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INQUIRE EUROPE  
JOINT SEMINAR**

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## **Introduction**

The implicit theme of this conference was an emphasis on encouraging communication between the academic researchers and the professional audience. The seminar used two difference techniques to encourage discussion. In the first day formal discussants were used for each paper. For academic presentations, a practitioner was asked to locate the research in practice and to draw out its relevance. For practitioner presentations, the academic discussant's task was to comment on the rigour of the methods and to contribute knowledge of other academic papers in the area. By contrast, on the second day, 'awards ceremony-style' seating around circular tables facilitated a ten-minute small-group discussion prior to open discussion. A third change in the structure was a session in which some recent academic research was reviewed, common themes were recognised and critically discussed. On the basis of the comments and feedback, seminar participants appreciated the efforts made to enhance communication.

On day one, Russ Wermers started the presentations by providing evidence that stocks with shifts in their style characteristics exhibit a high co-movement with, and similar average returns to, stocks having similar styles regardless of whether this is justified by future cash flow patterns and risks. This implies that investors judge stocks too strongly by their styles. Daniella Acker identified that a change of the reference day used in estimating monthly variables such as stock betas or international market correlations can make a significant difference to research results. This point was taken up by the discussant Jason MacQueen who investigated the impact at the level of portfolio risk. His preliminary investigation suggested that many factor risks were reasonably stable, but there were differences observed in the fourth week of the month.

In his keynote address Bob Litterman described the key characteristics of the Goldman Sachs CORE<sup>SM</sup> equity strategy model. This was followed by Jay Shanken's paper that considered, in a Bayesian setting, how the beliefs and investment decisions of investors with different priors might differ after observing the same data. In light of recent increased interest in active currency strategies, Amy Middleton's presentation assessed the convergence in trading styles used by currency-only Commodity Trading Advisors and overlay managers. The final presentation of the day and Russ Wermers' second paper, 'Investing in mutual funds when returns are predictable', provided evidence that active management of equity funds appeared to add much more value than previously documented. However, discussion highlighted the very narrow optimal portfolios and high sector-specific exposures that were implied in the strategies identified.

The second day focused on several papers financially supported by INQUIRE Europe. First, Pedro Matos asked whether mutual fund families play family strategies. He provided evidence on cross-subsidisation across funds and linked this to particular fund family trading strategies, though the issue of causality was raised during discussion. Using a measure of eco-efficiency, Rob Bauer provided evidence of a premium to socially responsible investing, showing that the benefits can be substantial; the issue of causality was again raised during open discussion. Massimo Massa, used the 'Odean' database of individual investor decisions and focused on the *disposition effect*, the tendency of individuals to ride losses and realise gains, in seeking to find a direct link between individual investor behaviour and asset price dynamics. Sean Finucane provided a review of nine recent academic papers under three broad themes: familiarity; momentum trading; and indices and indexing. Finally, Narayan Naik investigated the relationships between money-flows into hedge funds, future performance, managerial incentives and impediments to capital withdrawals.

## **Style migration and the cross-section of average stock returns**

*Russ Wermers, University of Maryland*

*Discussant: Peter Hopkins, Style Research*

Russ Wermers presented the paper jointly written with Hsui-Lang Chen (University of Illinois at Chicago) and financially supported by INQUIRE UK. He began by observing that style investing is now a common approach to the portfolio allocation decision but that little is known about the dynamics of this approach. Within a brief description of three academic studies on style investing he focused on the model of Barberis and Shleifer (2003). This predicts that, if investors judge stocks too strongly by their styles, a high co-movement and similar average returns will be observed among stocks having similar styles, regardless of whether this is justified by future cash flow patterns and risks. This implies that a stock that is reclassified into a new style category will behave like those in the new style category due to the excessive use of styles by investors.

Professor Wermers described the contribution of the paper as providing new evidence by analysing stocks with shifts in their style characteristics such as size, book-to-market, and momentum; recent style shifts by stocks are termed 'style migration'. He argued that this study of 'style migrants' is a unique, new approach to determining whether investors rationally price stocks, as in the Fama and French research, or whether they behave irrationally in preferring stocks with a certain style characteristic, as in Daniel and Titman (1997) or Barberis and Shleifer (2003). Specifically, the study investigates whether style migrant stocks have average returns more like their new style counterparts and whether these migrants co-vary too strongly with their new counterparts.

He described the method adopted. First stocks are classified by independently sorting them, each quarter, on their industry-adjusted size, book-to-market, and momentum characteristics. Then, the style shifts of stocks are measured over a given calendar quarter in each of these three style dimensions. Normalizing style shifts by their industry-average values allows the measure of shifts that are uninformative about future industry cash flow patterns and risks. That is, if a stock experiences a temporary shift in style away from its industry norm, perhaps due to a short-term shock in its earnings, the returns of that stock should remain unchanged after the initial price adjustment since the future cash flows of the stock will remain highly correlated with other same-industry companies.

Professor Wermers briefly described the results which show that large style shifts are relatively uncommon, with between 3 per cent and 5 per cent of stocks moving significantly in the size or book-to-market dimensions during the average quarter. Shifts in the momentum dimension are more common, with over 15 per cent of stocks making significant moves during an average quarter. In addition, style movements in all three style dimensions are similar when small-capitalization are separated from large capitalization stocks, suggesting that small stocks do not have any greater 'style risks' than large stocks.

Stocks that are new migrants into a style category have returns that are more similar to the average stock return in that style category than with their industry cohorts, indicating that investors place too much emphasis on style as a defining characteristic of stock values. For example, stocks that become more value-oriented than their industry cohorts (based on book-to-market ratios) tend to have returns that are more similar to other value stocks than to the average stock in their industry. Finally, the results provide strong evidence that style migrants co-vary excessively with their new style cohorts; ie the returns of style migrants co-vary even more with stocks in their new style classification than stocks that are already members of that new classification. Again, this indicates that investors place too much importance on the changing style characteristics of stocks, controlling for style movements of other stocks in the same industry.

Concluding, Professor Wermers argued that the evidence was consistent with irrational investor behaviour when classifying stocks (or industries) based on commonly used styles. Style migrants show different return patterns than style residents in the new style categories. Investors appear to use style as information about a stock or industry, even when it seems to be relatively uninformative.

The discussant, Peter Hopkins (Style Research), questioned whether the higher co-variation with the new style might be a small cap effect rather than a migrant effect. He suggested extensions, to different markets, styles and phases of the market, to assess the robustness of the findings. Finally, he suggested that the trading patterns of institutions might provide a useful insight on the phenomenon. Comments in open discussion tended to focus on the robustness of the methods applied including the issue of survivorship bias and a suggestion of sub-period analysis.

**Estimating betas and stock return correlations from monthly data: a warning note.**

*Daniella Acker, University of Bristol*

*Discussant: Jason MacQueen, Alpha Strategies and R-Squared Ltd*

The paper presented by Daniella Acker was based on joint work with Nigel Duck (University of Bristol). She began by observing that the empirical finance literature makes extensive use of ‘monthly’ stock returns, where a monthly return is the change in stock price between one particular day of the calendar month (termed the reference day in the paper) and the corresponding day of the following month. A common procedure is to calculate such a series, use it to estimate empirical measures of theoretical concepts such as company betas, and then use these estimates to test one or more underlying hypotheses. She explained that, to the authors’ knowledge, no prior study has checked to see whether a change of reference day makes any significant difference to its final results. The paper contributes by investigating this issue.

Dr Acker described the three elements of the study. First samples of two variables commonly estimated from monthly stock returns, company betas and international equity market correlations, were presented and demonstrated to be highly sensitive to the choice of reference day. Second, she presented the results of a ‘mini’ event study and showed that tests of key hypotheses typically carried out in such studies can be reversed by selection of a different reference day. Finally, she provided evidence on how international equity market correlations change in extreme markets. The conventional wisdom is that these correlations increase in volatile markets, especially in bear markets. Using monthly data from 1973-2002, she showed that this result is highly sensitive to the choice of reference day: some reference days suggest correlations rise in bear markets, others suggest they fall; similarly, some reference days suggest correlations rise in bull markets whilst others suggest they fall.

Overall, Dr Acker argued that the results show that the choice of reference day has more effect on key statistics such as company betas and stock-market correlations than most research in finance assumes, and it can reverse central conclusions of different types of study. This suggests that the conclusions of many empirical studies may be vulnerable to this particular manifestation of estimation risk: a change of reference day. At the very least, results should be tested for robustness against the choice of reference day.

In his role as discussant, Jason MacQueen commented that he believed the paper to be very interesting with interesting consequences for portfolio risk analysis. First, he made a plea to academics to stop testing the single factor CAPM, given that practitioners have been using multi-factor models since 1975. Second, he suggested that stock betas can be estimated in ways other than the regression approach adopted by Acker and Duck, for example from fundamental data. Third, he argued that stock risk models are less important than portfolio risk models. So, he reported some preliminary results of testing whether portfolio risks are sensitive to day-of-the-month issues using a portfolio multi-factor risk model for 2800 European stocks. The risk model was estimated on 31 January 2005 and every business day during February giving 21 different estimates of factor risks.

The results showed that many factor risks are reasonably stable, with relative magnitudes of risk being very stable (ie higher risk factors are always higher risk). However, the fourth week of the month did appear to be somewhat out of line with other periods. Jason wondered whether there might be a behavioural explanation for this, given that portfolio managers are judged on calendar months and quarters.

## **Keynote Address: Fundamentals drive alpha**

***Bob Litterman, Goldman Sachs***

*Discussant: Peter Pope, University of Lancaster*

After providing an initial history of the motivation and development of the Black-Litterman model, Bob Litterman proceeded to describe the key characteristics of the Goldman Sachs CORE<sup>SM</sup> equity strategy model. His talk was based on the paper ‘Fundamentals drive alpha’ co-authored by Andrew Alford, Bob Jones and Terence Lim at Goldman Sachs.

He explained that the firm believes the key driver of superior investment performance to be superior fundamental research; this is true for both quantitative and traditional processes. In the CORE<sup>SM</sup> (Computer-Optimized, Research-Enhanced) equity strategy, fundamental research means a careful analysis of each company’s current and prospective economic situation and competitive position. Of course, doing fundamental research well enough to beat the market is not easy. Active management is a zero-sum game filled with many competent, motivated players. To overcome these challenges, the CORE process evaluates stocks using a parsimonious yet comprehensive set of six distinct fundamentally based alpha drivers. Several variables can represent a given alpha driver, and while the exact variables often differ by region, the same underlying fundamental concepts apply in all developed equity markets. These drivers, when combined to form expected returns, describe the relative attractiveness of each stock in eight different global investment regions. In keeping with the fundamental investment philosophy, the alpha drivers measure the economic condition and competitive position of each stock based on information from companies’ financial statements, past price performance, and the forecasts and ratings of stock market analysts.

At the heart of the process is the global return model, a quantitative model comprising six fundamental alpha drivers: Valuation, Profitability, Earnings Quality, Management Impact, Momentum, and Analyst Sentiment. These alpha drivers capture the same types of factors that traditional financial analysts evaluate when they research individual companies, but they are evaluated quantitatively, which provides important advantages. The process is transparent and verifiable because the choice and measurement of alpha drivers are explicit. The efficacy of each potential alpha driver is thoroughly evaluated before inclusion in the model, which means that each fundamental driver can be verified to provide a unique source of alpha, before being

optimally combined to derive a single measure of expected return for every stock in the investment universe.

Dr Litterman explained that views about alpha drivers are converted into views about individual stocks, which are then used to manage client portfolios; the Black-Litterman [1992] approach is used for blending views. Combining alpha drivers is conceptually similar to creating a strategic asset allocation, except that alpha drivers replace asset classes in the analysis. The CORE process gives more weight to drivers with higher and more consistent historical returns, superior diversification benefits, and more stable values. The first step is to develop realistic estimates for these parameters by evaluating the performance of distinct portfolios, called view portfolios, which independently invest in each alpha driver. Intuitively, these view portfolios are primitive assets with “pure” exposures to alpha drivers. They are constructed to be minimum-risk, zero-investment, long-short portfolios with unit exposure to a given alpha driver and no exposure to other drivers or risk factors. The long and short positions in the view portfolios will ultimately determine the active over- and under-weights in actual client portfolios. Each view portfolio has an expected return and risk level. The expected returns are positive because each view portfolio has positive, unit exposure to one of the fundamental alpha drivers. The returns on the view portfolios are risky because the alpha drivers do not predict returns perfectly. Although they work well on average over a variety of economic cycles, no driver works in every period. To earn excess returns, we must take some risk, which can be minimised by optimally diversifying across the six alpha drivers.

The risk and return characteristics of the view portfolios are used in a risk-budgeting exercise to derive the optimal tilt portfolio (or OTP), defined as the weighted combination of view portfolios that has the highest expected information ratio. Thus, the OTP is a zero-investment, long-short portfolio that represents the optimal combination of the alpha drivers. In risk budgeting, estimates are required for of the expected returns, volatilities, and correlations for each of the alpha drivers (or view portfolios). In order to assess the efficacy of an alpha driver across a wide range of economic and market conditions, long-term results are used to estimate its expected return. When estimating volatilities and correlations, however, more weight is put on recent data. This is because research shows that recent performance of the view portfolios is not a good indicator of their near-term future performance. There is considerable persistence in their volatilities and correlations, however; ie if risk or correlations have recently been high, they tend to stay high, and vice versa.

The term ‘tilt’ is used because the OTP has exposure to all six of the fundamental alpha drivers, long stocks with attractive fundamentals and short stocks with unattractive fundamentals. This

particular tilt portfolio is 'optimal' because each component view portfolio minimizes risk subject to maintaining unit exposure to its alpha driver, and because the view portfolios are combined to maximise the expected information ratio of the OTP. The optimal tilt portfolio provides a convenient and comprehensive representation of the CORE model's investment insights.

Dr Litterman argued that there are two primary advantages to the Black-Litterman approach to deriving expected returns. First, because the CORE risk model explicitly estimates the risk of each of the alpha drivers, there will not be too much or too little exposure to an alpha driver because of a failure to accurately assess its risk. Second, because the OTP is reverse optimised using the same risk model that is later used to create client portfolios (ie, the CORE risk model) all client portfolios will accurately reflect the investment insights embedded in the OTP. Therefore, the expected returns are fully consistent with the risk model by design, and the portfolio optimiser will not become an 'error maximiser' as outlined by Michaud [1998].

Peter Pope, as discussant, wondered how much incremental benefit the Black-Litterman contributed to stock selection and whether the proprietary risk model might lead to 'unmodelled risk'. He questioned whether the fundamentals might actually be proxying for various risks; for example academic research has suggested links between momentum and both default risk and term structure. Finally, he asked whether the alpha drivers were robust. In response to a question from the floor, Dr Litterman suggested that the back-testing results should be viewed with some caution and acknowledged that transaction costs were not included in these results. Another query concerned the method by which costs are modelled in the CORE approach. Dr Litterman explained that higher 'risk' is allocated to drivers that associate with high transactions costs and also confirmed that costs associated with different size stocks are incorporated.

## **Dividend yield, risk and mispricing; a Bayesian analysis**

*Jay Shanken, Emory University, Atlanta*

*Discussant: Alan Scowcroft, UBS*

Jay Shanken began by thanking INQUIRE Europe and INQUIRE UK for financial support and acknowledging the contribution of his co-author Ane Tamayo (London Business School).

He argued that there is a wide range of beliefs in the literature about the relative importance of risk and mispricing in the determination of time-varying expected returns. This has not been addressed in previous Bayesian work, which emphasises diffuse priors. The computational framework uses importance sampling to accommodate differences in informative prior beliefs about these issues and allows the analysis of the impact of historical data on these beliefs. How, one might ask, would the beliefs and investment decisions of Eugene Fama and Richard Thaler differ (assuming rationality for both) after observing the same data?

Professor Shanken suggested that the study represents an extension of Kandel and Stambaugh's work on return predictability and dividend yield. He argued that it is, to his knowledge, the first study to analyse the conditional distribution of aggregate market returns in a Bayesian setting that allows expected return to depend on the time-varying level of risk as well as dividend yield. The priors accommodate both uncertainty about the risk-return relation and the degree to which return can be predicted by dividend yield after adjusting for the level of risk. This incremental yield effect may relate to behavioural mispricing or intertemporal hedging demands. The results described by Professor Shanken show that these priors influence beliefs and asset allocations in a variety of interesting ways when predictability for the NYSE value-weighted market index is examined over the period 1940-2002.

Using diffuse priors, which allow the data to dominate beliefs, the yield effect is positive over the entire period. The posterior mean is substantial in economic terms, implying a change in the risk premium of about 3¼ percent (annualised) when yield changes by one percentage point. This has a large impact on asset allocation with a certainty equivalent return (CER) loss from ignoring the predictability of about 2 per cent (annualised) in the low yield state.

Informative priors for mispricing/hedging effects have substantial effects on beliefs. The posterior mean for the incremental yield coefficient is cut in half and its economic significance (CER loss) is reduced by three-quarters when the investor has a neutral prior, centred at zero,

rather than a diffuse prior. In contrast, an ‘overreaction prior’, which emphasizes positive and fairly large values of the yield coefficient, delivers results much closer to those based on the diffuse prior. This occurs because the data-based estimate happens to be near the prior mean in this case. Despite these observations, the annualised loss from forcing the neutral investor to hold the portfolio that would be optimal under the overreaction prior or the diffuse prior is less than 50 bps.

Consistent with earlier studies, a lagged *ex post* measure of risk based on within-month daily data is a powerful predictor of *ex ante* risk and ignoring this predictability has a significant influence on asset allocation. The *incremental* impact of yield on risk is minimal, however. Estimates of the risk-return trade-off parameter are far smaller than the Merton proportionality condition would suggest. Surprisingly, though, the weak positive relation between risk and return is sufficient, with diffuse priors, to reduce the CER value of conditioning on the lagged risk measure from roughly 2 per cent to 1 per cent (annualised) in the high yield state. The paper also considers a prior centred on the proportionality condition such that the odds of a positive risk-return relation are about 5 to 1. Interestingly, results under this prior are much closer to those for an investor who ignores the relation between risk and return entirely, as compared to one who dogmatically believes in the proportionality condition. Thus, ‘open-mindedness’ about the theoretical relation turns out to be important in this case.

The discussant, Alan Scowcroft, commented on the importance of return predictability in asset allocation, was interested in whether risk premium or irrationality motivates return predictability and noted complications in the calculations.

## **Trading style analysis; quantitative assessment of the currency industry**

*Amy Middleton, Birkbeck University, London*

*Discussant: David Buckle, Merrill Lynch*

After acknowledging the help of her supervisor Emmanuel Acar, Amy Middleton began by describing the context for the study. She argued that the potential for diversification away from traditional asset classes such as bonds and equities has helped create greater focus on the potential for currency as a means of alpha generation. As such the interest in active currency strategies, a sub-section of the hedge fund world, has increased over the past few years, as has the interest in currency overlay. Further, there has been much speculation as to the convergence in the trading styles used by currency-only Commodity Trading Advisors (CTAs) and overlay managers.

She explained that the study offers an insight into the trading styles used within the currency industry. It questions whether trend-following techniques still remain the dominant trading style for currency CTAs and the extent to which the use of more fundamentally-based strategies by overlay managers can be quantified. In doing so, the paper also provides a comparison of the two sides of the industry by highlighting and discussing the similarities and differences.

The research investigated twenty-four currency CTAs programmes and fifteen currency overlay managers over the period October 1996 to March 2004. Trading style is assessed using five active factors, encompassing proxies for both trend and fundamental styles:

- differential forward (carry trade)
- forward curve
- inflation based strategy
- ppp strategy
- AFX index

The factors were used in conjunction with several quantitative techniques, including one approach based upon a principle component analysis to segregate managers into homogeneous groupings with respect to trading style.

The results showed that, over the period, trend-following was the dominant trading style of currency CTAs. However, a surprisingly high proportion of currency overlay managers were

also found to be using this technique. In addition, overlay managers were more inclined to diversify trading style by adopting a multi-strategy approach compared with CTAs which tended more towards single strategies. The trading style of the CTAs could be explained either very well by a single factor, such as trend-following, or not at all. By contrast, overlay managers were found to be correlated with at least one of the trading factors put forward here. Also, there seemed to be some divergence between the qualitative descriptions given by the managers themselves and quantitatively-identified styles; for example, 13 managers had strong correlations with the trend-following AFX index, somewhat puzzling as almost half described themselves as 'fundamental'.

Such trading style analysis offers benefit not only from a replication standpoint but also as a tool with which to recognise and identify the 'uniqueness' of managers. It seeks to aid understanding of the industry and provides a method by which a manager may quantitatively distinguish himself from his peers.

In his discussion, David Buckle commented on the interesting patterns in the data and suggested that there may be a problem with the OECD data used to proxy for the PPP strategy. He thought it would be interesting to see the relationship between performance and style and a sub-period analysis to investigate how close CTAs and overlay managers have moved; he expressed concerns over the standard error estimates. One comment in open discussion related to the self-reporting bias in the manager descriptions.

## **Investing in mutual funds when returns are predictable**

*Russ Wermers, University of Maryland*

*Discussant: Michael Steliaros, FGS Capital*

Several recent papers have analysed return predictability at the stock or benchmark level but much less is known about the economic significance of predictability in mutual fund returns. Roughly \$4 trillion is currently invested in US equity funds, making equity funds a fundamental part of the overall portfolio of the average US investor. Thus, the domestic-equity mutual fund universe provides an important area in which to study predictability in an investment-based context. Professor Wermers argued that the paper, jointly authored with Doron Avramov (University of Maryland), developed and applied a framework in which to study predictability in (i) manager selectivity and benchmark-timing skills, (ii) mutual fund risk-loadings, and (iii) benchmark returns among open-end no-load US domestic equity funds over the 1975 to 2002 period. These three potential sources of predictability are incorporated to form optimal portfolios of equity funds in the presence of estimation risk.

Professor Wermers argued that the study provided insight into several important issues:

1. does active management reliably add value, at least for subgroups of funds?
2. what is the source of predictability in fund returns?
  - benchmark return predictability?
  - manager risk-loading predictability?
  - manager talent predictability?
3. what is the economic significance of predictability?

He argued that the framework employed is quite general in its application as well as being implementable in making investment decisions in real time. First, moments used to form optimal portfolios obey closed-form expressions. This facilitates the implementation of formal trading strategies across a large universe of mutual funds. Second, almost all funds in the sample are self-designated 'diversified' mutual funds, which prevents the funds from short-selling stocks. Since short-selling of all open-end mutual funds (except exchange-traded funds) is unavailable to investors, the model is restricted to taking long-only positions in the funds, which implies long positions in the underlying stocks. Third, the model distinguishes performance of optimal portfolios of mutual funds that is due to the predictability in fund risk-loadings and benchmark returns from that due to the stock selectivity and benchmark timing talents of the manager. Fourth, it also distinguishes between timing and security selection based

on public information from that based on manager-specific skills. For example, a manager may revise her portfolio following changes in publicly observed business conditions if such changes help to predict future returns. The manager may also use private information to make further portfolio revisions to improve performance. Only this last portion is attributable to manager skill.

Professor Wermers described the various stages of analysis. First, optimal portfolios of mutual funds dictated by the model at the end of the sample period (December 2002) were analysed to provide several insights about the economic significance of fund return predictability. To start, consider a Bayesian investor who completely rules out predictability in fund returns as well as any managerial selectivity and benchmark-timing skills. Unsurprisingly, this investor optimally holds index funds, such as the Vanguard Total Stock Market Index fund. However, if this investor recognises the possibility of predictability in fund risk-loadings and benchmark returns, she allocates her entire wealth to actively-managed funds in the communication, technology, and other sectors. This result is interesting in light of this investor's disregard for any possibility of manager skills. Indeed, even for this investor, actively-managed funds provide more desirable opportunities, allowing her to capitalise on predictability in benchmarks and factor loadings in a way that cannot be achieved through long-only index fund positions.

Second, for an investor who allows for predictability in manager skills, actively-managed precious metals funds are optimally selected. This investor faces about a 1 per cent per-month utility loss if forced to hold the asset allocation optimally selected by an agent who rules out predictability in manager skills. Hence, incorporating predictability makes actively managed equity funds appear much more attractive than index funds, although they must be optimally weighted. Predictability based strategies also generate considerably larger Sharpe ratios than pure index fund strategies.

Third, the out-of-sample performance of optimal portfolios of mutual funds are analysed, using the time-series of realised returns generated by various trading strategies. These strategies are formed every month, allocating investments across a total of 1,301 domestic equity funds over the December 1979 through November 2002 period. The performance is found to be statistically indistinguishable from zero (and often negative) when fund return predictability is not accounted for. However, optimal portfolios that incorporate predictable manager selectivity and benchmark-timing skills *consistently* outperform static and dynamic investments in the benchmarks. For example, when time-varying skill is completely determined by the data (ie, prior beliefs about stock selectivity and benchmark timing talents of the manager are diffuse), optimal portfolios yield an alpha of 9.5 per cent and 10.5 per cent per year using a model with a

fixed and with a time-varying market beta, respectively. With the Fama-French (Carhart) benchmarks, the corresponding fixed and time-varying model alphas are 9.1 per cent and 12.8 per cent (4.2 per cent and 9.5 per cent). Optimal portfolios that reflect informative prior beliefs about time varying manager skills yield superior performance as well, recording significantly positive alphas.

Professor Wermers concluded that the results suggest that active management adds much more value than previously documented.

The discussant Michael Steliaros made one key point which was reinforced by a comment from the floor during open discussion: the optimal portfolio often involves a tiny proportion (about 2 per cent) of the population of funds and also gives high exposure to particular sectors such as precious metals. This represents a serious practical limitation and suggests that there may well be a risk-based explanation for the apparent excess returns. A check of the robustness of the results using longer holding periods, sub-period splits and other markets would also be worthwhile.

## **Do mutual funds families play family strategies? Evidence on cross-subsidization across funds**

*Pedro Matos, INSEAD*

Pedro Matos presented a paper which was jointly authored by José-Miguel Gaspar (ESSEC) and Massim Massa (INSEAD) and was funded by INQUIRE Europe. He began by describing the prevalence of the fund family organisation in the US mutual fund industry. Virtually all mutual funds are affiliated with fund complexes and the top 50 fund families have steadily concentrated over 80 per cent of the equity assets under management. This implies that most fund portfolio managers do not work directly for their funds' shareholders but rather for a mutual fund organisation.

Mutual fund families are potentially a source of value to investors but can also cause distortions to the incentives of fund managers. Family affiliation offers the potential for economies of scale and scope, in terms of asset management, distribution externalities and better quality research. However, family affiliation may induce managers to sacrifice the interests of fund shareholders if the overall family stands to benefit. Families may coordinate actions across funds to enhance the performance of funds that are most valuable to the family, even if this comes at the expense of the performance of other member funds. This family strategy of 'favouritism' is the result of the divergence of interests between fund management companies and shareholders.

There are several reasons why families may act in this way, perhaps to favour:

- funds that charge higher fees
- the best-performing funds
- younger funds

Mr Matos described a series of tests of cross-fund subsidisation based on fund returns for all actively managed equity mutual funds of the top 50 families of US mutual funds over the period from 1991 to 2001. The tests focus on the existence of performance transfer from low value (ie low fee, low performing and old funds) to high value funds (ie high fee, high past performing and young funds) by investigating the difference between the net-of-style returns of high value funds and low value funds. This performance gap is then compared with that observed on average for equivalent funds that do not belong to the same family.

The results show that the performance gap inside fund families is greater than for collections of equivalent non-family funds. High value funds inside families are favoured relative to low value funds by 6 to 28 basis points of extra net-of-style performance per month (0.7 per cent-3.3 per cent per annum) depending on the criterion used (fees or past performance).

The second part of the study, Mr Matos explained, investigates two main potential channels of strategic cross-fund subsidisation: preferential allocation of IPOs and opposite trades. In the first case, the family concentrates the best deals on high value funds. In the second, the family coordinates trades such that low value funds buffer the price pressure of orders by high value funds, or directly cross buy and sell orders with high value funds without going to the market ('cross-trading').

Based on a comprehensive sample of IPO issues over the 1991-2001 period, fund families are found to allocate relatively more underpriced (hotter) IPOs to high fee and high past performance funds. Based on quarterly changes in holdings reported by mutual funds, a proxy is determined for symmetric transactions between any two funds. Fund families that engage more in opposite trades between member funds tend to exhibit larger net return differences between high and low value funds. These findings link the level of strategic cross-fund subsidisation to the actual trade strategies undertaken by the fund families and lend support to the earlier results.

Overall, Mr Matos suggested that the results had regulatory implications for the mutual fund industry and that for investors; investment in a fund management company might be a preferable alternative to setting up a high/low fund trading strategy.

Comments made in the ensuing discussion focused particularly on the issue of causality, especially given the high degree of competition between fund managers within a family (and the related performance-related compensation). Another alternative explanation for the results proposed related to the high value funds taking on higher risk. Finally, it was suggested that a time based comparison of results would be helpful to see whether activity was greater earlier in the period when regulation was weaker.

## **The eco-efficiency premium puzzle**

***Rob Bauer, ABP Investments***

Rob Bauer presented the paper (forthcoming in the *Financial Analyst Journal*) co-authored by Jeroen Derwall, Nadja Günster and Kees Koedijk (Erasmus University, Rotterdam). The financial support of Inquire Europe was gratefully acknowledged.

First he provided the context for the study. In recent decades, a large number of investors have embraced the concept of socially responsible investing (SRI). Currently, nearly 12 per cent of assets under management are invested according to ethical criteria. Despite the increasing popularity of SRI however, debate continues over whether adding an ethical dimension to the stock selection process adds value.

Professor Bauer explained that the focus of the study is on a concept called ‘eco-efficiency’, which can be thought of as the economic value a company produces relative to the waste it generates. Using corporate ‘eco-efficiency’ scores from *Innovest Strategic Value Advisors*, self-composed equity SRI portfolios were evaluated. Focusing exclusively on the environmental element of social responsibility, the existence of a long-run penalty or premium for holding environmentally responsible companies was investigated.

In the first part, two mutually exclusive portfolios with distinctive eco-efficiency scores were constructed. Performance attribution models were applied to test whether any performance differential between the portfolios was significant and attributable to the environmental component. This method allowed an examination of the long-term benefits of including environmental criteria in the investment process. A stock portfolio of US companies with high eco-efficiency scores sizably outperformed stocks with low scores over the 1995-2003 period. Using single-factor and multi-factor attribution models this performance differential could not be explained by differences in market risk, investment style or industry exposure.

Obtaining evidence by adjusting returns after the fact may not be very useful from an investor’s perspective so the construction of an environmentally responsible investment portfolio under practical conditions was investigated. For this part, industry-balanced SRI portfolios were constructed based on ‘best-in-class’ analysis, in which all stocks were allocated into specific industries and, subsequently, ranked relative to their industry peers. Stocks with high (low) eco-efficiency scores were allocated into the best-in-class (worst-in-class) portfolio. In the absence

of transaction costs, the best-in-class portfolio outperformed the worst-in-class portfolio by approximately 6 percentage points on a risk-adjusted and style-adjusted basis. Even in the presence of transaction costs, the differential return between the portfolios remained large.

Professor Bauer suggested that the evidence implied that the potential benefits of SRI can be substantial. The results are puzzling because it is difficult to reconcile the observed performance differential with the well-established return-risk paradigm. The fact that common risk factors fail to fully account for the observed results raises the possibility of a mispricing story.

Open discussion comments included the issue of causality: the results could be caused by management quality or even disclosure quality (potentially leading to a lower cost of capital). There was also concern over whether SRI might be 'fashionable' over the particular time period providing but temporary excess returns.

## **Disposition matters: volume, volatility and price impact of behavioural biases**

*Massimo Massa, INSEAD*

INQUIRE Europe sponsored the paper, which was co-authored by William Goetzmann (Yale University) and presented by Massimo Massa. By way of context, Dr Massa noted that an important challenge to behavioural finance is to find a direct link between individual investor behaviour and asset price dynamics. Few doubt that large numbers of investors behave irrationally and are prone to behavioural heuristics that lead to sub-optimal investment choices; however, the empirical evidence that these investors affect prices has been elusive.

One of the main problems faced by empirical testing is that most tests of behavioural effects are indirect. They rely on market price, return and volume data, or upon market return anomalies (e.g. overreaction, reversals) as evidence in support of behavioural effects. For nearly all documented return anomalies, however, there are competing rational and behavioural explanations, and it is difficult to design tests with power to reject non-behavioural explanations. The approach adopted in the present study is to link stock returns and volatility *directly* to individual investor actions, which provides insight on how investor behaviour relates to asset return generating processes.

The focus is on the most widely documented behavioural heuristic, the *disposition effect*; ie the tendency of individuals to ride losses and realise gains. While extensive empirical and experimental evidence on this effect exists, the link between such a bias and stock market conditions has been scarce and indirect. To provide direct evidence, the ‘Odean’ database of individual investor decisions is exploited to construct a proxy that captures the representation of the disposition effect for each stock. Its impact on stock returns, volatility and trading volume is then tested within the Grinblatt and Han (2002) theoretical framework.

Next, Dr Massa described the disposition proxies. For each transaction, trades are distinguished as ‘at-loss’ or ‘at-gain’ by assuming a LIFO matching criterion for each single investor. Then, a daily time series is constructed for each stock of the ‘sales-at-loss’, ‘sales-at-gain’, ‘buys-at-loss’ and ‘buys-at-gain’. The disposition effect is then proxied by the proportion of disposition-motivated trades in the market. The second proxy, calculated on an out-of-sample basis, compares the proportion of gains realised (PGR) with the proportion of losses realised (PLR); disposition-prone investors are those for whom  $PGR > PLR$ .

The results showed a strong negative correlation between the disposition effect and stock return, volatility and trading volume, as predicted by Grinblatt and Han (2002). The effect was shown to be not only stock-specific but also occurring at the aggregate market level, forming a factor that affects returns, volatility and trading volume. This generates a common price-relevant factor that spreads stock returns; the exposure of the stock to this disposition effect is associated with lower *ex post* returns. Dr Massa concluded that disposition matters!

Two concerns were raised in open discussion: whether the research design was able fully to account for the momentum effect and the impact of the LIFO assumption used in matching stock returns.

## Review of recent academic research papers

*Sean Finucane, University of Exeter*

Sean Finucane provided a review of nine recent academic papers under three broad themes:

- Familiarity
- Momentum trading
- Indices and Indexing

*Familiarity* concerned a tendency for investors to focus on local markets (home bias) perhaps because of geography, language or better information.

Li, K. (2004), 'Confidence in the familiar: an international perspective', *Journal of Financial and Quantitative Analysis*.

This paper sought to explain the home bias but argued that what mattered wasn't risk (estimated using historical standard deviation), but the perception of risk? Using prior beliefs based on the domestic CAPM, for G7 equities from 1971-2000, investors must have believed that pricing error of the model was tiny, or that the risk of foreign equities was huge. The US was most consistent, while Canada was least consistent and the consistency seemed to vary over time

Hong, H., Kubik, J. and Stein, J. (2004), 'Social interaction and stock-market participation', *Journal of Finance*.

This asked whether a 'social' investor found the market more attractive when more of his peers participated. The argument was that participation could affect the equity premium and also that any policies to increase stock-market participation needed to know what causes participation. The study used the Health and Retirement Study which surveyed 7,500 US households on wealth, assets, demographics, etc. and included 'social' questions such as interaction with neighbours and church attendance. Extra controls were incorporated for risk tolerance, optimism, density of stock-market investors. The study found large differences, with social individuals far more likely to participate in the stock market.

Ivkovic, Z. and Weisbenner, S. (2005), 'Local does as local is: information content of the geography of individual investors' common stock investments', *Journal of Finance*.

The study asked whether individual investors preferred 'local' investments, and whether this was a good idea. US individual investors hold about 50 per cent of the stock market directly,

but most research is done only on institutional management. Individuals might well know more about local companies and have better information. The study used data from 1991-1996 on 34,517 US retail investors and 5,478 stocks representing 89 per cent of overall market capitalization in 1991. It found that the average household holds more than twice as much in local investments than 'expected', the average return on local investments was 3.2 per cent higher than non-local investments, and that there was a larger effect in holdings with greater asymmetric information.

*Momentum* - what do we know?

Short horizon reversals, medium horizon momentum, long horizon reversals. Risk adjustments do not seem to explain the momentum results.

Korajczyk, R. and Sadka, R. (2004), 'Are momentum profits robust to trading costs?', *Journal of Finance* 59, 1039-1082.

This asked whether momentum profits exist after accounting for explicit and implicit transaction costs. Also, was there a maximum size beyond which the strategies no longer worked? It found that equal-weighted strategies perform best before costs, but worst after costs. Liquidity and hybrid strategies perform the best, with a maximum break-even size of \$5 billion (in 1999 terms). The authors cautioned that this wasn't the final word!

Griffin, J., Xiuqing, J. and Spencer, M. (2004), 'Global momentum strategies', *Journal of Portfolio Management*, Winter 21(2), 23-39.

This study asked how price and earnings momentum interact, and how could we take advantage internationally. It recognised that not all investors could invest in short positions and that momentum strategies were often correlated internationally. It found that: strategies based on price and earnings momentum are more profitable, despite correlation; long positions are enough; and that momentum profits are available in up and down markets, in good economies and bad.

Desrosiers, S. et al. (2004), 'Style management in equity country allocation', *Financial Analysts Journal*, 60 (6), 40-54.

The study questioned whether relative strength and relative value strategies can be profitably combined? It argued that relative strength has been more successful internationally than relative value, and that negative correlation between the strategies may be exploitable. Both diversification and timing strategies were tested on 18 markets since 1975. It found that style diversification had higher returns and lower risk than a single style alone; style timing had

higher returns but higher risk; style management had highest risk-adjusted returns; all results were robust to (high turnover) transaction costs.

### *Indices and Indexing*

Over US\$1 trillion dollars of investment are indexed to the S&P 500. Index funds are primarily concerned with tracking error and are a commodity. Additions to and deletions from indices are widely studied and can affect indexers and active investors.

Elton, E., Gruber, M. and Busse, J. (2004), 'Are investors rational? Choices among index funds', *Journal of Finance*, 59.

This study asked if investors make sensible choices when selecting an index fund and if it were possible to accurately forecast which index fund would outperform the others. It focused on 52 open-end index funds from 1997 to 2002. It found that past returns and expense ratios accurately forecast relative future performance and risk. However, cash flow was not explained by these forecasts, even controlling for marketing. A simple strategy of purchasing the best 10 per cent of funds in the previous period outperformed actual investor selections. However, it was not possible to arbitrage this for an informed investor.

Frino et al. (2004), 'Index design and implications for index tracking', *Journal of Portfolio Management*

The study investigated how exogenous changes to a benchmark affect index fund tracking error. Six factors were studied (revisions; share issuances and repurchases; spin-offs; dividends and bid-ask spread) for 119 index mutual funds between 1994 and 1999, with assets of US\$109 billion. Index revisions and dividends were found to be the most consistently important factors. Share issuance was positively related to index revision, though repurchases seemed negatively related. Full-replication strategy led to significantly lower tracking error and larger funds had lower tracking error.

Chen, H., Noronha, G. and Singal, V. (2004), 'The price response to S&P 500 index additions and deletions: evidence of asymmetry and a new explanation', *Journal of Finance*

This study found that, on addition to the S&P 500 index, stocks experience a jump, and a similar decline exists for deletions. The increase was larger in magnitude than the decrease, and the decreases were completely reversed in the long run. It suggested that this could be explained by an 'awareness' theory.

## **Do hedge fund flows chase performance?**

*Narayan Naik, London Business School*

Professor Naik presented research funded by INQUIRE Europe in the paper, which was jointly authored with Vikas Agarwal and Naveen Daniel (both from Georgia State University). The research employs a comprehensive database of hedge funds to examine two key questions. The first investigates the determinants of money-flows into hedge funds. In particular, how do money-flows relate to a fund's past performance (returns and persistence in returns), managerial incentives (delta), and impediments to capital withdrawals (lockup and restriction periods)? The second considers how a fund's future performance relates to its size, money-flows, managerial incentives, and lockup and restriction periods.

First Professor Naik described the agency problems in delegated portfolio management and potential solutions in the mutual fund and hedge fund sectors. He briefly outlined trends in the hedge fund industry before describing the data employed. A comprehensive hedge fund database was constructed from the union of three large databases, namely HFR, TASS, and ZCM/MAR. This database has monthly net-of-fee returns, monthly assets under management, and other fund characteristics such as lockup and restriction periods, management and incentive fees, inception date, and fund strategy. This enabled resolution of occasional discrepancies among different databases as well as the creation of a sample that is more representative of the entire hedge fund industry. The sample period extends from 1994 to 2002.

After identifying the specific testable hypotheses and explaining the improved proxy for managerial incentives, Professor Naik presented the results relating to performance, flows and managerial incentives. First, funds with better incentive alignment (funds that have higher delta and funds that have high-water mark provisions) and funds with greater managerial discretion (longer lockup, notice, and redemption periods) are associated with higher returns; also, such funds are more likely to exhibit persistently good returns and are less likely to exhibit persistently poor returns. Second, large funds and funds that have recently experienced large flows are associated with lower returns, are more likely to exhibit persistently good returns, and are less likely to exhibit persistently poor returns. These results are consistent with decreasing returns to scale in the hedge fund industry.

Third, investors direct more flows into funds with better incentive alignment, but direct less flows into funds with higher impediments to capital withdrawals. Fourth, flows are positively

related to proxies for managerial ability. Specifically, flows are positively related to prior returns and this relation is convex. Investors seem to infer ability from long-term performance and direct more money into funds that are persistent winners and penalise funds that are persistent losers by directing less money to them. Also, flows are positively related to prior flows, which proxies for non-performance related managerial ability.