

The Association Between Education Background and Fund Performance of Fund Managers

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Abstract

This study aims at elucidating the correlation between the education background of fund managers and their fund performance. The researchers adopt the fund performance of various fund managers in Taiwan in 2013 as the research sample. The empirical results indicate that female fund managers outperform male fund managers; fund managers who receive an overseas education outperform those who receive their education in Taiwan; those with an undergraduate degree outperform those with a graduate or post-graduate degree; those from unrelated education departments outperform those from business management departments; and fund managers with previous experience in an accounting firm perform more stably compared with those who work in other industries.

Key Words: *Fund Manager, Fund Performance, Educational Background.*

Introduction

Recently, the need for higher education has become a considerably controversial topic. Scholars of all fields question whether academia and practice can be integrated seamlessly, and whether such integration is practicable in the workplace. This study aims at elucidating how the characteristics and education backgrounds of fund managers correlate with the performance of the funds they manage. According to Chevalier and Ellison (1999a), the performance of funds operated by managers who attain an MBA from one of the top 30 schools listed by Business Week is superior to those operated by fund managers who receive their education at other schools. The findings of that study also show that fund performance is unassociated with fund managers who have postgraduate degrees.

Numerous scholars contend that gender influences work performance, claiming that men are more willing to take risks, and they are more confident in strategy formulation. Previous studies indicate that a glass

ceiling is common, even in businesses in Chinese communities. However, Atkinson, Baird, and Frye (2003) report that gender does not have a significant influence on fund performance.

Heilman et al. (1989) and Oakley (2000) explore gender as a variable of fund manager characteristics and show that men outperform women in terms of work ability; consequently, investors are more willing to invest in funds that are managed by men. However, these claims are regarded as general stereotypes.

In accordance with the research background and motivations, this study adopts an empirical analysis approach to determine the association between the education background of fund managers in Taiwan and the performance of the funds they operate, thereby providing an objective method for identifying the association between fund manager characteristics and fund performance. Investors can use the findings of this study as a reference when choosing investment funds.

This paper is structured into 5 chapters. Chapter I presents the introduction, research motivations, and objectives, and Chapter II presents the findings of previous literature in the form of a literature review. The research design is introduced in Chapter III, followed by a discussion regarding the various research variables and models. In Chapter IV, the empirical results are discussed and the performance of fund managers with varying characteristics is compared. Finally, Chapter V offers the conclusion of this study and lists the recommendations proposed by the researchers.

Literature Review

Fund Manager Characteristics and Fund Performance

Lin (2007) examines the performance of open-ended general equity funds in Taiwan for the 2006 financial year by using independent-sample t tests as well product-moment correlation and multiple regression analyses to determine the correlations among fund manager characteristics (e.g., gender, education, and years of service), operating characteristics (e.g., cash reserve ratio and structure of shareholding ratio), and fund performance. The findings of that study show that the funds managed by men significantly outperform those operated by women.

Ke (2007) examines the performance of open-ended equity funds in Taiwan between 2000 and 2007 by using a Carhart Four-Factor Model and t tests to determine the influences of fund manager characteristics (e.g., gender, location of education, professional qualifications, and educational attainment) on their fund performance and career advancement. The findings of that study show that the stock-picking ability of female fund managers is superior to that of their male counterparts.

Golec (1996) examines the mutual funds recorded in the *Mutual Fund Sourcebook Volume* published by Morningstar Inc. between 1988 and 1990. The researcher uses a three-stage least squares approach to determine the influences that fund manager traits have on fund performance, risk, and expense. In addition to fund manager characteristics (e.g., age, seniority, educational attainment, and MBA attainment), the researcher analyzes several other exogenous variables, such as the size of the research team, fund lifespan, fund size, selling expenses, and investment patterns. The findings of that study confirm that fund manager characteristics have a significant influence on fund performance, risk, and expense.

The Association between Fund Managers' Level of Education and Area of Study and Their Fund Performance

Gottesman and Morey (2006) elucidate the association between fund managers' educational attainment and fund performance. The first study focusing on this topic is by Golec (1996), wherein the researcher

examines the mutual funds recorded in the *Mutual Fund Sourcebook Volume* published by Morningstar Inc. between 1988 and 1990. The researcher hypothesizes that the educational attainment of fund managers correlates significantly with their fund performance. However, only fund managers who were existent at that time are examined; consequently, the findings of that study are subject to considerable bias. Moreover, Chevalier and Ellison (1999) report that no significant correlation exists between fund performance and MBA attainment. Further investigation regarding the correlation between fund managers and fund performance reveals no significant correlation between the fund performance of fund managers and their level of educational attainment (e.g., Ph.D., MBA, or CFA).

Hu (2006) examines the funds in Taiwan for 2000 and 2003 by using a quantile regression to determine the influences that fund manager characteristics (e.g., educational attainment, years of service, experience, and gender) and fund characteristics have on fund performance, yielding the following results:

- (1) For the year 2000, business management background, fund trading experience, fund managing experience, and gender significantly influence fund performance.
- (2) For the year 2003, overseas education and trading experience significantly influence fund performance.

Ke (2007) examines the open-ended equity funds in Taiwan between 2000 and 2007 by using the Carhart Four-Factor Model and *t* tests to determine the influences that fund manager characteristics (e.g., gender, location of education, professional qualifications, graduate and postgraduate education) have on fund performance and career advancement. The following results were proposed:

- (1) Fund managers who receive their education in Taiwan significantly outperform those who receive their education overseas.
- (2) Fund managers with no relevant professional qualifications outperform those with relevant qualifications.
- (3) Fund managers with a graduate or postgraduate degree outperform those with no related degree.
- (4) Regarding fund manager features, fund managers' stock-picking ability 1 year prior to promotion remains relatively stable and presents no differences prior to promotion. In addition, the market risk of investment portfolios operated by male fund managers with a graduate or postgraduate degree significantly increase prior to promotion.

The Association Between Fund Managers' Industry Experience and Their Fund Performance

Lan (1999) examines the influences that mutual-fund manager characteristics and experience have on their operating strategies, as well as the correlation among mutual-fund manager characteristics, operating strategies, and mutual fund performance. The research samples comprise the first-hand responses of mutual fund managers and fund holdings data, yielding the following results:

- (1) Employing various operating strategies in different markets influences fund performance.
- (2) The correlation of fund manager performance cannot be directly determined from their characteristics.
- (3) Only achievement motivation correlates to active closing tactics.
- (4) Personality traits influence operating strategy and operating behavior.
- (5) Turnover rates can be examined to determine the short-, mid-, and long-term strategies that fund managers use. Therefore, investors can select a suitable manager to operate their assets by examining the turnover rate.
- (6) Fund managers who favor growth stocks typically have a higher company visitation rate because of the specific characteristics of such stocks.

- (7) The investment trust industry influences the personality traits of fund managers. For most fund managers, higher achievement motivation coincides with increased independency and elevated risk tolerance.
- (8) Fund managers typically demonstrate polarized development when employing the momentum strategies, indicating that this type of strategy has no influence on the survivability of fund managers in the investment trust industry.

Research Design

This study is aimed at elucidating the association between the education background of fund managers and their fund performance. A regression model is used for analytical purposes, where gender *sex*, domestic education *in*, university *u*, graduate degree *master*, postgraduate degree *doctor*, other business management department *b*, science and technology department *t*, finance and accounting department *f*, other department *o*, manufacturing industry *m*, electronics and technology industry *e*, and accounting firm *acc* are operationalized as independent variables. In addition, monthly return-on-investment *RoiM*, quarterly return-on-investment *RoiQ*, half-yearly return-on-investment *RoiH*, annual return-on-investment *RoiI*, risk-adjustment performance *RapI*, risk *Beta*, rate of change *Div*, and the Sharpe Index *Sharpe* are selected as the dependent variables. Finally, the net asset of the fund feature variables *netasset*, net value *netvalue*, investment *invest*, buy turnover rate *bturn*, and sell turnover rate *sturn* are selected as the control variables.

Variable Definitions

- *Sex*: A dummy variable indicating whether the fund manager is a man (1) or a woman (0).
- *in*: A dummy variable indicating whether the managers received their education in Taiwan (1) or abroad (0).
- *u*: A dummy indicating whether the fund manager holds an undergraduate degree (1) or not (0).
- *Master*: A dummy variable indicating whether the fund manager holds a graduate degree (1) or not (0).
- *Doctor*: A dummy variable indicating whether the fund manager holds a postgraduate degree (1) or not (0).
- *b*: A dummy variable indicating whether the fund manager graduated from a department of the business college other than the department of finance and accounting (1) or not (0).
- *t*: A dummy variable indicating whether the fund manager graduated from a science and technology department (1) or not (0).
- *f*: A dummy variable indicating whether the fund manager graduated from a finance and accounting department (1) or not (0).
- *o*: A dummy variable indicating whether the fund manager graduated from a social science and humanities or other unlisted department (1) or not (0).
- *m*: A dummy variable indicating whether the fund manager possesses work experience in the manufacturing industry (1) or not (0).
- *e*: A dummy variable indicating whether the fund manager possesses work experience in the electronics and technology industry (1) or not (0).
- *acc*: A dummy variable indicating whether the fund manager possesses work experience in an accounting firm (1) or not (0).
- *RoiM*: The net return-of-investment fluctuation range for the previous month, calculable after the first full month of fund operation, where $RoiM = (\text{current net value} \times \text{adjustment factor} - \text{the same-day net value for the preceding month}) \div \text{the same-day net value for the preceding month} \times 100$.
- *RoiQ*: The net return-of-investment fluctuation range for the previous 3 months, calculable after 3 full months of fund operation, where $RoiQ = (\text{the current net value} \times \text{adjustment factor} - \text{same-day net value for the preceding 3 months}) \div \text{the same-day net value for the preceding 3 months} \times 100$.

- *RoiH*: The net return-of-investment fluctuation range for the preceding 6 months, calculable after 6 full months of fund operation, where $RoiH = (\text{the current net value} \times \text{adjustment factor} - \text{same-day net value for the preceding 6 months}) \div \text{same-day net value for the previous 6 months} \times 100$.
- *RoiI*: The net return-of-investment fluctuation range the preceding year, calculable after 12 full months of fund operation, where $RoiI = (\text{current net value} \times \text{adjustment factor} - \text{same-day net value for the preceding year}) \div \text{the same-day net value for the preceding year} \times 100$.
- *RapI*: The obtainable return-on-investment per unit risk, where $RapI = RoiI \div SD$.
- *Beta*: The return rate volatility between the fund and the market; the *RoiM* values between the fund and the market (Y9999 Weighted Index) in the preceding 12 months.
- *Div*: The annualized standard deviation calculated from the *RoiM* values of the fund in the preceding 12 months (not calculable for funds operating for fewer than 12 months), where $Div = \sigma_i \times \sqrt{12}$ (σ_i represents the standard deviation of *RoiM* for the preceding 12 months).
- *Sharpe*: The excess returns of the fund per unit of overall risk (also known as the Sharpe Ratio), where $Sharpe = (\bar{R} - \bar{R}_f) \div \sigma_i$ (\bar{R} represents the mean *RoiM* for the preceding 12 months, σ_i represents the standard deviation of *RoiM* for the preceding 12 months, and \bar{R}_f represents the average risk-free interest rate per month for the preceding 12 months, which is calculated using the 1-year fixed deposit interest rate announced by the bank).
- *Netasset*: The size of the fund, or the total assets of the fund at the end of each month.
- *Netvalue*: The unit net value of the fund, where values at the end of each month are collected as historical data, and the latest end-of-day data are collected as data for the current month.
- *Invest*: The investment rate in Taiwan, or the proportion of Taiwanese stock investments within the investment portfolio of the fund at the end of each month.
- (*bt*urn): The total buy value for stock and securities mutual trust funds in the current month \div (the average net asset value \times the investing ratio for stock and securities mutual trust funds regulated by the trust deed) $\times 100$.
- *Sturn*: (The total sell value for stock and securities mutual trust funds in the current month – the net buyback value of beneficiary certificates in the current month – the income distribution amount for the fund in the current month) \div (the mean net asset value \times the investing ratio for stock and securities mutual trust funds regulated by the trust deed) $\times 100$.

Research Models

- The regression model for the correlation between the fund managers' gender and fund performance is $Per = \alpha + \beta_1 \times sex + \epsilon t$.
- The regression model for the correlation between the fund managers' location of education and fund performance is as follows: $Per = \alpha + \beta_1 \times internal + \epsilon t$
- The regression model for the correlation between the fund managers' educational attainment and fund performance is as follows: $Per = \alpha + \beta_1 \times u + \beta_2 \times master + \beta_3 \times doctor + \epsilon t$.
- The regression model for the correlation between the fund managers' field of study and fund performance is as follows: $Per = \alpha + \beta_1 \times b + \beta_2 \times t + \beta_3 \times f + \beta_4 \times o + \epsilon t$.

- The regression model for the correlation between the fund managers' industry experience and fund performance is as follows: $Per = \alpha + \beta_1 \times m + \beta_2 \times e + \beta_3 \times i + \beta_4 \times acc + \epsilon t$.
- The regression model for the correlation between the fund managers' education background and fund performance is as follows: $Per = \alpha + \beta_1 \times sex + \beta_2 \times in + \beta_3 \times u + \beta_4 \times master + \beta_5 \times doctor + \beta_6 \times b + \beta_7 \times t + \beta_8 \times f + \beta_9 \times m + \beta_{10} \times e + \beta_{11} \times i + \beta_{12} \times acc + \epsilon t$

Empirical Results

Descriptive Statistics

Table 1 shows the descriptive statistics for the sample data, including the mean, median, first quartile, third quartile, maximum, and minimum, and standard deviation, with the descriptive statistics of the fund managers' education background and fund performance tabulated in Panel A. For *sex*, the mean value for the male fund managers (0.64) is higher than that of their female counterparts. For *in*, the mean value of the fund managers whose degree is from a university in Taiwan (0.64) is higher than that of managers whose degree is from an overseas university.

Regarding the fund managers' educational attainment, the mean value of *master* is the highest (0.85), followed by that of *u* (0.15), and *doctor* is the lowest (0.01). Regarding the fund managers' field of study, the mean value of *b* is the highest (0.55), followed by *f* (0.38), and *t* is the lowest (0.04). Regarding the fund managers' industry experience, the mean value of *e* is the highest (0.013), followed by *acc* (0.005), and *m* is the lowest (0.002).

Panel B of Table 1 shows the descriptive statistics of the fund performance variables, where the mean values of *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, *Beta*, *Div*, and *Sharpe* are 0.75, 2.47, 4.39, 8.65, 3.77, 0.52, 9.35, and -0.70, respectively.

Panel C shows the descriptive statistics of the control variables, where the mean values of *netasset*, *netvalue*, *invest*, *bturm*, and *sturm* are 2690833, 102.56, 62.49, 12.15, and 9.30, respectively.

Table 1. Descriptive statistics for fund managers' education background and fund performance

Panel A: Descriptive Statistics of Fund Managers' Education Background							
Variables	Mean	Q1	Median	Q3	Maximum	Minimum	Std. Dev.
<i>sex</i>	0.643346	0	1	1	1	0	0.479042
<i>in</i>	0.640248	0	1	1	1	0	0.479959
<i>u</i>	0.148574	0	0	0	1	0	0.355691
<i>master</i>	0.84665	1	1	1	1	0	0.360348
<i>doctor</i>	0.004776	0	0	0	1	0	0.068948
<i>b</i>	0.549761	0	1	1	1	0	0.49755
<i>t</i>	0.03511	0	0	0	1	0	0.184071
<i>f</i>	0.381051	0	0	1	1	0	0.485676
<i>o</i>	0.053182	0	0	0	1	0	0.22441
<i>m</i>	0.001936	0	0	0	1	0	0.043963
<i>e</i>	0.012779	0	0	0	1	0	0.112327
<i>i</i>	1	1	1	1	1	1	0
<i>acc</i>	0.004776	0	0	0	1	0	0.068948

Panel B: Descriptive Statistics of Fund Performance							
Variables	Mean	Q1	Median	Q3	Maximum	Minimum	Std. Dev.
<i>RoiM</i>	0.753224	-0.3918	0.6811	2.3361	13.5948	-17.9415	2.858889
<i>RoiQ</i>	2.4703020	0.1032	2.0874	5.7001	31.9314	-29.3033	5.1934451
<i>RoiH</i>	4.399171	0.08935	3.6536	9.0264	47.0588	-35.3448	7.598585
<i>RoiI</i>	8.652437	0.71125	6.9277	14.43005	64.4205	-35.4911	10.52849
<i>RapI</i>	3.776248	0.28445	0.99135	2.04485	70.9371	-2.9174	10.22826
<i>Beta</i>	0.526329	0.1247	0.4776	0.8344	4.1818	-0.3981	0.444342
<i>Div</i>	9.357025	5.6074	10.0013	12.5327	32.1416	0.0104	5.07049
<i>Sharpe</i>	-0.70488	-0.0124	0.1884	0.4209	1.9193	-27.4667	3.554676

Panel C: Descriptive Statistics of the Control Variables							
Variables	Mean	Q1	Median	Q3	Maximum	Minimum	Std. Dev.
<i>netasset</i>	2690833	406658	888707	2058446	93231596	0	7567206
<i>netvalue</i>	102.5676	9.61	10.8994	14.51	777777	0.3404	8282.543
<i>invest</i>	62.49119	28.09	82.67	92.41	143.9	0.01	33.3535
<i>bturn</i>	12.15177	3.69	9.32	17.16	108.62	0	11.65227
<i>sturn</i>	9.302621	1.61	7.065	14.61	95.5	-149.29	11.51568

Note: Descriptive statistics for education background (Panel A): gender *sex*, domestic education *in*, university *u*, graduate degree *master*, post-graduate degree *doctor*, other business management department *b*, science and technology department *t*, finance and accounting department *f*, other department *o*, manufacturing industry *m*, investment industry *i*, and accounting firm *acc*. Descriptive statistics for fund performance (Panel B): monthly return-on-investment *RoiM*, quarterly return-on-investment *RoiQ*, half-yearly return-on-investment *RoiH*, annual return-on-investment *RoiI*, risk adjustment performance *RapI*, risk *Beta*, rate of change *Div*, and the Sharpe Index *Sharpe*. Descriptive statistics for the control variables (Panel C): net asset *netasset*, net value *netvalue*, investment *invest*, buy turnover rate *bturn*, and sell turnover rate *sturn*.

Correlation Coefficient Analysis

Pearson's product-moment correlation test and the Spearman's rank correlation test are employed to determine whether the independent variables correlate with the dependent variables, with the aim of analyzing the education background and fund performance variables. The test results in Table 2 indicate that *sex* correlates significantly with *RoiM* (0.00242), *RoiO* (0.00103), *RoiH* (0.0074), and *RoiI* (0.00354), indicating that gender is related to fund performance.

The findings further reveal that the correlation coefficients between *in* and *RoiM*, *RoiO*, *RoiH*, and *RoiI* are -0.00083, -0.00575, -0.01648, and -0.01353, respectively, indicating that the relationship between attaining a degree from Taiwan and fund performance may be unfavorable for funds managers.

Regarding the fund managers' educational attainment, *master* and *doctor* correlates significantly and positively with the various short- and long-term performance variables. By contrast, *u* correlates significantly and negatively with the various short- and long-term performance variables. These results are an additional contribution to academia.

Table 2. Correlation coefficients between fund managers' education background and fund performance

Variable	sex	in	doctor	master	u	b	t	f	m	e	acc	RoiM	RoiQ	RoiH	Roil	Rapl	Beta	Div	Sharpe
sex	1.000	0.103***	0.064***	0.054***	-0.069***	-0.054***	0.134***	0.042***	0.000**	0.094***	0.000	0.002***	0.001***	0.007***	0.004***	0.006***	-0.006***	-0.001***	0.006***
in	0.103***	1.000	-0.114***	-0.105***	0.131***	-0.016***	-0.040***	-0.032***	0.000***	0.083***	0.000	-0.001***	-0.006***	-0.016***	-0.014***	-0.021***	0.018***	0.004***	-0.020***
doctor	0.064***	-0.114***	1.000	-0.178***	-0.035***	-0.089***	0.477***	-0.063***	0.000	-0.009***	0.000	0.001***	0.002	0.005***	0.001***	0.003***	0.001***	-0.001***	0.002***
master	0.054***	-0.105***	-0.178***	1.000	-0.977***	0.112***	-0.131***	0.062***	0.000*	-0.020***	0.000**	0.000**	0.008	0.008***	0.005***	0.008***	-0.002***	-0.002***	0.008***
u	-0.069***	0.131***	-0.035***	-0.977***	1.000	-0.094***	0.030***	-0.050***	0.000*	0.023***	0.000***	0.000***	-0.008***	-0.009***	-0.006***	-0.009***	0.001***	0.002***	-0.009***
b	-0.054***	-0.016***	-0.089***	0.112***	-0.094***	1.000	-0.116***	-0.825***	0.000***	0.051***	0.000**	-0.001***	0.008***	-0.006***	-0.007***	-0.011***	0.024***	0.002***	-0.011***
t	0.134***	-0.040***	0.477***	-0.131***	0.030***	-0.116***	1.000	-0.131***	0.000	0.148***	0.000	0.000***	0.002***	0.014***	0.006***	0.010***	-0.007***	-0.002***	0.009***
f	0.042***	-0.032***	-0.063***	0.062***	-0.050***	-0.825***	-0.131***	1.000	0.000***	-0.092***	0.000***	0.001***	-0.009***	0.004***	0.006***	0.009***	-0.023***	-0.002***	0.009***
m	0.000***	0.000***	0.000	0.000*	0.000*	0.000***	0.000	0.000***	1.000	0.000	0.000	0.000***	0.000***	0.000***	0.000***	0.000**	0.000***	0.000***	0.000***
e	0.094***	0.083***	-0.009***	-0.020***	0.023***	0.051***	0.148***	-0.092***	0.000	1.000	0.000	-0.005***	-0.005***	-0.004***	-0.001***	-0.002***	-0.002***	0.000***	-0.002***
acc	0.000	0.000	0.000	0.000**	0.000***	0.000**	0.000	0.000***	0.000	0.000	1.000	0.000***	0.000***	0.001***	0.000***	0.000***	0.000***	0.000***	0.000***
RoiM	0.002***	-0.001***	0.001***	0.000	0.000***	-0.001***	0.000***	0.001***	0.000***	-0.005***	0.000***	1.000	0.572***	0.315***	0.250***	0.171***	0.139	0.088***	0.178***
RoiQ	0.001***	-0.006***	0.002***	0.008***	-0.008***	0.008***	0.002***	-0.009***	0.000***	-0.005***	0.000***	0.572***	1.000	0.662***	0.481***	0.366***	0.366***	0.169***	0.380***
RoiH	0.007***	-0.016***	0.005***	0.008***	-0.009***	-0.006***	0.014***	0.004***	0.000***	-0.004***	0.001***	0.315***	0.662***	1.000	0.758***	0.615***	0.037***	0.180***	0.631***
Roil	0.004***	-0.014***	0.001***	0.005***	-0.006***	-0.007***	0.006***	0.006***	0.000***	-0.001***	0.000***	0.250***	0.481***	0.758***	1.000	0.770***	-0.059***	0.360***	0.807***
Rapl	0.006***	-0.021***	0.003***	0.008***	-0.009***	-0.011***	0.010***	0.009***	0.000**	-0.002***	0.000***	0.171***	0.366***	0.615***	0.770***	1.000	-0.251***	-0.082***	0.987***
Beta	-0.006***	0.018***	0.001***	-0.002***	0.001***	0.024***	-0.007***	-0.023***	0.000***	-0.002***	0.000***	0.139***	0.366***	0.037***	-0.059***	-0.251***	1.000	0.426***	-0.204***
Div	-0.001***	0.004***	-0.001***	-0.002***	0.002***	0.002***	-0.002***	-0.002***	0.000***	0.000***	0.000***	0.088***	0.169***	0.180***	0.360***	-0.082***	0.426***	1.000	0.019***
Sharpe	0.006***	-0.020***	0.002***	0.008***	-0.009***	-0.011***	0.009***	0.009***	0.000***	-0.002***	0.000***	0.178***	0.380***	0.631***	0.807***	0.987***	-0.204***	0.019***	1.000

Note: Pearson's product-moment correlation coefficients are tabulated at the bottom left of the table, and Spearman's ranking correlation coefficients are tabulated at the top right of the table. *** 1% level of significance, ** 5% level of significance, and * 10% level of significance level.

Regarding the fund managers' field of study, *b* correlates significantly and negatively with the various short- and long-term performance variables. In contrast, the correlation coefficients between *t* and *RoiM*, *RoiQ*, *RoiH*, and *Roil* are -0.0003, 0.00244, 0.01394, and 0.00571, respectively, indicating that fund managers with a background in science and technology have higher fund performance.

For industry experience, *acc* achieved significant and positive correlations with *RoiQ*, *RoiH*, and *Roil*.

Independent t-Tests

To elucidate the influences that the educational background of fund managers have on fund performance, a series of independent *t* tests are used to analyze the variables relating to the various characteristics of the fund managers. Table 3 shows the test results.

The results for *sex* are tabulated in Panel A. The variable is divided into two subvariables, *Yes* for male fund managers and *No* for female fund managers. Subsequently, testing *sex* against fund performance shows that *sex* achieves a significant and positive correlation with all of the fund performance variables, indicating that male fund managers have a favorable influence on fund performance. However, *sex* correlates significantly and negatively with *Div*.

Table 3. Independent *t* test results for fund managers' education background and fund performance

Panel A: <i>t</i> Test Results for <i>sex</i> and Fund Performance				
Variable	Yes	No	Difference	<i>t</i>
<i>RoiM</i>	0.1096	0.1076	0.00209	4.6***
<i>RoiQ</i>	0.5103	0.4211	0.0892	105.09***
<i>RoiH</i>	0.6217	0.4772	0.1444	112.8***
<i>RoiI</i>	4.9801	4.8508	0.1294	61.61***
<i>RapI</i>	0.7461	0.7169	0.0293	97.95***
<i>Beta</i>	0.3147	0.3189	0.00414	4.17***
<i>Div</i>	7.1837	7.2022	-0.0185	-20.41***
<i>Sharpe</i>	0.1383	0.1306	0.00768	96.26***

Panel B: <i>t</i> Test Results for <i>in</i> and Fund Performance				
Variable	Yes	No	Difference	<i>t</i>
<i>RoiM</i>	0.1119	0.108	0.00388	10.94***
<i>RoiQ</i>	0.5285	0.4799	0.0486	73.35***
<i>RoiH</i>	0.7323	0.5323	0.2	200.18***
<i>RoiI</i>	5.1248	4.8777	0.2471	150.73***
<i>RapI</i>	0.7778	0.7235	0.0543	232.86***
<i>Beta</i>	0.321	0.3071	-0.0139	-13.5***
<i>Div</i>	7.2006	7.1839	0.0168	18.83***
<i>Sharpe</i>	0.1312	0.1382	-0.00699	-88.88***

Panel C: <i>t</i> Test Results for <i>doctor</i> and Fund Performance				
Variable	Yes	No	Difference	<i>t</i>
<i>RoiM</i>	0.1291	0.1092	-0.0199	-9.48***
<i>RoiQ</i>	0.612	0.4952	-0.1168	-29.75***
<i>RoiH</i>	0.9788	0.596	-0.3827	-64.78***
<i>RoiI</i>	5.1135	4.9584	-0.1551	-15.97***
<i>RapI</i>	0.7809	0.7412	-0.0397	-28.75***
<i>Beta</i>	0.3158	0.3164	0.000605	0.1
<i>Div</i>	7.1619	7.1868	0.0249	5.95***
<i>Sharpe</i>	0.1472	0.137	-0.0102	-27.69***

Panel D: <i>t</i> Test Results for <i>master</i> and Fund Performance				
Variable	Yes	No	Difference	<i>t</i>
<i>RoiM</i>	0.1095	0.1084	-0.00112	-2.51**
<i>RoiQ</i>	0.5095	0.4283	-0.0812	-97.13***
<i>RoiH</i>	0.6189	0.4964	-0.1226	-97.22***
<i>RoiI</i>	4.9791	4.8608	-0.1184	-57.26***
<i>RapI</i>	0.7459	0.7193	-0.0266	-90.32***
<i>Beta</i>	0.316	0.3181	0.00206	1.58*
<i>Div</i>	7.1839	7.2006	0.0168	18.83***
<i>Sharpe</i>	0.1382	0.1312	-0.00699	-88.88***

Panel E: <i>t</i> Test Results for <i>u</i> and Fund Performance				
Variable	Yes	No	Difference	<i>t</i>
<i>RoiM</i>	0.1076	0.1096	0.00209	4.6***
<i>RoiQ</i>	0.4211	0.5103	0.0892	105.09***
<i>RoiH</i>	0.4772	0.6217	0.1444	112.8***
<i>RoiI</i>	4.8508	4.9801	0.1294	61.61***
<i>RapI</i>	0.7169	0.7461	0.0293	97.95***
<i>Beta</i>	0.3182	0.316	-0.00215	-1.63*
<i>Div</i>	7.2022	7.1837	-0.0185	-20.41***
<i>Sharpe</i>	0.1306	0.1383	0.00768	96.26***

Panel F: <i>t</i> Test Results for <i>b</i> and Fund Performance				
Variable	Yes	No	Difference	<i>t</i>
<i>RoiM</i>	0.107	0.1122	0.00523	15.62***
<i>RoiQ</i>	0.5253	0.4594	-0.0659	-105.13***
<i>RoiH</i>	0.566	0.6388	0.0727	76.91***
<i>RoiI</i>	4.9025	5.0301	0.1276	82.26***
<i>RapI</i>	0.7293	0.7566	0.0274	123.87***
<i>Beta</i>	0.324	0.3069	-0.0171	-17.6***
<i>Div</i>	7.1945	7.1769	-0.0176	-26.31***
<i>Sharpe</i>	0.1339	0.141	0.00714	121.08***

Panel G: T-Test Results for <i>t</i> and Fund Performance				
Variable	Yes	No	Difference	t value
<i>RoiM</i>	0.1054	0.1094	0.00399	3.9***
<i>RoiQ</i>	0.5538	0.4943	-0.0595	-31.08***
<i>RoiH</i>	1.0725	0.5851	-0.4874	-169.35***
<i>RoiI</i>	5.2523	4.9511	-0.3012	-63.64***
<i>RapI</i>	0.8113	0.7395	-0.0718	-106.68***
<i>Beta</i>	0.3003	0.3168	0.0165	5.59***
<i>Div</i>	7.1413	7.1879	0.0466	22.84***
<i>Sharpe</i>	0.1551	0.1366	-0.0185	-102.97***

Panel H: <i>t</i> Test Results for <i>f</i> and Fund Performance				
Variable	Yes	No	Difference	<i>t</i>
<i>RoiM</i>	0.1128	0.1072	-0.00562	-16.38***
<i>RoiQ</i>	0.4496	0.5244	0.0748	116.56***
<i>RoiH</i>	0.6279	0.5804	-0.0476	-49.13***
<i>RoiI</i>	5.0271	4.9177	-0.1094	-68.86***
<i>RapI</i>	0.7557	0.7327	-0.0231	-102.12***
<i>Beta</i>	0.3061	0.3227	0.0166	16.65***
<i>Div</i>	7.1774	7.1923	0.0149	21.74***
<i>Sharpe</i>	0.1408	0.1348	-0.00604	-99.97***

Panel I: <i>t</i> Test Results for <i>m</i> and Fund Performance				
Variable	Yes	No	Difference	t value
<i>RoiM</i>	2.2014	0.1093	-2.0921	-3.7***
<i>RoiQ</i>	5.701	0.4959	-5.2051	-5.07***
<i>RoiH</i>	8.3705	0.5985	-7.7721	-5.27***
<i>RoiI</i>	13.6881	4.9593	-8.7287	-3.93***
<i>RapI</i>	1.4314	0.7414	-0.6899	-2.19**
<i>Beta</i>	0.6296	0.3163	-0.3133	-3.29***
<i>Div</i>	10.134	7.1867	-2.9473	-3.08***
<i>Sharpe</i>	0.3583	0.1371	-0.2212	-2.62***

Panel J: <i>t</i> Test Results for <i>e</i> and Fund Performance				
Variable	Yes	No	Difference	t value
<i>RoiM</i>	0.0238	0.1105	0.0867	60.47***
<i>RoiQ</i>	0.3194	0.4984	0.179	66.71***
<i>RoiH</i>	0.3932	0.6013	0.2081	51.4***
<i>RoiI</i>	4.8955	4.9602	0.0647	9.76***
<i>RapI</i>	0.7201	0.7417	0.0216	22.93***
<i>Beta</i>	0.3126	0.3164	0.00379	0.91*
<i>Div</i>	7.1983	7.1865	-0.0119	-4.14***
<i>Sharpe</i>	0.1316	0.1371	0.00553	21.94***

Panel K: <i>t</i> Test Results for <i>acc</i> and Fund Performance				
Variable	<i>Yes</i>	<i>No</i>	Difference	<i>t</i> value
<i>RoiM</i>	1.3452	0.1093	-1.2359	-3.43***
<i>RoiQ</i>	4.0763	0.4959	-3.5804	-5.48***
<i>RoiH</i>	7.4389	0.5985	-6.8404	-7.29***
<i>RoiI</i>	11.5101	4.9593	-6.5508	-4.64***
<i>RapI</i>	1.5061	0.7414	-0.7647	-3.8***
<i>Beta</i>	0.519	0.3163	-0.2026	-3.34***
<i>Div</i>	10.1426	7.1867	-2.9559	-4.85***
<i>Sharpe</i>	0.3576	0.1371	-0.2206	-4.11***

Note: Test results for *sex* (Panel A): this variable is divided into two subvariables, *Yes* for male fund managers and *No* for female fund managers, and then tested against fund performance, which comprised *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, *Beta*, *Div*, and *Sharpe*.

Test results for *in* (Panel B): this variable is divided into two subvariables, *Yes* for fund managers who received their education in Taiwan and *No* for those who received their education overseas, and then tested against fund performance.

Test results for *doctor* (Panel C): this variable is divided into two subvariables, *Yes* for fund managers with a post-graduate degree and *No* for those without a similar degree, and then tested against fund performance.

Test results for *master* (Panel D): this variable is divided into two subvariables, *Yes* for fund managers with a graduate degree and *No* for those without a similar degree, and then tested against fund performance.

Test results for *u* (Panel E): this variable is divided into two subvariables, *Yes* for fund managers with an undergraduate degree and *No* for those without a similar degree, and then tested against fund performance.

Test results for *b* (Panel F): this variable is divided into two subvariables, *Yes* for fund managers from other business management departments and *No* for those not from similar departments, and then tested against fund performance.

Test results for *t* (Panel G): this variable was divided into two subvariables, *Yes* for fund managers from science and technology departments and *No* for those not from similar departments, and then tested against fund performance.

Test results for *f* (Panel H): the variable is divided into two subvariables, *Yes* for fund managers from finance and accounting departments and *No* for those not from similar departments, and then tested against fund performance.

Test results for *m* (Panel I): this variable is divided into two subvariables, *Yes* for fund managers with experience in the manufacturing industry and *No* for those without relevant experience, and then tested against fund performance.

Test results for *e* (Panel J): this variable is divided into two subvariables, *Yes* for fund managers with experience in the electronic and technology industry and *No* for those not without relevant experience, and then tested against fund performance.

Test results for *acc* (Panel K): this variable is divided into two subvariables, *Yes* for fund managers with experience in accounting firms and *No* for those without relevant experience, and then tested against fund performance. *** 1% level of significance, ** 5% level of significance, and * 10% level of significance.

Panel B shows the test results for *in*. The variable is divided into two subvariables, *Yes* for fund managers whose received their education in Taiwan and *No* for those who received their education overseas. Subsequently, testing *in* against fund performance shows that *in* correlates significantly and negatively with *Beta*, indicating that fund manager whose education was attained in Taiwan typically select funds with low volatility.

The test results for *doctor* are tabulated in Panel C. The variable is divided into two subvariables, *Yes* for fund managers with a postgraduate degree, and *No* for those without a postgraduate degree. Subsequently, testing *doctor* against fund performance shows that *doctor* correlates significantly and negatively with *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, and *Sharpe*, indicating the fund managers with a postgraduate degree have an unfavorable influence on fund performance. The test results for *master* are tabulated in Panel D. The variable is divided into two subvariables, *Yes* for fund managers with a graduate degree and *No* for those without a graduate degree. Subsequently, testing *master* against fund performance yields results similar to those for *doctor*, with *master* correlating significantly and negatively with *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, and *Sharpe*, indicating that fund managers with a graduate degree impose an unfavorable influence on fund performance.

Panel E shows the test results for *u*. The variable is divided into two subvariables, *Yes* for fund managers with an undergraduate degree, and *No* for those without an undergraduate degree. Subsequently, testing *u* against fund performance shows that *u* correlates significantly and positively with *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, and *Sharpe*, indicating that fund managers with an undergraduate degree impose a favorable influence on fund performance.

Panel F shows the test results for *b*, which is divided into two subvariables, *Yes* for fund managers from other business management departments, and *No* for those managers who are not from those departments. Subsequently, testing *b* against fund performance shows that *b* correlates significantly and positively with *RoiM*, *RoiH*, and *RoiI*, indicating that fund managers with degrees from other business management departments exert a favorable influence on fund performance.

Panel G shows the test results for *t*, which is divided into two subvariables, *Yes* for fund managers with degrees from science and technology departments, and *No* for those managers not from those departments. Subsequently, testing *t* against fund performance shows that *t* correlates significantly and negatively with *RoiQ*, *RoiH*, and *RoiI*, indicating that fund managers with a degree in science and technology impose an unfavorable influence on fund performance.

Panel H shows the test results for *f*, which is divided into two subvariables, *Yes* for fund managers with a degree in finance and accounting, and *No* for those managers with no degree from those departments. Subsequently, *f* is tested against fund performance. Results showed that *f* achieved a significant and negative correlation with *RoiM*, *RoiH*, and *RoiI*, indicating that fund managers with a degree in finance and accounting impose an unfavorable influence on fund performance.

Panel I shows the test results for *m*, which is divided into two subvariables, *Yes* for fund managers with experience in the manufacturing industry, and *No* for those without relevant experience. Subsequently, testing *m* against fund performance shows that *m* correlates significantly and negatively with all of the fund performance variables, indicating that fund managers with experience in the manufacturing industry impose an unfavorable influence on fund performance.

Panel J shows the test results for *e*, which is divided into two subvariables, *Yes* for fund managers with experience in the electronic and technology industry and *No* for those not without relevant experience. Subsequently, testing *e* against fund performance shows that *e* correlates significantly and positively with

all of the fund performance variables, indicating that fund managers with experience in the electronics and technology industry produce a favorable influence on fund performance.

Panel K shows the test results for *acc*, which is divided into two subvariables, *Yes* for fund managers with experience working in an accounting firm, and *No* for those with no such experience. Subsequently, testing *acc* against fund performance shows that *acc* correlates significantly and negatively with all of the fund performance variables, indicating that fund managers who have experience working in an accounting firm impose an unfavorable influence on fund performance.

Regression Analysis

(a) Association between Gender and Fund Performance

To test whether gender influences fund performance, a regression model is used to test the independent variable *sex* against the control variables *netasset*, *netvalue*, *invest*, *bturm*, and *sturm*. The empirical results in Table 4 show that *sex* correlates significantly and positively with *RoiM* (0.014) and *RoiH* (0.09), indicating that men are more likely than women to have a positive effect on monthly and half-yearly return on investment.

Table 4. Regression analysis results for *sex* and fund performance

Variables	<i>RoiM</i>	<i>RoiQ</i>	<i>RoiH</i>	<i>RoiI</i>	<i>RapI</i>	<i>Beta</i>	<i>Div</i>	<i>Sharpe</i>
Intercept	1.0339*** -392.53	1.22414*** -260.85	-1.44222*** (-197.2)	4.55703*** -376.92	0.67221*** -403.66	0.21242*** -402.89	7.30752*** -1376.54	0.12006*** -268.53
<i>sex</i>	0.01469*** -11.23	0.02572*** -11	0.09353*** -25.74	0.05718*** -9.51	0.01477*** -17.83	-0.0019*** (-7.23)	-0.01007*** (-3.82)	0.00377*** -16.96
<i>netasset</i>	4.06E-8*** -67.34	4.80E-8*** -44.56	1.05E-7*** -63.33	5.52E-7*** -201.36	1.12E-7*** -297.54	-3.47E-8*** (-290.49)	-7.74E-8*** (-64.34)	2.91E-8*** -287.46
<i>netvalue</i>	0.00459*** -22.75	0.0075*** -20.86	0.12422*** -222.2	0.07966*** -86.27	0.01848*** -145.26	-0.00401*** (-99.62)	-0.01338*** (-33)	0.00474*** -138.77
<i>invest</i>	-0.01805*** (-889.97)	-0.01512*** (-417.68)	0.00736*** -130.87	-0.02077*** (-222.46)	-0.00485*** (-377.39)	0.00292*** -717.17	0.00242*** -59.14	-0.00125*** (-363.28)
<i>bturm</i>	0.01094*** -278.07	0.00826*** -117.57	0.01811*** -167.79	-0.00884*** (-48.49)	-0.00143*** (-57.09)	0.00246*** -308.97	0.000321*** -4	-0.00041*** (-60.7)
<i>sturm</i>	-0.00972*** (-146.7)	0.02127*** -178.51	0.03378*** -183.43	0.03671*** -120.75	0.00687*** -163.98	0.00174*** -131.06	-0.0032*** (-23.95)	0.00183*** -162.68
Adj R^2	0.0703	0.0301	0.0148	0.0145	0.0355	0.0914	0.0011	0.0334
<i>F</i>	145416	56071.6	24753.9	20232.4	50603.1	135824	1536.04	47511.5

Note: Regression analysis results for *sex* and fund performance: *sex* is the independent variable; *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, *Beta*, *Div*, and *Sharpe* are dependent variables; and *netasset*, *invest*, *bturm*, and *sturm* are control variables. *** 1% level of significance, ** 5% level of significance, and * 10% level of significance level.

(b) Association between Location of Education and Fund Performance

This study also uses a regression analysis to determine the correlation between location of education and fund performance. The empirical results in Table 5 show that *in* correlates significantly and negatively with *RoiQ* (-0.02), *RoiH* (-0.16), and *RoiI* (-0.21), indicating that the *in* correlates negatively return on investment.

Table 5. Regression Analysis Results for *in* and Fund Performance

Variables	<i>RoiM</i>	<i>RoiQ</i>	<i>RoiH</i>	<i>RoiI</i>	<i>RapI</i>	<i>Beta</i>	<i>Div</i>	<i>Sharpe</i>
Intercept	1.03295*** -387.11	1.25465*** -263.88	-1.27354*** (-171.95)	4.73328*** -386.48	0.71245*** -422.38	0.20271*** -379.58	7.28184*** -1354.04	0.13052*** -288.22
<i>In</i>	0.01487*** -10.96	-0.02215*** (-9.14)	-0.16715*** (-44.38)	-0.21157*** (-33.94)	-0.04673*** (-54.43)	0.01279*** -47.03	0.02923*** -10.68	-0.01222*** (-53)
<i>netasset</i>	4.06E-8*** -67.39	4.80E-8*** -44.51	1.05E-7*** -63.1	5.51E-7*** -201.2	1.12E-7*** -297.31	-3.47E-8*** (-290.28)	-7.73E-8*** (-64.28)	2.91E-8*** -287.23
<i>netvalue</i>	0.0046*** -22.8	0.0075*** -20.87	0.12419*** -222.16	0.0796*** -86.21	0.01846*** -145.19	-0.00401*** (-99.54)	-0.01337*** (-32.98)	0.00474*** -138.7
<i>invest</i>	-0.01805*** (-890.08)	-0.01512*** (-417.64)	0.00738*** -131.15	-0.02075*** (-222.24)	-0.00485*** (-377.09)	0.00292*** -716.91	0.00242*** -59.07	-0.00125*** (-362.98)
<i>bturm</i>	0.01093*** -278.05	0.00826*** -117.61	0.01813*** -167.98	-0.00882*** (-48.38)	-0.00143*** (-56.9)	0.00246*** -308.85	0.000317*** -3.96	-0.00041*** (-60.52)
<i>sturm</i>	-0.00972*** (-146.7)	0.02127*** -178.47	0.03375*** -183.3	0.03668*** -120.67	0.00686*** -163.86	0.00174*** -131.19	-0.00319*** (-23.92)	0.00183*** -162.55
Adj <i>R</i> ²	0.0703	0.0301	0.015	0.0146	0.0358	0.0917	0.0011	0.0337
<i>F</i>	145415	56065.1	24975	20411.9	51060	136220	1552.63	47946.3

Note: Regression analysis results for *in* and fund performance: *in* is the independent variable; *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, *Beta*, *Div*, and *Sharpe* are the dependent variables; and *netasset*, *invest*, *bturm*, and *sturm* are the control variables. *** 1% level of significance, ** 5% level of significance, and * 10% level of significance.

(c) Association between Level of Education and Fund Performance

Similarly, regression is used to determine the correlation between level of education and fund performance. The empirical results in Table 6 show that *u* correlates significantly and positively with *RoiM* (1.04), *RoiQ* (1.19), and *RoiI* (4.50), and that *doctor* yields the lowest level of significance with *RoiQ*, *RoiH*, and *RoiI*, indicating that educational attainment correlates negatively with fund performance.

Table 6. Regression analysis results for educational attainment and fund performance

Variables	<i>RoiM</i>	<i>RoiQ</i>	<i>RoiH</i>	<i>RoiI</i>	<i>RapI</i>	<i>Beta</i>	<i>Div</i>	<i>Sharpe</i>
<i>u</i>	1.04202*** -359.1	1.19032*** -230.1	-1.48081*** (-183.76)	4.50616*** -338.23	0.66114*** -360.29	0.21332*** -367.16	7.31422*** -1250.34	0.11712*** -237.72
<i>master</i>	0.000767 -0.44	0.05841*** -18.75	0.11233*** -23.2	0.10192*** -12.72	0.02383*** -21.59	-0.00252*** (-7.21)	-0.01524*** (-4.33)	0.00622*** -21
<i>doctor</i>	0.04004*** -5.03	0.12486*** -8.79	0.32815*** -14.89	0.10654*** -2.91	0.03083*** -6.12	0.00743*** -4.65	-0.02086 (-1.3)	0.0078*** -5.77
<i>netasset</i>	4.06E-8*** -67.34	4.80E-8*** -44.54	1.05E-7*** -63.32	5.52E-7*** -201.35	1.12E-7*** -297.53	-3.47E-8*** (-290.48)	-7.74E-8*** (-64.34)	2.91E-8*** -287.45
<i>netvalue</i>	0.00459*** -22.76	0.0075*** -20.85	0.12423*** -222.21	0.07966*** -86.27	0.01848*** -145.27	-0.00401*** (-99.64)	-0.01338*** (-33)	0.00474*** -138.78
<i>invest</i>	-0.01805*** (-890.03)	-0.01513*** (-417.82)	0.00735*** -130.64	-0.02078*** (-222.55)	-0.00486*** (-377.55)	0.00292*** -717.2	0.00243*** -59.17	-0.00125*** (-363.44)
<i>bturm</i>	0.01094*** -278.08	0.00826*** -117.59	0.01811*** -167.83	-0.00884*** (-48.47)	-0.00143*** (-57.05)	0.00246*** -308.94	0.00032*** -3.99	-0.00041*** (-60.66)
<i>sturm</i>	-0.00972*** (-146.73)	0.02126*** -178.4	0.03375*** -183.27	0.03668*** -120.68	0.00686*** -163.85	0.00174*** -131.1	-0.00319*** (-23.93)	0.00183*** -162.55
Adj <i>R</i> ²	0.0703	0.0301	0.0149	0.0145	0.0355	0.0914	0.0011	0.0334
<i>F</i>	124627	48108.5	21235.4	17354	43403	116423	1317.51	40753.1

Note: Regression analysis results for educational attainment and fund performance: *u*, *master*, and *doctor* are independent variables; *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, *Beta*, *Div*, and *Sharpe* are dependent variables; and *netasset*, *invest*, *bturm*; *sturm* is a control variable. *** 1% level of significance, ** 5% level of significance, and * 10% level of significance.

(d) Association between Field of Study and Fund Performance

A regression analysis is also used to determine the correlation between field of study and fund performance. The empirical results in Table 7 show that *f* yields the strongest correlation with fund performance, achieving -0.01 and -0.03 with *RoiM* and *RoiQ*, respectively. Departments unrelated to fund performance, such as catering and languages, yield the most significantly negative values with *RoiM*, *RoiQ*, and *RoiI*, indicating that fund managers who have studied fields unrelated to finance and accounting generally have a negative influence on fund performance.

Table 7. Regression analysis results for field of study and fund performance

Variables	<i>RoiM</i>	<i>RoiQ</i>	<i>RoiH</i>	<i>RoiI</i>	<i>RapI</i>	<i>Beta</i>	<i>Div</i>	<i>Sharpe</i>
Intercept	1.03934*** -304.94	1.2316*** -202.58	-1.43656*** (-151.83)	4.57693*** -292.45	0.67678*** -313.97	0.21115*** -309.41	7.30428*** -1062.89	0.12123*** -209.48
<i>b</i>	0.01336*** -5.39	0.03499*** -7.9	0.0138** -2	-0.04826*** (-4.23)	-0.0089*** (-5.67)	0.00749*** -15.08	0.00514 -1.03	-0.00239*** (-5.67)
<i>t</i>	0.00815* -1.91	0.07946*** -10.41	0.45235*** -38.22	0.26183*** -13.34	0.06405*** -23.69	-0.01043*** (-12.18)	-0.04004*** (-4.65)	0.01648*** -22.71
<i>f</i>	-0.01005*** (-3.95)	-0.03258*** (-7.16)	0.08393*** -11.88	0.08919*** -7.63	0.01977*** -12.27	-0.00951*** (-18.65)	-0.0121** (-2.36)	0.00518*** -11.99
<i>netasset</i>	4.06E-8*** -67.38	4.81E-8*** -44.64	1.05E-7*** -63.34	5.51E-7*** -201.34	1.12E-7*** -297.52	-3.47E-8*** (-290.42)	-7.74E-8*** (-64.33)	2.91E-8*** -287.44
<i>netvalue</i>	0.0046*** -22.8	0.00752*** -20.9	0.12415*** -222.09	0.07959*** -86.2	0.01846*** -145.15	-0.004*** (-99.5)	-0.01337*** (-32.98)	0.00473*** -138.67
<i>invest</i>	-0.01805*** (-890.19)	-0.01514*** (-418.16)	0.00736*** -130.88	-0.02075*** (-222.21)	-0.00485*** (-377.06)	0.00292*** -716.41	0.00242*** -59.07	-0.00125*** (-362.95)
<i>btum</i>	0.01093*** -278.04	0.00825*** -117.48	0.01811*** -167.79	-0.00884*** (-48.45)	-0.00143*** (-57.04)	0.00246*** -308.89	0.00032*** -3.99	-0.00041*** (-60.65)
<i>sturn</i>	-0.00973*** (-146.81)	0.02125*** -178.35	0.03379*** -183.49	0.03674*** -120.85	0.00687*** -164.14	0.00173*** -130.78	-0.0032*** (-23.98)	0.00183*** -62.83
Adj R ²	0.0703	0.0302	0.015	0.0146	0.0356	0.0919	0.0011	0.0335
F	109085	42154.9	18719.3	15247.8	38130.9	102415	1157.97	35804.9

Note: The regression analysis results for field of study and fund performance are tabulated in the following table, where *b*, *t*, and *f* are the independent variable; *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, *Beta*, *Div*, and *Sharpe* are the dependent variables; and *netasset*, *invest*, *btum*, and *sturn* are the control variables. *** represents a 1% significance level, ** represents a 5% significance level, and * represents a 10% significance level.

(e) Association between Experience and Fund Performance

Again, this study uses regression to determine the correlation between industry experience and fund performance. According to the empirical results in Table 8, *acc* correlates significantly and positively with *RoiM* (0.19029), *RoiQ* (3.23547), *RoiH* (6.94435), and *RoiI* (6.86232), indicating that industry experience correlates positively with fund performance.

Table 8. Regression analysis results for industry experience and fund performance

Variables	<i>RoiM</i>	<i>RoiQ</i>	<i>RoiH</i>	<i>RoiI</i>	<i>RapI</i>	<i>Beta</i>	<i>Div</i>	<i>Sharpe</i>
Intercept	1.04407*** -415.84	1.24222*** -277.76	-1.38192*** (-198.24)	4.593*** -398.58	0.68158*** -429.41	0.21134*** -420.58	7.30109*** -1442.98	0.12245*** -287.35
<i>M</i>	2.30137** -2.38	5.98554*** -3.57	8.79295*** -3.54	10.48579 -2.78	0.82206 -1.58	0.34478** -2.12	2.98259* -1.8	0.255* -1.83
<i>E</i>	-0.0882*** (-15.99)	-0.17676*** (-17.92)	-0.23412*** (-15.27)	-0.07738*** (-3.05)	-0.02596*** (-7.44)	-0.00659*** (-5.96)	0.01907* -1.71	-0.00663*** (-7.08)
<i>Acc</i>	0.19029 -0.35	3.23547*** -3.45	6.94435*** -5	6.86232*** -3.26	0.32034 -1.1	0.56505*** -6.21	4.83114*** -5.22	0.13112* -1.68
<i>netasset</i>	4.06E-8*** -67.34	4.80E-8*** -44.56	1.05E-7*** -63.33	5.52E-7*** -201.36	1.12E-7*** -297.54	-3.47E-8*** (-290.49)	-7.74E-8*** (-64.35)	2.91E-8*** -287.46
<i>netvalue</i>	0.00459*** -22.76	0.00751*** -20.88	0.12425*** -222.25	0.07968*** -86.29	0.01848*** -145.29	-0.00401*** (-99.64)	-0.01338*** (-33.01)	0.00474*** -138.8
<i>invest</i>	-0.01805*** (-890)	-0.01512*** (-417.7)	0.00736*** -130.79	-0.02077*** (-222.49)	-0.00485*** (-377.45)	0.00292*** -717.22	0.00242*** -59.15	-0.00125*** (-363.33)
<i>bturn</i>	0.01094*** -278.08	0.00826*** -117.58	0.01811*** -167.83	-0.00884*** (-48.48)	-0.00143*** (-57.06)	0.00246*** -308.95	0.00032*** -4	-0.00041*** (-60.67)
<i>sturn</i>	-0.00972*** (-146.72)	0.02127*** -178.49	0.03377*** -183.37	0.0367*** -120.73	0.00686*** -163.94	0.00174*** -131.07	-0.0032*** (-23.95)	0.00183*** -162.64
Adj R-Sq	0.0703	0.0301	0.0148	0.0145	0.0354	0.0914	0.0011	0.0333
F Value	109080	42082.6	18515.7	15166.3	37918.7	101871	1154.4	35603.7

Note: Regression analysis results for industry experience and fund performance: *i*, *m*, *e*, and *acc* are independent variables; *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, *Beta*, *Div*, and *Sharpe* are dependent variables; *netasset*, *invest*, *bturn*, and *sturn* are control variables. *** 1% level of significance, ** 5% level of significance, and * 10% level of significance.

(f) Association between Education Background and Fund Performance

Finally, regression is used to determine the correlation between industry experience and fund performance in table 9. The empirical results indicate that under similar educational attainment and industry experience conditions, the fund performance of fund managers with an undergraduate degree is the highest. Regarding the fund managers' field of study, the fund performance of fund managers with a science and technology background was the highest, indicating that education background significantly influences fund performance.

Table 9. Regression analysis results for education background and fund performance

Variables	RoiM	RoiQ	RoiH	RoiI	RapI	Beta	Div	Sharpe
Intercept	1.01748*** -268.45	1.20349*** -177.96	-1.38532*** (-131.66)	4.69316*** -269.63	0.7007*** -292.32	0.20088*** -264.69	7.28988*** -953.73	0.12753*** -198.15
Sex	0.01611*** -12.03	0.02909*** -12.16	0.09029*** -24.28	0.05989*** -9.73	0.01536*** -18.13	-0.00178*** (-6.65)	-0.01054*** (-3.9)	0.00393*** -17.26
In	0.01636*** -11.72	-0.01526*** (-6.12)	-0.16083*** (-41.51)	-0.21387*** (-33.35)	-0.047*** (-53.21)	0.01356*** -48.47	0.02939*** -10.44	-0.01229*** (-51.82)
doctor	0.04351*** -4.74	0.01732 -1.06	-0.27659*** (-10.87)	-0.36937*** (-8.75)	-0.08032*** (-13.81)	0.03244*** -17.62	0.04846*** -2.61	-0.021*** (-13.45)
master	-0.00011 (-0.06)	0.05599*** -17.2	0.09183*** -18.14	0.08206*** -9.8	0.01919*** -16.64	-0.00149*** (-4.09)	-0.01216*** (-3.31)	0.00502*** -16.21
U	1.04202*** -359.1	1.19032*** -230.1	-1.48081*** (-183.76)	4.50616*** -338.23	0.66114*** -360.29	0.21332*** -367.16	7.31422*** -1250.34	0.11712*** -237.72
B	0.01713*** -6.63	0.01246*** -2.7	-0.05682*** (-7.93)	-0.12686*** (-10.7)	-0.02661*** (-16.29)	0.01134*** -21.91	0.01626*** -3.12	-0.00702*** (-16)
T	0.00621 -1.29	0.06867*** -8	0.43892*** -32.99	0.24705*** -11.2	0.06051*** -19.92	-0.01159*** (-12.04)	-0.0373*** (-3.85)	0.01557*** -19.08
f	-0.00904*** (-3.42)	-0.06053*** (-12.82)	0.00252 -0.34	0.00535 -0.44	0.000594 -0.36	-0.00573*** (-10.82)	3.41E-05 -0.01	0.000183 -0.41
m	2.32145** -2.4	6.00129*** -3.58	8.61261*** -3.46	10.23745*** -2.72	0.76767 -1.48	0.36447** -2.24	3.01654* -1.82	0.24076* -1.73
e	-0.1082*** (-19.17)	-0.21903*** (-21.71)	-0.28791*** (-18.35)	-0.04683* (-1.81)	-0.0218*** (-6.11)	-0.01262*** (-11.16)	0.01694 -1.49	-0.00543*** (-5.67)
acc	0.20332 -0.38	3.30764*** -3.53	7.03622*** -5.06	6.91494*** -3.28	0.33412 -1.15	0.56771*** -6.24	4.82184*** -5.21	0.13465* -1.73
netasset	4.07E-8*** -67.46	4.80E-8*** -44.6	1.05E-7*** -63.09	5.51E-7*** -201.14	1.12E-7*** -297.26	-3.47E-8*** (-290.18)	-7.73E-8*** (-64.27)	2.91E-8*** -287.18
netvalue	0.0046*** -22.79	0.00749*** -20.83	0.12405*** -221.94	0.07949*** -86.09	0.01844*** -145	-0.004*** (-99.38)	-0.01336*** (-32.94)	0.00473*** -138.51
invest	-0.01806*** (-890.23)	-0.01514*** (-418.1)	0.00739*** -131.37	-0.02072*** (-221.9)	-0.00484*** (-376.6)	0.00292*** -716.03	0.00242*** -58.97	-0.00125*** (-362.5)
bturm	0.01093*** -277.96	0.00825*** -117.49	0.01812*** -167.93	-0.00882*** (-48.35)	-0.00143*** (-56.88)	0.00245*** -308.77	0.000317*** -3.96	-0.00041*** (-60.5)
sturn	-0.00972*** (-146.78)	0.02124*** -178.28	0.03377*** -183.39	0.03671*** -120.77	0.00687*** -164.03	0.00174*** -130.88	-0.0032*** (-23.95)	0.00183*** -162.72
Adj R ²	0.0704	0.0303	0.0153	0.0147	0.036	0.0922	0.0011	0.0339
F	58225.6	22554	10196.3	8226.3	20588.9	54820.1	629.2	19334

Note: Regression analysis results for education background and fund performance: *sex*, *in*, *u*, *master*, *doctor*, *b*, *t*, *f*, *i*, *m*, *e*, and *acc* are independent variables; *RoiM*, *RoiQ*, *RoiH*, *RoiI*, *RapI*, *Beta*, *Div*, and *Sharpe* are dependent variables; *netasset*, *invest*, *bturm*, and *sturn* are control variables. *** 1% level of significance level, ** 5% level of significance, and * 10% level of significance.

Conclusion and Recommendations

This study aims at elucidating the correlation between fund managers' characteristics and education background and their fund performance by using the fund performance of fund managers in Taiwan during the 2013 financial year as the research sample. The empirical results indicate that female fund managers outperform their male counterparts; fund managers who obtained degrees from an overseas university outperform those who obtained degrees from Taiwan. Fund managers with an undergraduate degree outperform those with a graduate or postgraduate degree, and those whose degree is from another departments, such as languages, catering, molecular and cellular biology, exhibit superior fund performance. Finally, fund managers with previous experience in an accounting firm have more stable fund performance.

Contributions and Implications

The empirical results of this study reveal that educational attainment does not correlate positively with fund performance. The findings are in contrast to the generally perceived correlation between the field of study and fund performance, where fund managers with a relevant background do not necessarily outperform fund managers with an education background from other research fields. Moreover, fund managers with prior experience in an accounting firm outperform those with experience in other industries. The findings of this study can serve as a valuable reference for people interested in becoming a fund manager, and for general investors in search of a suitable fund manager.

Future Research and Limitations

This study examines only the fund performance of fund managers in a single year. In addition, the researchers cannot fully verify the findings obtained in this study because relevant literature focusing only on the education background of fund managers is scant. Future studies should consider extending the research period to obtain more comprehensive results.

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