The Mediating Effects of Risk Tolerance on Fund Performance

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Abstract

Risk tolerance in fund performance is a topic which is of enormous interest not only to researchers all over the world, but also to investors. Motivated by limited empirical studies on the effects of risk tolerance on fund performance in Malaysia and in response to reasonable gaps in the literature, the objective of this paper is to examine the mediating effect of individual fund manager risk tolerance (IFMRT) measured as level of confidence (LOC) and level of risk tolerance (LORT) as these mediate on the individual fund manager characteristics (IFMC) and fund performance (FP) relationship. The fund performance measures in this study use Sharpe (FPS), Treynor (FPT)m and Jensen (FPJ) ratios. The results indicate a weak linear correlation between individual fund manager characteristics and level of confidence, and also between individual fund manager characteristics and level of risk tolerance. Simultaneously, when the level of confidence and level of risk tolerance is added in the individual fund managers and fund performance relationship, it shows that the LORT variable acts as a mediator between IFMC and FP but LOC does not act as a mediator between IFMC and FP.

Keywords: Fund Performance (FP), Individual Fund Manger Risk Tolerance (IFMRT), Level of Confidence (LOC), Level or Risk Tolerance (LORT).

Introduction

Fund management industries represent one of the most dynamic parts of global financial services. Fund management is growing fast and the number of available funds is greater than the number of stocks on the market (Peterman and Lai, 2009). As fund management industries have expanded enormously, so does literature explaining the instability of fund flows and their fund allocation in the capital market. However, there is lack of discussion on the effects of risk tolerance on the financial performance of the emerging financial markets in developed countries.

Fund Management industries in Malaysia have gradually developed with other sectors of the capital market since 1980s.The financial system has undergone significant transformation since 1990s to meet the needs of an expanding economy and changing market demands. Table 1 shows total funds managed by licensed fund management companies in Malaysia, as at 31 December 2009, which had risen by 40.9% to 315.0 billion as compare to 2008 (RM223.5 billion).

The statistics include charitable bodies corporate bodies, EPF and EPF contributors, government bodies and agencies, individuals and private pension funds.

Insert table (1) about here

The enormous concentration of funds into relatively few hands allows mutual fund managers to exercise immense power in financial markets. Therefore, the fund managers are significantly becoming more important to both the foreign and domestic institutions which have brought about greater opportunities for synergistic and collaborative arrangements. These fund managers have to maintain the economic growth and financial stability in the financial markets especially after the Asian financial crisis where the financial structural reform have reshaped the financial landscape and enhanced the competitive capabilities of the fund managers as the institutional players in the Malaysian financial market. The increasing demands for financial services have contributed towards the realization of the benefits derived from the diversification of risks and sources of revenue. Following the threat of recession and the effect of the financial crisis, investors put more cautious in investing their money. Therefore, the investors' attitudes towards investment are a crucial proxy for risk tolerance and improved significantly.

Risk tolerance is one of the behavioral issues that have become an important topic within the fund management industries. The knowledge of risk tolerance has grown substantially, in which most of the studies are from developed countries such as Australia (Hallahan, Faff and McKenzie, 2004), and United States (Sung and Hanna, 1996; and Grable and Lytton, 1998). However, there is absence of studies on the risk tolerance on fund manager's performance in emerging countries particularly in Asia such as Korea, Japan, China and Malayisa. Therefore, this study aims to fill a gap in the academic research literature concerning fund manager risk tolerance which act as the mediator variable on fund performance.

Theoretical Discussion on Risk Tolerance

Expected utility Theory is a prominent theory in this research which was proposed by Bernoulli in 1978 and was later formalized by John Von Neumann and Oskar Morgenstern in 1947. According to this theory, a decision maker chooses actions or strategies that maximize expected utility, and utilities are determined by revealed preferences. In other word, EUT is where the decision maker chooses between risky or uncertain prospects by comparing their expected values. If the probabilities are subjective, then it is called subjected EUT. This theory also states that decision maker chooses actions or strategies that maximize expected utility, and utilities are determined by revealed preferences that is the risk tolerance level (Slovic, Fischloff and Lichtenstein, 1984 ; Friedman and Savage, 1948). Hence, risk tolerance will depends on the utility maximization of the fund manager. In fact many social science researchers believe that EUT provides a good description of behavior. EUT can further explain on how individual evaluate potential losses and gains. In EUT, risk aversion happens due to the concavity of the utility function. EUT is applied in a situation when a fund manager chooses between risky or uncertain prospects by comparing their expected utility value. For example, the weighted sums obtain by adding the utility values of outcomes multiplied by their respective probability (Davis, Hands and Maki, 1997).

From the above explanation, it is assumed that, a risk adverse fund manager will refuse to accept a fair gamble versus the sure thing. On the other hand, a risk seeker fund manager will prefer the fair gamble over the sure thing. Meanwhile, a risk neutral fund manager is indifferent between the fair gamble and the sure thing.

But there have been conceptual and empirical difficulties with the ability of EUT to explain decisions in the presence of unfair gambles and the effects of external factors (Lease, Lewellen and Schlarbaum, 1974; Hirshleifer, 1965). However, EUT is not exactly correct, but it is a good approximate description and it is general, elegant and mathematically useful (Friedman and Savage, 1948). Early contributors to decision making under uncertainty believed that comparing expected values of outcomes would work as a decision rule. EUT states that individual will choose between low wealth opportunities based on expected utility.

Therefore, this study focuses on risk tolerance of investment fund manager which have different individual characteristics based on maximization of expected utility. This utility requires an assumed value or measurement of utility risk taking appropriate to a particular fund manager. Furthermore, this study also examines the risk tolerance of an individual fund managers and the firm where the approach to fund manager risk tolerance is inherent in EUT.

There are series of empirical studies testing the factors that influence the risk tolerance level such as differences between men and women in accepting the risks of financial investment (Halek and Eisenhauer, 2001; Powell and Ansic, 1997; Jianakoplos and Bernasek, 1998). Meanwhile, several other studies on demographic factors that influence level of risk tolerance was further investigated such as income, education, age, race (Riley and Chow, 1992; Roszkowski, 1998; Shefrin, 2002; Carducci and Wong, 1998). These studies show that individual characteristics have been investigated and debated by the previous researchers, and it is essential to make an effort to determine every fund manager's risk tolerance level using both objective and subjective measures.

Level of Confidence and Level of Risk Tolerance

Level of confidence is a level of self-confidence explained by observable and non-observable characteristics. DeVaney, Anong and Yang (2007); Barber and Odean (2001) found that female tend to be less confident than male. They found that there is no known work with race or ethinicity and also a lower relative confidence might help investors to turn up with good returns. A survey by Yao, Gutter and Hanna (2005) showed that minorities (including Asian) tend to be less risk tolerant than whites, while marriage and household size did not influence risk thresholds. Similar to findings where men are more knowledgeable than women in investing, Yao et.al (2005) also found that a higher income individual tends to increase their risk tolerance, on the other hand, age decreased with risk tolerance.

Meanwhile, a retirement confidence is where the confidence that someone has in his or her financial stability or freedom during retirement (Leimberg, Satinsky, LeClair, and Doyle, 1993). When someone has reached this stage, it is important to prepare some financial education, financial knowledge and to consider their household income (DeVaney, Anong and Whirl, 2007). DeVaney et al. (2007) found that Asians are more likely to maximize contributions to their retirement accounts and overall levels of retirement confidence are high. In addition, Ritter (2003) and Guvenen and Kuruscu (2006) looked at the underlying factors that may lead to individual differences such as understand pricing of securities markets; Mankiw and Zeldes (1991) explain consumption pattern and consequences for the distribution of welfare in the economy; Palacios-Huerta (2001) enlighten the understanding of international diversification puzzle; Malloy, Moskowitz and Jorgensen (2009) account for the equity premium puzzle; formulate pension policy that suits the need of people with different risk tolerance, and Bajtelsmit and VanDerhei (1997) and Fama and French (1992) looked at investor preferences for cash dividends.

Chevalier and Ellison (1999) examined relationship between fund performance and characteristics of fund managers such as ability, knowledge and effort. They found that managers who have higher education such as MBA have systematically higher risk-adjusted excess returns. Chevalier and Ellison (1999) also examined the labor market for mutual fund managers which identify possible implicit incentives created by the termination-performance relationship. This study found that the shape of the termination-performance relationship may give younger managers an incentive to avoid unsystematic risk. They also found that there is a direct effect of portfolio composition which may also give younger managers and incentive to "herd" into popular sectors.

Fund Managers use investor's money to build a diversified portfolio of funds that aim to generate as much return as possible at the specific level of risk. In other word, risk tolerance is the amount of investment risk that the investors are comfortable with. Fund managers risk tolerance may change over time – either because of changes in life, management, or simply because of the time horizon is getting shorter. Fund managers must match their current attitude and objectives with the investors target risk. In order to keep the level of risk consistent, fund managers need to reallocate their portfolios periodically. For example, when the performance of an underlying asset is strong, the asset will have more weight in the overall fund and exert more influence on the return. This can throw off the carefully calibrated balance that is necessary to maintain the specific risk target, where the fund managers is required to systematically sell off portions of the overweight asset to bring the risk level back into balance. Therefore, it is a complex process for investors to choose the underlying funds that allow a target risk

fund to meet with their objective. However, the fund managers will use computer modeling to help them to select underlying funds and determine what percentages they should allocate to each fund. The resulting graph helps them to determine the allocations that will yield the highest return at the necessary risk level.
After taking into considerations factors that influence the risk tolerance, the level of confidence and level of risk tolerance were tested to see the mediating effects. The results show that there is a weak linear correlation between individual fund manager characteristics and level of confidence, and also the individual fund manager characteristics and level of risk tolerance. When the level of confidence and level of risk tolerance is added in individual fund manager characteristics and fund performance relationship, it shows that only the level of risk tolerance variable acts as a mediator between individual fund manager characteristics and fund performance.

Data and Methodology

This study is deductive in nature, therefore a quantitative methodology was conducted to explore whether or not the conjectured relationships have been substantiated an answer to research questions that have been obtained. Thus, a hypothesis-testing study is undertaken in order to explain the nature of certain relationships, or establish the differences among groups or the independence of two or more factors in a situation (Sekaran, 2003). A number of researchers have analyzed financial risk tolerance attitude using the risk tolerance question in the Survey of Consumer Finances (SCF). Grable and Lytton (2001) discussed the SCF risk tolerance measure and concluded that it was a reasonable reliable measure of investment risk tolerance. The findings of this study will provide an understanding of how a risk tolerance assessment leads to possible asset allocation decisions and also will provide an index of risk tolerance based on the six risk tolerance groupings listed above. The risk tolerance categories indicate the willingness of clients to take additional risk to increase their returns.

Data were collected using questionnaires survey adapted from Risk Tolerance Questionnaires (RTQ) which was developed by Investment Strategies, Inc. (ISI) utilizing the guidelines of NASD's (North American Securities Association). The questionnaires are used to obtain information about the individual fund manager's characteristics (IFMC) and the individual fund managers risk tolerance (IFMRT). The individual fund managers risk tolerance consists of information on level of confidence (LOC) and level of risk tolerance (LORT) of each individual fund manager.

The returned questionnaires are checked for completeness and consistency. Incomplete and inconsistent questionnaires are excluded. Missing values and outliers are checked. After considering the incomplete and inconsistent questionnaires, 83 questionnaires are excluded from the total of 229 questionnaires received due to one or multiple reason(s). The numbers of questionnaire received from the fieldwork were 229 from 553 copies distributed to 175 fund management companies. A total of 83 respondents do not complete the information required such as highest education obtained, experience in investment and their income citing confidentiality as their reason. The raw data is then screened by examining the basic statistic of frequency distribution of data. Descriptive statistics including mean, standard deviation, minimum and maximum values of variables are scrutinized to detect any mistakes or mission values in the data entry. Later, the data is verified for outliers by means of standard regression diagnostics. Based on Mahalanobis distance, 11 outliers are identified at three standard deviations (Hair et al. 1998). All the 11 outliers are deleted. The results show a usable data set of 135 (24.41%) respondent as presented in Table2.

Insert table (2) about here

The respondent's demographic profiles that are position in an organization, gender, age, race, education, experienced in the company, experienced in investment, and income are useful for this research analysis. Theoretically, the well distributed respondents' profile descriptions is vital to realize the properties of characteristics that would make it possible to generalize the findings to the population elements (Sekaran, 2003).The first descriptive analysis is the detail distributions of respondents based on the participating organizations, as shown in Appendix A. The lowest number of respondents is 1 and the highest is 42. The distribution percentage of respondents' representation of the total sample is between 0.7 to 31.1 per cent. This indicates that most of the respondents are from the CIMB – Principal Asset Management Group. As this research

intends to examine into the causality effects, the fundamental research concern is with establishing causal connections between the independent variables and dependent variables. The independent variable are those which have a causal impact on the dependent variables (Levine and Loayza, 2000), whereas the dependent variable is normally of primary interest to the researcher (March and Sutton, 1997), or the variables that the researcher wishes to explain (LaVeist, 1994).
The independent variables identified for this research are the individual Fund manager characteristics such as the demographic factors mentioned in the mediator model and the other independent variables are the funds characteristics which are mentioned in the mediator model in this study. The dependent variable are the indicators of fund performance tha is the Sharpe ratio, Jensen Index and Treynor ratio.

This study follows the formal heuristic analysis often used to detect simple mediations effects provided by Baron and Kenny (1986) where a variable may be called a mediator "to the extent that it accounts for the relation between the predictor and the criterion" (Baron and Kenny, 1986).
In this study we used the simple relationship between X and Y which is often referred to as the total effect of X and Y (see Figure 1) where the total effect *c* to distinguish it from *c´* and the direct effect of X and Y after controlling for M.

Insert Figure (1) about here

Variable M is considered as mediator if (a) X significantly predicts Y, (b) X significantly predicts M, and (c) M significantly predicts Y controlling for X. Baron and Kenny discuss several analyses that should be performed and the results be assessed with respect to the criteria just described. Therefore, this study used the following equations to assess the criterion:

$$\hat{Y} = i_1 + cX$$
$$M = i_2 + aX$$
$$\hat{Y} = i_3 + c'X + bM$$

Where;

In measuring the mediation or the indirect effect, this study used multiple regressions with no missing data and the same covariates are in the equation. The equation for this model is as follows:

$$FP = \beta 0 + \beta\, 1IFMC + \beta 2\,(IFMC\ x2) + \varepsilon$$

where,

FP	=	Fund Performance (FPS, FPT, FPJ)
β	=	Constant (Intercept)
IFMC	=	Individual fund manager characteristics which includes PIFMC, GIFMC, AIFMC, RIFMC, EdIFMC, ExcIFMC, ExiIFMC, and InIFMC.
*x*2	=	Mediator variable (LOC and LORT)
ε	=	the error term

Results

Multicollinearity refers to the relationship between two or more independent variables. It occurs when any single independent variable is highly correlated with a set of other independent variables. The simplest way to identify multicollinearity is by examining the correlation matrix for the independent variables. The presence of high correlations (generally 0.90 and above) is the first indication of substantial collinearity (Hair et al., 2006). To examine the existence of multicollinearity among the variables, the Pearson's correlation is employed.

Insert table (3) about here

Table 3 provide the results for Pearson's correlation coefficients' absolute values for individual fund managers' characteristics (IFMC), level of confidence (LOC), and level of risk tolerance (LORT). The results indicate that all the values between the independent variables are lower than the threshold value for potential multicollinearity of 0.80 (as stated by Gujarati, 2003) and 0.90 (as claimed by Hair et al., 1998; Pallant, 2001).

Pearson Correlation was employed to test the relationship among the variables. A correlation was carried out to examine the relationship among the variables because all the constructs were continuous variables.
The relationship was investigated using bivariate correlation. Preliminary analysis was performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. Therefore, it can be concluded that the assumption for linearity is met for all four pairs of correlation. In other words, the bivariate correlation carried out in this study is valid. Since there were four bivariate pairs Benferroni adjusted alpha of 0.0125 or 0.05/4 was used.

Correlation measure the strength of the relationship between two variables (Aguinis, 2004). Thus, it measures the closeness of the relationship between independent and dependent variables (Hair et al. 2006). The correlation matrix gives the indication of the closeness of the association among the variables under study. The Pearson correlation is suitable for interval and ratio scales (Sekaran, 2003). Since, all the variables in this study are interval scale; therefore bivariate Pearson correlation matrix is applicable for all the variables under this study.

The direction of the relationship is indicated by + or – signs. The value can range from -1 indicating a perfect negative relationship, 0 indicating no relationship, and +1 indicating perfect positive relationship. According to Cohen (1990), a value between 0.10 and 0.29 indicated a small correlation, 0.30 to 0.49 indicated a medium correlation, and values between 0.5 and 1.0 indicated a large correlation. Each correlation should not have a too-high figure (more than 0.75) because the variables might not be different and distinct variables, thus affect the validity of the measures (Sekaran, 2001). Table 5.30 shows the correlation matrix for particular variables and the results indicate that all the relationships are significant at 0.01 and 0.05 level.

From Table 4, the strongest relationship exist between ExiIFMC and InIFMC (r=0.785, p=0.001), followed by ExiIFMC and AIFMC (r=0.654, p=0.001), EnIFMC and AIFMC (r=0.577, p=0.001), ExiIFMC and ExcIFMC (r=0.534, p=0.001). The other variables have a moderate relationship between each others. This indicates that IFMC, LOC, LORT, FPS, FPT and FPJ relationship are significant at 0.001 and 0.005 levels.

Insert table (4) about here

In establishing the mediating effects of LOC and LORT, the results indicates a small negative linear correlation between IFMC and LOC (R2 = 0.263) and also between IFMC and LORT (R2 = 0.105). When LOC and LORT were tested with the FP, the results indicate that LOC and LORT characteristics have a small correlation with FPS, FPT and FPJ. When LOC is added in the model (IFMC and FPS) as a mediating variables, it shows that LOC remained insignificant (P>0.1000) but when LORT is added in this model, it shows a significant effects of (p <0.1000). This means that a partial mediation occurs when LORT is added but not LOC.

Next, when LOC and LORT is added in the relationship between IFMC and FPT, the results show that both LOC and LORT remain insignificant, therefore the partial mediation is not supported here. The same results obtain when LOC and LORT is added in the relationship between IFMC and FPJ. The overall results for this analysis shows that the full mediation occurs when the LORT is added in the relationship between IFMC and FPS only.

Conclusion

The major contribution of the study is to provide a workable framework which describes the critical links between individual fund manager's characteristics (IFMC), individual fund manager risk tolerance (LOC and LORT) and fund performance (FP). This study was based on the previous studies on: (a) risk tolerance model (Yang and Qiu,

2005; Ang, Walters and Kroll, 2006; Daw, 2005; Barberis, Schleifer, and Vishny, 1998); (b) fund performance model (Ackermann, McEnally, and Ravenscraft, 1999; Annuar, Shamsher, and Ngu, 1997; Tan, 1995; Grinblatt and Titman, 1989; Ang and Chua, 1979); (c) the underlying theories on risk tolerance (William and Hsieh, 2001; Roszkowski, 1999; Slovic, Fischloff and Lichtenstein, 1984, Modigliani and Pogue, 1974); and (d) fund performance measurement (Roll, 1997; Kahneman and Tversky, 1979; Jensen, 1968; Treynor,1965, Sharpe, 1964), which include mediators variables of LOC and LORT for individual fund managers risk tolerance and moderator variables of THFRT and FRP for firm risk tolerance.

The advancement of the model in this study is to systematically investigate the relationship between all IFMC variables and FP dimensions with the mediator variables (LOC and LORT) effects in between. Figure 2 shows the relationship between IFMC and FPS, FPT, FPJ mediated by LOC and LORT. The results show that there is a mediator effect of LOC and LORT on certain independent variables that is related to fund performance.

Insert figure (2) about here

Therefore, this study has achieved the objective to determine the individual fund managers risk tolerance (IFMRT) that consists of LOC and LORT as mediator variables between IFMC and FPS, FPT, FPJ. The model validated presents mixed results where there are some variables mediated by LOC and LORT some variables are not mediated by LOC and LORT on the relationship between IFMC and FP. The relationship is constructed to examine the boundary conditions for the association and to develop a fully specified model. Thus, as one of the study's new contributions to IFMC– FP literature, the model of risk tolerance is also developed provides a complete view of the proposed relationships with the significant predictors of LOC and LORT.

Finally, the results and findings of this study have generated several significant implications for fund managers, firms and investors. The model of this research validates that LORT mediates the fund managers who have a longer experienced in the company. The fund managers who have a longer experienced in the company may have the sense of having longer experience being older and wisely in making investment decisions. The use of trading fund strategies by these respective fund managers revealed a stronger effect and risk aversion and the transactions by these fund managers have been extensively studied previously. However, it is still relatively stays as weak information because the behavioral patterns are not easily reconciled with efficient markets. With advance technologies and infrastructure in investment decision making, fund managers may establish the right information and knowledge to ensure that the level of confidence and level or risk tolerance tally with their fund performance.

References

Ackermann, C., McEnally, R., and Ravenscraft, D. (1999) The Performance of Hedge Funds: Risk, Return, and Incentives. *The Journal of Finance*. 54 (3) 833 -874.

Aguinis, H. (2004) *Regression Analysis for Categorical Moderators*. New York. The Gilford Press.

Annuar, M.N., Shamsher, M., and Ngu, M.H. (1997) Selectivity and Timing: Evidence from the Performance of Malaysian Unit Trusts. *Pertanika Journal of Social Science and Humanities.* 5 (1) 45-57.

Ang, J.S. and Chua, J.H. (1979) Composite Measures for the Evaluation of Investment Performance. *Journal of Financial and Quantitative Analysis.* 14, 361-384.

Ang Le, S., Walters, B, and Kroll, M. (2006) The Moderating Effects of External Monitors on the Relationship Between R&D Spending and Firm Performance. *Journal of Business Research*. 59 (2) 278-287

Bajtelsmit, V.L., and VanDerhei, J.L. (1997) Risk Aversion and Pension Investment Choices. *In Gordon, M.S., Mitchell, O.S., and Twinney, M.M. Positioning Pensions for the 21st Century*. University of Pennyslvania Press, Philadelphia. 45-66.

Baron, R.M., & Kenny, D.A. (1986) The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*. 51 (6) 1173–1182.

Barberis, N., Schleifer, A., and Vishny, R. (1998) A Model of Investor Sentiment. *Journal of Financial Economics.* 49, 307-343.

Carducci, B.J.,and Wong, A.S. (1998) Type A and Risk Taking in Everyday Money Matters. *Journal of Business and Psychology.* 12, 355-359.

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

Cohen, J. (1990) Things I have Learned (so far). *American Psychologist*. 45, 1304-1312.

Daw, C. (2005) Examining Risk Tolerance in Project Driven Organization. *Technovation.* 25 (6) 691-695.

DeVaney, S. A. Anong, S. & Yang, Y. (2007). Asset Ownership of Black and White Families. *Financial Counseling and Planning.* 18(1), 2-14.

Fama, E., and French, K. (1992) The Cross-Section of Expected Returns. *Journal of Finance*. 47, 427–465.

Grable, J.E,. and Lytton, R.H. (1998). Investor's Risk Tolerance: Testing the efficacy of Demographics as Differentiating and Classifying Factors. *Association for Financial Counseling and Planning.* 9 (1) 61- 74.

Grable, J.E., and Lytton, R.H., (2001) Financial Risk Tolerance Revisited: The Development of A Risk Assessment Instrument. *Financial Services Review*. 8, 163-181.

Gujarati, D.N., (2003) *Basic Econometrics.* (4th Edition) Singapore: McGraw Hill.

Guvenen, F., and Kuruscu, B. (2006) Does Market Incompleteness matter for Asset Prices? *Journal of the European Economic Association*. 4 (3) 484-492.

Hirshleifer, J. (1965) Investment Decision under Uncertainty: Choice-Theoretic Approaches. *Quarterly Journal of Economics.* 29 (4) 509–536.

Hair, J.F., Andersen, R.E., Tatham, R.L. and Black, W.C. (1998) Multivariate Data Analysis with Readings, New York: Macmillan Publishing.

Hair, J.F., Black, W.C., Babin, A.L., Tatham, R.L. (2006) *Multivariate Data Analysis*. 6th Edition. Pearson Prentice Hall. Upper Saddle River, New Jersey.

Halek, M and Eisenhauer, J.G. (2001) Demography of Risk Aversion. *The Journal of Risk and Insurance.* 68 (1-24) 10-15.

Hallahan, T.A., and Faff, R.W., and McKenzie, M.D. (2004) An Empirical Investigation of Personal Financial Risk Tolerance. *Financial Services Review*. 13 (1) 57-78.

Jensen, M.C. (1968) The Performance of Mutual Funds in the Period 1945–1964. *Journal of Finance.* 23, 389–416.

Jianakoplos, N.A., and Bernasek, A. (1998) Are Women More Risk Averse? *Economic Enquiry.* 36 (4) 620-631.

Kahneman, D., and Tversky, A. (1979) Prospect Theory: An Analysis of Decision Under Risk. *Econometrica*. 47 (2) 263-292.

LaVeist, T.A. (1994) Beyound Dummy Variables and Sample Selection: What Health Services Researchers ought to know about Race as a Variable. Health Service Research. 29 (1) 1-16.

Lease, R., Lewellen, W., and Schlarbaum, G.(1974) The Individual Investor, Attributes and Attitudes. *Journal of Finance.* 29 (2) 413–433.

Levine, R., and Loayza, N. (2000) Financial Intermediation and Growth: Causality and Causes. *Journal of Monetary Economics.* 46, 31-77.

Leimberg, S.R., Satinsky, M.J., LeClair, R.T., and Doyle, R.J. (1993) *The Tools and Techniques of Financial Planning*. Cincinnati, OH: National Underwriter (4th ed).

Malloy, C.J., Moskowitz, T.J., and Jorgensen. A.V. (2009) The Long-Run Stockholder Consumption Risk and Asset Returns. *The Journal of Finance*. 64 (6) 2427-2479

Mankiw, N.G., and Zeldes, S.P. (1991) The Consumption of Stockholders and Non-stockholders. *Journal of Financial Economics.* 29 (1) 97-112.

March, J.G., and Sutton, R.I. (1997) Organizational Performance as Dependent Variable. Organization Science. 8 (6) 698 -706.

Modigliani, F., and Pogue, G.A. (1974) An Introduction to Risk and Return: Concepts and Evidence. *Financial Analysts Journal.* 30 (3) 69-86.

Palacios-Huerta, I. (2001) The Human Capital of Stockholders and the Internationals Diversification Puzzle. *Journal of International Economics.* 54 (2) 309-331.

Pallant, J., (2001) SPSS Survival Manual-A Step by Step Guide to Data Analysis using SPSS for Windows (Version 10). Allen and Unwin.

Peterman, S.D., and Lai, D. (2009) From the Ashes Risen: Private Equity Secondary Funds Take Flight. *The Journal of Private Equity*. 12 (4) 29-34.

Powel, M., and Ansic, D (1997) Gender Differences in Risk Behaviour in Financial Decision Making: An Experimental Analysis. *Journal of Economic Psychology*. 18, 605-628.

Riley, W.B., and Chow, K.V. (1992) Asset Allocation and Individual Risk Aversion. *Financial Analysts Journal*. 48 (6) 32-37.

Ritter, J.R. (2003) Behavioral Finance. *Pacific-Basin Finance Journal.* 11, 429-437.

Roll, R. (1997) A Critique of the Asset Pricing Theory's test Part I: On past and Potential Testability of the theory. *Journal of Financial Economics.* 4 (2) 129 -176.

Roszkowski, M.J. (1999). *Risk Tolerance in Financial Decisions.* In: Cordell, D.M., editor. Readings in Financial Planning. 281-328. Bryn Mawr, PA. The American College.

Sekaran, U. (2003) Research Methods for Business. A Skill Building Approach. 4th Ed. John Wiley & Sons Inc.

Sharpe, W. F. (1964) Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk. *Journal of Finance.* 19 (3) 425-442.

Shefrin, H. (2002) *Behavioral Finance.* Cheltenham, UK: Edward Elgar Publishing Ltd.

Slovic, P., Fischloff, B., and Lichtenstein, S. (1984) Behavioral Decision Theory Perspectives on Risk and Safety. *Acta Psychologica*. 56,183-203.

Sung, J., and Hanna, S. (1996) Factors Related to Risk Tolerance. *Financial Counseling and Planning.* 7, 11-20.

Tan, H.C. (1995) The Investment Performance of Unit Trusts Funds in Malaysia *Capital Market Review.* 3 (2) 21-45.

Treynor, J.L. (1965) How to Rate Management of Investment Funds. *Harvard Business Review* 43, 63–75.

William, F., and Hsieh, D.A. (2001) The Risk in Hedge Fund Strategies: Theory and Evidence from Trend Followers. *Review of Financial Studies*. 14 (2) 313-341.

Yang, J., and Qiu, W. (2005). A Measure of Risk and A Decision-making Model Based on Expected Utility and Entropy. *European Journal of Operational Research.* 164, (3) 792-799.

Yao, R., Gutter, S.M., and Hanna D.S. (2005) The Financial Risk Tolerance of Blacks, Hispanics and Whites. *Association for Financial Counseling and Planning Education*. 16 (1) 51-62.

Table 1: Source of Clients' Funds Under Management in Malaysia

	Local (RM million)		Foreign (RM milliion)	
	2009	2008	2009	2008
Unit trust funds*	191,706.28	130,435.82	1,620.69	584.90
Corporate bodies	36,787.02	16,429.36	6,070.41	3,861.50
Employees Provident Fund	27,861.16	21,207.53	-	-
Wholesale funds**	13,958.74	4,863.67	140.10	-
Individual	2,740.07	2,148.26	227.79	156.20
Private Pension Funds	1,274.88	1,007.22	1,059.03	524.51
Charitable bodies	224.45	253.42	20.74	-
Other funds	27,629.86	39,585.08	3,701.79	2,480.19
Total	302,182.46	215,930.36	12,840.55	7,607.30

*Includes Islamic unit trust funds

**The figure in previous year was reported under "restricted investment scheme"

Source: Securities Commission Malaysia

Table 2: Analysis of response rate

	No	%
Total number of questionnaires mailed	553*	100
Non response	324	58.58
Total number of questionnaires returned	229	41.41
Less: Questionnaires discarded for various reasons (incomplete, inconsistent, etc)	(83)	15.00
Total number of questionnaires after incomplete and inconsistent questionnaires are excluded	146	26.40
Less: Questionnaires discarded as they are outliers at Three standard deviations	(11)	1.98
Total usable questionnaires	135	24.41

*Note: * refer to Securities Commisions statistic under list of fund management in Malaysia*

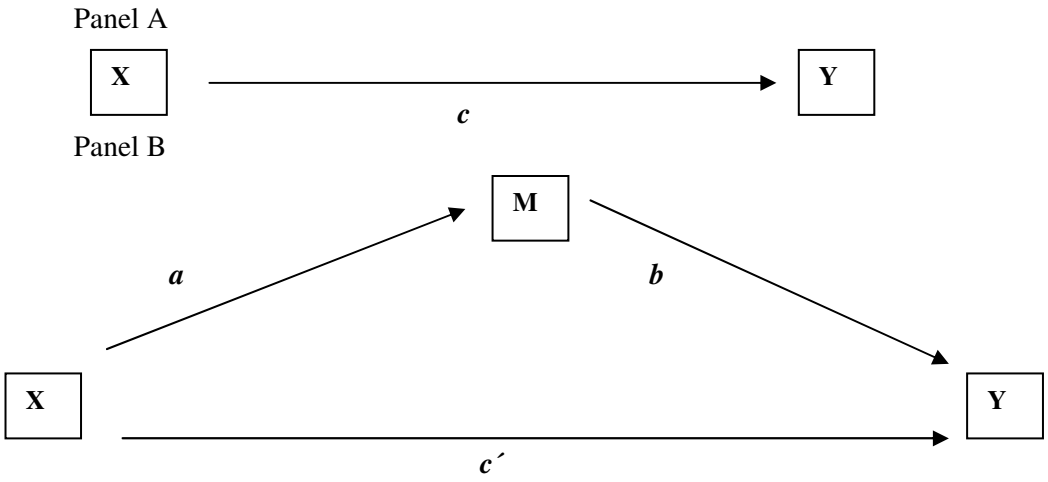
Table 3: Pearson's Correlation test for IFMC, LOC and

	PIFMC	GIFMC	AIFMC	RIFMC	EdIFMC	ExcIFMC	ExiIFMC	InIFMC	LOC	LORT
PIFMC	1									
GIFMC	-.003	1								
AIFMC	.118	.047	1							
RIFMC	.168	.273**	-.214*	1						
EdIFMC	.069	-.055	.041	.049	1					
ExcIFMC	.229**	.132	.482**	-.148	-.025	1				
ExiIFMC	.178*	.055	.654**	-.142	.187*	.534**	1			
InIFMC	.253**	-.088	.577**	-.094	.214*	.497**	.785**	1		
LOC	.072	-.157	.277**	-.332**	.070	.171*	.408**	.316**	1	
LORT	-.014	-.194*	.078	.019	-.071	-.120	-.005	-.062	.109	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Figure1: The Mediating Model.



Note: Panel A: Illustration of a direct effect (X effects Y).

Panel B: Illustration of a mediation design (X effects Y indirectly through M.

Figure 2: The Mediating Model of LOC and LORT in between IFMC and FP relationship**.**

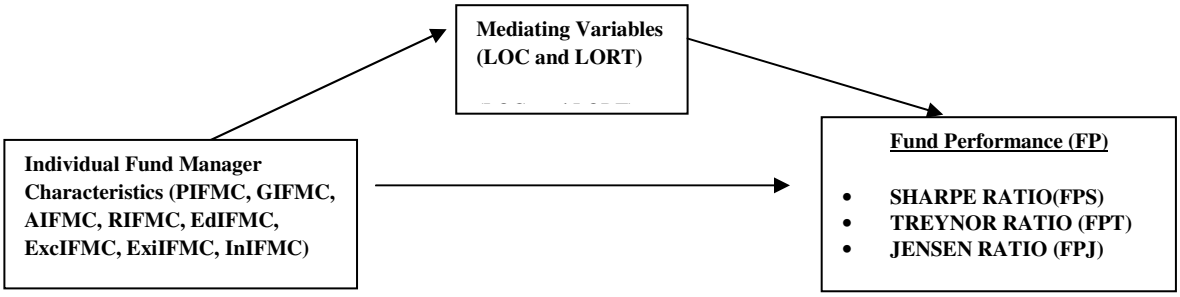


Table 4 Pearson's Correlation of IFMC, LOC, LORT, and FP (FPS, FPT, FPJ)

	PIFMC	GIFMC	AIFMC	RIFMC	EdIFMC	Exc IFMC
PIFMC	1					
GIFMC	-.003	1				
AIFMC	.118	.047	1			
RIFMC	.168	.273**	-.214*	1		
EdIFMC	.069	-.055	.041	.049	1	
ExcIFMC	.229**	.132	.482**	-.148	-.025	1
ExiIFMC	.178*	.055	.654**	-.142	.187*	.534**
InIFMC	.253**	-.088	.577**	-.094	.214*	.497**
LOC	.072	-.157	.277**	-.332**	.070	.171*
LORT	-.014	-.194*	.078	.019	-.071	-.120
FPS	.080	.004	.064	-.053	.107	-.110
FPT	-.023	.076	.065	-.100	.029	.070
FPJ	-.008	-.102	.065	-.031	-.122	.128

Table 4 Pearson's Correlation of IFMC, LOC, LORT, and FP (FPS, FPT, FPJ)

	Exi IFMC	In IFMC	LOC	LORT	FPS	FPT	F
PIFMC							
GIFMC							
AIFMC							
RIFMC							
EdIFMC							
ExcIFMC							
ExiIFMC	1						
InIFMC	.785**	1					
LOC	.408**	.316**	1				
LORT	-.005	-.062	.109	1			
FPS	-.017	-.046	-.051	-.184*	1		
FPT	.080	.110	-.051	.109	-.025	1	
FPJ	.045	.087	.066	.026	-.212*	.040	1

Appendix A

Table 1.2: Number of Respondents for IFMC Descriptive Analysis

	Frequency	Percent	Valid Percent	Cumulative Percent
Affin	2	1.5	1.5	1.5
Alliance	9	6.7	6.7	8.1
Amanah Raya Unit Trust	1	.7	.7	8.9
Amanah Saham Nasional	1	.7	.7	9.6
ARUFT	1	.7	.7	10.4
AmInvestment Services	18	13.3	13.3	23.7
Amanah Mutual Berhad	17	12.6	12.6	36.3
APEX Investment	1	.7	.7	37.0
ARECA Capital	1	.7	.7	37.8
CMS Trust Mgt Berhad	1	.7	.7	38.5
ASM Investment Services	1	.7	.7	39.3
AUTB	1	.7	.7	40.0
AVENUE Invest Berhad	8	5.9	5.9	45.9
CIMB - Investment Mgt	1	.7	.7	46.7
CIMB - Principal Asset Mgt	42	31.1	31.1	77.8
CIMB - Wealth Advisors	1	.7	.7	78.5
HLG UnitTrust Berhad	1	.7	.7	79.3
HWANGDBS Investment	2	1.5	1.5	80.7
ING Funds Berhad	1	.7	.7	81.5
KAD Fund Management	1	.7	.7	82.2
MAAKAL Mutual Berhad	3	2.2	2.2	84.4
OSK-UOB Unit Trust Mgt	1	.7	.7	85.2
Pacific Mutual Fund Bhd	1	.7	.7	85.9
Prudential	1	.7	.7	86.7
TA Investment	17	12.6	12.6	99.3
RHB Investment Management	1	.7	.7	100.0
Total	135	100.0	100.0	