Fund Manager Characteristics and Performance

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Fund Manager Characteristics and Performance

Abstract: This study establishes a three-tier framework to evaluate how fund manager characteristics systematically affect their performance. The framework includes three ties of performance elements: 1) comprehensive performance, 2) return and risk, and 3) fund manager abilities. We connect different tiers by performance decomposition. Our evidence indicates that various characteristics take different channels to affect return, risk, and fund manager abilities, which in turn affect comprehensive performance. In particular, having a master's degree in Business Administration or Chartered Financial Analyst qualification is significantly associated with a fund manager's better stock picking ability, higher excess fund returns, and better comprehensive fund performance.

Fund Manager Characteristics and Performance

1. INTRODUCTION

Researches show that fund performance is associated with a number of fund manager characteristics. However, the mechanism by which these characteristics affect fund performance is still a black box.

This study establishes a three-tier framework to fill above gap. Considering two fundamental aspects of fund performance, that is, return and risk, we adopt the Sharpe ratio (Sharpe, 1966) as a measure of comprehensive performance and take three steps to unravel the channels through which manager characteristics affect fund performance. First, we study the direct association between various manager characteristics and comprehensive performance to provide a general idea. Second, we decompose comprehensive measure into excess return and risk and study the impact of manager characteristics on these two dimensions. This decomposition explains the mechanism by which characteristics affect comprehensive performance. In other words, some characteristics affect risk-related performance, while others have a return-side effect on performance. Third, we decompose excess return into stock timing and selectivity. We argue that certain characteristics of fund managers determine their abilities to pick stocks and choose the timing of transactions, which in turn lead to different return levels and thus affect comprehensive performance.

We use open-end stock fund performance in the Chinese stock market during January 2008 and June 2011 to test the above framework. We investigate the Chinese setting to fill the void in knowledge about the association between fund manager characteristics and fund performance in emerging capital markets. China is the largest emerging market and the world's second largest economy. The Chinese capital market has developed along a different path from that of most developed countries.[1] Evidence regarding fund performance in developed countries is therefore not generalizable to the Chinese market setting. In addition, anecdotal evidence shows that many successful fund managers in developed countries do not do well in China.[2] Hence, examination of the determinants of fund performance in the Chinese setting is of particular interest.

In this paper, we focus on 11 fund manager characteristics, which are classified into four categories: physical characteristic, educational background, work experience, and professional

qualification. The choice of the characteristics variables is based on the unique features of fund managers in China and is subject to the limitations of database.

Our panel and cross-sectional data analyses provide consistent evidence that having a masters' degree in business administration (MBA) or a Chartered Financial Analyst (CFA) qualification is significantly associated with a fund manager's better stock picking ability, higher excess return, and better comprehensive performance. Further decomposition results indicate that excess return is the main driver of comprehensive performance; excess return is well explained by a manager's stock timing and picking abilities. In addition, the picking ability has dominant influence on excess return. Therefore, the impact of having an MBA or a CFA on fund performance is through the impact of these characteristics on stock picking ability, which in turn affects excess returns and, thus, comprehensive performance. We also find that gender and university major affect fund risk.

This study contributes to the literature in several ways. First, it establishes a framework to unravel the mechanism of how manager characteristics affect fund performance. Second, our findings in the Chinese stock market complement evidence provided by the prevalence of U.S. studies. China being the world's largest emerging economy, findings in our setting are of great interest to not only Chinese investors, but also international investors interested in the Chinese capital market. Third, our study is the first to empirically test the decomposition of excess return into fund managers' stock picking and timing abilities and the results of the test provide further insight as to why manager characteristics matter to fund performance.

2. CONCEPTUAL FRAMEWORK

While previews documents show evidence that fund performance is associated with several manager characteristics, a majority of them ignore potential linkage between certain manager characteristics and elements that contribute to comprehensive performance. We develop a three-tier conceptual framework to unravel this mapping: a) the determination of comprehensive performance, b) decomposition of comprehensive performance into excess return and risk, and c) further decomposition of excess return into timing and selectivity. Our conceptual framework is summarized in Figure 1.

INSERT FIGURE 1 ABOUT HERE

The framework starts with the determination of comprehensive performance. We believe that a comprehensive performance measure should embody return and risk, which capture the benefits and costs of portfolio investment. For this purpose, three well-recognized measures, Sharpe ratio (Sharpe, 1966), Treynor index (Treynor, 1965) and Jensen's alpha (Jensen, 1972) are the best candidates. The Treynor index is defined as a portfolio's abnormal return divided by systematic risk. The problem with this index is that it fails to account for idiosyncratic risk. We believe that fund manager characteristics are systematically associated with their ability to diversify idiosyncratic risk, resulting in better fund performance. Jensen's alpha, measured as the risk-adjusted return, or "pure return," nets the premium-based systematic risk and does not capture the relative absolute return per unit of risk, making it impossible to conduct a cross-sectional comparison of managers' performance. In addition, Roll (1978) points out that the Jensen's alpha is sensitive to the choice of market index and may not be a proper measure of the quality of portfolio managers. The Sharpe ratio, defined as the excess return scaled by total risk, is regarded as a superior measure of comprehensive performance. First, the ratio is recognized as the most widely and extensively applied as well as the most influential and best understood empirical performance measure (Eling, 2008; Lo, 2002). It evaluates the excess return gained per unit of total risk and provides a convenient summary of the risk and return of investment strategies, thus outperforming single-factor measures. Moreover, the ratio is theoretically consistent with expected utility maximization under the assumption of elliptically distributed returns (Ingersoll, 1987), indicating great external validity. In addition, Dowd (1999) argues that the ratio is an appropriate measure of performance when a fund represents an entire risky investment or only a portion of investors' risky investments.

The second tier in our framework is a decomposition of comprehensive performance into excess return and total risk, two elements that capture different aspects of performance. We conjecture that fund manager characteristics affect comprehensive performance through their impact on return, risk, or both. A mapping between manager characteristics and different elements of performance helps further unravel the character–performance black box, providing relevant information for investors to meet their specific risk preferences and return expectations.

The third tier of our framework involves a further decomposition of return. Both financial institutions and investors are likely to care about the sources of return that ultimately bring in monetary benefits. Such information may help financial institutions recruit good fund managers

to obtain higher revenue and assist investors in selecting the right fund manager to bring capital gains. Following Treynor and Mazuy (1966), we decompose return into managers' stock selectivity ability and market timing skill, using the following equation:

$$R_{p,t} - R_{f,t} = \alpha + \beta_1(R_{m,t} - R_{f,t}) + \beta_2(R_{m,t} - R_{f,t})^2 + \varepsilon_{p,t} \tag{1}$$

where $R_{p,t}$ represents the return of portfolio p in period t, $R_{f,t}$ denotes the risk-free interest rate in period t, $R_{m,t}$ denotes the return of the market portfolio in period t, α measures selectivity and β_2 measures timing skill. A positive α and positive β_2 indicates the fund manager has good selectivity and timing abilities respectively. The decomposition of return into selectivity and timing provides insight into the specific reasons why certain fund managers outperform others. Such decomposition allows for further mapping between fund manager characteristics and the specific source of return that influences comprehensive performance.

3. VARIABLE SELECTION

3.1 Dependent Variables

The dependent variables in our three-tier empirical analysis are a) the Sharpe ratio, b) excess return and total risk, and c) selectivity and timing abilities. Specifically, excess return is measured as the difference between portfolio return and risk-free return, total risk is proxied as the standard deviation of excess return, and the Sharpe ratio is measured as excess return divided by total risk. Selectivity and timing abilities are the coefficients α and β_2 in Equation (1).

3.2 Independent Variables

1) Physical characteristic

Atkinson, Baird and Frye (2003) find that gender influences the decision making of mutual fund investor. Singh (2012) shows that males are likely to be more overconfident than females. Moreover, Hu, Yu, and Wang (2012) show that female fund managers outperform male managers in cost control and risk management. Thus, our regression models include *GENDER*, a dummy variable that takes the value one if a fund manager is female and zero otherwise.

Golec (1996) argues that age can gauge both the experience and stamina of fund managers in their demanding job, which result in better and worse performance, respectively. In our regression models, *AGE* represents a discrete variable that measures a manager's age rounded to the year.

2) Educational background

A fund manager's education indicates the manager's overall professional capability. Chevalier and Ellison (1999) argue that a higher degree of education indicates greater intelligence and a better knowledge base. They also consider that educational experience in top universities helps fund managers build up a social network that boosts their informational advantage. Since a majority of fund managers in our sample have a bachelor's degree, our analysis focuses on the impacts of having a master's degree or a PhD on performance measures. We also consider a special master's degree, the MBA, in our analysis. Golec (1996) find that managers with MBAs outperform those without. The MBA is a well-recognized degree in China. To enroll in an MBA program in China, one needs to participate in a comprehensive national exam with at least two years of work experience. Upon completion of an MBA program, the student is expected to know business concepts and strategies and be able to apply them in daily business operations.

A fund manager's academic specialization, that is, whether the manager majored in economics or a business academic program, is likely to affect the manager's fund management skills. This is because specialized training equips a fund manager with specific knowledge and familiarizes him/her with useful tools to manage funds. Economics and non-economics students perform differently when making investment decisions (Carter and Irons, 1991). In addition, Zhou (2010) shows that risk preferences are affected by academic specialization.

Lee, Yen and Chen (2008) find that managers with overseas experience usually have better foreign language skill, which helps them assess global information and thus better manage funds. Overseas experience broadens horizons and provides better information channels via an established global network, thus leading to better fund performance.

Therefore, we create the dummy variables *MASTER*, *PHD*, *MBA*, *MAJOR*, and *OVERS*. Specifically, *MASTER*, *PHD*, and *MBA* take the value one if a fund manager's highest degree is a master's or a PhD or the manager received an MBA, respectively, and zero otherwise. In particular, if a fund manager has an MBA, *MASTER* takes the value zero and *MBA* takes the value

one and vice versa; *MAJOR* is a dummy variable that takes the value one if a manager's academic specialization is in a non-business or non-economics field and zero otherwise; and *OVERS* is a dummy that take the value one if a manager has overseas study experience and zero otherwise.

3) Work experience

Lee, Yen and Chen (2008) provide evidence that manager experience is associated with fund performance. Therefore, our investigation includes a variable *EXP* representing the number of years of working in an investment-related industry. Furthermore, manager turnover is a documented factor that affects performance (McEvoy and Cascio, 1987). The impact of turnover on performance can be twofold: First, high turnover may indicate a lack of loyalty to the company, thus leading to worse performance; second, high turnover can also be a sign of intensive competition, which is likely to translate into better performance. Therefore, we do not predict the sign of the association between manager turnover and performance. The variable *TURNO* denotes the number of companies a manager has worked in since the manager's first day in the industry.

4) Professional qualification

A number of studies show that CFA designations are significantly associated with better performance in the US setting (e.g., Gottesman and Morey, 2006; Shukla and Singh, 1994). The CFA is a globally recognized. Earning the CFA demonstrates expertise with the broad range of skills needed for a competitive career in investment. The CFA was introduced in China since only about 10 years and more time is needed to reveal its practical benefits. So, we test the association between having a CFA designation and fund performance: *CFA* is a dummy variable that takes the value one if a manager possesses a CFA designation and zero otherwise.

The Certified Public Accountant (CPA) qualification focuses on accounting, auditing, cost management, strategies and risk management, and economic and tax laws. It was introduced in China over 30 years ago and is a widely accepted credential. Therefore, we also include in the analysis *CPA*, a dummy variable that takes the value one if a fund manager possesses a CPA credential and zero otherwise.

4. DATA AND METHODOLOGY

The fund manager characteristics data are retrieved from the Wind database. When the *AGE* variable is missing, following Chevalier and Ellison (1999), we assume that each manager obtained a bachelor's degree at the age of 23 and then estimate the age of managers by adding 23 years to the number of years at work. To construct the *OVERS* variable, we exclude observations for which the locations of a manager's previous foreign employer are not available and when the manager underwent only a short training period overseas.

The performance data are also obtained from the Wind database. The China A Index is adopted as a proxy for the market portfolio, which is weighted by circulation equities and constructed by sampling all stocks traded in the Shanghai and Shenzhen A-share markets. The risk-free rate is defined as China's one-year deposit rate, because the majority of bonds issued by the Ministry of Finance of China are for longer than three-year period and the supply of short-term bonds is very small. The monthly fund portfolio return is directly available in the database. The Sharpe ratio, excess return, total risk, selectivity skill, and timing ability are estimated by the monthly market return, fund portfolio return and risk-free rate.

We analyze open-end stock funds. The sample period covers January 2008 (few observations are available before 2008 in the Wind database) to June 2011. In total, there are 287 funds. The average turnover frequency for fund managers is 18 months. Therefore, we consider fund performance during 18 months. We assume that it takes a fund manager six months to set up a portfolio and thus we examine performance in the 12 months following the initial setup. The whole sample period is divided into three sub-periods, each involving 18 months—January 2008 to June 2009, January 2009 to June 2010, and January 2010 to June 2011—in which the first six months of every sample is assumed to be the portfolio set-up period. Our research evaluates the performance of funds in the last 12 months in each sample. Following the criteria, we end up with 157 fund managers.

We use an unbalanced panel data model (Davis, 2002) with time fixed effects for our empirical analysis because the fund data have an unbalanced panel structure. For example, if a fund manager was only appointed during 2007–2009, this manager should be included in our sample based on our selection criteria. However, the performances of the manager are null during 2009–2011. We apply White cross-sectional standard errors to eliminate the effect of heteroscedasticity resulting from the existence of individual differences among fund managers. Additionally, our model includes a test of fixed effect considering the influence of stock market's ups and downs

on annual horizon. We use the likelihood ratio of the following model to test the time fixed effect term:

$$y_{i,t} = \alpha + \sum_{k=1}^{10} \gamma_k x_{i,t}^k + \delta_t + \varepsilon_{i,t} \tag{2}$$

where $y_{i,t}$ is a performance index involving the Sharpe ratio, excess return, total risk, selectivity skill, and timing ability; x^k represents manager characteristics; and δ_t denotes the time fixed effect.

To demonstrate the validity of the panel data model, we also analyze the relationships among manager characteristics and fund performances by cross-sectional model. The cross-sectional model is developed by adding year dummies as additional explanatory variables and deleting observations with missing data. Once again, our cross-sectional model employs the White covariance matrix to address the issue of heteroscedasticity.

Table 1 presents the descriptive statistics of the variables.

INSERT TABLE 1 ABOUT HERE

The Sharpe ratio ranges from -0.225 to 0.443, demonstrating sufficient differences in comprehensive performance between the best and worst managers. The minimum and maximum returns are -1.999 and 2.816, which indicate significant performance gaps among the managers. Similar evidence can be found in risk, timing, and selectivity.

The variables depicting physical characteristics are gender and age. Among the 157 fund managers, 12 are female. The average age of the fund managers is 36.581 years. The minimum and maximum ages are 30 years and 48 years respectively. Li, Zhang, and Zhao (2011) report that the average age of the U.S. hedge fund managers is 45.43 years, and Chevalier and Ellison (1999) show an average age of 44.18 years for the U.S. fund managers. Compared with U.S. fund managers, Chinese fund managers are, on average, eight to nine years younger.

The educational variables considered are the possession of a master's, a PhD degree, and an MBA and one's major. In our sample, 70.5% of the funds are managed by managers whose highest education is a master's degree, but only 11.4% of funds are managed by a PhD holder. A total of 12.3% of the funds are managed by managers with an MBA, a much lower percentage than the

reported figure of 58.1% for U.S. fund managers in Gottesman and Morey's (2006) study. A total of 73.7% of the funds are managed by managers with either a business or an economics degree.

In terms of experience, the average time spent in the industry is 10.5 years, with a minimum and a maximum of 4 years and 19 years, respectively. According to Li, Zhang and Zhao (2011), the average industry experience of U.S. hedge managers is 19.45 years, much longer than the average industry experience of managers in our sample, although the manager types are not comparable. The average number of firms a manager worked in is 1.244, with the highest turnover being four firms since the manager's initial appointment. Only 13 fund managers had overseas study experience.

In our sample, only 25 fund managers, or 15.9% of the total, have CFA or CPA qualifications. Specifically, the percentage of funds held by managers with a CFA is 9.4%, far less than the 50.20% in a sample of U.S. fund managers (Gottesman and Morey, 2006).

All in all, compared with US managers, the Chinese managers are younger but have less industry experience and fewer have an MBA or a CFA. We also estimate the correlation matrix of the characteristics variables. The correlation coefficients are reasonably low. Therefore, our regressions do not suffer from a severe multicollinearity problem.

5. EMPIRICAL RESULTS

5.1 Manager Characteristics and Fund Performance

Table 2 shows the results based on our panel data model. We run five regressions using the Sharpe ratio, return, risk, selectivity, and timing variables as proxies for performance, respectively. All regression models have time fixed effects because the F-values are all greater than the critical values, with a significance level of 5%.

INSERT TABLE 2 ABOUT HERE

1) Comprehensive performance regression

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Column 2 of Table 2 shows the results of the association between fund manager characteristics and comprehensive performance. Our results show that fund comprehensive performance is significantly associated with the variables of *AGE*, *MBA*, *OVERS* and *CFA*.

The variable *AGE* is negatively correlated with the Sharpe ratio. It seems that younger managers achieve higher returns for each unit of risk. Our results are consistent with Shukla and Singh (1994) and Chevalier and Ellison (1999). One reason might be that younger managers are better motivated to work hard since they have a longer way to go in their entire career. Another reason could be that younger managers are physically more capable of taking on energetic consuming positions.

The coefficient of *OVERS* is negative, indicating that managers with overseas experience do not outperform managers educated in China in terms of excess returns per unit of risk. One possible explanation is that China's finance system, capital market supervision, and legislation are quite different from those in developed countries. Knowledge and skills obtained from overseas cannot be directly applied in China, resulting in biased decisions and trading strategies. On the contrary, fund managers educated exclusively in China are more familiar with the institutional features of the Chinese capital market, leading to better performance.

Possession of an MBA is significantly positively associated with the Sharpe ratio, suggesting that specialized business education results in better performance, which is consistent with the findings in mature capital markets (e.g., Golec, 1996).

Similar to the findings of Shukla and Singh (1994) in a developed country setting, we find that managers with CFA qualifications are associated with better performance. This result implies that the CFA is an influential qualification in the investment field. Since obtaining the certificate requires a good knowledge of investment, as well as an understanding of morals, laws, accounting, data analysis, and portfolio management, such a qualification leads to better fund manager performance.

2) Excess return and total risk regressions

The third and fourth columns of Table 2 provide the results of the return and risk equations. The variables *AGE, MASTER, MBA,* and *CFA* are significantly associated with excess returns, while gender and major are significantly associated with risk.

The coefficient of *AGE* in the return model is negative, which is consistent with Li, Zhang and Zhao (2011). However, the coefficient of *AGE* is not significant in the risk model. Our results show that younger fund managers are generally better at managing funds for higher returns without higher-risk sacrifices. The findings indicate that the higher performance achieved by younger managers is primarily driven by higher returns rather than lower risk.

There is a positive correlation between the variable *MASTER* and return, at the 10% significance level. However, *MASTER* does not contribute to the risk of fund portfolios. Similar results apply to *CFA*: Having a CFA is associated with higher excess returns at the 5% significance level, which is consistent with the finding of Friis and Smit (2004), but it is not significantly associated with lower risk. The aggregate effects of *MASTER* and *CFA* differ in that *MASTER* is not significantly associated with the Sharpe ratio but *CFA* is.

According to the results of the risk regression, *GENDER* and *MAJOR* are significantly associated with total risk. The negative coefficient of *GENDER* implies that Chinese female fund managers are more likely to choose a less risky portfolio than their male counterparts, which is consistent with the theories of risk taking proposed by Zuckerman (1991).[3] The result is not unexpected, since it is well known that males are more confident in choosing portfolios (e.g., Barber and Odean, 2001). However, Menkhoff, Schmidt, and Brozynski (2006) point out that overconfidence results in a higher degree of risk.

The variable *MAJOR* is negatively associated with total risk. Zhou (2010) thinks that a fund manager who was a non-business or non-economics major is likely to take fewer risks. .

Interestingly, neither *GENDER* nor *MAJOR* is significantly associated with excess return or the Sharpe ratio. It seems that these two characteristics are pure risk factors rather than return or comprehensive performance factors.

3) Ability regressions

Columns 5 and 6 of Table 2 show the results of the timing and selectivity regressions. It is surprising that only the variable *MASTER* is significantly associated with timing ability. The significantly negative coefficient indicates that a fund manager who obtained a non-MBA master's degree underperforms his/her MBA peers in timing fund transactions. On the contrary, selectivity is positively correlated with three educational variables—*MASTER, PHD, and MBA*—*and* two professional qualification variables—*CPA* and *CFA*. Our results suggest that having an MBA, a non-MBA master's degree, or a PhD leads to better stock picking ability; having a CPA or CFA also improves a manager's portfolio construction skills. It seems that a higher level of education and professional qualifications equips a fund manager with useful investment knowledge to better manage portfolios.

Table 3 shows the regression results based on the cross-sectional model. In the comprehensive performance regression, the coefficient of *AGE* is significantly negative, and those of *MASTER, MBA*, and *CFA* are significantly positive. In the return regression, the coefficients of *AGE, MBA, and CFA* are significant. As is completely consistent with the panel data results, *GENDER* and *MAJOR* are significantly associated with risk. In the timing regression, only *PHD* is significant. In the selectivity regression, *MASTER, PHD, MBA,* and *CFA* are significant.

Overall, the results of the cross-sectional models are generally in accord with those of the panel data models. From the two types of models, we find that 1) having an MBA or CFA is significantly positively associated with comprehensive performance, excess return, and selectivity, 2) being a female manager or having a business or economic major is significantly associated with lower risk, and 3) having a general master's degree, MBA, PhD, or CFA is significantly associated with better stock picking skills.

INSERT TABLE 3 ABOUT HERE

5.2 Performance Decompositions

The above findings indicate that there is no common set of fund manager characteristics that affect all components of performance, that is, excess return, total risk, timing ability, and selectivity. In particular, the characteristics that affect excess return and those that impact risk are mutually exclusive. Since excess return and total risk are the two fundamental components of comprehensive performance, it is of great interest to compare their sensitivity with respect to

comprehensive performance to determine which set of manager characteristics deserves more attention when aiming for better comprehensive performance.

Our evidence shows that the manager characteristics that affect excess return and the Sharpe ratio are quite consistent, while the characteristic factors associated with risk are completely different. Hence, we conjecture that, compared with risk, excess return is the main driver of the Sharpe ratio.

To test this conjecture, we transform the equation of the definition of the Sharpe ratio by taking the logarithm of each element and then converting it to a change model. The change model addresses the concern that the Sharpe ratio and risk may be non-stationary series. The logarithm model that decomposes the Sharpe ratio into excess return and total risk is as follows:

$$\Delta Ln(S_{p,t}) = \alpha + \beta_1 \Delta Ln(R_{p,t}) + \beta_2 \Delta Ln(\sigma_{p,t}) + \varepsilon_{p,t} \tag{3}$$

where $S_{p,t}$ represents the Sharpe ratio, $R_{p,t}$ is excess returns, and $\sigma_{p,t}$ is total risk. The coefficients β_1 and β_2 represent the elasticities of the excess return and total risk with respect to the Sharpe ratio respectively.

The Table 4 provides the regression results. The adjusted R^2 value of the regression is 0.909, implying that the Sharpe ratio is well explained by excess returns and total risk. The elasticity of excess return is 1.543, a coefficient significant at least at the 5% level. The finding means that a 1% increase in excess return will cause a 1.543% increase in the Sharpe ratio. However, the elasticity of total risk is not significant. Therefore, the change in the Sharpe ratio is primarily driven by the change of excess return, rather than that of total risk. As a robustness check, we use the Wald test to examine the null hypothesis $\beta_2 + \beta_3 = 0$ to see whether the impacts of excess return and total risk on comprehensive performance are equal. The bottom row of Table 4 shows that the χ^2 value of the Wald test is 32.287 and thus the null is rejected. Hence, our results provide convincing evidence that the Sharpe ratio is more sensitive to excess return than to total risk. This evidence explains well the findings in Tables 2 and 3 that fund manager characteristics that affect excess return also have an impact on comprehensive performance, while those associated with total risk have little to do with comprehensive performance.

INSERT TABLE 4 ABOUT HERE

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The above results show that, excess return rather than risk plays a dominating role in affecting comprehensive performance. It is of interest to pay close attention to excess return and explore the components of return that explain why some fund managers outperform others in achieving higher returns. Following Treynor and Mazuy (1966), we further decompose excess return into timing ability and stock selectivity and use the following modified logarithmic difference model to test the sensitivities of timing and selectivity with respect to excess return:

$$\Delta Ln(R_{p,t}) = \alpha + \beta_1 \Delta Ln(Timing_{p,t}) + \beta_2 \Delta Ln(Selectivity_{p,t}) + \varepsilon_{p,t} \qquad (4)$$

where $Timing_{p,t}$ represents market timing skill and $Selectivity_{p,t}$ represents stock selectivity.

Table 5 reports the results. The adjusted R^2 value is 0.859, indicating that excess return can be well explained by the market timing and selectivity of fund managers. The coefficients of timing and selectivity are both significantly positive, implying that both timing and selectivity can improve excess return. In comparison, the coefficient of selectivity is 0.206, much greater in magnitude than that of timing (0.110). Moreover, the standard deviation of selectivity (0.0169) is much less than that of timing (0.0245). We examine whether the difference in the coefficients of timing and selectivity is statistically different from zero by adopting the Wald test. The null hypothesis is $\beta_2 - \beta_3 = 0$. It can be found that the χ^2 value is significantly positive, which rejects the null hypothesis and indicates that selectivity has a greater impact on excess return than timing ability does. This evidence is well supported by the panel and cross-sectional data results in Tables 2 and 3, in that return and selectivity are both associated with *MBA* and *CFA*, while timing ability is associated with *MASTER* only.

INSERT TABLE 5 ABOUT HERE

In sum, the above decomposition results provide solid ground to explain the mechanisms of how certain manager characteristics affect different elements of fund performance, which in turn affect the ultimate comprehensive performance.

When we decompose the Sharpe ratio into return and risk, the findings indicate that changes in the Sharpe ratio are almost completely driven by changes in returns. However, the decomposition results show that risk cannot significantly explain the Sharpe ratio. A manager who is younger and who has an MBA or CFA is significantly associated with both higher excess return and better comprehensive performance. At the same time, lower risk can be explained by the presence of a

female manager or a manager with a major in business or economics, which are not found to be associated with better comprehensive performance. Therefore, fund manager characteristics affect comprehensive performance through their impact on excess return, but manager characteristics that affect risks do not help achieve better comprehensive performance.

We find that both selectivity and timing abilities are significant factors that affect the key determinant of comprehensive performance, that is, excess return. In addition, selectivity skill weighs more than timing ability in affecting excess return. Therefore, fund manager characteristics influence comprehensive performance mainly through their impact on selectivity skill, which in turn affects excess return and, ultimately, comprehensive performance.

Taking together all of our findings, we can draw a conclusion that fund managers who have an MBA or a CFA may be good candidates for investors, since these qualities are associated with better selectivity, which in turn leads to higher returns and better comprehensive performance.

6. CONCLUSION

This study proposes a comprehensive framework to investigate the mechanisms of how fund manager characteristics affect their performance. This framework includes three ties of performance elements: 1) comprehensive performance, 2) return and risk, and 3) fund manager abilities. We connect different ties with performance decomposition. The three-tier framework enables us to further explore the innate mechanism of how each manager characteristic affects a certain element of performance, thus ultimately leading to different comprehensive performance.

Using both panel and cross-sectional data, we identify the fund manager characteristics that are associated with various performance elements in the Chinese capital market. However, there is no common set of fund manager characteristics that affect all components of performance. The performance decomposition based on our framework shows that comprehensive performance is mainly driven by excess return rather than total risk. An explanation of the finding is that higher risk is well compensated by the accompanying higher returns and thus risk is not involved in the determination of comprehensive performance. An implication of the finding is that the manager characteristics that are associated with lower risk should not be taken into consideration in the selection of fund managers when targeting to achieve better comprehensive performance. Additionally, selectivity and timing ability affect a fund's excess return and the impact of

selectivity is greater than that of timing ability. Therefore, we conclude that fund manager characteristics affect comprehensive performance mainly through their impact on managers' selectivity ability, which in turn affect excess return and, ultimately, comprehensive performance. The common characteristics that affect selectivity, return, and comprehensive performance are possession of an MBA or CFA. We also address endogeneity concerns and rule out the possibility that managers with an MBA or CFA share common characteristics, such as belonging to the same fund management firm or graduating from the same university. Therefore, having an MBA or a CFA is the most important quality of fund managers in China to outperform his/her peers in achieving better stock selectivity, higher excess returns, and better comprehensive performance.

Our results shed light on the effectiveness of an MBA and CFA as educational and professional training tools in improving managers' abilities to manage mutual funds. An MBA not only provides investment knowledge in a master's program, but also establishes a network from which fund managers can benefit when seeking inside investment information and hands-on experience. Meanwhile, a CFA provides fund managers sufficient training to better understand economic trends and make good investment decisions. Hence, our evidence provides insights for investors in how to select the right fund managers to manage their wealth. Our findings also provide implications for policy makers. While having an MBA or a CFA is the most important characteristic affecting a fund manager's performance, only 9.4% and 12.3% of fund managers have an MBA or a CFA, respectively. A greater supply of MBAs and CFAs will benefit the fund market's performance, which deserves the attention of policy makers in advocating and providing resources for MBA education and CFA training.

Our findings demonstrate that gender and major are important characteristics for considering risk preferences. For example, risk seekers are more likely to benefit from male managers with a business background, but risk evaders are better off with female managers without a business background.

Endnotes

[1] The Chinese stock market follows a completely different development path from that of most developed countries. The stock markets of developed countries are formed from micro individuals. However, the Chinese stock market is developed from the macro to the micro market, with a trial period regulated by the government.

[2] For example, Anthony Bolton, one of the United Kingdom's best-known investment fund managers and most successful investors, achieved a record 20% return compounded annually in the European and North American markets but lost 15% in 2010 and 30% in the first three quarters of 2011 in the Chinese market.

[3] In particular, this theory argues that men are inclined to take more risks because it is a socially instilled belief that risk taking is a highly valued masculine tendency.

REFERENCES

Atkinson SM, Baird SB, Frye, MB. 2003. Do female mutual fund managers manage differently? *Journal of Financial Research*, 26(1): 1–18.

Barber BM and Odean T. 2001. Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics*, 116 (1): 261–292.

Carter JR, and Irons MD. 1991. Are economists different, and if so, why? *Journal of Economic Perspectives*, 5(2):171–177.

Chevalier J, and Ellison G. 1999. Are some mutual fund managers better than others? Cross-sectional patterns in behavior and performance. *Journal of Finance*, 54(4): 133–148.

Davis P. 2002. Estimating multi-way error components models with unbalanced panel data structure. *Journal of Econometrics*, 106 (1): 67–95.

Dowd K. 1999. Financial risk management. *Financial Analysts Journal*, 55(4): 65–71.

Eling M. 2008. Does the measure matter in the mutual fund industry? *Financial Analysts Journal*, 64(3):1–13.

Friis, LB and Smit, EM. 2004. Are some fund managers better than others? Manager characteristics and fund performance. *South African Journal of Business Management*, 35(3): 31–40.

Golec JH. 1996. The effect of mutual fund managers' characteristics on their portfolio performance risk and fees. *Financial Service Review*, 5(2): 133–148.

Gottesman AA and Morey MR. 2006. Manager education and mutual fund performance. *Journal of Empirical Finance*, 13(2): 145–182.

Hu J, Yu H and Wang Y. 2012. Manager attributes and fund performance: Evidence from Taiwan. *Journal of Applied Finance & Banking*, 2(4): 85–101.

Ingersoll JE. 1987. *Theory of financial decision making*. Totowa, NJ: Rowman & Littlefield.

Jensen MC. 1972. Capital markets: Theory and evidence. *Bell Journal of Economics and Management Science*, 3(2): 357–398.

Lee J, Yen P and Chen Y. 2008. Longer tenure, greater seniority, or both? Evidence from open-end equity mutual fund managers in Taiwan. *Asian Academy of Management Journal of Accounting and Finance,* 4(2): 1–20.

Li H, Zhang X and Zhao R. 2011. Investing in talents: Manager characteristics and hedge fund performances. *Journal of Financial and Quantitative*, 46(1): 59–82.

Lo AW. 2002. The statistics of Sharpe ratios. *Financial Analysts Journal*, 58(4): 36–52.

McEvoy GM and Cascio WF. 1987. Do good or poor performers leave? A meta-analysis of the relation between performance and turnover. *Academy of Management Journal*, 30(4): 744–762.

Menkhoff L., Schmidt, U. and Brozynski, T. 2006. The impact of experience on risk taking, overconfidence, and herding of fund managers: Complementary survey evidence. *European Economic Review*, 50(7): 1753–1766.

Roll R. 1978. Ambiguity when performance is measured by the securities market line. *Journal of Finance*, 33(4): 1051–1069.

Sharpe WF. 1966. Mutual fund performance. *Journal of Business*, 39(1): 119–138.

Shukla R and Singh S. 1994. Are CFA charterholders better equity fund managers? *Financial Analysts Journal*, 50(6): 68–74.

Singh S. 2012. Investor irrationality and self-defeating behavior: Insights from behavioral finance. *Journal of Global Business Management*, 8(1): 116–122.

Treynor J.L. 1965. How to rate management of investment funds. *Harvard Business Review*, 43(1), 63–75

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

Zhou Z. 2010. Impact of academic experience in economics on risk preferences and rationality: An empirical investigation working paper, Occidental College.

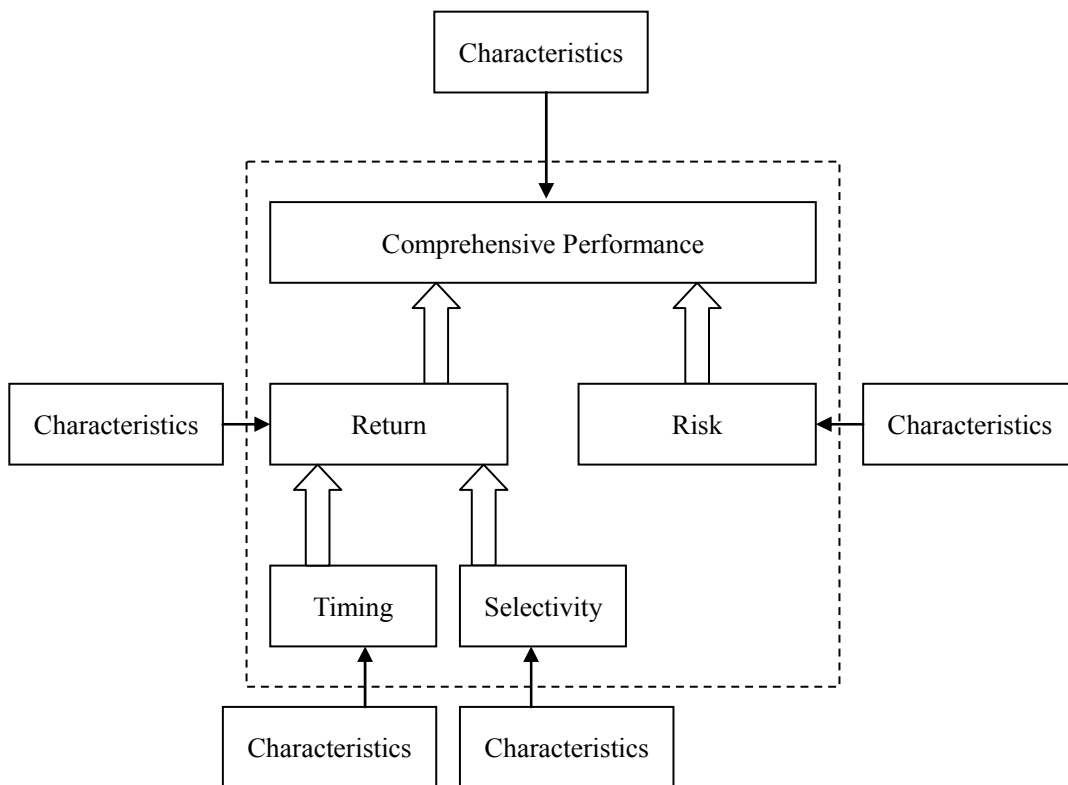Zuckerman M. 1991. *Psychobiology of personality*. Cambridge, MA: Cambridge University Press.

Figure 1   Fund Performance Evaluation Framework

Table 1: Descriptive statistics

	Mean	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Observations
Sharpe ratio	0.069	0.443	-0.225	0.143	0.145	2.332	308
Return	0.553	2.816	-1.999	1.036	-0.458	2.288	308
Risk	0.078	0.128	0.006	0.023	-0.016	1.928	308
Timing	-0.162	5.261	-10.017	1.511	-1.230	10.083	308
Selectivity	0.006	0.038	-0.026	0.009	0.410	4.290	308
GENDER	0.065	1	0	0.247	3.531	13.469	308
AGE	36.581	48	30	3.043	0.442	3.712	308
MASTER	0.705	1	0	0.457	-0.897	1.804	308
PHD	0.114	1	0	0.318	2.435	6.928	308
MBA	0.123	1	0	0.329	2.290	6.246	308
MAJOR	0.263	1	0	0.441	1.077	2.159	308
OVERS	0.075	1	0	0.263	3.236	11.472	308
EXP	10.500	19	4	3.447	0.485	2.546	308
TURNO	1.244	4	1	0.544	2.280	7.717	308
CPA	0.062	1	0	0.241	3.644	14.276	308
CFA	0.094	1	0	0.293	2.779	8.725	308

Table 2. Panel data results

Variable	Sharpe	Return	Risk	Timing	Selectivity
Constant	0.149** (0.0587)	1.121** (0.4723)	0.079** (0.0079)	0.542 (0.6778)	0.008 (0.0059)
GENDER	-0.016 (0.0267)	-0.154 (0.1787)	-0.005** (0.0021)	0.050 (0.2652)	-0.001 (0.0022)
AGE	-0.004** (0.0018)	-0.027* (0.0147)	0.000 (0.0003)	-0.011 (0.0244)	0.000 (0.0002)
MASTER	0.028 (0.0171)	0.228* (0.1306)	-0.002 (0.0024)	-0.282* (0.1645)	0.004** (0.0013)
PHD	0.027 (0.0222)	0.216 (0.1674)	-0.002 (0.0031)	-0.330 (0.2523)	0.006** (0.0019)
MBA	0.043** (0.0180)	0.318** (0.1568)	-0.001 (0.0034)	-0.289 (0.2194)	0.004** (0.0018)
MAJOR	0.001 (0.0081)	-0.033 (0.0644)	-0.004** (0.0014)	-0.088 (0.1011)	0.000 (0.0009)
OVERS	-0.029** (0.0143)	-0.180 (0.1160)	-0.001 (0.0029)	0.0228 (0.2037)	-0.001 (0.0019)
EXP	0.0010 (0.0016)	0.007 (0.0133)	0.000 (0.0003)	0.007 (0.0222)	0.000 (0.0002)
TURNO	0.013 (0.0081)	0.083 (0.0613)	0.000 (0.0009)	-0.052 (0.0996)	0.001 (0.0008)
CPA	0.023 (0.0163)	0.188 (0.1336)	-0.002 (0.0027)	-0.104 (0.1672)	0.003* (0.0016)
CFA	0.033** (0.0148)	0.238** (0.1133)	0.000 (0.0021)	-0.109 (0.1303)	0.003** (0.0014)
Adjusted R^2	0.699	0.672	0.777	0.087	0.253
Period F	309.781**	518.820**	348.143**	47.608**	18.603**

Notes: The superscript * indicates significance at the 10% level at least and ** indicates significance at the 5% level at least. Standard errors are presented in parentheses.

Table 3. Cross-sectional regression results

Variable	Sharpe	Return	Risk	Timing	Selectivity
Constant	0.162** (0.0669)	1.593** (0.4847)	0.090** (0.0099)	2.262* (1.2203)	0.004 (0.0064)
GENDER	-0.007 (0.0241)	-0.065 (0.1732)	-0.006** (0.0024)	-0.129 (0.4702)	-0.001 (0.0024)
AGE	-0.004* (0.0022)	-0.025* (0.0154)	0.000 (0.0003)	-0.063 (0.0429)	0.000 (0.0002)
MASTER	0.042** (0.0208)	0.201 (0.1344)	-0.002 (0.0028)	-0.140 (0.2679)	0.004** (0.0014)
PHD	0.035 (0.0266)	0.208 (0.1722)	-0.001 (0.0036)	-1.054** (0.4748)	0.005** (0.0020)
MBA	0.046* (0.0236)	0.276* (0.152)	-0.002 (0.0035)	0.081 (0.3996)	0.004** (0.0018)
MAJOR	-0.002 (0.0100)	-0.050 (0.0677)	-0.005** (0.0018)	-0.080 (0.1955)	0.000 (0.0009)
OVERS	-0.013 (0.0186)	-0.1771 (0.1177)	0.003 (0.0037)	-0.284 (0.3051)	-0.002 (0.0020)
EXP	0.001 (0.0021)	0.003 (0.0141)	0.000 (0.0003)	0.041 (0.0436)	0.000 (0.0002)
TURNO	0.009 (0.0088)	0.080 (0.0663)	0.000 (0.0011)	0.048 (0.1882)	0.001 (0.0009)
CPA	0.017 (0.0187)	0.208 (0.1410)	-0.001 (0.0025)	-0.061 (0.3187)	0.003 (0.0017)
CFA	0.039** (0.0174)	0.227* (0.1258)	-0.001 (0.0025)	-0.336 (0.2365)	0.003** (0.0015)
Y2009	-0.168** (0.0088)	-1.629** (0.0841)	0.001 (0.0024)	-0.545** (0.1073)	0.010** (0.0013)
Y2010	0.095** (0.0114)	0.235** (0.0805)	-0.040* (0.0021)	-0.267 (0.2063)	0.002 (0.0012)
Adjusted R^2	0.668	0.693	0.735	0.043	0.275

Notes: The superscript * indicates significance at the 10% level at least and ** indicates significance at the 5% level at least. Standard errors are presented in parentheses.

Table 4. Sharpe ratio decomposition

Variable	Coefficient
Constant	0.004 (0.0104)
Return	1.543** (0.088)
Risk	-0.320 (0.2258)
Adjusted R^2	0.909
χ^2 value for $\beta_2 + \beta_3 = 0$	32.287**

Notes: The superscript ** indicates significance at the 5% level at least. Standard errors are presented in parentheses. The χ^2 value is for a Wald test of $\beta_2 + \beta_3 = 0$.

Table 5. Return decomposition

Variable	Coefficient
C	0.011 (0.0298)
Timing	0.110** (0.0245)
Selectivity	0.206** (0.0169)
Adjusted R^2	0.859
χ^2 value for β_2-β_3=0	6.932**

Notes: The superscript ** indicates significance at the 5% level at least.

Standard errors are presented in parentheses. The χ^2 value is for a

Wald test of $\beta_2 - \beta_3 = 0$.