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**SHOULD WE CHOOSE MALE OR
FEMALE FUND MANAGERS?
EVIDENCES FROM THE CHINESE
MUTUAL FUND MARKET**

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A thesis submitted in partial fulfilment of the requirements for the
degree of Master of Philosophy

July 2013

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LI MENGJIA

Abstract

This paper extends the study of the female role in corporate governance to the area of mutual fund management. It looks into whether a gender difference exists in the risk taking behaviour and investment performance of mutual fund managers in China. Using data from the Chinese mutual fund market and stock market, the paper finds that within this professional group, even after controlling for the level of knowledge, female fund managers *still* invest less in stocks and more in bonds. With respect to their stock holdings, female fund managers tend to choose stocks with lower systematic risks. In addition, female fund managers will diversify their stock holdings more than do their male counterparts. These results may suggest that a greater risk aversion does exist among women in the professional group. Surprisingly, however, female-managed funds do not under-perform male-managed funds. A possible explanation may be found in studies of the female director's role in improving monitoring quality. Female fund managers may improve the risk control process in a fund management team by their diligence and independent thinking, which results in a better fund performance.

Key words: gender difference, risk aversion, mutual fund managers, performance

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Chapter 1. Introduction

1.1 Research Objectives

This paper aims to test whether in China, the greater risk aversion of women will affect the mutual fund managers' risk taking decisions and performance after controlling for a possible knowledge disparity between the genders. Psychological studies virtually all agree on the existence of a gender difference with respect to risk aversion (Eckel and Grossman, 2002, 2008; Halek and Eisenhauer, 2001; Harbaugh, Krause and Vesterlund, 2002). Such a gender effect can be detected in risk-related decisions such as gambling and investment, and will influence personal wealth condition (Sundén and Surette, 1998). Some studies, however, argue that risk aversion would diminish in line with the fund manager's better understanding and professional knowledge (Gysler, Kruse and Schubert, 2002). Or, as Halko, Kaustia and Alanko (2012) suggest, the gender differences found in portfolio holdings could be artifacts of imperfect controls for financial knowledge. Therefore, a good control of knowledge is the premise of any sound conclusions. To construct a setting that would serve as such a control for financial knowledge, mutual fund managers, who are experts in the financial area, are selected as my subjects.

1.2 Background and Motivation

The question might be asked why we should study the gender effect among

the financial professionals in China. Firstly, mutual funds have gradually become major participants in financial markets. They control large equity stakes in publicly traded firms and so affect market prices (Khorana and Servaes, 1999). In China, there were 1,193 funds (including all types) controlling 2,687.84 billion RMB of assets in the first quarter of 2013. This represents about 14.5% of the total Circulating Shares on the Chinese stock markets, including A shares and B shares (data source: *China Securities Regulatory Commission*). Fund managers have been receiving increasing attention from the public in recent years because the investors actually hand over control of their investment to the fund managers. Fund managers are expected to be skillful and experienced in large-scale portfolio management (Chen, Goldstein and Jiang, 2008). Many studies have been made to identify how and to what extent the characteristics of the fund managers, including age, educational background, risk attitude and work experience, will influence their behaviours and performances. Gender is just one of these characteristics.

Secondly, among the various factors that contribute to financial performance, gender has aroused the interest of both psychological and financial studies. On the one hand, risk management is an indispensable part of corporate governance. Previous studies in corporate governance have already shown that the inclusion of females in a managerial group can be beneficial. Adams and Ferreira (2009), Adam, Gray and Nowland (2010), Srinidhi, Gul and Tsui (2011) all show that the inclusion of female directors will improve the quality of both

monitoring and earnings. On the other hand, however, evidence has been found that women and men differ in their financial decisions and performance, such as accumulated personal wealth (Sundén and Surette, 1998). Some studies conclude that the different levels of risk aversion between the genders could be one possible explanation. Although the existence of a gender difference with respect to risk aversion has already been proved in the psychological literature, it is unsafe to conclude that women and men end up with different financial performances simply because they *naturally* dislike risk to different extents. One group of scholars believes that the *innate* risk aversion can be altered by education or knowledge. As Johnson and Powell (1994) indicate, a formal management education and/or professional knowledge may change a manager's attitude to risk. Gysler, Kruse and Schubert (2002) even suggest that women are in fact more risk or ambiguity prone in the high knowledge populations. In this sense, a gender difference in financial performance may not be explained by a risk aversion difference between women and men alone. Some studies argue that the real reason lies on the knowledge disparity between women and men. This suggests that a good control of the knowledge level is needed. It would help to avoid the stereotypical view that women are more risk averse and correspondingly perform less well.

Thirdly, the literature also indicates that cultural or social norms may play a role. Conclusions reached in the setting of developed economies may not hold in emerging economies such as China. By the end of 2010, the size of the Chinese

mutual fund industry was less than one-tenth of that in the U.S.: there were 656 funds in China controlling 363 billion US dollars while the U.S. had 7,581 funds with assets of \$11,821 billion (see Table 8). China is representative of the emerging markets, where investors are viewed as being less experienced and less sophisticated compared to investors in more capitalist oriented societies (Feng and Seasholes, 2008). Unlike most studies using U. S. data, Feng and Seasholes (2008) find no significant difference on their portfolio performances between female investors and male investors in China. Thus, it is useful to further explore and test whether Chinese fund managers, who are representatives of a high knowledge population, are also different from their peers in the U. S.

1.3 The Research Setting

To test whether gender differences in risk aversion exist and will lead to different performances, Chinese mutual fund managers in open-end blend equity funds are selected as the subjects for my research. This setting allows me to control for any knowledge disparity since fund managers are experts in financial areas. Then, the financial decisions and performances of funds managed by the two genders can be compared through the asset allocation, stock holdings and fund returns. Regression models have also been set up to further confirm the role of gender.

The first step is to look into the fund managers' decisions on risk taking. According to Huang, Sialm and Zhang (2011), funds can change the level of risk

by changing: 1) the composition between equity and cash holdings; 2) exposure to systematic risk within equity holdings; and 3) exposure to idiosyncratic risk and deviating from benchmarks (concentrating the holdings on a few positions or industries). Accordingly, the proportion of the fund assets allocated to equity and to bonds, the average systematic risks of the stock holdings, Herfindahl Index as well as the concentration ratio of the top 10 stock positions are compared. To distinguish “loss aversion” (Eckel and Grossman, 2002; Schubert, Brown, Gysler and Brachinger, 1999) from “risk aversion”, two market performance variables are used as controls to represent the winning market and the losing market separately. In addition, the literature suggests fund performance can also be affected by the manager’s level of education (Chen and Volpe, 2002; Hartog, Ferrer-i-Carbonell and Jonker, 2002), and the fund characteristics such as the fund age (Chevalier and Ellison, 1997), the fund size (Pollet and Wilson, 2008; Chen, Hong, Huang and Kubik, 2004; Huang, Sialm and Zhang, 2011) and the family¹ size (Huang, Sialm and Zhang, 2011). These are all controlled for in the regression analysis. Since the Chinese stock market experienced a significant market sentiment change around 2008, a market sentiment dummy variable is also included in the robust tests to see whether the same conclusions would be reached.

¹ Fund family, also being called “fund house”, refers to the fund management company where a fund belongs to.

1.4 Organization of Thesis

The paper is structured as follows: Chapter 2 reviews the major findings of the previous studies; Chapter 3 presents the models employed in this paper; Chapter 4 describes the data used; and Chapter 5 presents the results and explanations. A brief summary and a discussion are included in the last Chapter.

Chapter 2. Literature Review

2.1 Does Performance Difference Exist?

Performance evaluation has always been at the centre of research in the fund area. Researchers are constantly trying to determine whether some fund managers are able to outperform the markets. They have developed a few commonly accepted models to measure fund performance, such as the Single-Factor model (Jensen, 1968), the Three-factor model (Fama and French, 1993) and the Four-factor model (Carhart, 1997). However, no consistent conclusions have been achieved regarding whether such an outperformance exists. Some find that an actively managed mutual fund will underperform the passive market index after deducting expenses (Gruber, 1996; Carhart, 1997; Berk and Green, 2004). More recent studies, however, provide opposing evidence. Based on the returns of the fund holdings, mutual fund managers can outperform their benchmarks (Grinblatt and Titman, 1989, 1993; Grinblatt,

Titman and Wermers, 1995; Daniel, Grinblatt, Titman and Wermers, 1997; Wermers, 2000; and Frank, Poterba, Shackelford and Shoven, 2004). Chen, Jegadeesh and Wermers (2000) examine the stockholdings and active trades of mutual funds and find that growth-oriented funds do have unique skills in identifying under-priced large-capitalization growth stocks. Wermers (2000) tests the stocks held in fund portfolios. The results suggest that mutual funds hold stocks that substantially beat the Standard and Poor's 500 Index over the 1975 to 1994 period. By decomposing the fund returns, 60 basis points are attributed to the characteristics of the stocks held by the funds, while the remaining 70 basis points are due to the fund manager's talent for picking stocks that beat their characteristic benchmark portfolios. However, on the net-return level, similar to the previous studies, these funds under-perform on the broad market index mainly due to the expenses and transactions costs.

2.2 What Attributes Will Lead To Performance Difference?

2.2.1 Psychological Research Findings

Given that performance differences exist, finding out what attributes of the fund managers would lead to their outperformance is the most natural pursuit. Various theories have confirmed the relationship between risks and returns. Will a risk-averse fund manager take on less risk in the portfolio and generate lower returns? Some studies make use of the methodologies of sociology and

psychology. In such studies, gender differences in the response to risks are revealed in various areas, including the perception of risk associated with alcohol and drug use (Spigner, Hawkins and Loren, 1993; see more in Eckel and Grossman, 2008). However, the arguments adopted in such psychological and sociological studies are specific to the environments involved in each study. Little correlation is found between the different assessments of risk revealed in these studies.

2.2.2 Gender Effect Studied in Financial Research

Many financial studies have further examined the role of the investor's personal characteristics. Jianakoplos and Bernasek (1998) conclude that single women are more risk averse in their financial decisions than single men. They also point out that age, race and the number of children also influence gender differences in financial risk taking. Sundén and Surette (1998) further confirm that women have a greater risk aversion. They also find that married men and women are more risk averse than their single counterparts and single women are more risk averse than single men. Barber and Odean (2001) demonstrate that men invest in riskier positions than women do in their common stock portfolios for all four of the risk measures they employ (portfolio volatility, individual volatility, beta, and size), though this is not their main focus.

2.2.3 Knowledge Effect Studied in Financial Research

Some researchers find that the level of personal finance knowledge may be

the crucial reason for gender differences in risk aversion. Chen and Volpe (2002) examine the effect of such personal finance knowledge. They find that female students score significantly lower than male students in a comprehensive survey used to evaluate the participants' personal finance knowledge. Chevalier and Ellison (1999) find that mutual fund managers who had attended higher-SAT undergraduate institutions systematically achieve higher risk-adjusted excess returns and are more likely to manage higher beta funds, after controlling for differences in risk characteristics, survivorship biases and differences in expense ratios. Dwyer, Gilkeson and List (2002) use data from a U. S. national survey of nearly 2,000 mutual fund investors and find that in their largest, latest and riskiest mutual fund investment decisions, women exhibit less risk-taking than men. But these results are weakened when the investor's knowledge level is included in the regression. Johnson and Powell (1994) review two pieces of empirical work. In the non-managerial sub-population, the males appeared to be more willing to take risks. In the managerial sub-population, however, the females did not differ significantly from males in their risk propensity. Halko, Kaustia and Alanko (2012) show that gender is a strong predictor of risk-taking in financial decisions among finance professionals and wealthy private banking customers after controlling for financial knowledge, wealth and other related factors. Niessen and Ruenzi (2006) find that female fund managers take slightly less total and systematic risk. However, the difference is not significant at conventional levels. But significant differences do exist in small-firm risk and

unsystematic risk. Atkinson, Baird and Frye (2003) report no significant difference between female- and male-managed fixed-income mutual funds in their performance, risk taking and other fund characteristics after controlling for wealth and knowledge differences. A summary of the results of the literature reviewed is presented in Table 9. Thus, further empirical research focusing on the professionals is required to test whether such a gender difference still exists.

2.3 Female's Role in Corporate Governance

A greater risk aversion may not be a disadvantage for females. It may even turn out to be an asset that contributes to better monitoring and controlling of risks. Srinidhi, Gul and Tsui (2011) indicate that firms with greater female participation on their boards exhibit higher earnings quality. Adams and Ferreira (2009) show that female directors exercise greater diligence in monitoring and serve on committees that deal with transparent reporting and earnings quality. Adam, Gray and Nowland (2010) argue that female directors exercise more independent thinking and improve the monitoring process. They further show that investors value the addition of female directors to the board. Female directors are usually drawn from the high-knowledge population. It is reasonable to assume that female fund managers share some of the same characteristics as female directors. Thus it is possible that female fund managers could outperform their male counterparts, or at least improve the performance of the management

team. Motivated by the studies on corporate governance, it would be worthwhile to explore the female fund manager's role in fund management.

2.4 Research Regarding China

The above literature drew their conclusions mainly on the basis of the U. S. market, where the capital market and financial service are mature and advanced. Emerging markets, while they share some similarities with the U. S. market, may also exhibit some "irregularity" due to the relatively short history and limited development of their financial markets. China's fund market is typical of an emerging market. China launched the first two close-end funds in 1998, and by the end of 2010 it had 63 fund management companies with 656 funds. Despite its fast growth, China's market is still in great difference compared to the U.S. market, in terms of both the number of funds and the size of the whole market (See Table 8). Some studies have already started to focus on the uniqueness of China's fund market. Chen et al. (2004) conclude that investor sophistication does not necessarily mitigate behavioural biases, nor improve trading performance, based on the brokerage account data from China. In other words, investors in China exhibit similar behaviour to those in the U. S. However, Feng and Seasholes (2008) show that, unlike the experience in developed markets, males and females in China are equally represented. Males have larger average portfolios and place slightly larger trades than females.

More importantly, males and females exhibit similar behaviour along three key dimensions: the degree of home bias, the portfolio performances and trading intensity after controlling for factors such as the number of stocks held and the number of trading rights. Thus, more studies on emerging markets such as China are called for.

Chapter 3. Models and Hypotheses

According to Huang, Sialm and Zhang (2011), there are three mechanisms through which funds can change risks: 1) by changing the composition between equity and cash holdings; 2) by changing exposure to systematic risk within equity holdings; 3) by changing exposure to idiosyncratic risk and by deviating from benchmarks (concentrating the holdings on a few positions or industries). Following them, three proxies are employed here to reveal the degrees of fund managers' risk taking behavior: 1) the proportions of stock/bond investment of the fund, 2) the average stock beta in the portfolio, and 3) the Herfindahl index as well as the concentration ratio of the top 10 stock positions. How these would be used to measure the level of risk aversion will be explained in more detail in the following paragraphs.

With regard to the fund performance, several measures, including *average return*, *risk premium*, *Sharpe*, *Treynor*, and *Jensen*, all of which are calculated and provided by the WIND database, are employed.

3.1 Measures of Fund Manager's Risk Taking Behaviours

3.1.1 Fund Asset Allocation

The proportion of stock investment in the fund can be viewed as a general indicator of the fund manager's risk aversion on the fund level. Since stock investment is usually regarded as riskier than bond investment, the more stocks a fund manager holds, the less risk averse he or she is likely to be. Of course, the proportion can be dependent largely on whether they are money market funds, fixed income funds, equity funds or hybrid funds. Therefore, this paper concentrates only on the blend funds (one type of equity fund that invests in both growth stocks and value stocks). Blend funds have the largest number of observations from 2005 to 2010, and the data of stocks is available.

The target funds usually allocate their assets to stocks, bonds, cash, funds and options. The proportion of the last two is generally small enough to be ignored. For reasons of succinctness, only the proportion of stocks and bonds is compared between funds managed by females and males. These proportions are calculated as the ratios of the market value of the stocks (or bonds) a fund holds to the total market value of the fund. Thus, the first hypothesis is stated as:

H1: If female fund managers are more risk averse than their male counterparts, they should allocate fewer fund assets to stocks and more to bonds,

compared with male fund managers.

3.1.2 Systematic Risk of Stock Holdings

With reference to the stock level, Falkenstein (1996) shows that mutual funds present a significant preference for stocks with high volatility and are averse to low idiosyncratic volatility. Due to the short history of Chinese mutual funds, many of the funds in my sample do not have a long enough time horizon to estimate the σ (usually the past 36 monthly returns are used in the literature). But stocks have a longer history. So the average stock beta (β) in the portfolio is used instead. β is the usual term used to measure the stock's systematic risk. This leads me to my second hypothesis:

H2: If female fund managers are more risk averse than their male counterparts, their stock selections should have a lower average beta than those of male fund managers.

3.1.3 Stock Holdings Diversification

In addition, diversification can decrease the unsystematic risk. In other words, the more concentrated the investment is in stocks, the higher the risk it bears. Therefore, the levels of stock concentration in the fund investment are compared. To measure the concentration of their stock investment, the Herfindahl index (also known as the Herfindahl–Hirschman Index, or HHI) of

the top 10 stock positions is employed. The Herfindahl Index in this paper is calculated as the sum of the squares of the proportions of the top 10 stock positions to the whole fund investment. Increases in the Herfindahl Index indicate increases of concentration on stocks and decreases in risk aversion, whereas decreases indicate the opposite. Compared with the concentration ratio (the sum of the proportion of the top 10 stock positions to the whole fund investment), the major benefit of the Herfindahl Index is that it gives more weight to the higher positions. The results of using the concentration ratio is also reported as complementary evidence. Thus the third hypothesis is as follows:

H3: If female fund managers are more risk averse than their male counterparts, the Herfindahl Index and Concentration Ratio of their top 10 stock positions should be smaller than those of male fund managers.

3.2 Measures of Fund Manager's Performance

The literature contains several measures for fund performance, including the Fama and French (1993) Three-Factor Model and the Carhart (1997) Four-Factor Model. However, the data required to estimate these well-established models are unavailable from databases. Therefore, the performance measures provided by the WIND database are employed. These are *avgreturn*, *premium*, *Sharpe*, *Treynor* and *Jensen*.

Since more risk averse may not necessarily mean underperformance in particular risk-adjusted returns², I simply test if gender may affect performance.

In addition, whether a fund manager's gender would attract certain investors arouses interests. Since investor information is kept confidential by the fund management company, only data on the proportion of institutional investors and individual investors of a fund is available.

3.3 Control Variables

To test the above hypotheses, both the sample mean t-tests and linear regression models are used. For H1, only the mean differences of the stock and bond proportions in male- and female-managed funds are tested. If H1 were true, the mean difference should be significantly different from zero.

For the other hypotheses, a group of control variables are included, which are explained below, in the regression model to detect the existence of a gender effect.

3.3.1 Fund Manager's Characteristics

The managers education level has been controlled for. According to

² Su and Fleisher (1998) investigate the risk-return behavior of the Chinese stock market in light of government regulation. Relative to the markets in the developed countries, they find that risk adjusted return in Chinese stock market is low and volatility of returns is very high and time-varying. Both Lee and Rui (2000) and Lee, Chen, and Rui (2001) suggest that the stock returns in China do not follow a random walk, and U.S.-style asset pricing models do not seem to describe the risk-return relationship in the Chinese stock market.

Chevalier and Ellison (1999), the mutual fund manager's educational experience would influence their financial decision making. They find that mutual fund managers who attended higher-SAT undergraduate institutions systematically had higher risk-adjusted excess returns, and were more likely to manage higher beta funds. Dwyer, Gilkeson and List (2002) find that the investor's level of knowledge would affect gender's impact on their risk taking. Jianakoplos and Bernasek (1998), Halek and Eisenhauer (2001), Hartog, Ferrer-i-Carbonell and Jonker (2002), Chen and Volpe (2002) and Atkinson, Baird and Frye (2003) all control for education using different measures. In this paper, fund manager's holding of CFA charter and their overseas education experience are controlled for.

3.3.2 Fund's Characteristics

From the fund aspect, the literature suggests that the fund's characteristics will influence the investment style. Chevalier and Ellison (1997) find the sensitivity of the relationship between the fund inflow and its performance to be dependent on the age of the fund. Pollet and Wilson (2008) indicate that large funds and small-cap funds diversify their portfolios to different extents. Smaller funds tend to have greater diversification that is associated with better performance. Chen et al. (2004) and Huang, Sialm and Zhang (2011) also find that fund size is negatively correlated with fund performance and that family size is positively correlated with fund performance. Huang, Wei and Yan (2007)

find that funds in smaller families have a more convex flow-performance relation. Gil-Bazo and Ruiz-Verdu (2009) find that high-expense funds perform worse even before expenses are taken into account. Therefore, fund age, fund size, family size and expense ratio are included as fund level control variables of performance.

3.3.3 Market Performance

On the market level, Treynor and Mazuy (1966) and Fabozzi and Francis (1979) all find evidence that mutual fund managers did not reduce the fund's beta in a bear market and increase it in a bull market to take advantage of market movements, so the market sentiment is further controlled for in the robust tests. This can help to reveal whether female fund managers will perform better or worse than male fund managers under bull or bear market conditions.

3.4 Regression Model

To test H2, H3 and the possible differences on fund performances, the following regression model is used:

$$\begin{aligned}
 y_{it} = & a_0 + a_1 female_{it} + a_2 overseas_{it} + a_3 CFA_{it} + a_4 fundage_{it} + a_5 fundsize_{it} \\
 & + a_6 familysize_{it} + a_7 expratio_{it}^3 + a_8 RmPos_t + a_9 RmNeg_t \\
 & + a_{10} female_{it} \times RmPos_t + a_{11} female_{it} \times RmNeg_t + \varepsilon_{it}
 \end{aligned}$$

where y_{it} is one of the measures of fund managers' risk taking and

³ *expratio* is not included in *avgβ_{it}*, *hindex_{it}*, and *conratio_{it}*.

performances, namely $avg\beta_{it}$ (average stock beta), $hindex_{it}$ (Herfindahl index), $conratio_{it}$ (concentration ratio), $avgreturn_{it}$ (average weekly return within a half year), $premium_{it}$ (average weekly risk premium), $Sharpe_{it}$, $Treynor_{it}$, $Jensen_{it}$, and $individual_{it}$ (proportion of fund held by individual investors). $avg\beta_{it}$ is calculated as the simple mathematic average of stock β_j in the fund i 's portfolio at time t , representing the general risk aversion of a fund manager when selecting stocks. β_{jt} is estimated by regressing the stock j 's monthly returns on the market returns in the past 36 months at time t . Market return is calculated from the market index, for which the S&P/CITIC Composite A-Share Index is employed. This is market cap-weighted and is designed to serve as a barometer for the China A-Share market, covering over 1,400 stocks. If the stock monthly return data cover less than 18 months, the stock β_j will be treated as “missing” and stock j will be excluded from the calculation of the $avg\beta_{it}$. $hindex_{it}$ is the sum of squares of the proportions of the top 10 stock positions to the fund i 's NAV at time t . $conratio_{it}$ is the concentration ratio calculated as the sum of the proportions of the top 10 stock positions to the fund i 's NAV at time t .

All of the five performance measures are directly provided by the WIND database and in accordance with their calculation method:

$$avgreturn = (\sum R_p) / n$$

$$premium = (\sum (R_p - R_f)) / n$$

$$Sharpe = (R_p - R_f) / \sigma_p$$

$$Treynor = (R_p - R_f) / \beta$$

$$Jensen = (R_p - R_f) - [\beta(R_m - R_f)]$$

where $\beta = [n \sum R_{m,t} R_{p,t} - (\sum R_{m,t})(\sum R_{p,t})] / [n \sum R_{m,t}^2 - (\sum R_{m,t})^2]$, R_p is the fund return, R_m is the market return of the S&P/CITIC Composite A-Share Index, and R_f is the risk free return of a one-year National Bond. n is the number of return observations for calculating average returns, which equals 26, the number of weeks in half a year, in this paper.

The right hand side of equation (1) contains the explanatory variables and control variables. Since the fund manager's age is unavailable from either the WIND database⁴ or the other websites, it is not included in the regression. $female_{it}$, $overseas_{it}$, and CFA_{it} are all dummy variables. Each of them takes value 1 at time t when there is at least one female manager in the fund i ⁵, when at least one fund manager has overseas educational experience, and when at least one fund manager is a CFA charter holder respectively. Here, overseas educational experience is also taken into the regression instead of the graduate or MBA degree that previous research usually employed. This is because 1) oriental culture and western culture view risks quite differently; 2) it is possible that exposure to western education can change ones attitude to risk; 3) 95% of managers have a master or higher degree. CFA charter holders are warmly welcomed in the Chinese financial job market and usually receive higher pay than their peers. The CFA charter is perceived as a certificate of capability, of

⁴ Less than 10% of the fund managers' ages are available in WIND. Therefore, age is not included.

⁵ In China, there are on average 25% mutual funds that are managed by more than one manager at the same time. Table 1 Panel E will report more details. Such treatment will cause some bias, but the bias indeed will increase the credibility of the tests. If difference is detected, it suggests that gender effect is significant enough that even in a team mixed of male and female managers it will exert reveal its influence.

which risk control is an indispensable part. Including this variable will verify whether CFA charter holders really have a different risk aversion and produce superior performances compared to other fund managers.

The variables $fundsiz_{it}$, $familysiz_{it}$, $fundage_{it}$ and $expratio_{it}$ are the characteristics of the funds. $fundsiz_{it}$ and $familysiz_{it}$ are calculated as the natural logarithm of fund i 's market value and its fund management company's value at time t respectively. The natural logarithm of the fund net asset value, $fundnav_{it}$, can also be used in the place of $fundsiz_{it}$. But since usually the two generate identical results, only the results using $fundsiz_{it}$ are reported for succinctness. $fundage_{it}$ is calculated as the natural logarithm of the years between t and fund i 's birthday. $expratio_{it}$ is calculated as the ratio of fund i 's total expenses to total fund assets at time t .

$RmPos$ and $RmNeg$ are measurements of the market returns from $t-1$ to t . These two variables are designed to measure whether the market performance will influence the fund manager's choice of stock-level risks and the fund's performances. $RmPos$ and $RmNeg$ are used to test whether fund managers will respond to winning markets and losing markets asymmetrically. $RmPos$ equals zero when the market return is negative and $RmNeg$ equals zero when the market return is positive. Otherwise, the two variables are calculated as the percentage change of the market index from $t-1$ to t . The interactions with $female$ reflect the different reactions that female and male fund managers will have under different market performances. A *bear* dummy variable is added to

the regression models in the robust tests. This would indicate whether female and male fund managers behave differently under different market sentiments.

Chapter 4. Data

The data is collected from the WIND database, the CSMAR database and www.howbuy.com from 2005 to 2010. This is done on a semi-annual basis, since Chinese fund companies only report their stock holdings in their semi-annual and annual reports.

Before each reporting time t , if fund i has already been established and reported both its asset allocation and stock holdings, it will be included in my sample at t . In this way, 1944 observations are collected from Chinese open-ended blend equity funds for the period between 2005 and 2010. Fund level data, including the fund asset allocations to stocks and bonds, the stock holdings, and the performance measures, are collected from the WIND database. The market index is downloaded from the official website of its provider, Standard & Poor's.

Since some funds changed their fund managers during the sample period, and in order to match this factor with the data in the semi-annual and annual reports, it is essential to determine which fund manager(s) is (are) responsible for the fund at each time t . The determining rule here is that, if the fund manager has been in charge of the fund for more than three months in the t^{th} half year, he

or she is assumed to be the manager of this fund for the whole of that period. His or her individual characteristics will be considered to have influenced the fund's decisions and performance at time t . For example, if fund i changed its fund manager from manager A to B on 26 March 2007, B rather than A would be considered to have been responsible for fund i 's asset allocation and stock holdings for the first half of 2007, and B's individual characteristics will be used in the regression. An overview of the fund managers and funds in China are provided in Tables 1 and 2.

Table 1 shows the number of funds, including the fund size, family size and fund age, and the gender of the fund managers from 2005 and 2010. On average, females manage only 9.5% of the blend funds while males manage the remaining 90.5%. Although there are increasing number of female fund managers in recent years, they are still the minority in the fund industry. With regard to the fund size, females usually manage smaller funds, but the difference is not statistically significant. Females also tend to be included in the management team of larger fund management companies. With regard to the fund age, males on average manage younger funds. The difference between the age of the funds they managed is less than 1 year.

The WIND database also provides the profiles of the fund managers currently employed in April 2012 (the time of collecting the data). It does not cover the former fund managers. Such information has been hand-collected from a website (www.howbuy.com) which provides a brief introduction for each

fund manager. The data collected was also double checked with other websites to ensure its accuracy. Each fund manager's gender, overseas educational experience and CFA charter holding are extracted from the manager's introduction.

The major difference between Panel A of Table 2 and Panel A of Table 1 is that Table 2 deals specifically with the fund managers' characteristics⁶. Similar to Table 1, it shows that female fund managers are evidently in the minority, and represent less than 10% of all fund managers. But a larger proportion of female fund managers have had overseas educational experience or are CFA Charter holders, though the latter aspect is not statistically significant. This perhaps reflects the job market preference under the prevailing traditionally biased views about women's disadvantages in financial performance. Females have to distinguish themselves by obtaining these qualifications in order to increase their chance of being hired in the fund industry.

The stock level data, and the stock monthly returns with cash dividend reinvested used to estimate the stock beta, were collected from CSMAR.

Chapter 5. Results

The regression results using the Petersen (2009) method and the

⁶ Fund managers can participate in several funds, either in the same fund company at the same time, or in different companies at different time. Therefore, the numbers counted in Table 1 can count the same manager more than once. Table 2 report only non-repetitive manager's statistics (judging from their names and introduction).

Fama-MacBeth (1973) method are all reported for the following considerations.

1) A fund's average stock beta may be auto-correlated to some extent because it is impossible to change all the stocks held from $t-1$ to time t , but as the length of time they are held increases, the correlation will diminish. Therefore, this is a temporary or non-fixed firm effect (the stocks that a fund picked at time t can be correlated with the stocks the fund picked at time $t-j$); 2) At each t , the stock selections of the funds managed by the same fund company or managers may be correlated with each other, but whether this is permanent or temporary is uncertain. Thus there is a time effect (at each time t , fund i 's stock selections can be correlated with fund j 's stock selections) either fixed or non-fixed. Therefore, instead of OLS, the two above-mentioned methods are used to estimate the regressions. Considering the short time span of my sample, the Petersen (2009) method seemed to be more suitable, and it is used as the base model. The results are presented later.

5.1 Asset Allocation

Table 3 shows the results of the t-test on the mean differences of the left hand side variables between female- and male-managed funds for each half-year from 2005 to 2010.

The first two lines show the results of the t-test on the mean difference in asset allocation between female- and male-managed funds. Females and males show significantly different allocations with respect to stocks and bonds.

Generally, female-managed funds allocate 72.5% of assets to the riskier investment category, stocks, and this is on average 4.8% less than in male-managed funds. Female fund managers also assign 15.1% of the fund's assets to the less risky investment category, bonds. This is almost twice the volume of male fund managers. This proves my first hypothesis that female fund managers are more risk averse than male fund managers on the fund asset allocation level.

5. 2 Average Stock Beta

With respect to the stock level, fund managers are less restricted by the “fund-level regulations” (e.g. the proportion of fund assets that can be allocated to stocks) and are freer to operate on the basis of their own analysis and preferences. As a first step, a simple t-test is conducted to reveal whether female-managed funds differ from male-managed funds in the average stock-level risk. The results are summarized in the third line of Table 3. In general, the average stock beta of female-managed funds is about 0.014 less than that of male-managed funds, indicating that female fund managers usually select stocks with lower systematic risks. They can thus avoid greater losses when the market performs badly. However, whether this discrepancy is generated by gender-immanent characteristics or other factors requires further exploration.

The regression is conducted on the fund managers' individual

characteristics, the fund characteristics and the market performance. It further specifies the factors influencing the fund managers' choices relating to stock-level risks. If H2 is true, female fund managers would be expected to select stocks with a lower beta compared with male fund managers, *ceteris paribus*.

Columns (1) and (2) of Table 4 summarize the regression results on the average stock beta. Column (1) reports results using the Petersen (2009) method while (2) report the Fama-MacBeth (1973) regression results. In column (1), the *female* dummy is negatively significant at conventional significance level. This provides evidence that female fund managers are more risk averse when selecting stocks for fund investment than are male fund managers. Contrary to the prediction of Gysler, Kruse and Schubert (2002) that women's greater risk aversion will diminish with increasing expertise, a significant gender difference of risk aversion still exists. *overseas* is significantly negative when using the Fama-MacBeth (1973) regression method, suggesting that overseas education may have some impact on a fund manager's attitude towards risks. Those who have studied abroad tend to choose less risky stocks. But *cfa* is insignificant under both methods.

With regard to the fund characteristics, *familysize* has a significantly positive sign which implies that funds in larger fund houses would prefer stocks with larger systematic risks. *fundage* and *fundsize* are not significant at the conventional level under either method.

Market performance indicators do not provide evidence supporting the general loss aversion. However, the interaction of *female* and *RmNeg* is significant but with a negative sign. Since *RmNeg* can only have negative values, it appears that when the market performs badly, the female fund managers' response is not as strong as that of male managers.

The empirical results on the average stock beta prove H2 that female fund managers are more risk averse than male fund managers, in terms of the systematic risks of stocks.

5.3 Investment Concentration

The stock investment concentration of the funds is explored to verify whether identical conclusions can be achieved. The Herfindahl index and the concentration ratio of the top 10 stock positions are regressed on the same group of independent variables.

Again, the first step is to test the mean difference of the Herfindahl index as well as the concentration ratio of the top 10 stock positions between female- and male-managed funds. The t-test results are shown in the fourth and fifth rows of Table 3. The concentration ratios show that males on average invest 36.6% of the fund asset on the top 10 stock positions, 2.3% more than females do. The Herfindahl indices show that male fund managers put more weight on the stocks in the higher positions, suggesting that male fund managers' stock investments

are less diversified than those of females. Intuitively, this relates to male fund managers' lower level of risk aversion.

To further justify the gender effect on investment concentration, a linear regression is conducted using the same explanatory variables as for the average stock beta. The major results are shown in Column (3) to (6) in Table 4.

As before, column (3) and (5) are from the Petersen (2009) method while (4) and (6) are from the Fama-MacBeth (1973) regression. It can be seen that the regression results for the Herfindahl Index and the concentration ratio are very similar. The *female* dummy is significant for both the Herfindahl index and the concentration ratio. The negative signs indicate that female-managed funds concentrate less on the top positions than do male-managed funds. After controlling for other variables, females invest 6% less of fund assets on the top 10 stock positions and diversify more among the top 10 stock positions. This greater diversification reflects the female fund managers' greater risk aversion. *overseas* and *cfa* have insignificant coefficients, providing no evidence for the influence of overseas educational experience and CFA charter holding on investment concentration.

fundage proves to be significantly positive for the Herfindahl Index and the concentration ratio under both methods. *fundsize* appears significantly negative only under the Fama-MacBeth (1973) regressions. *familysize* becomes significantly negative in the Herfindahl Index and the concentration ratio under the Petersen (2009) method, meaning that funds in larger fund management

companies would prefer to lower the risk by diversifying more in their stock investment.

Both female- and male-managed funds respond to a decreasing market performance by decreasing their stock concentration. This is a reasonable reaction since people are more afraid of losing when the market is going down (loss aversion). They will try to minimize the risk they are exposed to, and greater diversification is one possible option. But female fund managers do not respond as much as males do.

5. 4 Fund Performance Measures

The t-test results for the five performance measures are shown in the sixth to tenth rows in Table 3. Unlike the previous simple averages of stock beta or asset allocation, the t-tests on the performance measures do not show many significant differences.

Regressions were conducted and the results are shown in Table 5. The *female* dummy appears to be insignificant in all five of the performance measures. Surprisingly, although female fund managers do allocate fewer fund assets to stocks and choose lower-beta stocks, these choices do not impair their performance. This is inconsistent with our general expectations. In other words, female fund managers seem to have a better risk-adjusted performance than males do. One possible explanation may be that female fund managers'

contribute more to improving the monitoring process (Adams, Gray and Nowland, 2010). In this way they can improve the risk control process and so raise the performance level.

The variable *overseas* is significant only in *Sharpe* and in *Jensen*, but the coefficient of this variable in the latter is close to zero. The negative sign is consistent with that of the average stock beta. Fund managers who have studied abroad tend to have a lower *Sharpe* ratio, and *cfa* is only significant in the *Sharpe* ratio with a positive sign. This may serve as a warning sign with respect to the recruiting criteria used in the fund industry. The supposed elites, who have overseas study experience and own a CFA charter, in fact do not outperform their peers. Thus, local government policy makers should reconsider whether it is beneficial to offer CFA charter holders a competitive salary.

The variables *fundsized*, *familysize* and *exratio* have a significant effect on *avgreturn*, *premium*, and *Sharpe* under the Fama-MacBeth (1973) method. The coefficient signs indicate that smaller funds, larger fund management companies and funds with lower expenses are more likely to generate higher returns. This is public information, and that investors can easily access to help them choose funds that perform better.

RmPos and *RmNeg* are significant for all performance measures except for *Jensen*. The market performance has an inevitable influence on fund performances. But the interactions of the dummy *female* and market performance terms are almost insignificant. Under both winning market and

losing market conditions, the performance of female fund managers is no different from that of their male counterparts. This further confirms the prior conclusions.

5. 5 Fund Investors Attraction

I further investigate whether institutional investors or individual investors would have any preferences for female or male fund managers. The t-test results in Table 3 do not imply that there is any significant difference. The regression results in Column (11) and (12) in Table 5 suggest that a larger fund size, and a higher expenses ratio, would attract more individual investors. But from the previous analysis it appears that a larger fund size and a higher expenses ratio can reduce a fund's performance. If individual investors want to obtain better investment outcomes, they may pay more attention to fund level characteristics such as these two. The personal characteristics of the fund managers seem to exert little influence on the attraction of a fund to potential investors.

5. 6 Robust Tests

The above tests show that female fund managers tend to take on lower risks by allocating fewer fund assets to stocks, by choosing less risky stocks and by diversifying their portfolios more. But their performance is not weakened by

these choices. Several robust tests are conducted to confirm these results.

5. 6. 1 Market Sentiment

Although the influence of market returns is controlled for in the previous sections, it is also useful to test the influence of market sentiment on a fund manager's choices. A single dummy, *bear*, is added, which is defined as a bear market when it equals to 1 and a bull market when it equals to 0. After observing the plot graph of the S&P/CITIC Composite A-Share Index, the end of 2007 is chosen as the division of a bull and a bear market in the Chinese stock market. The results compared to the base models are shown in Table 6.

The *bear* dummy is significant in the regressions on *avgbeta*, *hindex*, *conratio*, *Jensen*, *avgreturn*, *premium*, meaning that such a division is effective. It captures the different stock investment choices and the fund managers' performances under different market sentiments. Surprisingly, the positive sign of the *bear* dummy in the regression on *avgbeta* suggests that fund managers will choose higher-beta stocks under bear market conditions. This is contrary to our expectation. Usually we expect that a lower beta should be preferred to avoid further losses.

For the *hindex* and *conratio*, the *bear* dummy is significantly negative while the *female* dummy remains significant. This further confirms the female fund managers' different preferences with respect to risks resulted from

concentration.

In the performance measures, the *female* dummy becomes significantly negative for all five of the measures. Its interaction with the *bear* dummy is significant across all five measures. The positive sign indicates that the performance of female fund managers indeed does not decrease as much as that of males' in a bear market. Brown and Goetzmann (1995) suggest that such performance differences may be significant only within a certain period of time. If this is true, it may be a possible explanation for the findings here.

5. 6. 2 Female's Effect in A Team

Motivated by Srinidhi, Gul and Tsui (2011), two sub-samples are divided according to the number of fund managers in each fund: if a fund is managed by more than one manager, it will be included in the sub-sample "Team"; otherwise, it will be in the sub-sample "Single". All the above mentioned tests are conducted within these two sub-samples separately. The comparison of the results is shown in Table 7.

The results for the stock holdings pattern are identical to those of the base models. A significantly negative sign is found in the coefficient of the dummy *female*. As long as a fund hires female fund managers, either alone or in a team, investment in lower-beta stocks and a higher degree of diversification will be preferred. However, a comparison of the performance measures produces some

interesting results. In the sub-sample “Team”, the dummy *female* has a significantly positive sign in the regressions on *Sharpe*, *Jensen* and *Treynor*. But a single female manager produces a performance similar to that of a single male manager with respect to all five of the performance measures. It appears that female participation in the fund management team can improve a fund’s performance. An explanation for this may be found in the existing literature. Adams and Ferreira (2009) show that female directors exercise greater diligence in monitoring and participate in committees charged with transparent reporting and earnings quality, such as auditing and corporate governance committees. Adams, Gray and Nowland (2010) argue that female directors display more independent thinking and improve the monitoring process. The research in organizational theory also shows that in gender-diverse boards there is more informed deliberation and discussion of tougher issues that are often considered unpalatable by all-male boards. They deliver more effective board communication to investors (Clarke, 2005; Huse and Solberg, 2006; Stephenson, 2004; McInerney-Lacombe, Billimoria and Salipante, 2008; Joy, 2008). It is reasonable to assume that female fund managers have attributes that are similar to those of female directors on a board. They will improve the quality of risk control in a fund management team and thus contribute to a better performance.

Chapter 6. Conclusions and Implication for future research

This paper extends the study of the female's role in corporate governance to cover the area of fund management. The results show that the gender difference in attitudes to risk does exist significantly among Chinese mutual fund managers, even after controlling for their professional knowledge and expertise. Despite the difference in their attitude to risk taking, female fund managers do not underperform their male counterparts. Indeed, including them in a management team can even improve the performance of the fund, as compared to performance achieved by an all-male fund management team. This may be explained by the females' role in improving the process of risk control in fund management, similar to a female director's role in improving the quality of monitoring (Srinidhi, Gul and Tsui, 2011).

Since the fund types and regulations at the fund level can vary greatly, this paper has focused on the open-end blend equity funds, of which the number of observations is the largest. On the fund level, female fund managers allocate fewer assets to stocks and more to bonds than do male fund managers. On the stock level, evidence is found to confirm that female fund managers prefer stocks that have lower systematic risks. In addition, female fund managers are found to have a slightly lower loss aversion than male fund managers. In terms of the stock investment concentration, female fund managers' portfolios are

more diversified in order to lower the non-systematic risk.

Previous studies have shown that the education level or professional knowledge may influence an individual's risk aversion. In my research, it is found that an overseas educational experience and CFA charter holding have almost no impact on a fund manager's stock selection and the fund's performance. However, differences do exist between female and male fund managers in terms of those two measures. Generally, a higher proportion of female fund managers have had an overseas educational experience or hold a CFA Charter. This is perhaps the result of the job market choices that reflect a traditional and biased view of women's ability in the finance industry. Only those who can demonstrate their capability by owning these qualifications are likely to be hired. Education and professional knowledge's influence on risk attitudes can be investigated by comparisons between professionals and the general population. This can be the subject of future research.

The fund level characteristics have some degree of influence on the fund managers' choice of stocks and investment concentration, but do not affect the fund performance (at least under the Petersen's method). Funds in larger fund management companies will prefer higher-beta stocks and more diversified portfolios.

With respect to the market performance, loss aversion can be detected from the investment concentration. One interesting finding is that female fund managers do not lower the stock average beta when the market falls as much as

male fund managers do. If a further control is made for market sentiment, a gender difference becomes evident in most of the performance measures. This may suggest that female fund managers perform better than male fund managers in bear market conditions in terms of controlling the losses.

This paper also suffers from some drawbacks. The major ones result from the limited data that is available. First, the number of female fund managers is quite limited. Thus, in the base models, female-involved funds and female-alone managed funds are not differentiated. Although such a distinction is included in the robust tests, the limited number of observations will weaken the credibility of the results. Secondly, the characteristics of the fund managers are complemented by hand-collected information from various websites, since the WIND database does not provide information of fund managers who had previously worked in this industry. Thus, a possible measurement error cannot be avoided. Also, information of a fund manager's personal characteristics, such as age and educational background, is either unavailable or incomplete in the databases so it has not been included in the regression. But some researchers have shown that these factors do affect risk taking behaviour, though consistent conclusions have not yet been achieved. Further research is needed to verify the effects of age and education based on a larger and more complete data set. Thirdly, stock holdings are only disclosed on a semi-annual base, which further restrains the number of observations. The history of Chinese mutual funds is short. Any conclusions reached for this period may not apply over a longer time

period. All of these need to be further explored with a more complete database and a longer history of the Chinese fund industry.

When calculating the stock betas, those stocks that have less than 18 monthly returns were excluded. However, if those “missing”-beta stocks do not constitute a minority in a fund’s portfolio, the average stock beta that is calculated later will be influenced. Further research is needed to find other ways of measuring the stock-level risks to avoid such a bias.

The performance measures calculated by the WIND database do not include those used in Fama-French (1993), the Three-Factor Model and the Carhart (1997) Four-Factor Model, which are more accepted now. Restricted by the time line of the MPhil programme, I do not have enough time to identify suitable variables and calculate the two models.

Some issues worth further developing. It is unclear whether risk parameters like beta and volatility are related to fund performance/stock performance in the Chinese market. This is a fundamental premise of such studies. Decent research can add credibility on conclusions reached in this paper.

Another interesting venue to address the research question in this study is to track funds that experience a switch from male managers to female managers. I believe this is a very good alternative way. However, in my sample, there were only 47 funds that have experienced 66 such changes (4 funds have 3 such changes while 11 funds have 2 such changes, and the rest experience only 1 such change). The number of observation is too limited to reach any

convincing conclusions. In addition, the sample period is short. The time each manager of the funds experiencing such change took charge for was only two years on average, which is usually too short to fully get rid of the influence of ex-manager and measure the current manager's performance. In the future research, larger samples and more observations will make it possible to apply this method.

Table 1. Fundamental Descriptive Data of the Funds

<i>Panel A. Number of funds managed by different genders</i>				
	Total	Male Proportion	Female Proportion	Mean diff.
2005 JUN.	49	0.9388	0.0612	0.8776
2005 DEC.	61	0.9180	0.0820	0.8361
2006 JUN.	80	0.9000	0.1000	0.8000
2006 DEC.	97	0.9691	0.0309	0.9381
2007 JUN.	134	0.9179	0.0821	0.8358
2007 DEC.	153	0.8693	0.1307	0.7386
2008 JUN.	159	0.8868	0.1132	0.7736
2008 DEC.	186	0.8978	0.1022	0.7957
2009 JUN.	211	0.9100	0.0900	0.8199
2009 DEC.	243	0.9012	0.0988	0.8025
2010 JUN.	272	0.8824	0.1176	0.7647
2010 DEC.	299	0.8662	0.1338	0.7324
Mean	162	0.9048	0.0952	0.8096
t-statistics				48.1711
<i>Panel B. Fund size comparison (in 10 thousand RMB)</i>				
	Male	Female	Mean diff	
2005 JUN.	129526.79	110216.89	19309.90	
2005 DEC.	151173.08	126988.58	24184.50	
2006 JUN.	117243.36	137281.85	-20038.50	
2006 DEC.	262466.44	205558.50	56907.94	
2007 JUN.	790501.02	574786.90	215714.13	
2007 DEC.	1248625.85	1102910.81	145715.04	
2008 JUN.	698137.64	747152.91	-49015.27	
2008 DEC.	437103.20	480041.13	-42937.93	
2009 JUN.	561731.13	768121.13	-206390.01	
2009 DEC.	557754.39	699500.74	-141746.35	
2010 JUN.	404287.73	509420.45	-105132.72	
2010 DEC.	424091.35	475968.23	-51876.88	
Mean	481886.83	494829.01	-12942.18	
t-statistics				-0.3826
<i>Panel C. Fund management company size comparison (in 100 million RMB)</i>				
	Male	Female	Mean diff	
2005 JUN.	140.3758	88.00929	52.36654	
2005 DEC.	148.8987	94.97312	53.9256	
2006 JUN.	143.9233	116.6415	27.28177	
2006 DEC.	236.4031	330.6883	-94.28519	
2007 JUN.	452.2744	519.565	-67.29063	
2007 DEC.	834.3108	859.2407	-24.92993	
2008 JUN.	527.6785	587.1786	-59.50013	
2008 DEC.	465.17	561.7145	-96.54449	
2009 JUN.	519.6743	798.0737	-278.3994	
2009 DEC.	602.336	790.1108	-187.7748	
2010 JUN.	467.7815	587.9243	-120.1428	
2010 DEC.	561.9608	555.8362	6.124563	
Mean	491.1387	603.8564	-112.7177	
t-statistics				-2.93

Panel D. Fund age comparison (in year)

	Male	Female	Mean diff
2005 JUN.	1.31	1.19	0.12
2005 DEC.	1.52	1.62	-0.10
2006 JUN.	1.64	1.71	-0.07
2006 DEC.	1.81	2.61	-0.80
2007 JUN.	1.76	2.17	-0.41
2007 DEC.	2.09	1.87	0.22
2008 JUN.	2.50	2.23	0.27
2008 DEC.	2.55	3.10	-0.55
2009 JUN.	2.70	3.57	-0.87
2009 DEC.	2.82	3.61	-0.79
2010 JUN.	2.96	3.85	-0.89
2010 DEC.	3.25	3.67	-0.42
Mean	2.24	2.60	-0.36
t-statistics			-2.8522

Panel E. Average number of managers in each fund (in year)

	Avg no.	Avg no. (with female)	% of teams	% of female-involved teams
2005 JUN.	1.20	1.67	18	67
2005 DEC.	1.27	1.67	24	50
2006 JUN.	1.20	1.50	20	50
2006 DEC.	1.17	2.33	16	100
2007 JUN.	1.27	1.82	25	64
2007 DEC.	1.31	1.60	27	50
2008 JUN.	1.30	1.63	27	58
2008 DEC.	1.34	1.58	31	47
2009 JUN.	1.35	1.52	33	48
2009 DEC.	1.27	1.43	25	43
2010 JUN.	1.27	1.47	26	44
2010 DEC.	1.27	1.48	27	45
Mean	1.27	1.64	25	55
diff.		-0.373641		-30.51107
t-statistics		-5.1841		-6.3333

Note: Data collected from semi-annual reports is presented at the time JUN., while data collected from annual reports is presented at the time DEC. In Panel E, the second and third columns show the average number of fund managers in all funds or funds managed by female managers. The last two columns show the percent of funds (or funds managed by females) that are managed by more than one fund managers.

Table 2 Fund managers' information

<i>Panel A. Number of fund managers</i>						
	TOTAL	Male	Female	Male Proportion	Female Proportion	Mean diff.
2005 JUN.	57	54	3	0.9474	0.0526	0.8947
2005 DEC.	76	71	5	0.9342	0.0658	0.8684
2006 JUN.	92	86	6	0.9348	0.0652	0.8696
2006 DEC.	106	103	3	0.9717	0.0283	0.9434
2007 JUN.	148	138	10	0.9324	0.0676	0.8649
2007 DEC.	181	160	21	0.8840	0.1160	0.7680
2008 JUN.	186	169	17	0.9086	0.0914	0.8172
2008 DEC.	218	200	18	0.9174	0.0826	0.8349
2009 JUN.	243	224	19	0.9218	0.0782	0.8436
2009 DEC.	262	238	24	0.9084	0.0916	0.8168
2010 JUN.	281	251	30	0.8932	0.1068	0.7865
2010 DEC.	291	257	34	0.8832	0.1168	0.7663
<i>Mean</i>				0.9198	0.0802	0.8395
<i>t-statistics</i>						55.17

<i>Panel B. Number of fund managers who have overseas education experience</i>						
	TOTAL	Male	Female	Male Proportion	Female Proportion	Mean diff.
2005 JUN.	6	4	2	0.0741	0.6667	-0.5926
2005 DEC.	10	8	2	0.1127	0.4000	-0.2873
2006 JUN.	11	8	3	0.0930	0.5000	-0.4070
2006 DEC.	8	8	0	0.0777	0.0000	0.0777
2007 JUN.	13	12	1	0.0870	0.1000	-0.0130
2007 DEC.	21	17	4	0.1063	0.1905	-0.0842
2008 JUN.	22	18	4	0.1065	0.2353	-0.1288
2008 DEC.	25	22	3	0.1100	0.1667	-0.0567
2009 JUN.	27	24	3	0.1071	0.1579	-0.0508
2009 DEC.	31	27	4	0.1134	0.1667	-0.0532
2010 JUN.	33	29	4	0.1155	0.1333	-0.0178
2010 DEC.	35	31	4	0.1206	0.1176	0.0030
<i>Mean</i>				0.1020	0.2362	-0.1342
<i>t-statistics</i>						-2.374

Panel C. Number of fund managers who are CFA Charter holders

	TOTAL	Male	Female	Male Proportion	Female Proportion	Mean diff.
2005 JUN.	2	1	1	0.0185	0.3333	-0.3148
2005 DEC.	4	3	1	0.0423	0.2000	-0.1577
2006 JUN.	5	3	2	0.0349	0.3333	-0.2984
2006 DEC.	5	5	0	0.0485	0.0000	0.0485
2007 JUN.	10	8	2	0.0580	0.2000	-0.1420
2007 DEC.	19	16	3	0.1000	0.1429	-0.0429
2008 JUN.	20	18	2	0.1065	0.1176	-0.0111
2008 DEC.	26	24	2	0.1200	0.1111	0.0089
2009 JUN.	25	24	1	0.1071	0.0526	0.0545
2009 DEC.	25	24	1	0.1008	0.0417	0.0592
2010 JUN.	27	24	3	0.0956	0.1000	-0.0044
2010 DEC.	27	25	2	0.0973	0.0588	0.0385
Mean				0.0775	0.1410	-0.0635
t-statistics						-1.6424

Note: The Male Proportion and Female Proportion in Panel A is calculated as the ratio of number of male/female fund managers to total fund managers. While the Male Proportion and Female Proportion in Panel B and Panel C are calculated as the ratio of number of male/female fund managers who have overseas education experience/CFA to the total number of male/female fund managers.

Table 3 Semi-annual mean comparisons

	Obs.	Male	Female	Mean diff.	t-value
<i>Proportion of stock</i>	12	0.772870	0.725165	0.047704	5.6699
<i>Proportion of bond</i>	12	0.084227	0.151304	-0.067076	-7.0246
<i>simple avg beta</i>	12	0.974209	0.964003	0.014184	2.7352
<i>H-index</i>	12	0.016113	0.013765	0.002348	3.3235
<i>concentration ratio</i>	12	0.366154	0.343060	0.023094	2.4669
<i>Sharpe</i>	12	0.1676503	0.165983	.0016673	0.0130
<i>Treynor</i>	12	0.0068233	0.0063547	.0004686	0.0727
<i>Jensen</i>	12	0.0010168	0.0009579	.000059	0.0976
<i>avgreturn</i>	12	0.5169009	0.4896923	.0272086	0.0595
<i>premium</i>	12	0.5055917	0.4762912	.0293005	0.0620
<i>individual</i>	12	0.7173707	0.6713884	0.0459823	0.5116

Note: This table summarizes the mean and differences between male- and female-managed funds at each half from 2005-2010. All the indexes here are calculated in every half year. *Proportion of stock/bond* refers to the proportion of stocks/bonds in the fund's investment. *simple avg beta* refers to the average of stock betas in the fund's stock investment. *H-index* refers to the sum of squares of the proportions of the top 10 stock positions to the fund i's NAV. *concentration ratio* is the concentration ratio calculated as the sum of the proportions of the top 10 stock positions to a fund's NAV. *Sharpe* refers to a fund's Sharpe ratio which is calculated as $(R_p - R_f)/\sigma_p$. *Treynor* refers to a fund's Treynor ratio which is calculated as $(R_p - R_f)/\beta$. *Jensen* refers to a fund's Jensen's alpha which is calculated as $(R_p - R_f) - [\beta(R_m - R_f)]$. *avgreturn* is average weekly return of the fund while *premium* is the average weekly market premium of a fund. The 1st column gives the number of semi-annual differences. The 2nd and 3rd column display the semi-annual means of the variables of male and female-managed funds. The 4th column documents the mean of semi-annual differences. The last column gives the t-statistics when t-testing whether the mean semi-annual differences equal zero.

Table 4 The regression results of stock selection characteristics

	<i>avgbeta</i>		<i>hindex</i>		<i>conratio</i>	
	Petersen's	F-M	Petersen's	F-M	Petersen's	F-M
	(1)	(2)	(3)	(4)	(5)	(6)
<i>overseas</i>	-0.009 (-1.13)	-0.010** (-2.27)	-0.001 (-1.01)	-0.000 (-0.39)	-0.006 (-0.65)	-0.001 (-0.19)
<i>cfa</i>	-0.000 (-0.03)	-0.004 (-1.08)	-0.001 (-1.34)	0.001 (0.47)	-0.012 (-1.33)	0.005 (0.38)
<i>fundage</i>	0.003 (0.59)	-0.001 (-0.70)	0.001* (1.65)	0.001** (2.78)	0.011** (2.36)	0.012*** (3.23)
<i>fundsize</i>	-0.004 (-1.32)	-0.003 (-1.08)	-0.000 (-0.99)	-0.001** (-2.80)	-0.003 (-0.78)	-0.012** (-2.87)
<i>familysize</i>	0.009** (2.41)	0.003 (1.46)	-0.001** (-2.22)	-0.000 (-0.73)	-0.012*** (-2.63)	-0.003 (-1.58)
<i>female</i>	-0.017** (-2.03)	-0.011** (-2.60)	-0.005*** (-4.57)	-0.003*** (-4.42)	-0.060*** (-3.81)	-0.029*** (-3.44)
<i>RmPos</i>	0.041 (1.57)		0.001 (0.51)		0.011 (0.59)	
<i>RmNeg</i>	0.087 (1.39)		0.011** (2.52)		0.149*** (2.78)	
<i>female*RmPos</i>	0.014 (1.15)		0.005** (2.15)		0.069** (2.21)	
<i>female*RmNeg</i>	-0.044** (-2.23)		-0.010** (-2.28)		-0.106* (-1.66)	
<i>constant</i>	0.922*** (31.36)	0.949*** (67.83)	0.021*** (7.65)	0.017*** (11.29)	0.430*** (14.65)	0.383*** (23.59)
<i>R-square</i>	0.076	0.042	0.075	0.083	0.089	0.093
<i>dfres</i>	1933	11	1933	11	1933	11

* p<0.1, **p<0.05, ***p<0.01

Notes: *avgbeta* refers to the average of stock betas in the fund's stock investment. *hindex* refers to the sum of squares of the proportions of the top 10 stock positions to the fund i's NAV. *conratio* is the concentration ratio calculated as the sum of the proportions of the top 10 stock positions to a fund's NAV. *female*, *overseas*, and *cfa* are all dummy variables each of which takes value 1 at time *t* when there is at least one female manager in a fund, when at least one fund manager has overseas educational experience, and when at least one fund manager is a CFA charter holder respectively. *fundsize* and *familysize* are fund market value and fund management company's value respectively. *fundage* is fund age calculated as the natural logarithm of the years between time *t* and a fund's birthday. *exp ratio* is a fund's expense level calculated as the ratio of a fund's total expenses to total fund assets. *RmPos* and *RmNeg* are measurements of the market returns from *t-1* to *t*. The interactions with *female* reflect the different reactions that female and male fund managers will have under different market performances. The *t* values are in the parentheses.

Table 5. The regression results of Performance Measures

Panel A

	<i>Sharpe</i>		<i>Jensen</i>		<i>Treynor</i>	
	Petersen's	F-M	Petersen's	F-M	Petersen's	F-M
	(1)	(2)	(3)	(4)	(5)	(6)
<i>overseas</i>	-0.011*** (-2.66)	-0.013 (-1.76)	-0.000* (-1.81)	-0.000*** (-3.46)	0.001 (0.60)	0.000 (0.37)
<i>cfa</i>	0.018* (1.82)	0.016 (0.99)	-0.000 (-0.14)	0.000 (0.76)	0.003 (1.20)	0.002 (1.20)
<i>fundage</i>	-0.008 (-0.43)	0.004 (0.31)	0.000 (0.19)	0.000 (1.29)	-0.001 (-0.80)	-0.000 (-0.05)
<i>fundsize</i>	-0.006 (-0.53)	-0.009** (-2.63)	-0.000 (-1.18)	-0.000 (-0.89)	-0.000 (-0.76)	-0.000 (-0.70)
<i>familysize</i>	-0.002 (-0.23)	0.010*** (3.27)	0.000 (0.01)	0.000* (2.14)	-0.000 (-1.36)	-0.000 (-0.15)
<i>expratio</i>	1.191 (0.58)	-1.405* (-2.14)	-0.030* (-1.67)	-0.062** (-2.40)	-0.042 (-0.84)	-0.098* (-2.02)
<i>female</i>	-0.018 (-0.56)	0.004 (0.42)	0.001 (1.26)	0.000 (0.95)	0.000 (0.13)	-0.000 (-0.47)
<i>RmPos</i>	0.437** (2.55)		0.002 (1.40)		0.027*** (5.86)	
<i>RmNeg</i>	1.496*** (3.48)		0.001 (0.51)		0.060*** (2.60)	
<i>female*RmPos</i>	0.053 (0.83)		-0.001* (-1.65)		0.000 (0.18)	
<i>female*RmNeg</i>	-0.049 (-0.40)		0.002 (1.15)		0.009** (2.00)	
<i>constant</i>	0.158 (1.43)	0.135 (1.51)	0.001 (1.07)	0.000 (0.67)	0.007*** (2.99)	0.009 (1.71)
<i>R-square</i>	0.745	0.195	0.067	0.152	0.400	0.140
<i>dfres</i>	1931	11	1931	11	1931	11

* p<0.1, **p<0.05, ***p<0.01

Notes: *Sharpe* refers to a fund's Sharpe ratio which is calculated as $(R_p - R_f)/\sigma_p$. *Treynor* refers to a fund's Treynor ratio which is calculated as $(R_p - R_f)/\beta$. *Jensen* refers to a fund's Jensen's alpha which is calculated as $(R_p - R_f) - [\beta(R_m - R_f)]$. *avgreturn* is average weekly return of the fund while *premium* is the average weekly market premium of a fund. *individual* refers to the proportion of individual investors in a fund. *female*, *overseas*, and *cfa* are all dummy variables each of which takes value 1 at time t when there is at least one female manager in a fund, when at least one fund manager has overseas educational experience, and when at least one fund manager is a CFA charter holder respectively. *fundsize* and *familysize* are fund market value and fund management company's value respectively. *fundage* is fund age calculated as the natural logarithm of the years between time t and a fund's birthday. *expratio* is a fund's expense level calculated as the ratio of a fund's total expenses to total fund assets. *RmPos* and *RmNeg* are measurements of the market returns from $t-1$ to t . The interactions with *female* reflect the different reactions that female and male fund managers will have under different market performances. The t values are in the parentheses.

Panel B

	<i>avgeturn</i>		<i>premium</i>		<i>individual</i>	
	Petersen's	F-M	Petersen's	F-M	Petersen's	F-M
	(7)	(8)	(9)	(10)	(11)	(12)
<i>overseas</i>	-0.031 (-1.47)	-0.028 (-1.54)	-0.031 (-1.40)	-0.031 (-1.55)	-0.001 (-0.06)	-0.017 (-1.36)
<i>cfa</i>	0.035 (1.01)	0.055 (1.14)	0.037 (1.03)	0.058 (1.13)	0.025 (1.16)	-0.013 (-1.05)
<i>fundage</i>	-0.017 (-0.23)	0.011 (0.23)	-0.016 (-0.22)	0.013 (0.26)	0.004 (0.30)	-0.037 (-1.69)
<i>fundsize</i>	-0.037 (-0.81)	-0.050*** (-3.63)	-0.039 (-0.81)	-0.051*** (-3.70)	0.088*** (6.90)	0.079*** (10.77)
<i>familysize</i>	0.015 (0.51)	0.053*** (3.73)	0.010 (0.33)	0.054*** (3.78)	-0.011 (-0.80)	-0.027*** (-3.21)
<i>exratio</i>	-0.728 (-0.14)	-5.825* (-1.96)	-1.167 (-0.21)	-6.128* (-1.95)	4.152*** (2.60)	6.236** (2.59)
<i>female</i>	-0.079 (-0.81)	-0.023 (-0.53)	-0.091 (-0.89)	-0.023 (-0.52)	0.026 (0.72)	-0.035* (-1.98)
<i>RmPos</i>	1.623*** (4.05)		1.714*** (3.97)		0.107 (1.60)	
<i>RmNeg</i>	5.311*** (3.56)		5.325*** (3.44)		-0.285** (-2.11)	
<i>female*RmPos</i>	0.064 (0.44)		0.079 (0.52)		-0.089*** (-4.35)	
<i>female*RmNeg</i>	-0.481 (-1.31)		-0.531 (-1.38)		0.106 (1.23)	
<i>constant</i>	0.459 (1.41)	0.341 (1.03)	0.454 (1.31)	0.326 (0.95)	0.616*** (5.19)	0.745*** (7.69)
<i>R-square</i>	0.790	0.245	0.784	0.245	0.266	0.265
<i>dfres</i>	1932	11	1932	11	1932	11

* p<0.1, **p<0.05, ***p<0.01

Notes: *Sharpe* refers to a fund's Sharpe ratio which is calculated as $(R_p - R_f)/\sigma_p$. *Treynor* refers to a fund's Treynor ratio which is calculated as $(R_p - R_f)/\beta$. *Jensen* refers to a fund's Jensen's alpha which is calculated as $(R_p - R_f) - [\beta(R_m - R_f)]$. *avgeturn* is average weekly return of the fund while *premium* is the average weekly market premium of a fund. *individual* refers to the proportion of individual investors in a fund. *female*, *overseas*, and *cfa* are all dummy variables each of which takes value 1 at time t when there is at least one female manager in a fund, when at least one fund manager has overseas educational experience, and when at least one fund manager is a CFA charter holder respectively. *fundsize* and *familysize* are fund market value and fund management company's value respectively. *fundage* is fund age calculated as the natural logarithm of the years between time t and a fund's birthday. *exratio* is a fund's expense level calculated as the ratio of a fund's total expenses to total fund assets. *RmPos* and *RmNeg* are measurements of the market returns from $t-1$ to t . The interactions with *female* reflect the different reactions that female and male fund managers will have under different market performances. The t values are in the parentheses.

Table 6. Robust tests with Market Sentiment Dummy bear**Panel A.**

	<i>avgbeta</i>		<i>hindex</i>		<i>conratio</i>	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>overseas</i>	-0.009 (-1.13)	-0.010 (-1.35)	-0.001 (-1.01)	-0.001 (-1.04)	-0.006 (-0.65)	-0.005 (-0.64)
<i>cfa</i>	-0.000 (-0.03)	-0.003 (-0.56)	-0.001 (-1.34)	-0.001 (-1.18)	-0.012 (-1.33)	-0.009 (-1.18)
<i>fundage</i>	0.003 (0.59)	-0.003 (-0.85)	0.001* (1.65)	0.001*** (2.68)	0.011** (2.36)	0.015*** (3.15)
<i>fundsiz</i>	-0.004 (-1.32)	-0.001 (-0.36)	-0.000 (-0.99)	-0.000* (-1.67)	-0.003 (-0.78)	-0.005 (-1.50)
<i>familysize</i>	0.009** (2.41)	0.004 (1.22)	-0.001** (-2.22)	-0.000 (-1.58)	-0.012*** (-2.63)	-0.008** (-2.13)
<i>female</i>	-0.017** (-2.03)	-0.037** (-2.01)	-0.005*** (-4.57)	-0.004*** (-2.58)	-0.060*** (-3.81)	-0.042** (-2.07)
<i>bear</i>		0.049*** (2.71)		-0.003** (-2.17)		-0.035** (-2.20)
<i>female*bear</i>		0.020 (1.41)		-0.001 (-0.87)		-0.019 (-0.92)
<i>RmPos</i>	0.041 (1.57)	0.056** (2.56)	0.001 (0.51)	-0.000 (-0.05)	0.011 (0.59)	0.001 (0.03)
<i>RmNeg</i>	0.087 (1.39)	0.130*** (2.73)	0.011** (2.52)	0.008** (2.41)	0.149*** (2.78)	0.117*** (2.59)
<i>female*RmPos</i>	0.014 (1.15)	0.030** (2.37)	0.005** (2.15)	0.004* (1.95)	0.069** (2.21)	0.055** (1.97)
<i>female*RmNeg</i>	-0.044** (-2.23)	-0.045 (-1.39)	-0.010** (-2.28)	-0.010** (-2.36)	-0.106* (-1.66)	-0.108 (-1.58)
<i>constant</i>	0.922*** (31.36)	0.919*** (33.24)	0.021*** (7.65)	0.021*** (8.52)	0.430*** (14.65)	0.432*** (16.11)
<i>R-square</i>	0.076	0.132	0.075	0.097	0.089	0.11
<i>dfres</i>	1933	1931	1933	1931	1933	1931

* p<0.1, **p<0.05, ***p<0.01

Notes: *bear* refers to bear and bull market when it equal 1 and 0 respectively. *avgbeta* refers to the average of stock betas in a fund's stock investment. *hindex* refers to the sum of squares of the proportions of the top 10 stock positions to a fund's NAV. *conratio* is the concentration ratio calculated as the sum of the proportions of the top 10 stock positions to a fund's NAV. *female*, *overseas*, and *cfa* are all dummy variables each of which takes value 1 at time *t* when there is at least one female manager in a fund, when at least one fund manager has overseas educational experience, and when at least one fund manager is a CFA charter holder respectively. *fundsiz* and *familysize* are fund market value and fund management company's value respectively. *fundage* is fund age calculated as the natural logarithm of the years between time *t* and a fund's birthday. *exratio* is a fund's expense level calculated as the ratio of a fund's total expenses to total fund assets. *RmPos* and *RmNeg* are measurements of the market returns from *t-1* to *t*. The interactions with *female* reflect the different reactions that female and male fund managers will have under different market performances. The *t* values are in the parentheses.

Panel B.

	<i>Sharpe</i>		<i>Jensen</i>		<i>Treynor</i>	
	(7)	(8)	(9)	(10)	(11)	(12)
<i>overseas</i>	-0.011*** (-2.66)	-0.008	-0.000* (-1.81)	0.000 (-1.46)	0.001 (0.60)	0.001 (0.67)
<i>cfa</i>	0.018* (1.82)	0.025** (2.45)	0.000 (-0.14)	0.000 (0.45)	0.003 (1.20)	0.003 (1.32)
<i>fundage</i>	-0.008 (-0.43)	0.000 (0.00)	0.000 (0.19)	0.000 (0.75)	-0.001 (-0.80)	0.000 (-0.37)
<i>fundsize</i>	-0.006 (-0.53)	-0.011 (-1.12)	-0.000 (-1.18)	-0.000* (-1.95)	-0.000 (-0.76)	-0.001 (-1.47)
<i>familysize</i>	-0.002 (-0.23)	0.008 (1.41)	0.000 (0.01)	0.000* (1.82)	0.000 (-1.36)	0.000 (0.10)
<i>exratio</i>	1.191 (0.58)	1.551 (0.81)	-0.030* (-1.67)	-0.023 (-1.23)	-0.042 (-0.84)	-0.029 (-0.59)
<i>female</i>	-0.018 (-0.56)	-0.074* (-1.77)	0.001 (1.26)	-0.001** (-2.10)	0.000 (0.13)	-0.002* (-1.74)
<i>bear</i>		-0.100 (-1.29)		-0.002*** (-3.03)		-0.004 (-1.58)
<i>female*bear</i>		0.078** (2.37)		0.002*** (5.61)		0.003*** (3.14)
<i>RmPos</i>	0.437** (2.55)	0.409** (2.24)	0.002 (1.40)	0.001 (1.45)	0.027*** (5.86)	0.026*** (5.01)
<i>RmNeg</i>	1.496*** (3.48)	1.413*** (3.36)	0.001 (0.51)	-0.000 (-0.14)	0.060*** (2.60)	0.057*** (2.59)
<i>female*RmPos</i>	0.053 (0.83)	0.076 (1.62)	-0.001* (-1.65)	-0.001 (-1.27)	0.000 (0.18)	0.001 (0.87)
<i>female*RmNeg</i>	-0.049 (-0.40)	0.019 (0.35)	0.002 (1.15)	0.003*** (2.90)	0.009** (2.00)	0.012*** (3.28)
<i>constant</i>	0.158 (1.43)	0.163* (1.76)	0.001 (1.07)	0.001** (2.02)	0.007*** (2.99)	0.008*** (3.89)
<i>R-square</i>	0.745	0.758	0.067	0.124	0.4	0.404
<i>dfres</i>	1931	1929	1931	1929	1931	1929

* p<0.1, **p<0.05, ***p<0.01

Notes: *bear* refers to bear and bull market when it equal 1 and 0 respectively. *avgbeta* refers to the average of stock betas in a fund's stock investment. *hindex* refers to the sum of squares of the proportions of the top 10 stock positions to a fund's NAV. *conratio* is the concentration ratio calculated as the sum of the proportions of the top 10 stock positions to a fund's NAV. *female*, *overseas*, and *cfa* are all dummy variables each of which takes value 1 at time *t* when there is at least one female manager in a fund, when at least one fund manager has overseas educational experience, and when at least one fund manager is a CFA charter holder respectively. *fundsize* and *familysize* are fund market value and fund management company's value respectively. *fundage* is fund age calculated as the natural logarithm of the years between time *t* and a fund's birthday. *exratio* is a fund's expense level calculated as the ratio of a fund's total expenses to total fund assets. *RmPos* and *RmNeg* are measurements of the market returns from *t-1* to *t*. The interactions with *female* reflect the different reactions that female and male fund managers will have under different market performances. The *t* values are in the parentheses.

Panel C.

	<i>avgreturn</i>		<i>premium</i>		<i>individual</i>	
	(13)	(14)	(15)	(16)	(17)	(18)
<i>overseas</i>	-0.031 (-1.47)	-0.018 (-1.18)	-0.031 (-1.40)	-0.018 (-1.18)	-0.001 (-0.06)	-0.003 (-0.19)
<i>cfa</i>	0.035 (1.01)	0.067* (1.79)	0.037 (1.03)	0.071* (1.84)	0.025 (1.16)	0.017 (0.86)
<i>fundage</i>	-0.017 (-0.23)	0.024 (0.42)	-0.016 (-0.22)	0.027 (0.46)	0.004 (0.30)	-0.012 (-0.87)
<i>fundsize</i>	-0.037 (-0.81)	-0.060* (-1.73)	-0.039 (-0.81)	-0.064* (-1.76)	0.088*** (6.90)	0.096*** (7.09)
<i>familysize</i>	0.015 (0.51)	0.060** (2.37)	0.010 (0.33)	0.058** (2.24)	-0.011 (-0.80)	-0.027*** (-2.80)
<i>exratio</i>	-0.728 (-0.14)	0.861 (0.22)	-1.167 (-0.21)	0.520 (0.12)	4.152*** (2.60)	3.625*** (2.98)
<i>female</i>	-0.079 (-0.81)	-0.235** (-2.21)	-0.091 (-0.89)	-0.250** (-2.18)	0.026 (0.72)	-0.057 (-0.70)
<i>bear</i>		-0.449** (-2.24)		-0.477** (-2.24)		0.149*** (2.83)
<i>female*bear</i>		0.227** (2.52)		0.232** (2.41)		0.091 (1.32)
<i>RmPos</i>	1.623*** (4.05)	1.500*** (3.26)	1.714*** (3.97)	1.583*** (3.17)	0.107 (1.60)	0.146** (2.31)
<i>RmNeg</i>	5.311*** (3.56)	4.937*** (3.63)	5.325*** (3.44)	4.929*** (3.49)	-0.285** (-2.11)	-0.160 (-1.38)
<i>female*RmPos</i>	0.064 (0.44)	0.11 (1.00)	0.079 (0.52)	0.124 (1.04)	-0.089*** (-4.35)	-0.026 (-0.53)
<i>female*RmNeg</i>	-0.481 (-1.31)	-0.249 (-1.56)	-0.531 (-1.38)	-0.290* (-1.71)	0.106 (1.23)	0.130*** (27.61)
<i>constant</i>	0.459 (1.41)	0.478* (1.75)	0.454 (1.31)	0.475 (1.63)	0.616*** (5.19)	0.617*** (7.47)
<i>R-square</i>	0.79	0.811	0.784	0.807	0.266	0.333
<i>dfres</i>	1932	1930	1932	1930	1932	1930

* p<0.1, **p<0.05, ***p<0.01

Notes: *bear* refers to bear and bull market when it equal 1 and 0 respectively. *avgbeta* refers to the average of stock betas in a fund's stock investment. *hindex* refers to the sum of squares of the proportions of the top 10 stock positions to a fund's NAV. *conratio* is the concentration ratio calculated as the sum of the proportions of the top 10 stock positions to a fund's NAV. *female*, *overseas*, and *cfa* are all dummy variables each of which takes value 1 at time *t* when there is at least one female manager in a fund, when at least one fund manager has overseas educational experience, and when at least one fund manager is a CFA charter holder respectively. *fundsize* and *familysize* are fund market value and fund management company's value respectively. *fundage* is fund age calculated as the natural logarithm of the years between time *t* and a fund's birthday. *exratio* is a fund's expense level calculated as the ratio of a fund's total expenses to total fund assets. *RmPos* and *RmNeg* are measurements of the market returns from *t-1* to *t*. The interactions with *female* reflect the different reactions that female and male fund managers will have under different market performances. The *t* values are in the parentheses.

Table 7. Robust tests in Sub-samples

Panel A.

	<i>avgbeta</i>		<i>hindex</i>		<i>conratio</i>	
	Team (1)	Single (2)	Team (3)	Single (4)	Team (5)	Single (6)
<i>overseas</i>	-0.008 (-0.69)	-0.010 (-1.02)	-0.001 (-0.71)	-0.001 (-0.96)	-0.012 (-1.00)	-0.003 (-0.32)
<i>cfa</i>	-0.002 (-0.18)	0.002 (0.19)	-0.001 (-0.73)	-0.001 (-0.68)	-0.008 (-0.68)	-0.012 (-0.83)
<i>fundage</i>	0.008* (1.65)	0.001 (0.24)	0.000 (0.79)	0.001 (1.51)	0.006 (1.08)	0.012** (2.19)
<i>fundsize</i>	-0.005* (-1.68)	-0.004 (-1.06)	-0.001*** (-3.00)	-0.000 (-0.32)	-0.012*** (-3.51)	-0.000 (-0.02)
<i>familysize</i>	0.012*** (3.26)	0.008* (1.89)	-0.000 (0.45)	-0.001*** (-2.67)	0.000 (0.02)	-0.016*** (-3.23)
<i>female</i>	-0.009** (-2.51)	-0.019* (-1.71)	-0.006*** (-5.34)	-0.004*** (-2.61)	-0.082*** (-4.52)	-0.046** (-2.21)
<i>RmPos</i>	0.071** (2.04)	0.034 (1.35)	-0.001 (-0.53)	0.001 (0.69)	-0.004 (-0.26)	0.016 (0.69)
<i>RmNeg</i>	0.065 (0.83)	0.09 (1.51)	0.014*** (2.73)	0.010** (2.12)	0.171*** (2.87)	0.141** (2.38)
<i>female*RmPos</i>	-0.020*** (-3.57)	0.029** (2.23)	0.008*** (4.72)	0.003 (0.92)	0.103*** (4.16)	0.044 (0.98)
<i>female*RmNeg</i>	0.041	-0.109	-0.016*** (-4.83)	-0.005 (-0.83)	-0.211*** (-4.03)	-0.020 (-0.25)
<i>constant</i>	0.894*** (31.64)	0.930*** (28.73)	0.016*** (5.48)	0.022*** (6.50)	0.385*** (11.06)	0.443*** (12.40)
<i>R-square</i>	0.167	0.057	0.093	0.077	0.115	0.091
<i>dfres</i>	511	1429	511	1429	511	1429

* p<0.1, **p<0.05, ***p<0.01

Notes: *Team* is the sub-sample where all the funds have more than one fund managers. *Single* is the sub-sample where all the funds have only one fund manager. *avgbeta* refers to the average of stock betas in the fund's stock investment. *hindex* refers to the sum of squares of the proportions of the top 10 stock positions to the fund i's NAV. *conratio* is the concentration ratio calculated as the sum of the proportions of of the top 10 stock positions to a fund's NAV. *female*, *overseas*, and *cfa* are all dummy variables each of which takes value 1 at time *t* when there is at least one female manager in a fund, when at least one fund manager has overseas educational experience, and when at least one fund manager is a CFA charter holder respectively. *fundsize* and *familysize* are fund market value and fund management company's value respectively. *fundage* is fund age calculated as the natural logarithm of the years between time *t* and a fund's birthday. *exratio* is a fund's expense level calculated as the ratio of a fund's total expenses to total fund assets. *RmPos* and *RmNeg* are measurements of the market returns from *t-1* to *t*. The interactions with *female* reflect the different reactions that female and male fund managers will have under different market performances. The *t* values are in the parentheses.

Panel B.

	<i>Sharpe</i>		<i>Jensen</i>		<i>Treynor</i>	
	Team (7)	Single (8)	Team (9)	Single (10)	Team (11)	Single (12)
<i>overseas</i>	-0.003 (-0.19)	-0.015 (-1.43)	-0.000 (-0.25)	-0.000* (-1.71)	-0.001 (-0.79)	0.002 (0.75)
<i>cfa</i>	0.018 (1.22)	0.015 (1.05)	-0.000 (-0.72)	0.000 (0.39)	0.001 (1.13)	0.005 (1.02)
<i>fundage</i>	-0.013 (-0.60)	-0.009 (-0.44)	0.000 (0.93)	0.000 (-0.33)	0.000 (-0.31)	-0.001 (-1.02)
<i>fundsize</i>	-0.001 (-0.13)	-0.008 (-0.69)	0.000 (-1.20)	0.000 (-1.02)	-0.001 (-1.04)	0.000 (-0.57)
<i>familysize</i>	0.003 (0.34)	-0.003 (-0.32)	0.000 (-1.18)	0.000 (0.51)	0.000 (0.62)	-0.001 (-1.33)
<i>exratio</i>	1.936 (0.99)	0.976 (0.46)	-0.031 (-1.32)	-0.027 (-1.56)	-0.012 (-0.26)	-0.051 (-0.90)
<i>female</i>	0.049*** (3.29)	-0.064 (-1.31)	0.001*** (3.74)	0.000 (0.35)	0.002** (2.53)	-0.001 (-0.44)
<i>RmPos</i>	0.505*** (2.86)	0.419** (2.44)	0.002 (1.33)	0.001 (1.43)	0.029*** (6.20)	0.027*** (5.58)
<i>RmNeg</i>	1.352*** (3.34)	1.544*** (3.51)	0.000 (0.08)	0.002 (0.67)	0.063*** (3.37)	0.058** (2.27)
<i>female*RmPos</i>	-0.089*** (-2.98)	0.174 (1.63)	-0.001* (-1.85)	-0.001 (-1.26)	-0.002 (-1.33)	0.001 (0.35)
<i>female*RmNeg</i>	0.223*** (5.61)	-0.245 (-1.38)	0.004** (2.58)	0.001 (0.42)	0.011 .	0.008 (0.75)
<i>constant</i>	0.074 (0.85)	0.180 (1.56)	0.001 (1.38)	0.001 (0.92)	0.003 (1.20)	0.009*** (3.21)
<i>R-square</i>	0.77	0.742	0.067	0.078	0.845	0.331
<i>dfres</i>	510	1429	510	1429	510	1429

* p<0.1, **p<0.05, ***p<0.01

Notes: *Team* is the sub-sample where all the funds have more than one fund managers. *Single* is the sub-sample where all the funds have only one fund manager. *avgbeta* refers to the average of stock betas in the fund's stock investment. *hindex* refers to the sum of squares of the proportions of the top 10 stock positions to the fund i's NAV. *conratio* is the concentration ratio calculated as the sum of the proportions of the top 10 stock positions to a fund's NAV. *female*, *overseas*, and *cfa* are all dummy variables each of which takes value 1 at time *t* when there is at least one female manager in a fund, when at least one fund manager has overseas educational experience, and when at least one fund manager is a CFA charter holder respectively. *fundsize* and *familysize* are fund market value and fund management company's value respectively. *fundage* is fund age calculated as the natural logarithm of the years between time *t* and a fund's birthday. *exratio* is a fund's expense level calculated as the ratio of a fund's total expenses to total fund assets. *RmPos* and *RmNeg* are measurements of the market returns from *t-1* to *t*. The interactions with *female* reflect the different reactions that female and male fund managers will have under different market performances. The *t* values are in the parentheses

Panel C.

	<i>avgreturn</i>		<i>premium</i>		<i>individual</i>	
	Team (13)	Single (14)	Team (15)	Single (16)	Team (17)	Single (18)
<i>overseas</i>	-0.008 (-0.13)	-0.041 (-1.42)	-0.006 (-0.10)	-0.043 (-1.43)	-0.017 (-0.50)	0.000 (0.02)
<i>cfa</i>	0.050 (1.09)	0.021 (0.38)	0.056 (1.15)	0.021 (0.35)	0.025 (0.94)	0.023 (0.77)
<i>fundage</i>	-0.089 (-0.80)	0.004 (0.07)	-0.087 (-0.78)	0.004 (0.05)	0.018 (1.20)	0.001 (0.06)
<i>fundsize</i>	-0.030 (-0.66)	-0.043 (-0.92)	-0.031 (-0.66)	-0.045 (-0.92)	0.069*** (3.67)	0.094*** (7.68)
<i>familysize</i>	0.056 (1.16)	0.006 (0.22)	0.052 (1.06)	0.001 (0.04)	0.003 (0.15)	-0.016 (-1.19)
<i>exratio</i>	1.988 (0.43)	-1.807 (-0.33)	1.667 (0.34)	-2.265 (-0.38)	3.593** (1.97)	4.318*** (2.74)
<i>female</i>	0.092 (1.43)	-0.156 (-1.08)	0.089 (1.30)	-0.175 (-1.14)	-0.009 (-0.23)	0.046* (1.91)
<i>RmPos</i>	1.787*** (4.83)	1.578*** (3.84)	1.885*** (4.74)	1.668*** (3.77)	0.152 (1.47)	0.092 (1.54)
<i>RmNeg</i>	4.725*** (3.30)	5.507*** (3.67)	4.713*** (3.18)	5.530*** (3.54)	-0.393** (-2.05)	-0.250** (-2.03)
<i>female*RmPos</i>	-0.157 (-1.36)	0.159 (0.70)	-0.157 (-1.33)	0.188 (0.77)	-0.145 (-0.23)	-0.036 (-0.15)
<i>female*RmNeg</i>	0.357 (1.22)	-0.942** (-1.99)	0.358 (1.25)	-1.025** (-2.03)	0.207** (2.08)	0.040 (0.61)
<i>constant</i>	0.103 (0.39)	0.554 (1.61)	0.081 (0.29)	0.554 (1.50)	0.562*** (3.27)	0.636*** (5.70)
<i>R-square</i>	0.784	0.798	0.781	0.791	0.269	0.271
<i>dfres</i>	511	1429	511	1429	511	1429

* p<0.1, **p<0.05, ***p<0.01

Notes: *Team* is the sub-sample where all the funds have more than one fund managers. *Single* is the sub-sample where all the funds have only one fund manager. *avgbeta* refers to the average of stock betas in the fund's stock investment. *hindex* refers to the sum of squares of the proportions of the top 10 stock positions to the fund i's NAV. *conratio* is the concentration ratio calculated as the sum of the proportions of the top 10 stock positions to a fund's NAV. *female*, *overseas*, and *cfa* are all dummy variables each of which takes value 1 at time *t* when there is at least one female manager in a fund, when at least one fund manager has overseas educational experience, and when at least one fund manager is a CFA charter holder respectively. *fundsize* and *familysize* are fund market value and fund management company's value respectively. *fundage* is fund age calculated as the natural logarithm of the years between time *t* and a fund's birthday. *exratio* is a fund's expense level calculated as the ratio of a fund's total expenses to total fund assets. *RmPos* and *RmNeg* are measurements of the market returns from *t-1* to *t*. The interactions with *female* reflect the different reactions that female and male fund managers will have under different market performances. The *t* values are in the parentheses.

Table 8. Fund industry comparison between the U.S. and China (as of 31 Dec. 2010)

TYPE OF FUND	U.S.		China		China vs. U.S.	
	# of funds	Assets (billion \$)	# of funds	Assets (billion \$)	# of funds	Assets
Equity funds	4,585	5,667	330	204.19	0.072	0.036
Hybrid funds	478	741	163	107.67	0.341	0.145
Bond funds	1,866	2,608	95	17.86	0.051	0.007
Money market fund	652	2,804	45	22.78	0.0691	0.008
QDII	\	\	23	10.73	\	\
Total	7,581	11,821	656	363.23	0.087	0.031

Data sources:

1. *China Securities Regulatory Commission:*
<http://fund.csrc.gov.cn/web/gotView.statFund>
2. *United States Census Bureau:* The 2012 Statistical Abstract- Banking, Finance, & Insurance: Mutual Funds, Securities Industry-1214 - Mutual Funds – Summary:
http://www.census.gov/compendia/statab/cats/banking_finance_insurance/mutual_funds_securities_industry.html

Table 9. Literature results summary

	Dependent variable(s)	Gender effect (female)	Knowledge effect
Jianakoplos and Bernasek (1998)	Household holdings of risky assets	Negative	/
Sundén and Surette (1998)	Asset allocation of Defined Contribution plan	Negative	Insignificant
Barber and Odean (2001)	portfolio volatility, individual volatility, beta, and size	Negative	/
Chen and Volpe (2002)	Personal financial literacy	Negative	/
Chevalier and Ellison (1999)	Risk-adjusted excess returns; fund beta	/	Positive (SAT score)
Dwyer, Gilkeson and List (2002)	Largest, last, and riskiest mutual fund investment decisions	Negative (weakened when controlling for knowledge)	Positive
Johnson and Powell (1994)	Stake per bet	Negative	(Non-manag erial group)
	Recommendation/rejection of a risky project	Insignificant	(Managerial group)
Halko, Kaustia and Alanko (2012)	Riskiness of Stock holding in Finland	Negative	Positive
Niessen and Ruenzi (2006)	Total and systematic risk	Insignificant	
	Small-firm risk and unsystematic risk.	Negative	(Fund managers)
	Fund performance	Insignificant	
Atkinson, Baird, and Frye (2003)	Performance, risk, and other fund characteristics	Insignificant	(Fixed-inco me mutual fund managers)

References

- Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of financial economics*, 94(2), 291-309.
- Adams, R., S. Gray, and J. Nowland. (2010). Is there a business case for female directors? Evidence from the market reaction to all new director appointments. Working paper, City University of Hong Kong.
- Atkinson, S. M., Baird, S. B., & Frye, M. B. (2003). Do female mutual fund managers manage differently? *Journal of Financial Research*, 26(1), 1-18.
doi:10.1111/1475-6803.00041
- Barber, B., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics*, 116(1), 261-292. doi:10.1162/003355301556400
- Berk, J. B., & Green, R. C. (2004). Mutual fund flows and performance in rational markets. *Journal of Political Economy*, 112(6), 1269-1295.
- Brown, S. J., & Goetzmann, W. N. (1995). Performance persistence. *Journal of Finance*, 50(2), 679-698.

- Carhart, M. (1997). On persistence in mutual fund performance. *Journal of Finance*, 52(1), 57-82. doi:10.2307/2329556
- Chen, H., & Volpe, R. P. (2002). Gender differences in personal financial literacy among college students. *Financial Services Review*, 11(3), 289.
- Chen, H., Jegadeesh, N., & Wermers, R. (2000). The value of active mutual fund management: An examination of the stockholdings and trades of fund managers. *Journal of Financial and Quantitative Analysis*, 35(03), 343. doi:10.2307/2676208
- Chen, J., Hong, H., Huang, M., & Kubik, J. D. (2004). Does fund size erode mutual fund performance? the role of liquidity and organization. *American Economic Review*, 94(5), 1276-1302.
- Chen, Q., Goldstein, I., & Jiang, W. (2008). Directors' ownership in the U.S. mutual fund industry. *The Journal of Finance*, 63(6), 2629-2677.
- Chevalier, J., & Ellison, G. (1997). Risk taking by mutual funds as a response to incentives. *Journal of Political Economy*, 105(6), 1167-1200. doi:10.1086/516389

- Chevalier, J., & Ellison, G. (1999). Are some mutual fund managers better than others? cross-sectional patterns in behavior and performance. *The Journal of Finance*, 54(3), 875-899. doi:10.1111/0022-1082.00130
- Clarke, C. J. (2005). The XX factor in the boardroom: why women make better directors. *Directors Monthly*, 24, 8-10.
- Daniel, K., Grinblatt, M., Titman, S., & Wermers, R. (1997). Measuring mutual fund performance with characteristic-based benchmarks. *The Journal of Finance*, 52(3), 1035-1058. doi:10.1111/j.1540-6261.1997.tb02724.x
- Dwyer, P., Gilkeson, J., & List, J. (2002). Gender differences in revealed risk taking: Evidence from mutual fund investors. *Economics Letters*, 76(2), 151-158. doi:10.1016/S0165-1765(02)00045-9
- Eckel, C. C., & Grossman, P. J. (2002). Sex differences and statistical stereotyping in attitudes toward financial risk. *Evolution and Human Behavior*, 23(4), 281-295. doi:10.1016/S1090-5138(02)00097-1
- Eckel, C. C., & Grossman, P. J. (2008). Men, women and risk aversion: Experimental evidence. *Handbook of experimental economics results*, 1, 1061-1073.

Fabozzi, F. J., & Francis, J. C. (1979). Mutual fund systematic risk for bull and

bear markets: An empirical examination. *The Journal of Finance*, 34(5),

1243-1250. doi:10.1111/j.1540-6261.1979.tb00069.x

Falkenstein, E. G. (1996). Preferences for stock characteristics as revealed by

mutual fund portfolio holdings. *The Journal of Finance*, 51(1), 111-135.

doi:10.1111/j.1540-6261.1996.tb05204.x

Fama, E. F., & French, K. R. (1988). Permanent and temporary components of

stock prices. *Journal of Political Economy*, 96(2), 246.

Fama, E. F., & French, K. R. (1993). Common risk factors in the returns on

stocks and bonds. *Journal of Financial Economics*, 33(1), 3-56.

doi:10.1016/0304-405X(93)90023-5

Fama, E. F., & MacBeth, J. D. (1973). Risk, return, and equilibrium: Empirical

tests. *Journal of Political Economy*, 81(3), 607.

Feng, L., & Seasholes, M. S. (2008). Individual investors and gender similarities

in an emerging stock market. *Pacific-Basin Finance Journal*, 16(1-2),

44-60. doi:10.1016/j.pacfin.2007.04.003

Frank, M. M., Poterba, J. M., Shackelford, D. A., & Shoven, J. B. (2004).

Copycat Funds: Information Disclosure Regulation and the Returns to Active Management in the Mutual Fund Industry. *Journal of Law and Economics*, 47(2), 515-541.

Gil-Bazo, J., & Ruiz-Verdú, P. (2009). The relation between price and performance in the mutual fund industry. *The Journal of Finance*, 64(5), 2153-2183.

Grinblatt, M., & Titman, S. (1989). Mutual fund performance: An analysis of quarterly portfolio holdings. *The Journal of Business*, 62(3), 393-416.

Grinblatt, M., & Titman, S. (1993). Performance measurement without benchmarks: An examination of mutual fund returns. *The Journal of Business*, 66(1), 47-68.

Grinblatt, M., Titman, S., & Wermers, R. (1995). Momentum investment strategies, portfolio performance, and herding: A study of mutual fund behavior. *The American Economic Review*, 85(5), 1088-1105.

Gruber, M. J. (1996). Another puzzle: The growth in actively managed mutual funds. *The Journal of Finance*, 51(3), 783-810.

doi:10.1111/j.1540-6261.1996.tb02707.x

Gysler, M., Kruse, J. B., Schubert, R., Schubert, R., & Schubert, R. (2002).

Ambiguity and gender differences in financial decision making: an experimental examination of competence and confidence effects. Swiss

Federal Institute of Technology, Center for Economic Research.

Halek, M., & Eisenhauer, J. (2001). Demography of risk aversion. *Journal of*

Risk and Insurance, 68(1), 1-24. doi:10.2307/2678130

Halko, M. L., Kaustia, M., & Alanko, E. (2012). The gender effect in risky asset

holdings. *Journal of Economic Behavior & Organization*, 83(1), 66-81.

Harbaugh, W. T., Krause, K., & Vesterlund, L. (2002). Risk attitudes of children

and adults: Choices over small and large probability gains and losses.

Experimental Economics, 5(1), 53-84.

Hartog, J., Ferrer-i-Carbonell, A., & Jonker, N. (2002). Linking measured risk

aversion to individual characteristics. *Kyklos*, 55(1), 3-26.

doi:10.1111/1467-6435.00175

Hsu, Jason C. Fama MacBeth Estimation. For use for the Anderson MFE

Program.

http://www.jasonhsu.org/uploads/1/0/0/7/10075125/two_stage_fama_macbeth.pdf

Huang, J., Sialm, C., & Zhang, H. (2011). Risk shifting and mutual fund performance. *Review of Financial Studies*, 24(8), 2575-2616.

Huang, J., Wei, K. D., & Yan, H. (2007). Participation costs and the sensitivity of fund flows to past performance. *The Journal of Finance*, 62(3), 1273-1311.

Huse, M., & Solberg, A. G. (2006). Gender-related boardroom dynamics: How Scandinavian women make and can make contributions on corporate boards. *Women in Management Review*, 21(2), 113-130.

Jensen, M. C. (1968). The performance of mutual funds in the period 1945-1964. *The Journal of Finance*, 23(2, Papers and Proceedings of the Twenty-Sixth Annual Meeting of the American Finance Association Washington, D.C. December 28-30, 1967), pp. 389-416.

Jianakoplos, N., & Bernasek, A. (1998). Are women more risk averse?

Economic Inquiry, 36(4), 620-630.

Johnson, J. E. V., & Powell, P. L. (1994). Decision making, risk and gender:

Are managers different? *British Journal of Management*, 5(2), 123-138.

doi:10.1111/j.1467-8551.1994.tb00073.x

Joy, L.(2008). Women board directors in the United States: An eleven year

retrospective. In S. Vinni-combe, V. Singh, R. J. Burke, D. Bilimoria, and

M. Huse (Eds.), *Women on corporate boards of directors* (pp. 15–23).

Northampton, MA: Edward Elgar.

Khorana, A., & Servaes, H. (1999). The determinants of mutual fund starts. *The*

Review of Financial Studies, 12(5), 1043-1074.

Niessen-Ruenzi, A., & Ruenzi, S. (2007). Sex Matters: Gender Differences in a

Professional Setting. *Available at SSRN 966243*.

Petersen, M. A. (2009). Estimating standard errors in finance panel data sets:

Comparing approaches. *Review of Financial Studies*, 22(1), 435-480.

Pollet, J. M., & Wilson, M. (2008). How does size affect mutual fund behavior?

The Journal of Finance, 63(6), 2941-2969.

doi:10.1111/j.1540-6261.2008.01417.x

Schubert, R., Brown, M., Gysler, M., & Brachinger, H. (1999). Financial

decision-making: Are women really more risk-averse? *American Economic*

Review, 89(2), 381-385. doi:10.1257/aer.89.2.381

Spigner, C., Hawkins, W. E., & Loren, W. (1993). Gender differences in

perception of risk associated with alcohol and drug use among college

students. *Women & health*, 20(1), 87-97.

Srinidhi, B., Gul, F. A., & Tsui, J. (2011). Female Directors and Earnings

Quality. *Contemporary Accounting Research*, 28(5), 1610-1644.

Stephenson, C. (2004). Leveraging diversity to maximum advantage: The

business case for appointing more women to boards. *Ivey Business*

Journal, 69(1), 1-5.

Sundén, A. E., & Surette, B. J. (1998). Gender differences in the allocation of

assets in retirement savings plans. *The American Economic Review*, 88(2,

Papers and Proceedings of the Hundred and Tenth Annual Meeting of the American Economic Association), pp. 207-211.

Treynor, J. L., & Mazuy, K. K. (1966). Can mutual funds outguess the market? *Harvard Business Review*, 44(4), 131-136.

Wermers, R. (2000). Mutual fund performance: An empirical decomposition into stock-picking talent, style, transactions costs, and expenses. *The Journal of Finance*, 55(4), 1655-1703. doi:10.1111/0022-1082.00263