E/B/R ECONOMIC AND BUSINESS REVIEW

Volume 11 | Issue 4 Article 3

12-31-2009

Behavioural aspects influencing the performance of Turkish fund managers

Omar Masood

Bruno S. Sergi

Recommended Citation

Masood, O., & S. Sergi, B. (2009). Behavioural aspects influencing the performance of Turkish fund managers. *Economic and Business Review, 11*(4). https://doi.org/10.15458/2335-4216.1272

BEHAVIOURAL ASPECTS INFLUENCING THE PERFORMANCE OF TURKISH FUND MANAGERS

OMAR MASOOD*
BRUNO S. SERGI**

ABSTRACT: *Using original survey data collected by the authors in 2005 we investigate the determinants of Turkish fund managers' performance as measured by the number of clients that a fund manager has, the number of investment funds that the manager is responsible for and the size of the manager's portfolio. All three measures of Turkish fund manager performance systematically vary with fund manager characteristics. This is consistent with Chevalier and Ellison's (1999) finding for the USA that some managers are better than others. Further, the number of training courses attended by a manager and years of experience (in a particular organisation and/or as a fund manager) are found to positively influence all three measures of performance. This may suggest that senior managers and those with more training are given more responsibility than less experienced and less trained managers.*

Keywords: *Turkish fund managers; Performance and ordered choice models*
UDC: 330.142:338.121(560)
JEL: C25, C51, C52, G21

1. INTRODUCTION

There is a large and growing literature that links fund manager performance to the characteristics of fund managers. For example, Fama (1980), Lazear and Rosen (1981) and Holstrom (1982) emphasised agency conflicts and career concerns. Smith and Goudzwaard (1970) and Chevalier and Ellison (1999) looked at the relevance of education. Golec (1996) examined a wide range of characteristics including tenure, MBA qualification, performance, risk-taking and expenses. Other studies focus on the concept of herding borrowed from behavioural finance. Scharfstein and Stein (1990) focus on herding due to signal jamming between different types of managers, Banerjee (1992), Bikhchandani

* University of East London, Business School, Docklands Campus, University Way, E16 2RD, UK, Email: omar@uel.ac.uk
** Corresponding author: University of Messina, DESMaS "V. Pareto", Via T. Cannizzaro 278, 98122 Messina, Italy, Email: bsergi@unime.it

et al. (1992) and Welch (1992) on herding due to inefficient information transmission and King (1995) on herding due to free riding in information gathering. Trueman (1994) and Zwiebel (1995) suggest that herding among managers who are evaluated relative to their peers might be a result of reputational concerns.

Mcnabb and Whitfield (2003) state that recent years have revealed extensive innovations in compensation systems and, in particular, a variety of attempts to link pay to a measure of performance. Such innovations have often been related to broader initiatives to improve the performance of organisations and especially efforts to increase employee involvement in decision-making (Appelbaum and Batt, 1994; Walsh, 1993).

The paper's two major features are the use of survey methodology to obtain primary data and the application of ordered choice models for analysing this data. Thus, this research is unique and stands in contrast to other empirical studies on banking crises that are based principally on published annual data, such as Kaminski and Rhinehart (2000, 1998), Demirguc-Kunt and Detragiache (1998a) Eichengreen and Rose (1998) the IMF (1998) and Gavin and Haussman (1996). Most of the related empirical studies focus on industrialised countries with developed financial systems, especially the USA. However, the link between performance and the characteristics of fund managers has now become a relevant concern in emerging markets due to the recent growth of fund management in these markets. Further, there is ongoing evidence that emerging market financial systems are more vulnerable to political interference, corruption and insider trading than those of developed countries. Conditions like these could conceivably have a significant influence on fund manager characteristics and behaviour.

Perhaps the lack of literature can be explained by the lack of data. Here we use data collected from questionnaire interviews with 110 different fund managers and regulators from the four most significant banks in Turkey.

In this paper we take a first step towards studying the link between fund manager performance and fund manager characteristics in the context of an emerging market, Turkey. More specifically, we test the statistical significance between three measures of fund manager performance and fund manager characteristics such as education, job experience and the like. Our study is similar in spirit to Chevalier and Ellison (1999) and Golec (1996) but differs in one important way. Rather than use aggregated, observable data across some fund industry or sub-industry, our analysis is based on the statistical information gathered from personal interviews with 110 fund managers in four of Turkey's largest banks. Our analysis includes characteristics such as age, highest level of education, number of years of experience and training.

Henceforth, in this paper we explore the experience of fund managers based on their relative traits and how their performance and efficiency is affected in terms of investment decision-making and important implications. The paper aims to expose all fund managers to a series of questions that may help in analysing the associations between various inputs and their performance. The paper is as organised as follows. We continue

with a brief literature review in the next section. Section 3 describes the data, the methodology and discusses the principal empirical findings. The last section concludes with a short summary.

2. LITERATURE REVIEW

Avery and Chevalier (1998) state that the probability of termination decreases steeply with a performance when managers have negative excess returns, but it is fairly insensitive to differences at positive excess return levels. As a result, young managers may have an incentive to avoid unsystematic risk when selecting their portfolios. Modigliani and Pogue (1975), Starks (1987), Grinblatt and Titman (1989) and Admati and Peiderer (1997) consider the incentive effects of explicit performance contracts between a mutual fund company (or manager) and mutual fund investors. Starks (1987) and Grinblatt and Titman (1989) show that mutual fund fee schedules which are nonlinear in fund performance may distort the fund's risk incentive.

Smith and Goudzwaard (1970) analysed the relevance of education for investment management and found that education does not have a clear effect on the performance of graduates in their jobs as fund managers. However, using cross sectional data Chevalier and Ellison (1999) find strong evidence between age and education as explanatory variables for fund performance, measured as risk-adjusted excess returns, even after adjusting for behavioural differences and selection biases. From pension schemes, mutual funds, banks and other financial institutions portfolio decisions rest with the fund managers. There has been a growing concern that these managers adopt investment strategies that are too similar. One possible explanation of this phenomenon may be found in the incentives schemes related to performance (Masood & Tunaru, 2006). Another explanation is based on herding, a concept from behavioural finance. For the latter, existing literature focuses on herding due to either signal jamming between different types of managers (Scharfstein and Stein, 1990), inefficient information transmission (Banerjee, 1992, Bikhchandani et al. 1992; Welch, 1992) or free riding in information gathering (King, 1995).

Fama (1980) and Lazear and Rosen (1981) show that a manager's investment decision can be influenced by career concerns. Holstrom (1982) confirms their conclusion but argues that it is only one of a number of other factors that influence the investment decision process. Following this line of reasoning, Scharfstein and Stein (1990), Zwiebel (1995), Morris (1997), and Avery and Chevalier (1999) argue that the career concern factor leads to herd behaviour in the fund manager community. Chevalier and Ellison (1997) emphasise that career issues of mutual fund managers play a significant role in their decisions about risk. Golec (1996) finds that the portfolio return is affected by the manager's tenure, age, and MBA status.

The subsequent academic literature (following Modigliani and Pogue [1975]) has noted that a number of ways remain in which investment decisions may be affected both by

the explicit compensation schemes of fund companies, and by implicit incentives which derive from a desire to attract new customers. Chevalier and Ellison (1998) argue that a manager being terminated is affected by the manager's actions, past performance, that aspects of the relationship might cause behaviour to vary systematically across managers, and they then examine these predictions by looking at how behaviour actually differs between younger and older managers.

Starks (1987) studied the impact of performance incentive fees on portfolio investment management decisions and finds that a symmetric compensation contract[1] is better than a bonus contract[2] and yields better results for the investor. In their study of the relationship between managers' compensation and the relative performance of the funds they manage, Brown, Harlow and Starks (1996) find empirical evidence suggesting that mid-year "loser" managers[3] tend to increase the volatility of the funds they manage in the second part of the assessment year. Yet Lemmon, Schallheim and Zender (2000) found that financial contracts play an important role in providing incentives and the performance of a fund.

All previous research used information about fund managers from the outside, without specific questioning of the managers under analysis. Here, we attempt to break this barrier and reveal the inside story.

3. EMPIRICAL MODELLING

The primary data were collected by a questionnaire (reported in the Appendix) given to fund managers of banks in Turkey to determine three measures of fund manager performance. We had face-to-face interviews with 110 senior Turkish fund managers in the four major commercial banks in Turkey. The first dependent variable is the number of clients a fund manager has, denoted Clients (question 7 from the survey) while the second is the number of investment funds that the manager is responsible for, NoFunds, (question 8). The third, PortSize (question 23) is the size of the manager's portfolio.[4] The respondents were also asked if they thought that any factors other than those addressed by our questionnaire were relevant determinants of their performance.

An ordered probit model is applied to the survey data as one of these variables, PortSize, is ordinal. As we assign it with three ranked categories i.e., values 0, 1, 2, we applied or-

[1] With a symmetric contract, the manager receives a percentage of the market value of the assets and a bonus if the portfolio return exceeds the return on the designated benchmark or incurs a penalty in the opposite case.

[2] With a bonus performance incentive fee the manager receives a percentage of the market value of the assets and a bonus if the portfolio return was higher than the return on some benchmark index; no penalties are imposed

[3] A "loser" manager is defined as a manager who is underperforming as regards the designated benchmark.

[4] Clients, NoFunds and PortSize are arguably accurate and objective measures of fund manager performance because they are terms that are relatively easy to determine and unlikely to be misreported. This is partly why investigating such measures of performance may be of particular interest.

dered choice estimation techniques to model this ordinal dependent variable. Here lower values indicate a smaller size. We also used ordered logit models which yielded similar results.

The ordered dependent variable model assumes the following latent variable form (see Greene 2003, pp 736-740):[5]

$$Y_i^* = \sum_{k=1}^{K} \beta_k X_k + u_i \qquad \textbf{(3.1)}$$

where, X_{ik} are the explanatory variables, u_i is a stochastic error term and Y_i^* is the unobserved dependent variable that is related to the observed dependent variable, Y_i, (assuming three categories) as follows:

$$\begin{aligned} Y_i &= 1 \quad \text{if} \quad Y_i^* \le \lambda_1 \\ Y_i &= 2 \quad \text{if} \quad \lambda_1 < Y_i^* \le \lambda_2 \\ Y_i &= 3 \quad \text{if} \quad \lambda_2 < Y_i^* \end{aligned} \qquad \textbf{(3.2)}$$

where λ_1 and λ_2 are unknown parameters (limit points) to be estimated with the coefficients (the β s). The probit form of this model assumes that the error, u_i, is distributed as a standard normal random variable.[6] There are three forms of this model. The logit form assumes the error has a logistic distribution, while the Gompit model specifies the extreme value distribution for the error term. The probit form assumes that the error, ε_i, is distributed as a standard normal random variable, hence we employed this form for our approach.

The remaining two variables (Clients and NoFunds) are based upon interval/ratio data so that the appropriate estimation method is Ordinary Least Squares (OLS) – we employ White's heteroscedasticity consistent standard errors to calculate t-ratios.

For all three proxies of a fund manager's performance, we took into consideration 13 explanatory factors as follows. Where a fund manager is male this is denoted Male (question 1 from the survey),[7] where they are married this is denoted Married (question 2)[8] and where they are single this is denoted Single (question 2).[9] The manager's years of

[5] Our interest is primarily confined to the general direction of the correlation between the dependent and independent variables. Therefore, we use the sign of β_k to provide guidance on whether the estimated signs of coefficients concur with our *a priori* expectations. This is instead of looking at the marginal effects which indicate the direction of change of the dependent variable (for each value of the dependent variable) to a change in X_{ik}.

[6] Greene (2003) suggests that probit and logit (the error has a logistic distribution) models yield results that are very similar in practice.

[7] This is a dichotomous variable that takes the value of 1 if the manager is male and zero if they are female.

[8] This variable takes the value of 1 if the manager is married and zero otherwise.

[9] This variable takes the value of 1 if the manager is single and zero otherwise. We allowed three categories for marital status being, married, single and divorced, hence we can only include two of them to avoid collinearity problems.

experience in the organisation, YOE Organisation (question 3) and their years of experience as a fund manager, YOE Manager (question 4). Where the manager has a Master's degree this is denoted as Master's degree (question 5a),[10] a business degree, Business degree (question 5b),[11] a degree from a Turkish institution, Turkish degree (question 5c),[12] a degree from a UK institution, UK degree (question 5c),[13] or a degree from a US institution, US degree (question 5c).[14] The number of training courses a manager has attended is included under Training (question 6), their age under Age (question 21), and the return on the investment under Return.[15]

We provide the regression results for each of the three dependent variables (Clients, NoFunds and PortSize) in the next section of this paper. For each of the regressions we report a general model (including all the variables specified) and a parsimonious specification (or a small number of parsimonious models) obtained using the general-to-specific methodology.[16]

3.1 Regression Results for the Number of Clients

The results of the OLS regressions for Clients are reported in Table 1. For the two models that are reported there is no evidence of misspecification, except for non-normally distributed residuals for both models and heteroscedasticity in the general specification, Model 1.[17] Since we use t-ratios based upon White's heteroscedasticity consistent coefficient standard errors, the results are considered robust to heteroscedasticity. Estimation of the model excluding the outlying observation (fund manager 23) removed the evident non-normality and yielded qualitatively similar results to those reported in Table 1 (see Table 1b). Hence, we believe that the non-normality evident in Table 1 does not substantially affect our inference and we therefore present the results reported in Table 1 as valid.

[10] This variable takes the value of 1 if the manager has an MA, MSc or MBA and is zero otherwise.

[11] This variable takes the value of 1 if the manager's degree is in the area of business and is zero otherwise.

[12] This variable takes the value of 1 if the manager's degree is from Turkey and is zero otherwise.

[13] This variable takes the value of 1 if the manager's degree is from the UK and is zero otherwise.

[14] This variable takes the value of 1 if the manager's degree is from the USA and is zero otherwise. There were four options for the country from which a degree was obtained, Turkey, the UK, the USA and other, so only three variables could be included (for Turkey, the UK and the USA) to avoid collinearity problems.

[15] This is an ordinal variable that is measured in percentages.

[16] In this method, for the models that are considered valid for inference, we first delete all variables with t-ratios below one (or, exceptionally, 0.5 if the t-ratios are very small for a large number of variables) and apply an F-test (or likelihood ratio, LR, test) relative to the general model. If the restrictions cannot be rejected we then delete all variables with t-ratios below 1.5 and then all explanatory factors with t-ratios below 1.96 (applying F/LR tests relative to the general model). If any F/LR test for joint restrictions is rejected, we experiment to find the variable(s) that cause this rejection and retain them in the model.

[17] We tested for autocorrelation, non-linear functional form, non-normally distributed residuals, heteroscedasticity, and parameter non-constancy.

Although only two variables in Model 1 are statistically significant at the 5% level (YOE Manager and Training) the removal of insignificant variables yields Model 2 in which four variables are significant (YOE Organisation, YOE Manager, UK degree and Training).[18] This is our favoured model for inference given that it features no insignificance variables, the restrictions placed on Model 1 to obtain Model 2 cannot be rejected and it features a better fit compared to Model 1 – it explains about 70% of the variation in Clients according to $\overline{R}^2$.[19] All the variables retained in Model 2 have positive coefficients, except UK degree, which is broadly consistent with the expectations. The coefficients on the variables indicate that for each extra year of experience in the organisation (or as a manager) the fund manager gains, on average, 0.164 (0.374) clients. Holding a degree from a UK institution reduces the number of clients by, on average, 0.753, while each additional training course attended by a fund manager increases the number of clients by 0.155, on average.[20]

3.2 Regression Results for the Number of Funds

Table 2 reports the OLS regression results for the number of funds variable (NoFunds). There is evidence of autocorrelation, non-normality and heteroscedasticity for both reported models, Model 3 and Model 4. Since we could reorder the data to remove the autocorrelation and the statistics would remain unchanged we do not consider the presence of autocorrelation as adversely affecting the results.[21] As before, the use of White's coefficient standard errors addresses the problem of heteroscedasticity. Estimating the same models with the removal of the outlying observation (fund manager 23) from the sample (see Table 2b) removed the evident non-normality and yielded qualitatively and quantitatively similar results. Hence, non-normality is not regarded as adversely affecting our inferences. There is also some evidence of parameter non-constancy at the 5% level across the sample for Model 4 but not Model 3. This suggests that, for this model, the coefficients of the variables for the first 55 fund managers are different from the last 55 managers. However, in the models estimated without observation 23 neither model has unstable coefficients at the 1% level (although Model 4 exhibits non-constant parameters at the 5% level). Thus, to the extent that there are departures from coefficient equality they are arguably not serious. Nevertheless, we note that there may be some heterogeneity across the sample and interpret the coefficients as averaged effects for the whole sample that provide generalisations for the

[18] Variables that are insignificant in the general model may become significant through model reduction due to, for example, increased efficiency and reduced collinearity. Hence our focus on the results of the parsimonious model is identifying the variables of statistical significance.

[19] Model 2's regression standard error indicates that the model incorrectly predicts the number of clients that each fund manager has by, on average, 1.5 clients. This compares to the standard deviation of the data on Clients of 2.7 clients.

[20] To place these numbers in perspective, the number of clients that a fund manager had, in our sample, ranged from 3 to 13 with a mean value of 7.036.

[21] The use of cross-sectional data here contrasts with the use of time-series data where the order of the observations matters and reordering the data is not appropriate.

population.[22] We therefore present our results from Table 2 as valid for inference given their similarity to those reported in Table 2b.

Two variables in the general model, Model 3, are statistically significant at the 5% level (YOE Manager and Training).[23] Following the general-to-specific model reduction method we identified the parsimonious specification, Model 4. Model 4 contains four statistically significant variables (at the 5% level), YOE Organisation, YOE Manager, Business degree and Training. We favour Model 4 over Model 3 because it has a superior fit and the zero coefficient restrictions cannot be rejected.[24] In Model 4 we see that three variables have the anticipated positive sign (YOE Organisation, YOE Manager and Training) while Business degree has an unexpected negative sign. However, the impact of holding a business degree is small: it reduces the number of funds by, on average, 1.191 (this is relative to an average number of funds of approximately 11.5). Thus, because such a negative effect is difficult to rationalise and it is numerically small we interpret this result as suggesting that holding a business degree has little influence on the number of funds in a manager's portfolio. The coefficients on the other significant variables indicate that for each extra year of experience in the organisation (as a manager) the fund manager increases the number of funds by, on average, 0.258 (0.383), while each additional training course attended by a fund manager increases the number of funds by 0.141, on average.[25]

3.3 Regression Results for Portfolio Size

The ordered probit regression results for portfolio size (PortSize) are reported in Table 3.[26] Model 5 is the general model and Model 6 is the associated parsimonious model obtained after applying the general-to-specific method. Five variables are significant in the general model while seven are significant in the favoured parsimonious specification, namely, Married, YOE Manager, Master's degree, Business degree, Training, Age and Return. Five variables have a positive coefficient suggesting that being married, having more years of experience as a manager, holding a Master's degree, attending more training courses and being older will increase the fund manager's portfolio

[22] Coefficient inequality does not represent structural breaks in cross-sectional data as it does in time-series data. It simply suggests that sub-groups of the sample may have different coefficients from each other. Given that we have split the sample arbitrarily in half and have not ordered the sample in any particular way, it is difficult to identify any particular feature that distinguishes each sub-group in a way that could explain the differences in coefficients.

[23] This is exactly the same as was found for the general specification for Clients, Model 1.

[24] Model 4 explains about 55.3% of the variation in the dependent variable, while the regression standard error indicates that the model incorrectly predicts the number of funds that each fund manager has by, on average, 2. This compares to the standard deviation of the data on the Number of Funds of about 2.926.

[25] To place these numbers in perspective, the number of funds that a fund manager had ranged from 5 to 19 with a mean value of 11.491.

[26] This variable has a minimum value of zero, a maximum of two and a mean value of 0.955. The standard deviation is 0.596.

size.[27] These coefficients all seem plausible. Indeed, the finding that holding a Master's degree has significant positive influences on fund manager performance is consistent with Chevalier and Ellison (1999). They found, for the USA, that fund managers with higher average SAT scores at their undergraduate institutions achieved higher returns. In contrast to Chevalier and Ellison (1999) who find that older fund managers typically secure lower returns, our results indicate that age has a significant positive effect on portfolio size.[28] This may be due to the different measures of performance used (Chevalier and Ellison, 1999, model returns). Older managers may be trusted with more responsibility and hold larger portfolios while career concerns may explain why older managers do not achieve as high returns as younger managers who may, for example, feel the need to work harder. The coefficients on the variables Business degree and Return exhibit an unexpected negative sign in our favoured model. The coefficient on Return is very small (–0.078), as are the marginal effects (see Table 3b), suggesting that this effect is numerically minor. Hence, given the difficulty in rationalising this negative sign we interpret this result as suggesting that return has little impact on portfolio size. Similarly, and as argued for the number of funds model, we interpret the negative sign for the business degree variable as suggesting that holding a business degree has little influence on the portfolio size.

3.4 Comparison of Inferences of the Performance Regressions

All three measures of performance have very similar determinants (and non-determinants). Clients is determined by YOE Organisation, YOE Manager, UK degree and Training while the significant explanatory factors of NoFunds are the same as for Clients, except UK degree is replaced by Business degree. The determinants of PortSize are Married, YOE manager, Master's degree, Business degree, Training, Age and Return. The signs of the coefficients on the determinants that are common to favoured models with different dependent variables are always the same. This may be expected given the simple correlations among these performance proxies: Clients, NoFund and PortSize have high positive correlations (all exceed 0.8).[29] Notably the number of training courses attended and years of experience in a particular organisation and/or as a fund manager have a positive and significant effect on all of our measures of performance. This suggests that senior managers and those with more training are given more responsibility than less experienced and less trained managers. Further, our finding that Turkish fund managers have systematically different performances is consistent with Chevalier and Ellison's (1999) findings that, for the USA, some managers are better than others.

[27] Marginal effects are reported in Table 3b. However, it is difficult to comment on these in a way that is of interest to us here. We confine ourselves to interpreting the coefficients as indicating the sign, but not marginal effect, of the explanatory factors on the dependent variable.

[28] It should be noted that this was a "fragile" finding for Chevalier and Ellison (1999) because age was significant in some of their regressions but not others.

[29] The correlation between Clients and NoFund (and PortSize) is 0.887 (and 0.886) and between NoFund and PortSize it is 0.833.

4. CONCLUSION

Using data from a survey of 110 Turkish fund manages we have estimated models for three different measures of fund manager performance (number of clients, number of funds and portfolio size). The number of clients is positively correlated with years of experience in the organisation, years of experience as a manager and the number of training courses attended and negatively associated with holding a UK degree. The number of funds is also positively determined by years of experience in the organisation, years of experience as a manager and the number of training courses attended but is negatively related to holding a business degree. The determinants of portfolio size are being married, years of experience as a manager, holding a master's degree, holding a business degree, the number of training courses attended, the manager's age and the return on investment. All of these variables' coefficients have a plausible positive sign, except for holding a business degree and return which exhibit unexpected negative signs. However, we note that the effects for business degree and return are numerically small and interpret them as having little effect on our measures of fund manager performance.

All three measures of performance are positively determined by the number of training courses attended and years of experience in a particular organisation and/or as a fund manager. This suggests that senior managers and those with more training are given more responsibility than less experienced and less trained managers. Further, all three measures of performance systematically vary with fund manager characteristics. This is consistent with Chevalier and Ellison's (1999) finding for the USA that some managers are better than others.

TABLE 1: *Number of Clients Regressions (OLS)*

	Model 1		Model 2	
Variables	**Coefficients**	**t-ratio**	**Coefficients**	**t-ratio**
Intercept	0.734	0.476	0.720	1.070
Male	0.468	0.831		
Married	0.345	0.930		
Single	–0.221	–0.514		
YOE Organisation	0.206	1.279	0.164	2.106
YOE Manager	0.386	4.498	0.374	4.629
Master's degree	0.717	1.041		
Business degree	–0.435	–1.386		
Turkish degree	–0.047	–0.112		
UK degree	–0.857	–1.658	–0.753	–2.597
US degree	–0.077	–0.157		
Training	0.143	2.671	0.155	3.099
Age	–0.021	–0.307		
Return	–0.012	–0.347		
Fit	**(Test) Statistic**	**Probability**	**(Test) Statistic**	**Probability**
$\overline{R}^2$	0.675		0.695	
S	1.555		1.507	
SBC	4.184		3.825	
$F(R^2=0)$	18.428	0.000	63.139	0.000
$F(1\rightarrow 2)$	NA		0.282	0.978
Misspecification	**Test Statistic**	**Probability**	**Test Statistic**	**Probability**
F_A	0.334	0.565	1.529	0.219
F_{FF}	0.815	0.369	0.028	0.868
χ^2_N	34.618	0.000	28.619	0.000
F_H	1.979	0.019	2.074	0.053
F_{CH}	0.269	0.996	0.561	0.730
F_{PF}	0.424	0.998	0.521	0.990

The dependent variable is Number of Clients, the number of observations in the sample is 110 and White's heteroscedasticity adjusted t-ratios are reported. $\overline{R}^2$ is the coefficient of determination adjusted for degrees of freedom, s denotes the unbiased estimate of the regression standard error, $F(R^2=0)$ gives the F-test for the significance of the overall explanatory power of the model and $F(1\rightarrow 2)$ is an F-test for the deletion of variables from Model 1 to obtain the parsimonious specification. The reported misspecification tests (Misspecification) are F-versions of Breusch-Godfrey's test for first-order autocorrelation (F_A), Ramsey's Rest test for non-linear functional-form (F_{FF}) and Chow's first and second tests for parameter non-constancy (F_{CH} and F_{PF}, respectively). The chi-squared distributed Jarque-Bera test for non-normally distributed residuals (χ^2_N) is also reported. The Chow and Predictive Failure tests split the sample between observations 55 and 56. All statistics are produced using EViews 5.0.

TABLE 1b: *Number of Clients Regressions (OLS)*

	Model 1		Model 2	
Variables	**Coefficients**	**t-ratio**	**Coefficients**	**t-ratio**
Intercept	0.013	0.009	0.376	0.633
Male	0.412	0.745		
Married	0.349	0.980		
Single	–0.146	–0.353		
YOE Organisation	0.198	1.249	0.188	2.465
YOE Manager	0.401	4.613	0.377	4.543
Master's degree	0.882	1.318		
Business degree	–0.508	–1.616		
Turkish degree	–0.018	–0.042		
UK degree	–0.838	–1.618	–0.760	–2.604
US degree	–0.002	–0.004		
Training	0.143	2.718	0.156	3.163
Age	0.001	0.002		
Return	–0.023	–0.675		
Fit	**(Test) Statistic**	**Probability**	**(Test) Statistic**	**Probability**
$\overline{R}^2$	0.732		0.745	
S	1.417		1.381	
SBC	4.000		3.652	
$F(R^2=0)$	23.634	0.000	79.823	0.000
$F(1\rightarrow2)$	NA		0.425	0.919
Misspecification	**Test Statistic**	**Probability**	**Test Statistic**	**Probability**
F_A	0.721	0.398	2.051	0.155
F_{FF}	0.065	0.799	0.599	0.441
χ^2_N	3.270	0.195	2.407	0.300
F_H	1.253	0.239	0.650	0.713
F_{CH}	0.348	0.985	0.507	0.771
F_{PF}	0.606	0.958	0.677	0.919

The dependent variable is Number of Clients, the number of observations in the sample is 109 (the outlying 23rd observation has been omitted) and White's heteroscedasticity adjusted t-ratios are reported. $\overline{R}^2$ is the coefficient of determination adjusted for degrees of freedom, s denotes the unbiased estimate of the regression standard error, $F(R^2=0)$ gives the F-test for the significance of the overall explanatory power of the model and $F(1\rightarrow2)$ is an F-test for the deletion of variables from Model 1 to obtain the parsimonious specification. The reported misspecification tests (Misspecification) are F-versions of Breusch-Godfrey's test for first-order autocorrelation (F_A), Ramsey's Rest test for non-linear functional-form (F_{FF}) and Chow's first and second tests for parameter non-constancy (F_{CH} and F_{PF}, respectively). The chi-squared distributed Jarque-Bera test for non-normally distributed residuals (χ^2_N) is also reported. The Chow and Predictive Failure tests split the sample between observations 55 and 56. All statistics are produced using EViews 5.0.

TABLE 2: *Number of Funds Regressions (OLS)*

	Model 3		Model 4	
Variables	**Coefficients**	**t-ratio**	**Coefficients**	**t-ratio**
Intercept	5.748	2.526	4.322	3.818
Male	0.011	0.021		
Married	–0.318	–0.624		
Single	0.121	0.220		
YOE Organisation	0.383	1.863	0.258	1.938
YOE Manager	0.330	2.294	0.383	3.003
Master's degree	–0.569	–0.610		
Business degree	–1.356	–2.302	–1.191	–2.051
Turkish degree	0.002	0.004		
UK degree	–0.831	–1.116		
US degree	–0.152	–0.209		
Training	0.138	2.195	0.141	2.365
Age	–0.057	–0.769		
Return	0.015	0.315		
Fit	**(Test) Statistic**	**Probability**	**(Test) Statistic**	**Probability**
$\overline{R}^2$	0.533		0.553	
S	2.000		1.956	
SBC	4.686		4.347	
$F(R^2=0)$	10.565	0.000	34.758	0.000
$F(3\rightarrow4)$	NA		0.489	0.879
Misspecification	**Test Statistic**	**Probability**	**Test Statistic**	**Probability**
F_A	5.775	0.018	5.818	0.018
F_{FF}	0.001	0.971	0.098	0.755
χ^2_N	18.232	0.000	19.333	0.000
F_H	2.171	0.009	3.926	0.001
F_{CH}	1.676	0.077	3.414	0.007
F_{PF}	0.813	0.765	0.867	0.698

The dependent variable is Number of Funds, the number of observations in the sample is 110 and White's heteroscedasticity adjusted t-ratios are reported. $\overline{R}^2$ is the coefficient of determination adjusted for degrees of freedom, s denotes the unbiased estimate of the regression standard error, $F(R^2=0)$ gives the F-test for the significance of the overall explanatory power of the model and $F(3\rightarrow4)$ is an F-test for the deletion of variables from Model 3 to obtain Model 4. The reported misspecification tests (Misspecification) are F-versions of Breusch-Godfrey's test for first-order autocorrelation (F_A), Ramsey's Rest test for non-linear functional-form (F_{FF}) and Chow's first and second tests for parameter non-constancy (F_{CH} and F_{PF}, respectively). The chi-squared distributed Jarque-Bera test for non-normally distributed residuals (χ^2_N) is also reported. The Chow and Predictive Failure tests split the sample between observations 55 and 56. All statistics are produced using EViews 5.0.

TABLE 2b: *Number of Funds Regressions (OLS)*

	Model 3		Model 4	
Variables	**Coefficients**	**t-ratio**	**Coefficients**	**t-ratio**
Intercept	4.868	2.201	3.808	3.624
Male	–0.057	–0.111		
Married	–0.313	–0.638		
Single	0.212	0.391		
YOE Organisation	0.374	1.810	0.298	2.279
YOE Manager	0.348	2.388	0.395	3.060
Master's degree	–0.368	–0.394		
Business degree	–1.445	–2.650	–1.370	–2.581
Turkish degree	0.038	0.065		
UK degree	–0.807	–1.087		
US degree	–0.060	–0.083		
Training	0.137	2.278	0.140	2.413
Age	–0.030	–0.428		
Return	0.002	0.042		
Fit	**(Test) Statistic**	**Probability**	**(Test) Statistic**	**Probability**
$\overline{R}^2$	0.602		0.619	
S	1.842		1.802	
SBC	4.525		4.184	
$F(R^2=0)$	13.574	0.000	44.930	0.000
$F(3\rightarrow4)$	NA		0.501	0.871
Misspecification	**Test Statistic**	**Probability**	**Test Statistic**	**Probability**
F_A	6.164	0.015	5.393	0.022
F_{FF}	0.304	0.583	0.308	0.580
χ^2_N	0.698	0.705	0.873	0.646
F_H	1.595	0.078	2.437	0.024
F_{CH}	1.642	0.086	2.601	0.030
F_{PF}	1.030	0.465	1.102	0.478

The dependent variable is Number of Funds, the number of observations in the sample is 109 (the outlying 23rd observation has been omitted) and White's heteroscedasticity adjusted t-ratios are reported. $\overline{R}^2$ is the coefficient of determination adjusted for degrees of freedom, s denotes the unbiased estimate of the regression standard error, $F(R^2=0)$ gives the F-test for the significance of the overall explanatory power of the model and $F(3\rightarrow4)$ is an F-test for the deletion of variables from Model 3 to obtain Model 4. The reported misspecification tests (Misspecification) are F-versions of Breusch-Godfrey's test for first-order autocorrelation (F_A), Ramsey's Rest test for non-linear functional-form (F_{FF}) and Chow's first and second tests for parameter non-constancy (F_{CH} and F_{PF}, respectively). The chi-squared distributed Jarque-Bera test for non-normally distributed residuals (χ^2_N) is also reported. The Chow and Predictive Failure tests split the sample between observations 55 and 56. All statistics are produced using EViews 5.0.

TABLE 3: *Portfolio Size (Ordered Probit Regressions)*

	Model 5		Model 6	
Variables	**Coefficients**	**t-ratio**	**Coefficients**	**t-ratio**
Male	0.912	1.625		
Married	1.609	2.847	1.416	3.338
Single	–0.122	–0.275		
YOE Organisation	0.030	0.203		
YOE Manager	0.391	3.245	0.399	3.955
Master's degree	1.983	2.655	1.613	2.188
Business degree	–1.313	–2.461	–1.229	–2.855
Turkish degree	0.325	0.560		
UK degree	–0.084	–0.137		
USA degree	0.554	0.791		
Training	0.101	1.806	0.122	2.135
Age	0.077	1.196	0.079	1.992
Return	–0.084	–2.245	–0.078	–2.103
Limit Points	**Coefficients**	**t-ratio**	**Coefficients**	**t-ratio**
λ_1	5.633	3.309	4.420	2.931
λ_2	10.682	5.014	9.201	4.780
Fit	**(Test) Statistic**	**Probability**	**(Test) Statistic**	**Probability**
Pseudo R^2	0.578		0.564	
SBC	1.394		1.164	
LR statistic	113.633	0.000	110.778	0.000
LR(5→6)	NA		2.855	0.827

The dependent variable is portfolio size which takes on values 1, 2 and 3, so there are two limit points, λ_i, i=1,2 – the intercept is not separately identified from the limit points. The number of observations in the sample is 110. The z-statistics (in parentheses) are based upon Huber-White standard errors which are robust to certain misspecifications of the underlying distribution of the dependant variable (see E-Views 5.0 User Guide p. 651). The reported fit measures are the Pseudo R^2 [$R^2 = 1 - (\ln L / \ln L_0)$, where lnL and $\ln L_0$ are the maximised values of the model's likelihood function including all variables and only incorporating an intercept, respectively – see Greene, 2003, pp. 683-684] and Schwarz's information criterion, SBC. Also included are chi-squared tests for the model's explanatory power, LR Statistic, and the deletion of variables from Model 5 to obtain the restricted Model 6, LR(5→6) – probability values are given in parentheses. The probit model assumes that the cumulative distribution function of the error term is standard normal: $\Phi(\lambda_j - \Sigma_k \beta_k X_{ik}) = (2\pi)^{-½}\exp[-½(\lambda_j - \Sigma_k \beta_k X_{ik})^2]$, j=1,2. All Probit regressions were estimated using E-Views 5.0.

TABLE 3b: *Marginal Effects of Model 6 (Portfolio Size)*

	Model 6		
	Pr(Y=1)	**Pr(Y=2)**	**Pr(Y=3)**
Married	−0.058	0.041	0.017
YOE Manager	−0.016	0.012	0.005
Master's degree	−0.066	0.047	0.019
Business degree	0.050	−0.035	−0.015
Training	−0.005	0.004	0.001
Age	−0.003	0.002	0.001
Return	0.003	−0.002	−0.001

Marginal effects are reported for each value of the dependent variable, denoted Y, for all variables included in Model 6 using the ordered probit specification. They are calculated using the means of the explanatory variables, X_k.

RECEIVED: MARCH 2009

REFERENCES

Asmussen, S., and Edwards, D. (1983), "Collapsibility and Response Variables in Contingency Tables," *Biometrika* 70, 566–578.

Avery, C., and Chevalier, J. (1999), "Herding over the Career," *Economics Letters* 63, 327–333.

Bouchet, M. H., Clark, E. and Groslambert, B., (2003), *Country Risk Assessment*, London: John Wiley & Sons.

Brown, K.C., Harlow, W.V., and Starks, L.T. (1996), "Of Tournaments and Temptations: An Analysis of Managerial Incentives in the Mutual Fund Industry," *Journal of Finance* 51, 85–110.

Banerjee, A. (1992), "A Simple Model of Herd Behavior," *Quarterly Journal of Economics* **107**, 797–817.

Bikhchandani, S., Hirshleifer, D., and Welch, I., (1992), "A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades," *Journal of Political Economy* **100**, 992–1026.

Brown, K.C., Goetzmann, W.N., and Park, J. (2001), "Careers and Survival: Competition and Risk in the Hedge Fund and CTA Industry," *Journal of Finance* 56, 1869–1886.

Carpenter, J.N. (2000), "Does Option Compensation Increase Risk Appetite?" *Journal of Finance* 55, 2311–2331.

Chevalier, J., and Ellison, G. (1997), "Risk Taking By Mutual Funds as a Response to Incentives," *Journal of Political Economy* 114, 389–432.

Chevalier, J., and Ellison, G. (1999), "Are Some Mutual Fund Managers Better Than Others? Cross-Sectional Patterns in Behavior and Performance," *Journal of Finance*, 54, 875–899.

Christoffersen, S.E.K. (2001), "Why Do Money Fund Managers Voluntarily Wave Their Fees?" *Journal of Finance* 56, 1117–1140.

Edwards, D. (1995), *Introduction to Graphical Modelling*, Springer: New York.

Elton, E.J., Gruber, M.J., and Blake, C.R. (2003), "Incentive Fees and Mutual Funds," *Journal of Finance* 58, 779–804.

E-Views 5.0 User Guide (2004), Quantitative Micro Software.

Fama, E.F. (1980), "Agency Problems and the Theory of the Firm," *Journal of Political Economy* 88, 288–307.

Frydenberg, M. (1990), "Marginalisation and Collapsibility in Graphical Interaction Models," *Annals of Statistics* 18, 790–805.

Goodman, L.A. (1973), "The Analysis of Multidimensional Contingency Tables When Some Variables are Posterior to Others: A Modified Path Analysis Approach," *Biometrika* 60, 179–192.

Golec, J. H. (1996), "The Effects of Mutual Funds Managers' Characteristics on Their Portfolio Performance, Risk and Fees," *Financial Services Review* 5, 133–148.

Greene W H (2003) *Econometric Analysis*, 5th edition Englewood Cliffs: Prentice-Hall.

Grinblatt, M. and Titman, S. (1992), "The Persistence of Mutual Fund Performance," *Journal of Finance* 47, 1977–1984.

Hand, D.J., McConway, K.J., and Stanghellini, E. (1996), "Graphical Models of Applicants for Credit," *IMA Journal of Mathematics Applied in Business and Industry* 8, 143–155.

Holstrom, B. (1982a), *Managerial Incentive Problems-A Dynamic Perspective -Essays in Economics and Management in Honour of Lars Wahlbeck*, Helsinki: Swedish School of Economics.

Holmstrom, B. (1982b), "Moral Hazard in Teams," *Bell Journal of Economics* **13**, 324–340.

Kreiner, S. (1987), "Analysis of Multidimensional Contingency Tables by Exact Conditional Tests: Techniques and Strategies," *Scandinavian Journal of Statistics* 14, 97–112.

Lauritzen, S.L. (1996), *Graphical Models*. Oxford: Oxford University Press.

Modigliani, F., and Pogue, G.A. (1975), "Alternative Investment Performance Fee Arrangements and Implications for SEC Regulatory Policy," *Bell Journal of Economics* 6, 127–160.

Lemmon, M.L., Schallheim, J.S., and Zender, J.F. (2000), "Do Incentives Matter? Managerial Contracts for Dual-Purpose Funds," *Journal of Political Economy* 108, 273–299.

Mookherjee, D. (1984), "Optimal Incentive Schemes with Many Agents," *Review of Economic Studies* **51**, 433–446.

Morris, S. (1997), *An Instrumental Theory of Political Correctness*, University of Pennsylvania.

Scharfstein, D.S., and Stein, J.C. (1990), "Herd Behavior and Investment," *American Economic Review* 80, 465–489.

Smith, K.V., and Goudzwaard, M.B. (1970), "Survey of Investment Management: Teaching versus Practice," *Journal of Finance* 25, 329–347.

Stanghellini, E., McConway, K.J., and Hand, D.J. (1999), "A Discrete Variable Chain Graph for Applicants for Credit," *Applied Statistics* 48, 239–251.

Tannenbaum. R. (1950), "Managerial Decision-Making," *Journal of Business* 23, 22–39.

Tunaru, R., and Watson, A. (2000), "An Exploratory Statistical Analysis of Financial Measures," *IMA Journal of Mathematics Applied in Business and Industry* 11, 101–110.

Tunaru, R. (2001), "Models of Association versus Causal Models for Contingency Tables," *The Statistician* 50, 257–269.

Welch, I., (1992), "Sequential Sales, Learning, and Cascades," *Journal of Finance* **47**, 695–732.

Zwiebel, J. (1995), "Corporate Conservatism and Relative Compensation," *Journal of Political Economy* 103, 1–25.

Appendix: Questionnaire for Turkish Investment (Fund) Managers

Name: ***Position held:***

Q1. Sex: Male/ Female

Q2. Marital Status: Single Married Divorced

Q3. How many years of experience do you have within the organisation?

Q4. How many years of experience do you have as a fund manager?

Q5. Specify your educational qualification in terms of:

(a) Level of study: BA MA/MBA PhD Other (please specify)

(b) Subject of study: A business subject A non-business subject

(c) Country of study: UK USA Turkey Other (please specify)

Q6. How many training courses have you attended as a fund manager?

Q7. How many clients do you have?

Q8. How many investment funds are you responsible for?

Q9. To what extent do you feel performance pressure as a fund manager? To a:

Very high degree High degree Moderate degree Low degree

Very low degree

Q10. Are you satisfied with the incentives provided to fund managers?

Very satisfied, satisfied, neither satisfied or unsatisfied, unsatisfied, very unsatisfied

Q11. What is your level of satisfaction with the quality of risk management techniques applied?

Very satisfied, satisfied, neither satisfied or unsatisfied,

unsatisfied, very unsatisfied

Q12. How accurate are the data available to you on a scale from zero to four (inclusive), with zero being highly inaccurate and four being highly accurate?

0 1 2 3 4

Q13. How much do you rely on data to make your decisions?

Totally, To a large extent, To a moderate extent, To a limited extent Not at all

Q14. To what extent are you concerned with the volatility of today's financial markets?

Totally concerned, Highly concerned, Moderately concerned,

A little concerned, Unconcerned

Q15. To what extent are your investment decisions based on your personal judgement?

Totally, To a large extent, To a moderate extent, To a limited extent Not at all

Q16. How often do you use mathematical projections and statistical models for investment decisions?

Very often, often, sometimes, seldom, never

Q17. How efficient satisfied are you with these projections and models:

Very satisfied, satisfied, neither satisfied or unsatisfied,

unsatisfied, very unsatisfied

Q18. What importance do you give to financial statements of different companies when making investment decisions?

Very important important, neither important nor unimportant,

unimportant , very unimportant

Q19. What importance do you give to non-financial data when making investment decisions?

Very important, important, neither important nor unimportant,

unimportant, very unimportant

Q20. How much do you rely on credit rating agencies?

Totally, a lot, moderately, a little, not at all

Q21 What is your age?

Q22. What is the amount (band) of performance-related pay?

Q23. What is the size of your portfolio?

Q24. What is the return on the investment (capital employed)?