Yensen Ni (Taiwan), Paoyu Huang (Taiwan), Chwentzy Shyong (Taiwan)

Investing bond funds in bear stock markets

Abstract

This paper examines whether investors are able to avoid losses even make profits during the recent bear stock market before 2008, since the authors argue that taking the past experience is likely to avoid losses in the present even future. By employing the mutual funds over the period 2002-2004 set as the bear market according to the wisdom of Dow Theory. This study uncovers that the bond funds exhibit superior performance after taking investors' behaviors into account seldom revealed in relevant studies.

Keywords: investors' behaviors, bear markets, bond funds.
JEL Classification: G11, G23.

Introduction

Mutual funds are important financial instruments due to the tremendous growth in recent decades, but many investors suffered substantial losses during the recent financial crisis. This phenomenon arouses our interests for investigation, since market participants do care about whether they are able to make profits for investing mutual funds even during bear markets.

In this study, we would contribute the literature due to several concerns seldom explored in the previous studies. First, this study incorporates investors' behaviors with mutual funds selected. Second, we reveal that fund category selected does matter for investing mutual funds during bear markets. Third, we set the period whose stock index is below the 10-years moving average (MA) line of the stock index as the bear market period before 2008 according to the wisdom of MA lines (Barsky and De Long, 1990; Neftci, 1991).

While surveying the relevant studies, Treynor and Mazuy (1966) propose a model to evaluate whether fund managers are able to time the market. Afterwards, Henriksson and Merton (1981) measure the security selection and market timing abilities for mutual funds by revising the model proposed by Treynor and Mazuy.

While regard to the security selection and market timing abilities, Chang and Lewellen (1984) reveal that mutual fund managers seldom have the security selection and market timing abilities. However, Bello and Janjigian (1997) show that equity funds often possess market timing abilities, especially for aggressive equity funds; whereas, the market timing abilities are seldom revealed for bond funds and balanced funds, implying that mutual funds in different categories might have different performances. In addition, Becker et al. (1999) argue that the market timing abilities are mainly based on the superior even inside information derived.

As for the indictors for measuring mutual funds, Treynor (1965) uses the ratio, the mean risk premium over the systematic risk of a mutual fund over the evaluation period for measuring the performances of mutual funds. Sharpe (1966) takes both systematic and unsystematic risk into account. Jensen (1968) then measures the mutual fund performance by taking the asset pricing model into account, which is even employed for measuring mutual funds nowadays (Turtle and Zhang, 2012).

Regarding the mutual fund performances, Grinblatt and Titman (1989) indicate that mutual funds with superior performances often exist in growth funds, aggressive growth funds, and even smaller funds, but investors' rewards would be declined due to rather high expenses charged for these funds. Additionally, Chan et al. (2002) show that growth-type funds outperform than value-type funds, implying that different types of mutual funds are likely to have different performances.

Recently, Jones (2010) indicates that the current global recession and financial crisis have significantly affected virtually all investment managers, which induces many investment managers to reconsider their investment approaches in terms of investment management risk. Acharya et al. (2009) point out that the integration of global financial markets may deliver large welfare gains through the efficient allocation of resources, which might come at the cost of increased systemic fragility evidenced by the ongoing financial crisis. Fahlenbrach, Prilmeier, and Stulz (2011) also show that banks performed worse during the 1998 crisis did well during the recent financial crisis. These findings reveal that either enterprises or financial instruments might not be hurt, and even gain profits during bear markets.

Furthermore, Luu and Yu (2012) find that the trend-following investment rules would be positive for government bonds, suggesting that the momentum strategies would matter in investing in government bonds. Besides, the above results are also supported by the evidence revealed by Huang, Sialm and

Zhang (2011), since they find that funds that increase risk perform worse than funds that keep stable risk levels over time, suggesting that risk shifting might be regarded as an indication of inferior ability. Thus, we concern that mutual funds similar to other financial commodities are able to exhibit superior performances due to either momentum strategies employed or stable risk level maintained.

As the evidences shown by Fahlenbrach, Prilmeier and Stulz (2011), we argue that past experience might benefit for enterprises while facing the dilemma in the future. We therefore use the data over the period 2002-2004 regarded as the recent recession before 2008, since we argue that taking the past experience is likely to avoid losses in the present and even future. Furthermore, Bello and Janjigian (1997) reveal that diverse mutual funds are likely to have different performances. We then employ the Treynor and Mazuy (TM) and Henriksson and Merton (HM) models to evaluate whether different categories of mutual funds would have different performances as well as whether some mutual funds would have superior performances even during bear markets.

In addition, we document that selecting top funds in bear markets as samples might be more attractive than selecting top funds in bull markets, which is somewhat similar to look for bright stars in the dark sky. Besides, investors are also inclined to invest top funds instead of other funds, which is also similar to find few brightest stars among these bright stars. There above concerns might be related with the psychological behaviors of investors rarely explored in the relevant studies.

The results reveal that most of the bond funds exhibit superior performances unrevealed for other categories of mutual funds, implying that the fund category selected does matter for bear markets seldom revealed for the stock and balance funds. Furthermore, we disclose that most of these bond funds reveal superior security selection abilities, especially during the bear markets.

The reminder of this paper is organized as follows. Section 1 introduces the data. The empirical results are presented in section 2. The final section section concludes.

1. Data

We collect the mutual fund data over the period 2002-2004 from the Taiwan Economic Journal and Securities Investment Trust and Consulting Association. As observing the Taiwan weight stock index (TWSI) plotted from 1998 to 2007, Figure 1 shows that the data period 2002-2004 is below 10-years moving average (MA) line of the Taiwan weighted stock index, which could be regarded as the bear market before 2008 according to the wisdom of MA lines (Barsky and De Long, 1990; Neftci, 1991).

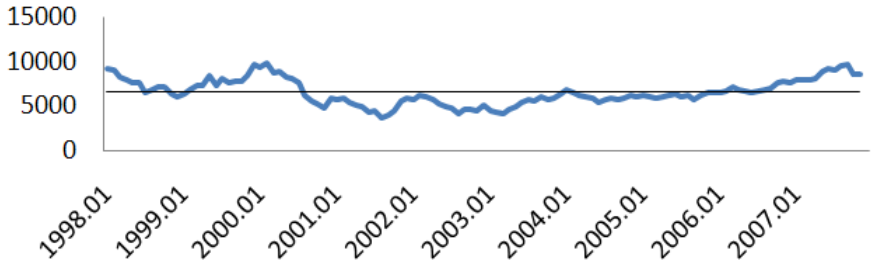

Fig. 1. TAIEX in Taiwan from 1998 to 2007

After collecting our studied samples, we present the numbers of mutual funds in different categories sold in Taiwan during the recession period as shown below.

Table 1. Mutual funds in different categories over 2002-2004

The numbers of mutual funds including the stock funds, bond funds, and balance funds were sold in Taiwan over the data period.

Fund category	2002	2003	2004
Stock funds	132	145	155
Bond funds	58	73	82
Balanced funds	22	27	34
Total	212	245	271

Table 1 shows that stock funds are over 50% of total mutual funds, as comparing with other funds. In addition, the numbers of the mutual funds falling in three categories are all increased gradually from 212 to 271 over the data period.

We present the descriptive statistics of Net Asset Value (NAV) returns including the means, standard deviations, minimums, and maximums for different categories of mutual funds in Table 2, which discloses that the NAV returns of stock funds are lower than those of other funds on average. We argue that the inferior performances of stock funds are mainly caused by the economy in recession. In addition, we reveal that bond funds have both higher mean NAV returns and lower volatilities, indicating that the bond funds outperform than other categories of mutual funds according to the portfolio selection proposed by Markowitz (1952).

Table 2. Descriptive statistics

Table 2 reports the means, standard deviations, minimum, and maximum for the NAV return of stock funds, the bond funds, and the balance bonds over the period 2002-2004. The NAV returns is defined as $(NAV_t - NAV_{t-1} + D_t) / NAV_{t-1}$, where NAV_t is the ending net value at t period, NAV_{t-1} is the ending net value at t-1 period, and D_t is the cash dividend at t period.

Performance indicates	Fund category	Mean	S.D.	Min.	Max.
NAV returns (%)	Stock funds	0.937	20.322	-39.770	54.420
	Bond funds	2.085	0.828	-2.310	6.650
	Balance funds	1.904	10.281	-28.190	37.7

2. Empirical results and analyses

According to the Henriksson and Merton model employed for assessing U.S. mutual funds (Bollen and Busse, 2005), we use the HM and TM models to test the security selection and market timing abilities for the individual funds ranked in top 20% NAV returns for the stock funds, bond funds, and balance funds in 2001. In addition, we select the mutual funds according to the performance in the bear market, since we argue that investors might prefer to invest mutual funds with superior performance, especially during the bear markets. In addition, we document that selecting top funds in bear markets as samples might be more attractive than selecting top funds in bull markets, which is somewhat similar to look for bright stars in the dark sky. Besides, investors are also inclined to invest top funds instead of other funds, which is also similar to find few brightest stars among these bright stars. There above concerns might be related with the psychological behaviors of investors seldom concerned in relevant studies. We therefore examine the security selection and market timing abilities for the top 20% stock funds, balance funs, and bond funds as our samples and the results are presented in Tables 3-5.

2.1. Empirical results for stock funds. Table 3 presents the security selection and market timing abilities for top 20% stock funds. The results reveal that only a few stock funds exhibit the security selection and market timing abilities, implying that stock funds seem to be difficult to possess the security selection and market timing abilities during the bear market. We infer that the results might be caused by the regulation of holding over 70% securities set by authorities for mutual funds, so these stock funds might not be easy to have superior performances due to share prices declined over the recession period.

Table 3. TM and HM models for stock funds

Table 3 presents the security selection and market timing abilities for individual stock funds ranked in the top 20% according to the 2001 NAV returns. In this study, we employ the Taiwan weight stock index as the benchmark for evaluating these stock funds in the TM and HM models. ** and * are statistically significant at the 1% and 5 % levels, respectively.

TM model: $R_i - R_f = \alpha_1 + \beta_1(R_m - R_f) + \gamma_1(R_m - R_f)^2 + \varepsilon_1$.

HM model: $R_i - R_f = \alpha_2 + \beta_2(R_m - R_f) + \gamma_2 \max(0, R_m - R_f) + \varepsilon_2$.

Mutual fund (2002-2004)	TM model		HM model	
	α_1	γ_1	α_2	γ_2
	(selection)	(timing)	(selection)	(timing)
Cathay Greater China Fund	1.704	-3.085**	-0.014	0.225
FGIT Excellence Fund	1.388	-0.416	1.524	-0.916
FGIT Duo Duo Fund	1.545	-0.218	0.850	0.101
UPAMC Quality Growth Fund	1.347	-0.446	0.844	-0.133
Fu Bon Value Fund	0.735	-0.667	-0.556	1.011
Fu Hwa Fund	-1.162	0.634	-0.030	-0.646
Jih Sun Fund	0.368	-1.380	-0.776	0.729
Cathay Technology Fund	0.611	-0.215	-1.259	1.936
CITC Marathon Fund	0.207	-1.317	-0.704	0.538
Cathay Small & Medium Cap Fund	1.110	-0.741	0.398	0.117
Cathay Cathay Fund	-0.655	0.030	-0.479	0.079
Fu Bon Aggressive Growth Fund	0.904	-1.020	-0.820	1.336
JF Value Growth Fund	2.481*	-2.085*	-0.157	1.377
NITC Double Fortune Fund	-1.053	-0.273	-1.001	0.291
Fuh-Hwa Small Cap Fund	0.872	-1.504	-0.071	0.220
PCA Small & Medium Cap Fund	0.398	-1.013	-0.079	0.038
NITC High-Tech Fund	0.341	-0.429	-1.257	1.643

Table 3 (cont.). TM and HM models for stock funds

Mutual fund (2002-2004)	TM model		HM model	
	α_1	γ_1	α_2	γ_2
	(selection)	(timing)	(selection)	(timing)
FGIT Mainstream Fund	0.837	-0.422	-0.642	1.287
Reliance Niche Fund	2.338*	-4.280**	-0.223	0.539
Fuh-Hwa High Growth Fund	-0.196	-1.067	-0.831	0.467
NITC Wonderful Fund	-0.516	-0.488	-0.558	0.095
Fuh-Hwa Digital Economy Fund	0.800	-0.763	-0.030	0.386
HSBC Taiwan Blue-Chips Fund	-1.368	0.548	-1.623	1.102
NITC Fuyuan Fund	-1.068	0.139	-1.086	0.533
Fu Hwa II Fund	-0.538	-0.395	-2.507*	2.484*
HSBC Taiwan Small & Medium Cap Fund	-0.749	-0.465	-0.300	-0.395
Jih Sun Small Cap Fund	0.632	-1.271	-1.783	2.204*
CITC Steady Growth Fund	-0.900	-0.385	-2.065*	1.665
INVESCO Mainstream Fund	-0.280	0.861	-0.428	0.617
INVESCO Growth Fund	-0.699	0.162	-1.014	0.744
HSBC Taiwan Growth Fund	-1.785	0.409	-1.871	1.025
FEASIT Taiwan Flagship Fund	0.427	-0.958	0.941	-1.162
Chung Hsing Taiwan Fund	0.490	-0.825	-1.613	2.048*
Fidelity Taiwan Growth Fund	2.063*	-0.234	0.722	0.658

2.2. Empirical results for balance funds. Table 4 shows that the security selection and market timing abilities are not revealed in these balance funds, since none of these funds exhibit the security selection and market timing abilities, at 5% statistically significant level. We infer that these balanced funds unrevealed superior performances might result from holding considerable stocks in bear markets.

Table 4. TM and HM models for balance funds

Table 4 presents the security selection and market timing abilities for individual stock funds ranked in the top 20% according to the 2001 NAV returns. In this study, we employ the Taiwan weight stock index as the benchmark for evaluating these balance funds in the TM and HM models. ** and * are statistically significant at the 1% and 5 % levels, respectively.

TM model: $R_i - R_f = \alpha_1 + \beta_1(R_m - R_f) + \gamma_1(R_m - R_f)^2 + \varepsilon_1.$

HM model: $R_i - R_f = \alpha_2 + \beta_2(R_m - R_f) + \gamma_2 \max(0, R_m - R_f) + \varepsilon_2.$

Mutual fund (2002-2004)	TM model		HM model	
	α_1	γ_1	α_2	γ_2
	(selection)	(timing)	(selection)	(timing)
JF Balanced Fund	0.732	0.981	0.652	0.141
Cathay Assets Allocation Neutral Fund	0.208	0.344	-0.237	0.563
HSBC Taiwan Safe & Rich Fund	-0.371	0.778	0.634	-0.726
Fuh-Hwa Heirloom No. 2 Balanced Fund	0.686	0.412	1.234	-0.797
Prudential Financial Balanced Fund	0.143	0.091	0.750	-0.747
INVESCO Balanced Fund	0.628	-1.183	0.312	-0.357
TIIM Prime Balanced Fund	-0.124	-0.359	-1.172	1.158
Grand Cathay Balanced Fund	0.450	0.748	-0.917	1.700
Fu Hwa New Balanced Fund	0.972	-0.195	-0.569	1.314
KGI Einstein Balanced Fund	0.885	-0.179	-0.564	1.251
Ta Chong Diamond Fund	-0.323	0.786	-0.912	1.139
Fuh-Hwa A Life Goal Balanced Fund	0.794	-0.214	-0.690	1.318

2.3. Empirical results for bond funds. Table 5 reveals that 15 out of 18 bond funds exhibit positive security selection abilities, statistically significant at 5% level unrevealed in Table 3-4. The results are rather impressive due to the superior performances exhibited by bond funds even during the recession period.

Table 5. TM and HM models for bond funds

Table 5 presents the security selection and market timing abilities for individual stock funds ranked in the top 20% according to the 2001 NAV returns. In this study, we then employ the MSCI global bond index as the benchmark[1] for the evaluating these bond funds in the TM and HM models. ** and * are statistically significant at the 1% and 5 % levels, respectively.

TM model: $R_i - R_f = \alpha_1 + \beta_1(R_m - R_f) + \gamma_1(R_m - R_f)^2 + \varepsilon_1$.

HM model: $R_i - R_f = \alpha_2 + \beta_2(R_m - R_f) + \gamma_2 \max(0, R_m - R_f) + \varepsilon_2$.

Mutual fund (2002-2004)	TM model		HM model	
	α_1	γ_1	α_2	γ_2
	(selection)	(timing)	(selection)	(timing)
CITC High Yield Fund	6.753**	-0.502	3.846**	0.231
ABN AMRO Aggressive Taiwan Bond Fund	0.785	1.007	0.809	0.004
Fuh-Hwa Yuli Bond Fund	14.524**	-0.193	9.649**	-0.788
HSBC NTD Money Management Fund 2	6.824**	-0.421	4.708**	-0.703
Fuh-Hwa Albatross Fund	13.498**	-0.245	8.864**	-0.637
TIIM High Field Fund	13.546**	-0.372	8.754**	-0.521
CTTC Safe Income Fund	13.085**	-0.159	8.770**	-0.795
Fuh-Hwa Bond Fund	13.545**	-0.184	8.863**	-0.578
CITC Cash Reserves Fund	12.411**	-0.263	8.163**	-0.615
Fu Hwa Bond Fund	11.818**	-0.191	7.669**	-0.441
Fu Bon Ju-I II Fund	9.948**	-0.072	6.593**	-0.500
ABN AMRO Income Fund	11.760**	-0.280	7.633**	-0.475
Fu Bon Millennium Dragon Bond Fund	10.571**	0.151	6.952**	-0.382
Prudential Financial Return Fund	5.178	0.323	2.535*	0.938
Enhanced Bond Fund	7.961**	-0.605	6.009**	-1.469
Jih Sun Excellent Bond Fund	1.576	2.631**	1.495	0.383
INVESCO Taiwan Government Bond Fund	1.136	1.030	0.787	0.297
New Era Bond Fund	6.996**	1.395	5.452**	-0.771

As deducing our empirical findings, we find that interest rates gradually declined in the beginning of 2002, and dropped sharply at the end of the 2002 (see Figure 2). Thus, we infer that most of the bond funds exhibit superior performances, which might result from bond prices negatively related to interest rates[2].

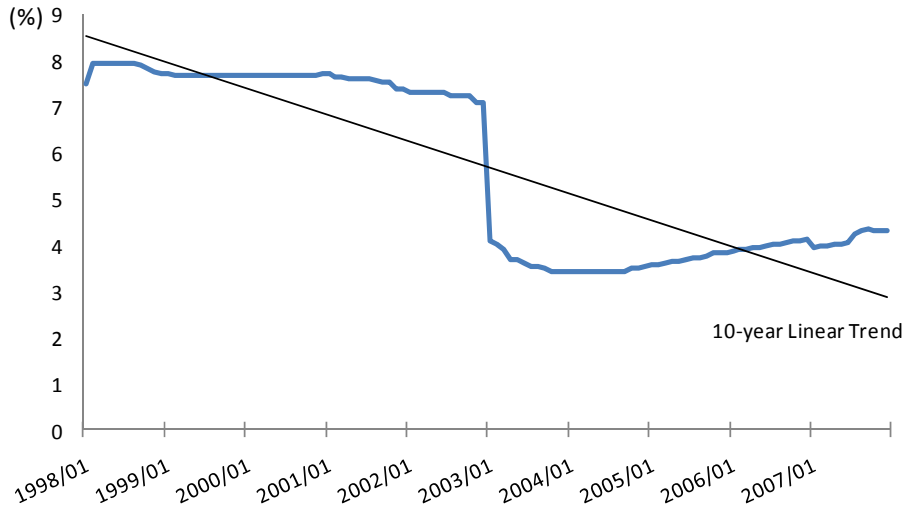

Fig. 2. Interest rate trends in Taiwan from 1998-2007

[1] We also employ the Taiwan weight stock index as the benchmark for TM and HM models. The results are similar to the results revealed by employing the MSCI global bond index as the benchmark.

[2] In addition, the global interest rate is low during the studied period of 2002-2004 due to the world economy downturn, but the world economy had gradually recovered in 2004. Then, the US Federal Reserve raised the interest rate to respond to the recovery of the U.S. economy. Nevertheless, Taiwan's interest rate still remains at a low level, since the authority in Taiwan does not raise the interest rate accordingly. Thus, the above inference might explain why these bond funds have better performance.

2.4. Further empirical results provided for bond funds. The above results show that investors would be able to recognize a bear market in stocks in time that they could switch to bond funds. Instead of employing a single market and a single bear market, we further explore whether the above results would be shown by employing multiple markets and multiple bear market periods. Thus, we investigate whether the impressive results revealed by bond funds would be existed in international bond funds sold in Taiwan over the same data period. In addition, we also explore the recent 2008-2010 bear market period due to recent financial crisis occurred in 2008 for the bond funds issued by international and domestic financial institutions for further investigation. Thus, we use the HM and TM models to test the security selection and market timing abilities for the individual funds ranked in top 20% NAV returns for the international bond funds sold in Taiwan in 2001, since investors would prefer to invest bond funds with superior performance. In addition, we screen the bond funds ranked in top 20% NAV returns for the bond funds issued by international and domestic financial institutions in 2007, and then investigate the bond fund performance over 2008-2010. Therefore, we examine the security selection and market timing abilities for the top 20% bond funds as our samples and the results are presented in Tables 6-8.

Table 6. TM and HM models for international bond funds sold in Taiwan over 2002-2004

Table 6 presents the security selection and market timing abilities for individual stock funds ranked in the top 20% according to the 2001 NAV returns. In this study, we then employ the MSCI global bond index as the benchmark for the evaluating these bond funds in the TM and HM models. ** and * are statistically significant at the 1% and 5 % levels, respectively.

TM model: $R_i - R_f = \alpha_1 + \beta_1(R_m - R_f) + \gamma_1(R_m - R_f)^2 + \varepsilon_1.$

HM model: $R_i - R_f = \alpha_2 + \beta_2(R_m - R_f) + \gamma_2 \max(0, R_m - R_f) + \varepsilon_2.$

Mutual fund (2002-2004)	TM model		HM model	
	α_1	γ_1	α_2	γ_2
	(selection)	(timing)	(selection)	(timing)
ABN AMRO Asia Bond Fund A-Class	3.10**	-0.38	2.49*	-0.33
Alliance Bernstein – Global Bond Portfolio Class A	2.38**	-0.85	2.44*	-1.24
Aberdeen Glo. Sovereign Yield Bond Fund	2.96**	-0.67	2.68**	-0.88
Baring International Bond Fund-Class A EUR Inc	-1.12	1.15	-0.97	0.72
Franklin Adjustable U.S. Gov't Sec. Fund	2.37**	-0.64	2.02*	-0.59
Franklin Templeton Investment Funds-Franklin High Yield Fund Class A (Mdis) USD	3.73**	-0.58	3.55**	-1.21
Fidelity Funds – Euro Bond Fund	2.29**	-0.12	2.28*	-0.77
HSBC Global Investment Funds- Global Bond AD	2.59**	-0.90	2.49*	-1.12
Investec Global Strategic Income Fund Class C	2.83**	-0.97	3.07**	-1.69
Invesco European Bond Fund A EUR	2.53**	-0.95	2.69**	-1.48
Invesco Emerging Markets Bond Fund A-SD USD	3.65**	-0.56	3.47**	-1.18
Janus Capital Funds Plc – Janus US Short Term Bond Fund A USD Acc	2.26**	-0.52	2.02*	-0.65
Janus Capital Funds Plc – Janus High-Yield Fund B	4.15**	-0.45	3.68**	-0.88
JPMorgan Global Bond and Currency Fund	2.34**	0.60	2.08*	-0.10
LEGG MASON EURO CORE PLUS BOND FUND	3.04**	-0.20	2.97**	-0.95
MFS Meridian – Strategic Income Fund B1	2.51**	0.01	1.84	0.12
MLIIF Global Bond (Euro) A1-Distribution	1.70	-1.93	2.19*	-2.15
MLIIF Euro Bond Fund A1-Dist EUR	1.18	-0.96	1.52	-1.30
Parvest Bond Euro – Classic Cap.	4.18**	-1.58	4.13**	-2.02*
Parvest Bond Euro Medium Term – Classic Cap.	3.78**	-0.96	3.97**	-1.71
Parvest Bond JPY – Classic Cap.	0.33	-1.09	0.56	-0.95
Parvest Flexible Bond World – Classic Cap.	2.37**	0.09	1.97*	-0.15
Parvest Flexible Bond World – Classic Cap.	2.69**	-0.23	2.78**	-1.08
Pioneer Funds – U.S. High Yield A2	-0.21	-0.58	-0.15	-0.30
Pioneer Multi Currency Strategy Fund A2	1.35	1.07	1.18	0.33
Pioneer US High Yield Corporate Bond A1	1.54	-0.65	1.29	-0.46
Pioneer US High Yield Corporate Bond B1	1.47	-0.83	1.28	-0.61
SIS Int'l Fixed Interest Fund	-0.38	-0.30	-0.04	-0.49
Threadneedle (Lux) – Global Bonds – Class AU – USD	3.56**	-1.38	3.69**	-1.97*
Threadneedle (Lux) – Euro Active Bonds – Class AE – USD	3.38**	-0.93	3.20**	-1.27
Vontobel Fund – Eastern European Bond B	0.20	1.68	2.97**	-0.93
WIP U.S. High Yield Fund A	3.60**	-0.78	3.62**	-1.53

While we employ the international bond funds sold in Taiwan, Table 6 reveals that about 70% of bond funds exhibit positive security selection abilities, statistically significant at 5% level revealed in Table 6. The results are similar to the results revealed in Table 5. As inferring our empirical findings, we find that interest rates are declined in many developed countries after the Tech Bubble occurred in 2000. In addition, these bond funds sold in Taiwan are issued by well-known international financial institutions, and most of their investing targets are U.S. and European bonds. As a result, most of the bond funds exhibit superior performances due to the bond prices negatively related to interest rates.

Table 7. TM and HM models for international bond funds sold in Taiwan over 2008-2010

Table 7 presents the security selection and market timing abilities for individual stock funds ranked in the top 20% according to the 2007 NAV returns. In this study, we then employ the MSCI global bond index as the benchmark for the evaluating these bond funds in the TM and HM models. ** and * are statistically significant at the 1% and 5 % levels, respectively.

TM model: $R_i - R_f = \alpha_1 + \beta_1(R_m - R_f) + \gamma_1(R_m - R_f)^2 + \varepsilon_1$.

HM model: $R_i - R_f = \alpha_2 + \beta_2(R_m - R_f) + \gamma_2 \max(0, R_m - R_f) + \varepsilon_2$.

Mutual fund (2008-2010)	TM model		HM model	
	α_1 (selection)	γ_1 (timing)	α_2 (selection)	γ_2 (timing)
AllianceBernstein – Global Bond Portfolio Class A2	2.43*	-2.18*	2.68**	-1.99*
AllianceBernstein – American Income Portfolio Class B2 USD	1.05	1.73	-0.26	1.98*
AllianceBernstein – Global Bond Portfolio Class AT	2.33*	-2.13*	2.52*	-1.86
AllianceBernstein – Global Bond Portfolio Class B	1.62	-1.59	1.63	-1.16
AllianceBernstein –European Income Portfolio Class A EUR	1.58	-0.57	1.72	-0.97
AllianceBernstein – European Income Portfolio Class I2 EUR	1.96	-0.85	2.12*	-1.25
AllianceBernstein – Global Bond Portfolio Class B2	1.38	-0.03	2.17*	-1.62
AllianceBernstein – Global Bond Portfolio Class C2	2.15*	-2.18*	2.35*	-1.81
AllianceBernstein – Global Bond Portfolio Class I	2.10*	-1.09	1.85	-0.82
AllianceBernstein – Global High Yield Portfolio Class C2 EUR	1.51	1.87	1.28	0.37
BNP Paribas L1 Bond – Classic Cap.	2.05*	-3.47**	2.07*	-1.98*
BNP Paribas L1 Convertible Bond Best Selection Europe – Classic Dist.	-0.04	1.17	-0.86	1.53
Capital International Global Bond B	1.59	0.24	2.66**	-1.98*
Capital International Global Bond B2	-2.38*	5.23**	-2.49*	2.83**
Capital International Bond B	1.32	0.36	1.81	-1.04
Capital International Bond B2	-2.12*	2.84**	-3.01**	2.97**
Capital International Global High Income Opportunities B	2.88**	-0.49	2.65**	-0.94
Eurizon EasyFund – Bond High Yield R	3.02**	0.50	1.81	0.68
Eurizon EasyFund – Bond Emerging Markets R	1.98*	2.17*	1.44	0.72
Eurizon EasyFund – Bond LTE R	2.04*	-2.00*	2.10*	-1.53
First State Global Umbrella Fund plc – First State Global Bond Fund	-0.45	2.40*	-0.04	0.41
Fidelity Funds – International Bond Fund	-1.87	3.42**	-1.69	1.63
Fidelity Funds – European High Yield Fund A-MDIST	1.16	0.05	0.54	0.43
Fidelity Funds – Bond Fund B-MDIST	0.41	1.35	1.13	-0.68
Fidelity Funds – Bond Fund B-MDIST-A	-2.18*	2.50**	-3.14**	3.02**
Franklin Templeton Investment Funds – Franklin A. Government Fund Class A (Mdis) USD	2.25*	-2.13*	2.07*	-1.33
Franklin Templeton Investment Funds – Franklin B. Government Fund Class AX(acc) USD	2.16*	-2.15*	2.04*	-1.39
Franklin Templeton Investment Funds – Templeton Asian Bond Fund Class A (Mdis) USD	-0.42	4.07**	-1.58	3.13**
Investec Global Strategic Income Fund Class C	0.21	3.03**	-1.00	2.60**
Investec Global Strategy Fund – High Income Bond Fund Class C	2.01*	-0.68	1.71	-0.57
Legg Mason Western Asset Global High Yield Fund Class A US$ DISTR.(D)	0.64	2.11*	-0.47	1.99*
Legg Mason Western Asset Global High Yield Bond Fund Class A US$ Accum.	0.80	2.30*	-0.41	2.12*
PineBridge Global Funds-PineBridge Global Bond Fund Class A	-1.09	1.03	-0.08	-0.63
NATIXIS International Fund(Dublin)I – Loomis Sayles Multisector Income Fund	0.65	0.71	-0.40	1.43
NATIXIS International Fund(Dublin)I – Loomis Sayles Multisector Income Fund-R/A EUR	2.53**	-0.90	2.59**	-1.34
NATIXIS International Fund(Dublin)I – Loomis Sayles Multisector Income Fund-R/D GBP	2.89**	-1.90	3.04**	-1.94
NATIXIS International Fund(Dublin) – Loomis Sayles Global OpportunisticBond Fund-R/A EUR	2.75**	-1.82	3.40**	-2.52*
NATIXIS International Fund(Dublin)I – Loomis Sayles Global Opportunistic Bond Fund-R/D GBP	2.96**	-2.71	3.58**	-2.87**
Threadneedle (Lux) – Global Bonds (USD) – Class AU – USD	-2.60**	2.60**	-1.61	0.52

Table 7 (cont.). TM and HM models for international bond funds sold in Taiwan over 2008-2010

Mutual fund (2008-2010)	TM model		HM model	
	α_1 (selection)	γ_1 (timing)	α_1 (selection)	γ_1 (timing)
Threadneedle (Lux) – Short-Term Bonds – Class	2.55	-2.35	3.48**	-3.01**
Threadneedle (Lux) – Ctive Bonds – Class AE	-2.47*	2.52*	-3.08**	2.61**
Threadneedle (Lux) – Global High Yield & Emerging Market (Euro) – Class AE – USD	-2.48*	0.94	-2.66**	1.50
Threadneedle (Lux) – Global Bonds (USD) – Class AU – EUR	1.99*	-1.94	3.03**	-2.47*
Threadneedle (Lux) – High Income Bonds – A	3.49**	-0.08	3.11*	-0.81
Threadneedle (Lux) – High Income Bonds – B	1.64	1.78	0.14	2.04*

In fact, we also investigate for the performance of bond funds sold in Taiwan including the bond funds issued by either international or domestic financial institutions by employing the recent bear market period due to the financial crisis occurred in 2008. The results for these bond funds issued by either international or domestic financial institutions are shown in Tables 7-8.

After exploring the performance of international bond funds sold in Taiwan, we reveal that the results revealed in Table 7 are rather different from those shown in Table 6. As revealed in TM and HM models for these bond funds, we reveal that some bond funds exhibiting either positive or negative security selection abilities, statistically at 5%, but other bond funds might not exhibit security selection abilities.

These bond performances revealed in the data period 2008-2010 seem to be not the same as those revealed in the data period 2002-2004. We argue that subprime bonds issues causing 2008 financial crisis might result in different results shown in Table 6 and Table 7. In fact, US authorities facing 2008 financial crisis by declining the interest rate quickly should enhance bond fund performance; however, the portfolios of several bond funds comprising of subprime bonds weaken their performance. As a result, the performances of these bond funds might not exhibit the similar results like Table 6, as the divergent results shown in Table 7.

Table 8. TM and HM models for bond funds issued by domestic institutions over 2008-2010

Table 8 presents the security selection and market timing abilities for individual stock funds ranked in the top 20% according to the 2007 NAV returns. In this study, we then employ the MSCI global bond index as the benchmark for the evaluating these bond funds in the TM and HM models. ** and * are statistically significant at the 1% and 5 % levels, respectively.

TM model: $R_i - R_f = \alpha_1 + \beta_1(R_m - R_f) + \gamma_1(R_m - R_f)^2 + \varepsilon_1$.

HM model: $R_i - R_f = \alpha_2 + \beta_2(R_m - R_f) + \gamma_2 \max(0, R_m - R_f) + \varepsilon_2$.

Mutual fund (2008-2010)	TM model		HM model	
	α_1 (selection)	γ_1 (timing)	α_2 (selection)	γ_2 (timing)
Allianz Global Investors Global Bond Fund-A Share	1.00	-3.97**	2.26**	-3.45**
Cathay Global Bond Fund	-1.00	-1.91	0.93	-2.92**
Fuh-Hwa Global Bond Fund	1.24	-0.06	1.97*	-1.47
Hua Nan Global Short Term Fixed Income und	2.45*	1.09	2.58**	0.92
JPMorgan (Taiwan) Global Bond Fund – Distribution Class	-2.13*	1.73	-1.00	-0.15
JPMorgan (Taiwan) Global Bond Fund – Accumulation Class	-2.12*	1.73	-1.00	-0.14
PineBridge US Dual Core Income Fund-A	1.05	-4.71**	1.83	-3.07 **
PineBridge US Dual Core Income Fund-B	0.91	-4.65**	1.66	-2.95**
Polaris Fu-Li Strategic Income Fund	2.13*	2.55*	-0.59	3.03**
Prudential Financial Return Fund	2.77**	2.56**	3.81**	1.38
Reliance Wealth Bond Fund	1.08	-2.34*	1.70	-2.04*
Taishin Asia-America Short Duration Bond Fund	-1.04	1.25	-1.16	0.99

While we explore the performances of bond funds issued by domestic institutions, we reveal that the results shown in Table 8 are similar to Table 7 in spite of few bond funds issued by domestic financial institutions. We argue that the portfolios of bond funds issued by domestic institution also include either corporate bonds or government bonds issued in Taiwan, the U.S., and European countries over the data period of 2008-2010. Thus, the similar findings are shown in Table 7 and Table 8.

Conclusion

In this study, we investigate if investors could avoid losses, beat the market, and even make profits during

the recent bear market before 2008 in the beginning, since we argue that taking the past experience is likely to avoid losses in the present even future.

We therefore examine the security selection and market timing abilities for the mutual funds during the recession period. The results reveal that only a few mutual funds demonstrate the abilities of security selection and market timing concurrently during the bear market, but most of the bond funds do exhibit strong security selection abilities superior to other categories of mutual funds. The results imply that the fund category selection does matter for investing mutual funds during the bear markets.

However, instead of employing a single market and a single bear market, we further explore whether the above results would be also shown by employing multiple markets and multiple bear market periods. Thus, we further investigate whether the impressive results revealed by bond funds would be also existed in international bond funds sold in Taiwan over the same data period. In addition, we further explore the recent 2008-2010 bear market period due to the recent financial crisis occurred in 2008 for either international or domestic bond funds sold in Taiwan for further investigation.

In this study, we would contribute the literature due to several concerns seldom explored in the previous studies. First, this study incorporates investors' behaviors into the mutual funds selected, since we argue that selecting top funds in bear markets as samples would be more appealing than selecting top funds in bull markets as well as investors are inclined to invest top funds instead of other funds, which seems to be rarely concerned in the relevant studies. Second, we reveal that the fund category selected does matter for investing mutual funds during bear markets. Third, the bear market is measured by the 10 years moving lines according to the wisdom of Dow Theory, which is rarely explored in the relevant studies.

In spite of somewhat different results revealed by employing the data period 2008-2010 as comparing with the results shown by using the data period 2002-2004, we still find that quite a few bond funds exhibit superior performance over the recent bear market period. In addition, some bond funds exhibiting inferior performances are likely to result from incorporating subprime bonds.

Therefore, we suggest that market participants may take bond funds into account while the economy in recession, since bond fund performances might be promoted due to the inverse relationships between interest rates and bond prices. However, we argue that investors would be insensible to invest bond funds during the bear markets while the inflation even hyperinflation occurred in bear markets, because bond prices would be declined sharply as interest rates rising up. In addition, we argue that investing government bonds would be much safer than investing corporate bonds, since the default risks might be occurred for some of corporate bonds as the result revealed while employing the 2008-2010 recent bear market periods.

In summary, the goal of this study is to provide the objective even valuable information for investors as references, since we wish that market participants could avoid losses, beat the market, and even make profits in the mutual fund investments, especially for the bond fund investments.

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