010 was an extremely volatile period for global equities. The MSCI World Index fell steadily until early March 2009 and then generally climbed back for the remainder of the period (see Exhibit 2). Even so, the per annum return was -12.10% with a standard deviation of 23.98%. While currency markets also experienced a turbulent environment over this period, each of the four alternative portfolios offered an economically significant improvement to the equity benchmark.

Portfolio 1 with managers selected on the basis of total return resulted in an excess return of 123 bps per annum with an information ratio (IR) of 1.62. Portfolio 2 that relied on the most proven beta-chasers achieved excess returns of only 57 bps per annum with a lower IR=0.77. However the top performers were the alpha hunters in Portfolio 3 with excess returns of 182 bps per annum (and IR=2.78) and the alpha generators in Portfolio 4 with excess returns of 257 bps per annum (and IR=2.80).

[27] The standard deviation of the return of the managers on the DB FX Select platform ranged from a low of 0.56% to a high of 30.79%. Institutional investors often allocate a target volatility mandate, i.e. managers are asked to scale their currency program to a pre-specified volatility target. Indeed, one of the attractiveness of currency investments is that it is scalable to different risk profiles. Clients might choose between programs with different volatility targets.

It is also striking that the standard deviations of returns for Portfolios 1-4 are all lower than the for the benchmark portfolio. By conventional wisdom, higher returns go hand-in-hand with higher risk. But Portfolios 1-4 generated higher returns with lower total risk than the benchmark. This is particularly noteworthy given that the currency position has been levered by a factor of 10, and that the currency managers rely on either dynamic trading strategies (beta grazers) or discretionary, active strategies (alpha hunters). The diversification effect is even greater with a larger 10% allocation to currency.[28]

Overall, the evidence suggests that adding a relatively small 2% position in currency (albeit levered by 10 to boost the weight in the portfolio to 16.9%) led to an economically significant improvement in performance. The currency component had the undesirable effect of increasing tracking error versus the benchmark by a relatively small amount, but also produced a portfolio with lower total risk. The right hand side panels of Table 4 show the impact of a 10% currency allocation to currency managers, which basically multiplies the excess return and tracking error figures by 5, leaving the IR estimates unchanged. These out-of-sample results support the notion that there was some degree of persistence in investment styles among currency managers. Those managers who were alpha hunters, and in particular those that were successful alpha generators, continued to hunt for alpha and achieved better results than managers who simply pursued beta style returns. Selecting managers on the basis of in-sample total return (Portfolio 1) was a good strategy, but picking managers who were alpha hunters or alpha generators proved to be superior.

[28] Exhibit 2 highlights the benefit of greater currency allocation by plotting the cumulative performance of the Alpha Generator Portfolio with 2% and 10% cash allocation to currency managers. The MSCI World index is included as the benchmark.

These results suggest that using the framework developed by PL (2008a) to differentiate between beta grazers and alpha hunters can be useful for manager selection. While all currency managers who excel at generating returns in general add excess returns to the benchmark portfolio and provide some diversification gain, some managers offer more benefits to their clients than others. Certain managers may appear equal, but some are more equal than others.

4. Conclusions and Policy Implications

In an earlier study, Pojarliev and Levich (2008a) proposed a framework to distinguish between alpha hunters and beta grazers in currency management. We extend that study by using an updated data sample of weekly returns on currency managers from April 6, 2005 until June 30, 2010 and demonstrate that this framework can be useful for manager selection.

Our analysis shows some evidence of alpha persistence. Managers who were alpha generators over the 3-year in-sample period, also performed at the top in the following 2-year out-of-sample period. The same was true for the managers with the lowest alpha. Beta grazers were also likely to continue to generate the bulk of their returns by exposure to risk factors. The managers linked most closely to the risk factors over the 3 year in-sample period, were also linked to the same factors in the following 2-year out-of-sample period. This is good news for plan sponsors as it indicates that past performance data can be an indication for future managerial style and performance for individual managers.

Our results have several useful implications for the currency management industry. First, investing in currency managers seems to provide diversification to investors with global equity exposure. The unfunded nature of currency management makes currency alpha easy to transport on top of any underlying portfolio as it only requires minimal cash for margin (normally 10%). Diversification and portability could encourage increased investments into currency alpha strategies. Second, a global equity portfolio which diversifies using "alpha hunters" would have outperformed a portfolio invested in "beta grazers" (where both were identified in-sample) by 125 bps per annum between April 4, 2008 and June 30, 2010. Selecting the best alpha hunters,

i.e. the managers with the highest alpha ("alpha generators") improves the results further by another 75 bps per annum. In contrast, focusing on simply the managers with the highest total return would have increased excess returns versus beta chasers, but fallen short by 59 bps and 134 bps versus portfolios relying on alpha hunters or alpha generators. This result could lead institutional investors to pay closer attention to the return attribution of their currency managers.

All currency returns make an incremental contribution to overall portfolio returns, but some managers are more likely to have persistently good performance with greater diversification benefits. In this sense, all returns may appear equal, but some returns will be more equal, and more beneficial, than others.[29] Choosing the "right" currency managers could increase the diversification benefits considerably for a global equity portfolio.

Finally, the distinction between "alpha hunters" and "beta grazers" may lead to some re-pricing for "active" currency products. It will be difficult to justify alpha fees for exposure to currency style betas that could be earned more cheaply. In any case, increased transparency should be beneficial for both investors and managers and ultimately the asset management.

Our results are subject to the limitation that the available evaluation period covers a relative short period of 27 months (April 2008 - June 2010). However, the nature of our experiment (updating published results) reinforces the findings as the evaluation period is truly out-of-sample. Hopefully, our analysis will stimulate further research in this area.

[29] A 5% return generated by alpha hunting will be more desirable than beta grazing that yields a 5% return in the context of diversification to global equity exposure.

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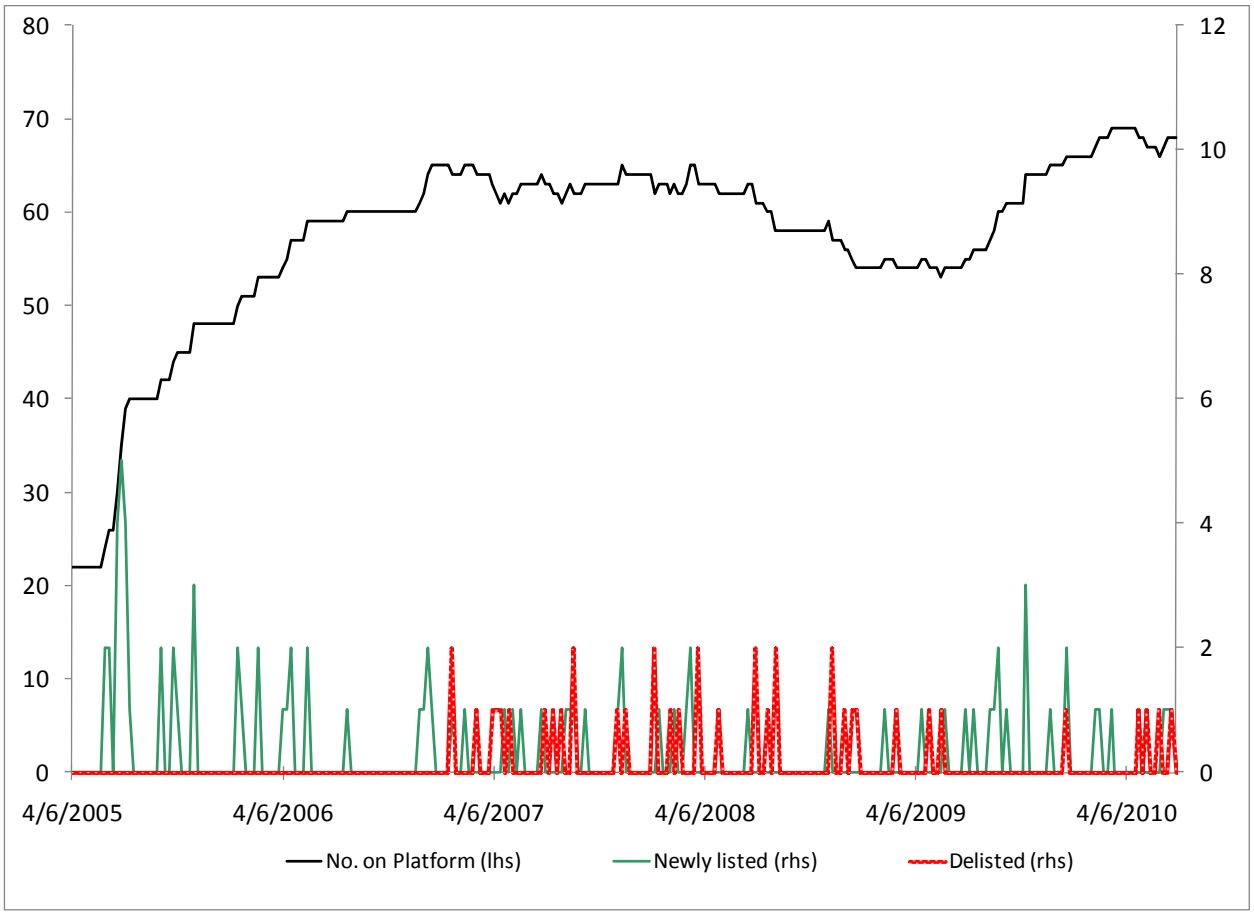
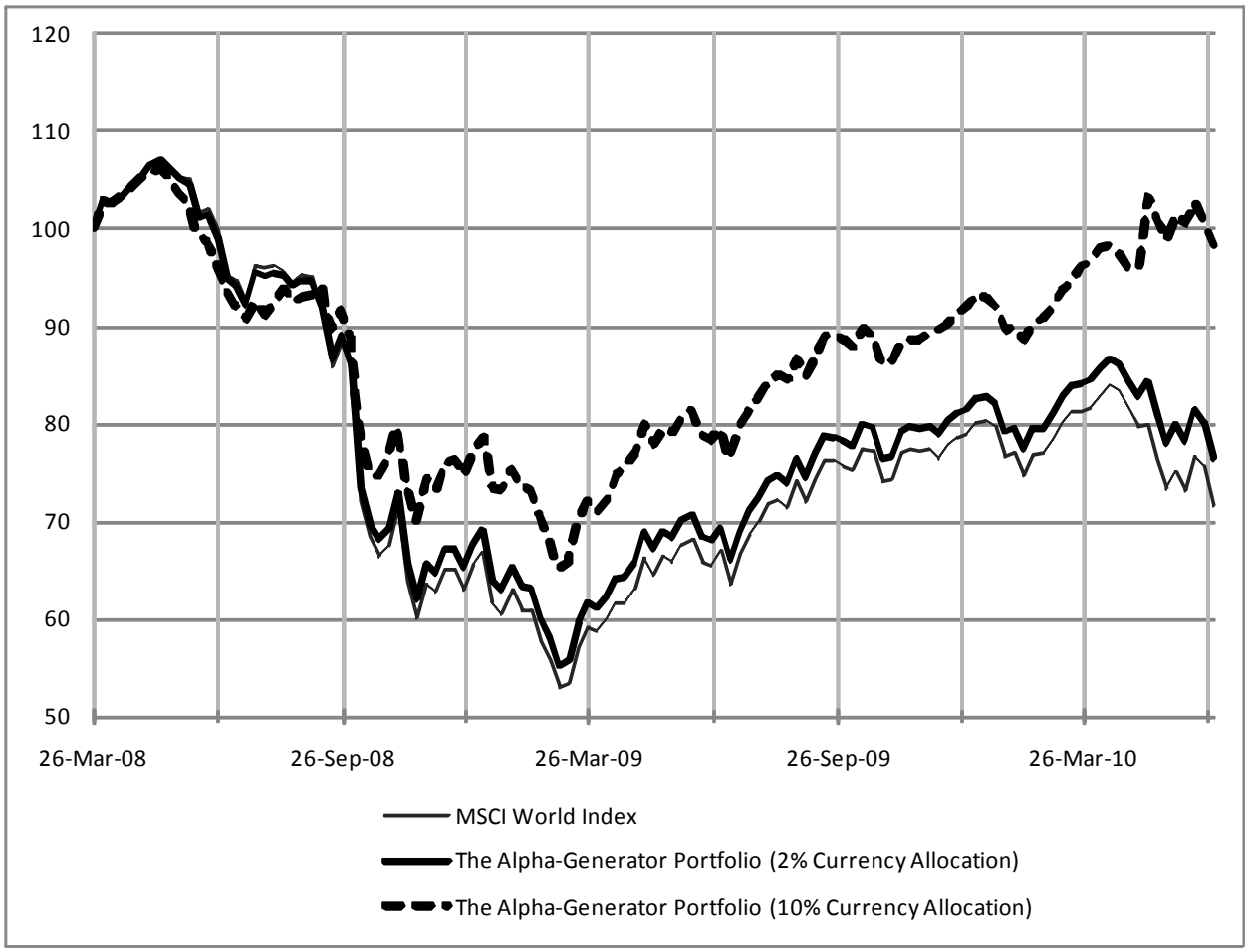
Exhibit 1: Number of Funds on DB FX Select Platform, Number Newly Listed and Delisted.



Source: Deutsche Bank and authors' calculations

Exhibit 2: Performance of Global Equities and Impact of Adding Currency Managers



Notes:
The Alpha Generator Portfolio (2% Currency Allocation) invests 98% cash in the MSCI World Index with the remaining 2% cash used to obtain a 20% notional exposure in the top 3 alpha generators. The currency share is then 16.9% (20/118) and the equity share 83.1% (98/118). The Alpha Generator Portfolio (10% Currency Allocation) is similar, but the cash share allocated to currency managers is 10%. The total currency share is then 52.6% (100/190) and the equity share is 47.4% (90/190).

Table 1: Correlation of Returns on Equity, Crude Oil, and a Currency Cross-Rate

Panel A: Sample Period July 2008 – December 2008
Weekly Data, 07/04/2008 – 12/26/2008, 26 weekly observations

	S&P 500	Crude Oil	AUD/JPY
S&P 500	1	0.558	0.841
Crude Oil	0.558	1	0.555
AUD/JPY	0.841	0.555	1

Panel B: Sample Period January 1990 – December 2008
Weekly Data, 01/12/1990 – 12/26/2008, 990 weekly observations

	S&P 500	Crude Oil	AUD/JPY
S&P 500	1	0.019	0.323
Crude Oil	0.019	1	0.132
AUD/JPY	0.323	0.132	1

Data source: Bloomberg and authors' calculations.

Note: Correlations computed using log differences in the spot prices.

Table 2: Regression Results for Individual Currency Managers

Panel A: Based on 3 years, 156 weekly observations, 4/06/2005-3/26/2008

Regression Results for $R_{j,t} = \alpha_j + \sum_i \beta_{i,j} F_{i,t} + \varepsilon_{j,t}$ for managers j = 1, …15.

	Intercept	T-Stat	Beta Carry	T-Stat	Beta Trend	T-Stat	Beta Value	T-Stat	Beta Vol.	T-Stat	R-Square	N
L6	-0.00057	-0.50	0.55	**4.23**	1.07	**5.15**	-0.04	-0.35	-0.10	-0.22	0.271	156
L10	-0.00001	-0.05	-0.01	-0.32	0.09	1.32	-0.01	-0.39	0.26	1.80	0.074	156
L15	-0.00092	-0.76	0.17	1.29	0.97	**4.44**	-0.42	**-3.31**	0.15	0.34	0.174	156
L28	0.00116	1.85	-0.00	-0.07	0.09	0.87	-0.08	-1.26	0.38	1.57	0.057	156
L29	0.00321	1.56	-0.48	**-2.08**	-0.68	-1.84	0.06	0.30	1.24	1.57	0.105	156
L30	0.00001	0.09	-0.05	-0.57	0.08	0.53	0.21	**2.21**	0.32	0.94	0.055	156
L35	0.00026	0.21	0.07	0.54	0.21	1.00	-0.08	-0.65	-1.00	**-2.15**	0.059	156
L42	0.00194	1.47	-0.94	**-6.31**	-0.24	-1.01	0.21	1.50	-0.42	-0.84	0.268	156
L46	0.00036	0.67	0.07	1.18	0.19	**2.06**	-0.10	-1.83	0.47	**2.34**	0.104	156
L47	0.00036	0.89	-0.15	**-3.37**	0.03	0.45	-0.31	-0.73	-0.05	-0.32	0.134	156
L49	0.00079	1.64	-0.05	-1.04	0.23	**2.65**	-0.05	-1.05	0.36	1.96	0.167	156
L50	-0.00086	-0.64	0.29	1.95	1.77	**7.34**	-0.23	-1.64	1.28	**2.50**	0.360	156
L52	0.00080	0.68	0.67	**5.08**	2.05	**9.65**	-0.35	**-2.86**	-0.47	-1.05	0.464	156
L53	0.00018	0.13	0.66	**4.30**	1.44	**5.85**	-0.47	**-3.28**	-0.53	-1.02	0.294	156
L58	-0.00007	-1.07	0.75	**9.26**	0.37	**2.89**	-0.37	**-4.93**	-0.64	**-2.32**	0.535	156

Panel B: Out-of-Sample - 4/02/2008-6/30/2010, 118 weekly observations

Regression Results for $R_{j,t} = \alpha_j + \sum_i \beta_{i,j} F_{i,t} + \varepsilon_{j,t}$ for managers j = 1, …15

	Intercept	T-Stat	Beta Carry	T-Stat	Beta Trend	T-Stat	Beta Value	T-Stat	Beta Vol.	T-Stat	R-Square	N
L6	-0.00875	-1.54	0.94	1.91	-0.59	-0.92	-1.72	**-4.08**	-0.14	-0.12	0.708	13
L10	0.00063	1.19	0.04	1.59	0.16	**2.79**	0.04	0.95	0.12	1.93	0.163	118
L15	0.00135	0.82	0.47	**5.62**	0.32	1.76	-0.57	**-4.39**	0.29	1.47	0.345	118
L28	0.00169	**3.45**	-0.02	-0.73	0	-0.03	-0.02	-0.52	0.09	1.54	0.05	118
L29	0.00148	0.77	-0.19	-1.95	-0.09	-0.43	-0.01	-0.09	0.52	**2.25**	0.131	118
L30	-0.00031	-0.41	0.04	1.08	0	0.02	0.03	0.51	0.24	**2.67**	0.072	113
L35	0.00103	0.52	0.15	1.45	0	-0.02	0.14	0.88	-0.23	-1.00	0.059	118
L42	0.00101	0.69	-0.47	**-6.37**	0.02	0.11	0.25	**2.15**	0.26	1.50	0.448	118
L46	-0.00035	-0.36	0.01	0.18	0.06	0.57	-0.02	-0.24	-0.11	-1.01	0.012	108
L47	0.00058	1.13	0.06	**2.41**	-0.1	-1.69	0.02	0.48	0.11	1.77	0.102	118
L49	0.00054	0.69	0	-0.02	0.11	1.21	0.07	1.09	0.18	1.86	0.11	118
L50	-0.00129	-0.66	-0.1	-0.98	1.12	**5.19**	0.25	1.64	0.13	0.55	0.39	118
L52	0.00085	**2.13**	0.04	1.18	0.2	**4.37**	0.02	0.71	0.1	1.13	0.753	13
L53	0.00075	0.73	0.18	**3.36**	0.21	1.89	-0.28	**-3.51**	0.17	1.36	0.192	118
L58	0.00083	0.36	0.01	0.04	0.84	**3.68**	-0.11	-0.64	0.16	0.67	0.516	37

Source: For Panel A, Pojarliev and Levich, 2008b; for Panel B, author's calculations.

Table 3: Alpha Hunters, Alpha Generators, and Beta Grazers: In-Sample and Post-Sample Results

		Panel A: In-Sample Results April 6, 2005 until March 26, 2008, 156 weekly observations	**Panel B: Post-Sample Results April 2, 2008 until June 30, 2010, 118 weekly observations**
Alpha estimates	High (Alpha Generators)	**L29**, L42, **L28**	**L29**, **L28**, L15
	Low (Underperformers)	L15, **L50**, **L6**	**L6, L50**, L46
R-Square estimates	High (Beta Grazers)	**L58**, **L52**, L50	**L52**, L6, **L58**
	Low (Alpha Hunters)	L30, **L28**, **L35**	L46, **L28**, **L35**

Bold indicates persistence, i.e. managers are in the same category in- and out-of-sample.

Table 4: Out-of-Sample Relative Performance to the MSCI World Index by Allocating to Currency Managers

	2% Allocation to Currency Managers				10% Allocation to Currency Managers			
	Excess Return	**Tracking Error**	**Information Ratio**	**Std. Dev. of Returns**	**Excess Return**	**Tracking Error**	**Information Ratio**	**Std. Dev. of Returns**
Portfolio 1: Equity + Total Return FX	123 bps	76 bps	1.62	23.03%	614 bps	380 bps	1.62	20.05%
Portfolio 2: Equity + Beta Chasing FX	57 bps	74 bps	0.77	23.27%	284 bps	369 bps	0.77	20.96%
Portfolio 3: Equity + Alpha Hunting FX	182 bps	66 bps	2.78	23.62%	911 bps	328 bps	2.78	22.96%
Portfolio 4: Equity + Alpha Generating FX	257 bps	92 bps	2.80	22.84%	1284 bps	458 bps	2.80	19.48%

Notes: Returns are in USD and performance is calculated over the out-of-sample period, April 2, 2008 – June 30, 2010 covering 118 weeks

Portfolio 1 augments the MSCI World Index with either 2% or 10% shares in the 3 currency funds with highest annual return over the in-sample period April 6. 2006 – March 26, 2008.
Portfolio 2 augments the MSCI World Index with either 2% or 10% shares in the 3 currency funds with highest R-squared in equation 2 over the in-sample period April 6. 2006 – March 26, 2008. In the event that a currency fund delists in the out-of-sample period, those funds are invested in the MSCI.
Portfolio 3 is augments the MSCI World Index with either 2% or 10% shares in the 3 currency funds with lowest R-squared in equation 2 over the in-sample period April 6. 2006 – March 26, 2008.
Portfolio 4 augments the MSCI World Index with either 2% or 10% shares in the 3 currency funds with highest alpha point estimates in equation 2 over the in-sample period April 6. 2006 – March 26, 2008.

The 2% share when levered up by 10 results in an effective 16.9% allocation in currency and 83.1% allocation in equity. The 10% share when levered up by 10 results in an effective 52.6% allocation in currency and 47.4% allocation in equity.

Over the out-of-sample period, the MSCI produced a -12.10% annual return with standard deviation 23.98%. The excess return is the annual return of the portfolio less than the annual return on the MSCI World index. The annual rate of return is computed as the average weekly return multiplied by 52. The tracking error is computed as the standard deviation of the difference between the portfolio and MSCI World index return. The information ratio is the excess return divided by the tracking error.