Gender and Human Capital of Mutual Fund Managers and the Operating Efficiency

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Abstract

No study has explored the relationship among gender differences, human capital, and investment performance. This article is the first to answer the question, "Do female fund managers outperform male ones in fund performance given the same amount of human capital inputs?" Forty-two stock fund managers in Taiwan, 11 females and 31 males, were the subjects of this research. The research period for evaluating fund performance was the 24 months prior to the financial tsunami, from April 2006 to March 2008. Data envelopment analysis (DEA) was used to evaluate the fund managers' operating efficiency ratings by handling multiple input and multiple output variables simultaneously. The input variables regarding the human capital of the fund managers were their fund management experiences, tenure in managing a specific fund, and their education levels, whereas the output variables were the returns and risks of fund performance. A statistical test was used to determine whether the difference between female DEA efficiency ratings and those of males was significant.

Our research showed that the average operating efficiency of female fund

managers was significantly higher than that of their male counterparts; or, equivalently, female managers outperform males in managing mutual funds, relative to the amount of human capital inputs. These findings are consistent with those of previous studies and may be attributed to the lower turnover rates of female managers, as shown in this study. However, facts showing that female fund managers in Taiwan operated larger-scale mutual funds while that fund size produced minimal or no negative impacts on fund performance differ from existing research results. The sample size is limited; however, this study has a greater proportion of females than that of most similar studies. In addition, in contrast to traditional regression models, this study's DEA approach can elucidate future research to be performed in this area.

Keywords: Mutual Fund Managers, Gender, Operating Efficiency, Data Envelopment Analysis (DEA)

1. Introduction

The Constitution of the Republic of China, Taiwan, clearly defines sexual equality as a natural right of its citizens. Differential treatment based on gender differences should not exist. The articles of the "Gender Equality in Employment Act" also provide for the indemnification of employees discriminated by employers who pay based on gender; in other words, employers should pay equal salaries to employees with the same workloads, regardless of gender. Nevertheless, other factors, such as seniority, level of education, work achievements, and other characteristics not related to gender, are excluded from this limitation. Although wage differences between female and male workers in Taiwan are frequently perceived, few studies have related gender differences to other issues, such as work performance.

The work performance, in particular, of a mutual fund manager is evaluated based on the amount of interest income paid to investors or on the total dividends through the invested fund. The increasing value per unit is called the "reward." This net profit also constitutes the manager's achievements. Mutual fund managers represent their firms when executing investment activities and working with large amounts of capital from investors. Most mutual fund managers are supported by a research team that suggests suitable investment decisions. Although obligated by the prospectus to the firm's investors, a mutual fund manager always stands to profit through the proper allocation of assets and by the reduction of risks though sound professional judgment. In other words, fund managers pursue superior fund-management performance through knowledge-based human capital. Generally, human capital is the stock of competencies, knowledge, social attributes, and personality traits embodied in the ability of a worker to perform labor for producing economic value. Among these characteristics, education and experience are the two most frequently recognized; thus, they were adopted to represent the properties of a fund manager's human capital.

In this study, a mutual fund manager's operating efficiency is measured according to the ratio of performance outcomes to the manager's human capital inputs. Because reward and risk are the two facets of a fund, the annual rate of return and its standard deviation are the most critical factors. These fund qualities are frequently used in

disclosing a fund's performance; thus, they were selected as the two output variables. The three input variables representing a fund manager's human capital characteristics include the manager's level of education, tenure of fund management, and the months in managing the specific fund. To estimate a best-practice relationship between multiple outputs and multiple inputs, a method in operations research called data envelopment analysis (DEA) was employed. DEA is a nonparametric approach, demonstrating the benefit of not assuming a particular functional form/shape for the particular production frontier. DEA was referred to as "balanced benchmarking" by Sherman and Zhu (2013), because it benchmarks firms only against the best producers. This approach differs from regression analysis and other statistical techniques that base comparisons relative to average producers.

Gender differences in economic activities constitute a crucial topic in social science research. Because of the rising awareness paid to gender equality, the issue of gender difference in work performance has also become increasingly relevant. Through its demonstration that DEA shows promise for generating fund manager operating efficiency ratios, this study contributes to answering the question, "Do female fund managers outperform male ones in fund-management performance given the same amount of human capital inputs?" The remainder of this paper is structured as follows: Section 2 outlines the literature review; Section 3 describes the employed methods including the DEA of the current study; Section 4 reports the empirical results; and the final section offers concluding remarks.

2. Literature Review

Quite a few studies related human capital characteristics to work performance. For example, Astbro and Bernhardt (2005) explained that if a start-up company has higher-level human capital, it has better productive ability to profits, and thus is more liberal with its credit. Toole and Czarnitzki (2009) found that the scientific and commercial components of an academic scientist's human capital have differential effects on the performance of research and invention tasks at the firm. They also found the contribution of a scientist to a firm's patent productivity is actually decreasing with the depth of their scientifically oriented human capital. Literature review on gender and

human capital is then limited to the aspect of investment performance as follows.

(1) Human Capital versus Fund Performance

While limiting relation between human capital and fund management, Golec (1996) was the first to investigate how specific individual characteristics affected the fund managers' performance. The study reached the following conclusion: younger fund managers possessing an MBA degree could achieve higher risk adjustment, and also indicated a positive correlation between a fund manager's duration of managing a particular fund and its return. Israelsen (1998) found that a mutual fund manager's year of experience is positively related to fund performance with significant differences. Taking a further look at the educational backgrounds of mutual fund managers, Chevalier and Ellison (1999) added the scholastic assessment test (SAT) scores as a item in human capital to evaluate the fund managers' performance, and found that fund managers with higher SAT scores had higher expected return rates. Gottesman and Morey (2006) expanded Chevalier and Ellison's research into the relationship between educational level and fund managing performance. Similarly, Zarutskie (2010) found that first-time venture capital fund management teams with more task-specific human capital, as measured by more managers having past experience as venture capitalists, have a greater fraction of portfolio companies that remain active.

However, on the other hand, not all studies have conclusions in the same way. Fortin et al. (1999) and Costa et al. (2006), for example, did not find any significant relationship between managers' qualifications and the fund performance they managed. Switzer and Huang (2007) examined whether small and mid-cap fund performance is related to fund managers' tenure and professional training, and they determined an optimal size of managed mutual funds that ranges between $US 1.43 billion and $US 3.89 billion; no correlations between human capital and management performance were shown in funds with size beyond the above ranges. Cumming et al. (2012) did not find evidence that distribution channels, which promote fund presence to institutional investors, enhance performance persistence. Using evidence from two case studies on investment and insurance professionals in the finance industry, Royal et al. (2014) suggested regulators ensure that human capital is enhanced by as much knowledge as possible where more human capital knowledge could reduce risk in investments.

(2) Gender versus Investor/Work Performance

Barber and Odean (2001) conducted a six-year research which found that, among 3,500 American investors, female investors outperformed their male counterparts by an average 1.4% return annually. Bliss and Potter (2002) began looking into the relationship between gender differences and mutual fund managers' performance. Dougherty (2005) applied the salary regression model, provided by Mincer and Solomon (1974), in working out the return for schooling and concluded that women get more pay than men relative to the same amount of family investments. Abbasi and Dadashinasab (2012) employed generalized least squares to examine the effects of fund managers' age and gender on the performance of Iranian mutual funds. Liu et al. (2014) used the time series regression model to find, instead, gender diversity in fund management companies in China has a negative effect on fund performance.

Deviating from the aforementioned statistical methods, DEA is a mathematical programming approach measuring fund performance by pure technical efficiency. Bowlin et al. (2003) began a DEA study of gender equity in assessing executive compensation. Also using DEA in the S&P mid-cap and small-cap companies, Bowlin and Renner (2008) concluded that female top managements were under-paid while comparing to the male counterparts with same performance level. However, both Bowlin's studies have the limitation of few number of women executives among the top-paid (2.2%) and among the top-management-team (3.6%) of the S&P 500 companies, respectively. Insufficient proportion of female group in the research might make biased and unconvinced the gender differences in fund-managing performance.

(3) Related Research in Taiwan

Few studies about the related issues in Taiwan were seen. Chen (2002) addressed that, in certain situations, human capital may contribute to sexual discrimination in job markets. One article regarding gender differences in investment performance appeared in a weekly magazine by Ouyang and Hsieh (2007). Sheu (2009) analyzed the effect of farmers' human capital on household income by using an econometric model. Lin and Chen (2009) applied DEA and concluded that audit firms with more expenditure on educational training significantly increase technical efficiency, and for either large or small firm, more upper-level professionals with high academic degree are unable to

improve their technical efficiency.

In this study, data were gathered to ensure a sufficient proportion of female fund managers for the research. In contrast to previous studies employing questionnaire surveys or regression analysis, this research adopted DEA for a comparison of fund performance outcomes between female and male fund managers, while controlling for their respective human capital inputs.

3. Research Approach

This article is intended to provide individual investors and private investing companies with a new perspective on how to evaluate a mutual fund manager's operating performance by a single DEA index called the "technical efficiency ratio."

(1) Data Envelopment Analysis

Based on earlier work initiated by Farrell (1957), Charnes et al. (1978) formulated the DEA model as a fractional linear program, also called the Charnes-Cooper-Rhodes (CCR) model. Regarding the DEA efficiency ratio, each decision-making unit (DMU), or fund manager in this study, transforms multiple inputs into multiple outputs. The technical efficiency (TE) ratio is constrained so that the selected weights must be feasible and cannot result in an efficiency ratio greater than 1.0, the ratio reserved for the "best" or relatively efficient units. Those "best" DMUs in the group define a piecewise linear surface, which is called an "efficiency frontier." Input-output relationships for the remaining DMUs are then evaluated relative to this efficiency frontier. Figure 1 illustrates how DEA works to compute a fund manager's TE ratio given the manager's human capital inputs and the managed fund's performance outputs. For the relatively best-performing managers, such as managers A, B, C, and D, their TE ratios are all equal to 1.0, which places them along the efficiency frontier. Manager F's TE ratio of 0.75 places her below the efficiency frontier, meaning that her human capital inputs enabled her to achieve 75% of what the "best" fund managers achieved.
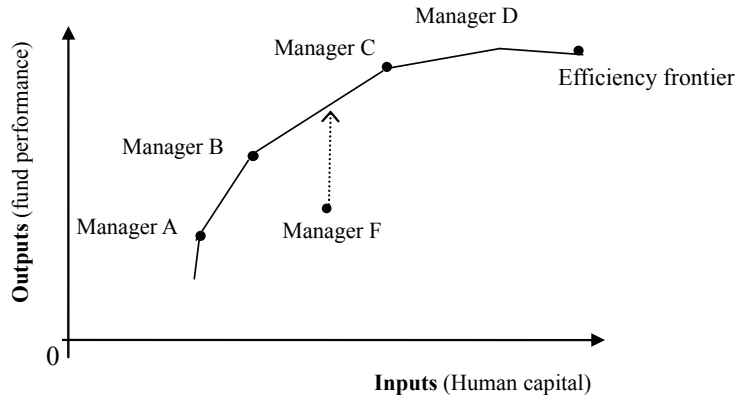
Figure 1: Illustration of the Efficiency Frontier of Mutual Fund Managers

CCR models assume a constant returns-to-scale relationship exists between outputs and inputs, which is not necessarily determined in every study. Hirao (2012) found that most public business schools exhibit increasing returns to scale (IRTS); hence, schools that exhibit IRTS experience more than a proportionate increase in starting salary for their graduates by raising the quality of such inputs as average Graduate Management Admission Test scores. In contrast to the restriction of constant returns to scale, the BCC model proposed by Banker et al. (1984) allows for a variable returns-to-scale relationship between inputs and outputs.

Given the human capital, managers have more control over their fund performance, or the output variables; the output-oriented BCC model was thus utilized in this study. The output-oriented BCC model produces a scalar TE rating for any manager by selecting weights that maximize the ratio of a linear combination of the manager's fund performance, plus an intercept variable for returns to scale, to a linear combination of the manager's human capital inputs. A specific manager's ratio is to be maximized subject to the conditions that every manager's ratio does not exceed 1.0. The TE ratio for a specific k_0 th DMU (fund manager) in the output-oriented BCC model is denoted as h_{k_0}, with the mathematical formulation shown below.

$$\text{Max} \qquad h_{k_0} = \frac{\sum_{j=1}^{J} v_j \cdot Y_{jk_0} + C}{\sum_{i=1}^{I} u_i \cdot X_{ik_0}} \qquad\qquad (1)$$

Subject to $\quad h_k = \dfrac{\sum_{j=1}^{J} v_j \cdot Y_{jk} + C}{\sum_{i=1}^{I} u_i \cdot X_{ik}} \leq 1$; $\quad k = 1, \cdots, k_0, \cdots, n.$ (2)

where the notations are defined as follows:

n = the number of DMUs or $n = 42$ mutual fund managers in this study;

X_{ik} = the i th input of the kth DMU; $i = 1, \cdots, I = 3$, and $k = 1, \cdots, n$;

Y_{jk} = the j th output of the kth DMU; $j = 1, \cdots, J$; in this study, $J = 2$;

u_i = the relative weight of i th input; and

v_j = the relative weight of j th output.

Note that the decision variables, u_i and v_j, should be positive. If the variable returns-to-scale intercept C in equation (1) equals zero, then the returns to scale in the BCC model reduces to that of the constant in the CCR model. The scalar ratio h_k in equation (2) measures the operating efficiency of every kth fund manager. When the objective value $h_{k_0} = 1$, the specific k_0 th DMU is on the efficiency frontier and is efficient; if $h_{k_0} < 1$, then, equivalently, the k_0 th fund manager is recognized as operating inefficiently.

(2) Model Variables

DEA handles multiple output and multiple input variables simultaneously. In this study, the human capital input variables include educational level, experience in fund management, and tenure in managing the specific fund. The output variables are the two deciding factors of fund performance: return and risk.

(a) Level of Education

The educational level for managers is defined as their total years of schooling; for example, a master's degree counts as 18 years of schooling, a bachelor's degree counts as 16 years of education, and so forth.

(b) Total Months of Experience in Fund Management

The longer a manager's experience in managing mutual funds is, the more professional and knowledgeable a fund manager should be. The length of time a manager had spent managing previous funds, before to April 2006, was also considered for this input variable.

(c) Tenure of Managing the Specific Fund

In this study, a manager's tenure was defined as the time (in months) that the

manager has been managing a specific fund, until March 2008, the end of the 2-year study period.

   (d) Return of the Specific Fund

   For each specific fund, its return is defined as the annual rate of return, based on the percentage of gain/loss from the initial value on the first trading day in April 2007 until its net value on the final trading day in March 2008.

   (e) Reciprocal of the Fund Risk Level

   Fund risk represents the volatility of actual returns. Here, the standard deviation (as a percentage) of the annual returns, evaluated each trading day from April 2007 to March 2008, is used to denote the risk level. Note that in DEA framework, output variables are those variables that we would expect to be greater given the level of input variables. Because lower risk implies higher fund performance, it is actually, as an output variable, the reciprocal of the standard deviation of annual returns. Note that DEA preserves this translation invariance (Iqbal Ali and Seiford, 1990).

   (3) Mann-Whitney Test

   This study's general hypothesis is that no difference in fund performance exists between female managers and their male counterparts. Thus, the null hypothesis to be tested is that no difference in DEA ratings exists between female and male fund managers. Since the distribution of the DEA ratings is unknown, the Mann-Whitney U-test is used to uncover any statistical difference between these two groups. The Mann-Whitney U-test, or Wilcoxon rank-sum test, was first seen in Brockett and Golany (1996) as a test for DEA efficiency difference between two independent samples. Using the M-W (Mann-Whitney) *z*-statistic, if the associated *p*-value is less than the significance level $\alpha = 0.05$, then the null hypothesis can be rejected.

   Let n_1 and n_2 represent the sample sizes of male and female fund managers, respectively. To compute the M-W *z*-statistic, the first step is to rank the DEA efficiency ratings of all managers from the smallest to the largest; the rank sums of male and female groups can be represented as W_1 and W_2. Then, let

$$U = \min\left(U_1, U_2\right),$$

where $U_1 = n_1 n_2 + n_1(n_2 + 1)/2 - W_1$, and $U_2 = n_1 n_2 + n_1(n_2 + 1)/2 - W_2$. When n_1 and

n_2 are both higher than 10, the statistics $U = \min\left(U_1, U_2\right)$ is close to a normal distribution, and the z-statistic can be computed using

$$z = \left(U - \frac{n_1 n_2}{2} \right) \Bigg/ \left(\frac{\sqrt{n_1 n_2 (n_1 + n_2 + 1)}}{12} \right).$$

4. Research Results

Each mutual fund has a predetermined investment objective, regions of investments, and investment strategies. There are, fundamentally, three varieties of mutual funds: equity funds (stocks), fixed-income funds (bonds), and money market funds. Only the managers of equity funds in Taiwan were subjects in this study. The list of fund managers was accessed from the database of the *Securities Investment Trust & Consulting Association* (http://www.sitca.org.tw/) of Taiwan. There were 172 listed stock funds as of April 1, 2006. First, the fund with the longest tenure was chosen if a manager managed two or more stock funds. The number of chosen funds was 83. Then, only 57 managers, who had been operating their specific stock funds for the two years of April 1, 2006 to March 31, 2008, were identified. This might be due to the manager's job changes. Data of manager's characteristics include gender, educational level, fund management experience, and tenure in managing the specific fund. Relevant information regarding the manager's characteristics was collected from the database of *FundDJ* (http://www.moneydj.com/). *FundDJ* also served as a source of fund performance data. Some more managers were excluded due to incomplete data on fund performance and manager's characteristics. Finally, this study included 42 fund managers, of whom 11 were female and 31 were male, as shown in the Appendix.

(1) Descriptive Statistics
Table 1 provides averages of the fund managers' human capital input variables. Managers with the longest and the shortest tenures are both male. More than 90% (28 of 31) of male managers possess master's degrees, compared with only 54.5% (6 of 11) of female managers who do; however, the gap in average educational level between females and males is minimal. Overall, female managers possess much more experience

<p style="text-align:center">Table 1：Fund Managers' Descriptive Input Data</p>

	Fund management experience (in months)			Tenure in the studied fund (in months)			Education level (in years)
	Max	min	AVG	Max	min	AVG	AVG
Male	274	25	**80.41**	107	24	**42.35**	**17.81**
Female	210	38	**109.36**	97	25	**53.27**	**17.09**

Max: maximum; min: minimum; AVG: average.

in managing funds but show slightly lower education levels than those of their male counterparts. Because the females and males have comparable educational backgrounds and experiences, the differences in human capital inputs between these two groups is not statistically significant; this occurrence may be due to strict job requirements in the finance sector, requiring fund managers to have a certain level of professional expertise.

Table 2 shows a summary of fund performance. Males managed funds with more dispersed annual returns, ranging from the smallest to the largest ones. The high standard deviation (18.12%) of the annual returns in the male group also implies that individual performance varied greatly. On average, those in the female group boasted a higher annual rate of returns but manifested a lower standard deviation for those returns. That is, in terms of reward and risk, females demonstrated higher fund performance.

<p style="text-align:center">Table 2：Summary Statistics of Fund Performance Output Data</p>

	Annual rate of returns (%)				Standard deviation of the fund's annual returns (%)		
	Max	min	AVG	StDev	Max	min	AVG
Male	77.26	1.00	**38.82**	18.12	38.61	19.47	**27.25**
Female	54.30	38.42	**46.63**	5.90	31.15	18.54	**25.53**

Max: maximum; min: minimum; AVG: average; StDev: standard deviation.

(2) DEA Results

The efficiency rating in DEA is obtained from the fund managers' TE ratio, a ratio of their fund performance outcomes to their human capital inputs. Those who had efficiency ratings equal to 1.0 were identified as "DEA-efficient" managers and demonstrated "relative best" fund performance, given their human capital characteristics. Table 3 shows the results of DEA efficiency ratings. The average DEA

rating for women was higher than that for men; female managers were, on average, closer to the frontier than the male managers. This finding is also supported by the higher proportion (54.5%) of females who were DEA-efficient. Thus, for the given human capital variables, female managers, on average, performed more effectively than the male managers did.

Because the probability distribution of the DEA ratings is unknown, the Mann-Whitney U-test was used to verify whether a statistical difference existed between the women's average DEA rating and the men's average DEA rating. A negative value for the z-statistic in Table 3 indicates that the DEA ratings for women were higher; the negative value also shows that the difference was statistically significant at the 0.05 level and that, thus, the null hypothesis was rejected. Consequently, when differences in human capital inputs were controlled for, the differences in fund performance listed in Table 2 became statistically significant.

Table 3：DEA Efficiency Ratings on Fund Managers

	Min. DEA efficiency rating	Number (percentage) of DEA-efficient managers	Efficiency rating AVG	Mann-Whitney U-test
Male	0.037	6 (12.9%)	**0.676**	z-statistic = －2.151
Female	0.497	4 (54.5%)	**0.823**	(p-value = 0.03)*

* represents 5% level of significance

(3) Operating Efficiency Related to Other Factors

As shown in Table 4, a summary of fund sizes and of the managers' turnover rates, female fund managers operated, on average, funds with higher net assets than those of the male mangers. In addition, the females demonstrated smaller *turnover* rates than their male counterparts. *Turnover* is a measure of the volume of a fund's securities trading. The higher turnover rates of the male managers may have indicated more trading, a search for higher risk but higher rewards; hence, they were usually indexed as overconfident.

Atkinson et al. (2003) suggested that differences in investment behavior, often attributed to gender, may be related to investment knowledge and wealth constraints. One might consider if fund size correlates with diminished fund performance. By

Table 4：Summary of Fund Size and Managers' Turnover Rates

	Fund size (in billion NTD)				Turnover rate (%)			
	Max	min	**AVG**	StDev	Max	min	**AVG**	StDev
Male	13.84	0.25	**3.85**	4.18	296.93	9.32	**78.62**	61.41
Female	40.74	0.24	**6.21**	11.66	142.78	1.55	**56.25**	48.22

In fund size, the exchange rate was $1USD = 32 NTD.

examining the fund market in Korea, Ban and Choe (2013) found that, although small funds appeared to perform worse than large funds did, the negative relationship between size and performance disappeared after being controlled for the cash-holding ratio. In addition, using a dataset of UK equity mutual fund returns, Blake et al. (2014) concluded that fund size had a negative effect on the average fund manager's benchmark-adjusted performance, though the marginal effect diminished when the fund size exceeded a certain level. In our study, female managers performed more effectively, although they managed a larger than average scale of funds; this phenomenon may have resulted from drivers such as fees, expenses, and other endogenous factors. The Tobit model, for example, could have been used to determine the relationship between the DEA efficiency ratings and these factors. However, such an examination is beyond the scope of the present study.

5. Conclusions

The mutual fund industry offers an ideal test setting to analyze gender differences, because the observed behavior is not biased by artificial experimentation. Furthermore, behavioral consequences are directly reflected in quantitative measures. Because a fund manager's gender is easily observable, it is surprising that little attention has been devoted to the influence of gender on fund management in Taiwan. Gender differences in work performance and pay equity will continue to be crucial concerns for directors and managers ensuring that, first, they meet government regulations and that, second, they recruit and retain women in their executive ranks. Thus, ongoing research is needed in this area.

The purpose and intended contribution of this paper is two-fold: to provide

consolidated measures for the relative operating efficiency of mutual fund managers, using the DEA framework for the first time, and to examine gender differences in fund management performance. DEA is more flexible than regression analysis in recognizing and accommodating observations related to multiple inputs and outputs. After controlling for the managers' human capital inputs, the DEA results showed significant differences in fund operating efficiency between female and male managers. Hence, this study concludes that, on average, female managers outperform males in managing mutual funds. These findings may be attributed to the arguments of Watson and McNaugton (2007), who remarked that women are more risk averse with investment styles that are more stable over time.

Gender is relevant; however, the conclusions of this study are limited to the database used for data collection and to the specific questions addressed. The results, for example, do not compare the fund performance levels from after the financial tsunami of late 2009 with those from before that particular event. However, the proportion of female fund managers in this study was higher than 25%, which was much higher than in previous studies performed in this area. In general, this study provides new insights regarding mutual fund performance and the human capital characteristics of fund managers. The results should have crucial implications for fund companies as they make decisions about the composition of management teams, as well as for individual investors as they examine their investment allocations.

Appendix

Sample Fund Managers and Their Educational Degrees

股票型基金名稱	經理人姓名	性別	學歷
富鼎大三元	邱魏悅	男	英國 University of Wales 財經所碩士
日盛上選	李佳欣	男	國立中山大學企管碩士
群益奧斯卡	吳文同	男	國立中央大學產業經濟所碩士
第一富蘭克林第一富	諶言	男	美國 Columbia University 電子工程及作業研究所碩士
統一大滿貫	張繼聖	男	國立中正大學財經所碩士
景順潛力	陳俊穎	男	國立交通大學管理科學所碩士
國泰小龍	黃國忠	男	國立台灣大學財務金融所碩士
台新台新	林智仁	男	國立成功大學企管所碩士
玉山登峰	許訓誠	男	國立中興大學經濟所碩士
華頓台灣	賴酒欣	男	國立台灣大學商學系學士
金鼎行動	曹天倫	男	淡江大學管理科學所碩士
匯豐匯豐	黃世洽	男	美國 Washington State University 企管碩士
台灣工銀科技	黃銘煌	男	國立台灣大學商學所碩士
安泰 INGe 科技	吳昆陽	男	國立交通大學科技管理所碩士
台新科技	劉宇衡	男	美國 State University of New York 財務管理碩士
建弘電子	王裕豐	男	逢甲大學經濟研究所碩士
國泰科技生化	洪修遠	男	國立成功大學企管所碩士
德信數位時代	林公洽	男	淡江大學財務金融所碩士
摩根富林明 JF 新興科技	葉鴻儒	男	國立台灣大學財務金融系學士
群益創新科技	謝文雄	男	國立政治大學國際貿易所碩士
統一奔騰	尤文毅	男	輔仁大學金融研究所碩士
日盛高科技	周榮正	男	逢甲大學統計系學士
德銀遠東 DWS 科技	李友千	男	美國 Wayne State University 企管碩士
國泰中小成長	黃國忠	男	國立台灣大學財務金融所碩士
群益中小型股	陳同力	男	美國 City University of New York 財務投資所碩士
兆豐國際中小	陳智偉	男	逢甲大學經濟研究所碩士
國泰大中華	陳士心	男	美國 Drexel University 商學碩士
日盛新台商	陳偉康	男	國立政治大學企管所碩士
富達台灣成長	賴葉臣	男	美國 University of Illinois at Champaign 財務所碩士
摩根富林明 JF 價值成長	戴慕浩	男	美國 New Jersey Institute of Technology 工程管理碩士

保德信店頭市場	葉獻文	男	淡江大學產經研究所碩士
保誠外銷	陳翠芝	女	淡江大學經濟學系學士
統一龍馬	錢素惠	女	淡江大學財務金融系學士
安泰 ING 成長	鄭秀娟	女	銘傳大學管理科學所碩士
匯豐台灣精典	龍湘瑛	女	美國 City University of New York 企管碩士
復華高成長	潘鳳珍	女	國立台灣大學經濟系學士
富鼎寶馬	黃秋燕	女	國立中央大學產經所碩士
寶來台灣卓越 50	張圭慧	女	國立中山大學財務管理所碩士
台灣工銀 2000 高科技	康孝莊	女	美國 Washington University 企業管理碩士
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共同基金經理人性別、人力資本及其操盤效率

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摘　要

　　國外曾有研究指出，女性投資人的長期投資報酬率優於男性；反觀國內針對性別與投資績效的文獻非常稀少，尤其再結合人力資本的相關主題至今仍付之闕如。本研究將首開先例，探討基金的管理績效是否會因為基金經理人的性別及人力資本的不同而有所差異。本文的研究對象是負責管理與操作國內一般股票型共同基金的 42 位經理人，其中 31 位男性及 11 位女性；而每個月結算基金績效，探討期間是在金融海嘯之前，自 2006 年 4 月到 2008 年 3 月共有 24 個月之久。本文運用多產出相對於多投入的「資料包絡分析」來評比個別基金經理人的相對操盤效率；其中，投入變數是有關經理人的人力資本，包含教育程度、基金管理經驗及持續操作所屬基金的年資，而產出變數則是操盤基金的報酬率與風險波動度。統計檢定則是配合「資料包絡分析」的特性，採適用於效率值母體分配未知的無母數方法。

　　研究結果發現，平均而言，女性基金經理人的操盤效率高於男性，且呈現統計上的顯著水準；代表在相似的人力資本投注下，女性的共同基金經理人往往可以為大眾帶來較好的投資績效。另外，本文實證發現女性基金經理人的平均操盤週轉率較低，這與國外文獻吻合，認為較低的週轉率可導致較好的基金績效；但實證也發現女性基金經理人所管理的基金規模較大，這與國外研究認為基金規模與績效的關係不明顯或稍顯負向的結果，卻大異其

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趣。本研究可能受限於選樣總數看似不多，但超過四分之一的女性樣本卻高於大多數性別研究的相關文獻；而首先運用的「資料包絡分析」方法，有別於傳統迴歸分析，足以提供不同的觀點來精進這個領域的研究。

關鍵詞：共同基金經理人、性別、操盤效率、資料包絡分析