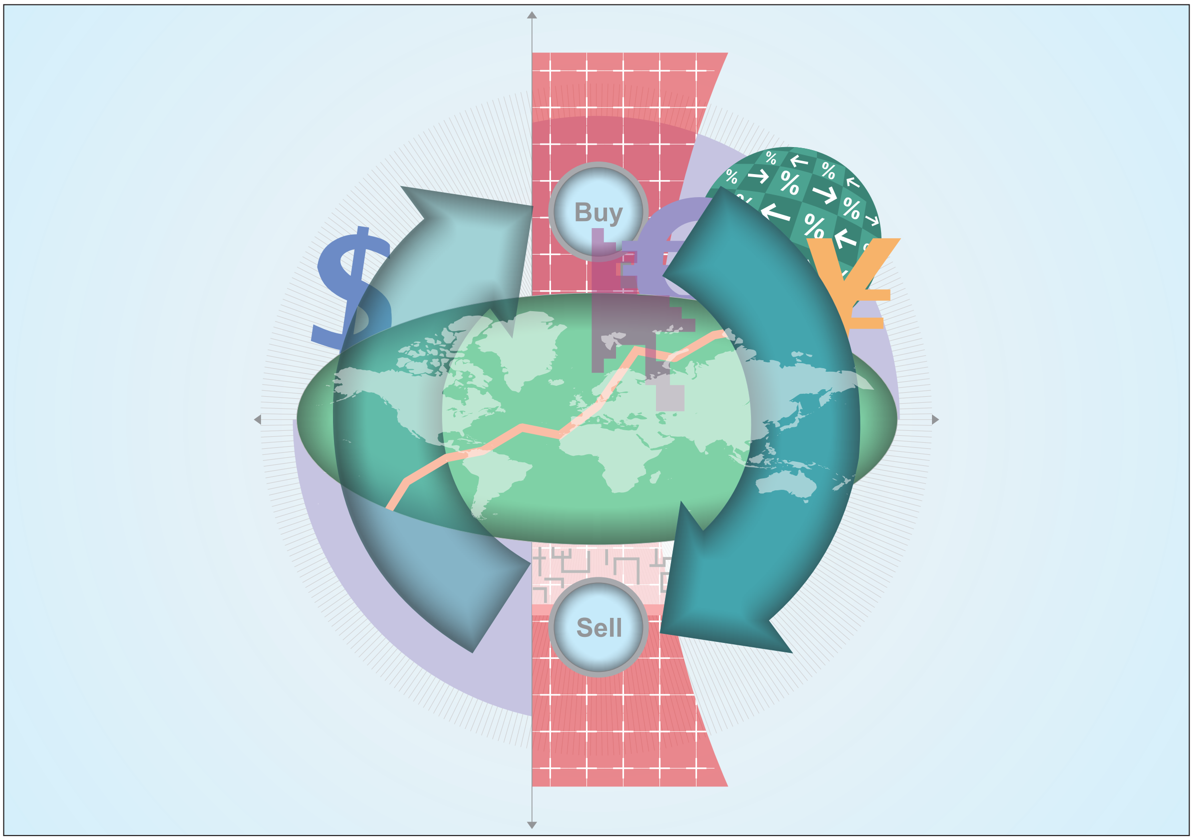

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A Bet on Passive Investment Strategies

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Abstract: This study, focused on market timing models, agrees with the financial literature in favor of passive investment or indexing strategies, owing to the general underperformance of active management and to the empirical evidence detected regarding the inability of economic variables to predict market returns. In the Spanish mutual fund market, two fund families control 40% of the market. These two banks show a superior stock picking ability in comparison with the rest of the banks. But this ability is perverse even though managers use private information. On the other hand, we fit with the literature in finding that significant market timing ability is rare, although the smallest banks display superior market timing ability. Moreover, we agree with the financial literature in favor of the better specification of conditional performance models with regard to the traditional ones.

Key words: Passive management, prediction inability, market timing ability, conditional models, stock picking ability

INTRODUCTION

On occasions, in addition to publicly available information, investment fund managers use another type of private information that only they possess and which the market cannot access, in order to compile portfolios.

Portfolio performance that is attributable to the good decisions and actions taken by the manager can either derive from the manager's ability to choose securities (stock picking ability) or from his prediction ability and therefore anticipation of global market returns (market timing ability). The literature on the subject finds it difficnlt to break ability down into these two distinctive categories.

Many authors have denied the ability of managers to anticipate the market, as for example Knigge *et al*. (2004) and Fung *et al*. (2002). However, there are also studies that assert the existence of market timing ability on the part of the managers, for example the papers presented by Jiang *et al*. (2005). And, other authors, such as Lee (1999), find evidence of perverse timing ability.

After this brief literature check on market timing, we observe that there are works with different results, nevertheless, in general, financial literature hardly finds significant market timing coefficients (Roy and Deb, 2004) and the performance of funds that exhibit significant timing is more often negative than positive.

This second statement leads us to conclude that fund managers do not create added value and that their management is inefficient; we wonld opt, therefore, for passive management of financial assets or the use of indexing techniques, as signaled by Malkiel (2003).

In this respect, Malkiel (2003) clearly finds in favor of passive investment strategies in a variety of different markets, owing to the efficiency of markets in general and the difficult nature of market predictions. Malkiel demonstrates empirically that, after costs, passive management outperforms active management. In fact, a passive strategy not only minimizes taxes, but also minimizes turnover, thereby reducing brokerage costs and the spread between bid and asked prices.

Moreover, if we take into account the general inability, found by the financial literature, of the economic information variables to predict the market, we will be supporting, again, the implementation of passive investment strategies (Malkiel, 2003; Ross, 2002; Cochrane, 2001).

In present study, we apply the market timing models developed by Treynor and Mazuy (1966) and by Merton and Henriksson (1981), in their traditional versions and in their conditional versions developed by Ferson and Schadt (1996) and we contribute empirical evidence in favor of three ideas which are also supported by the financial literature:

- The scarce significance of market timing coefficients.
- The negative average performance, leading to passive investment strategies.
- The inability of predetermined information variables about the state of the economy to predict the market.

In this way, we demonstrate in this study, that the widespread results that occur in highly scrutinized markets such as US market can also be found in relatively unexplored markets, such as the Spanish investment funds market.

The Spanish investment funds market is one of the most relevant financial industries in the European market. Moreover, there is still a significant lack of empirical conclusions about efficiency in European investment funds markets when compared to the number of works conducted in the US investment fund industry. The same occurs in other American investment fund industries as in the Canadian market (Ayadi and Kryzanowski, 2004).

Moreover, the Spanish mutual fund market is specially interesting to analyze because of its very distinct features: the market is relatively young, consisting of many small funds, there is an over-reliance on domestic assets and 10 fund families manage more than 70% of all assets with two of them managing 40% of assets (a much larger share than in most other developed markets). So, given that our market is highly concentrated, we have performed a comparative analysis between the market timing and stock picking results obtained by the two biggest fund families and those reached by the rest of the banks.

Treynor and Mazuy's Model: Traditional and Conditional Versions

This model is constructed around the notion that managers continually try to outguess the market, oscillating between two lines, high volatility and low volatility. Figure 1 shows that when a manager opts for high volatility (line 3-4), the market rises and when s/he opts for low volatility (line 1-2) the market falls. The resulting line (1-2-3-4) of a fund that continually outguesses the market is not straight. Considering that no fund can anticipate the market correctly, a gradual transition is assumed from a flat to a steep slope. Hence, with the slope varying more or less continually between the extreme points of both lines, the resulting line might be concave, which is specified better with the inclusion of a quadratic regression:

$$r_{p,t+1} = \alpha_p + b_p r_{m,t+1} + \gamma_{tmu}\left[r_{m,t+1}\right]^2 + \upsilon_{p,t+1} \quad (1)$$

Where the coefficient γ_{tmu} measures a manager's market timing skill.

Admati *et al*. (1986) describe a model in which a manager with constant absolute risk aversion in a normally distributed world, observes at time t a private signal, $r_{m,t+1}+\eta$, equal to the future market return plus noise. The manager's response is to change the portfolio beta as a linear function of the signal, so that the coefficient γ_{tmu} is positive if the manager increases beta when the market signal is favorable.

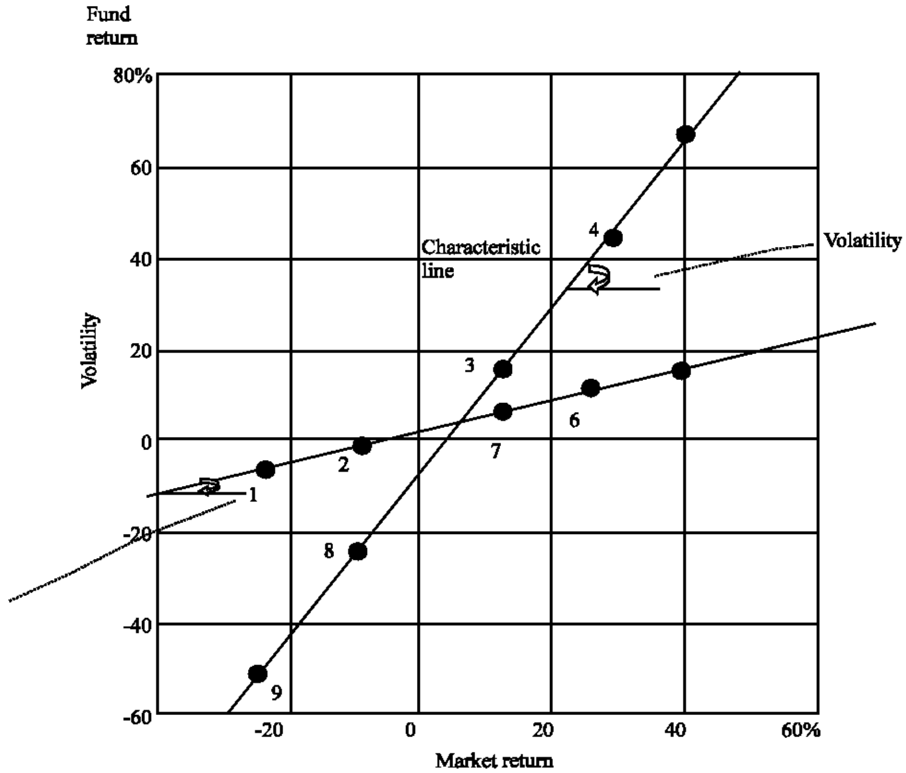

Fig. 1: Treynor and mazuy model (1966). This figure represents the Treynor and Mazuy (1966) model, which is constructed around the notion that managers continually try to outguess the market, oscillating between two lines, high volatility and low volatility. When the manager opts for high volatility (line 3-4), the market rises and when s/he opts for low volatility (line 1-2) the market falls. The resulting line (1-2-3-4) of a fund that continually outguesses the market is not straight. Considering that no fund can anticipate the market correctly, a gradual transition is assumed from a flat to a steep slope. Hence, with the slope varying more or less continually between the extreme points of both lines, the resulting line might be concave, which is specified better with the inclusion of a quadratic regression: $r_{p,t+1} = \alpha_p + b_p r_{m,t+1} + \gamma_{tmu}\left[r_{m,t+1}\right]^2 + \upsilon_{p,t+1}$. This figure represents a fund that has anticipated the market both correctly (blue line) and incorrectly (red line)

Ferson and Schadt (1996), using practically the same analysis as Admati *et al.* (1986), propose a conditioual version of Treynor and Mazuy model (1966), assuming that the manager observes the vector (z_t, $r_{m,t+1}+\eta$) at time t and the question is then how to assign funds between the market portfolio and the risk-free asset. With exponential utility and normal distributions, the demand for the risky asset is a linear function of information. In a model containing two assets, the portfolio weight on the market index is the beta of the portfolio, which is a linear function of z_t and ($r_{m,t+1}+\eta$). By replacing the function $\beta_{pm}(z_t) = b_{0p} + B'_p z_t$ with this linear function and letting η join the regression error term, the conditional version of Treynor and Mazuy model suggested by Ferson and Schadt would be:

$$r_{p,t+1} = \alpha_p + b_p r_{m,t+1} + C'_p\left(z_t r_{m,t+1}\right) + \gamma_{tmc}\left[r_{m,t+1}\right]^2 + \upsilon_{p,t+1} \quad (2)$$

where the coefficient vector C'_p reflects the response of the portfolio beta to public information Z_t. The coefficient γ_{tmc} measures the sensitivity of beta to a private signal of market timing. In the original model developed by Treynor and Mazuy (1966) the bias caused by publicly available information is controlled by the term $C'_p(z_t r_{m,t+1})$. In this model, the new term captures the part of the quadratic term in the Treynor and Mazuy model that is attributed to public information variables. In this model, the correlation of the betas with future market return, which could be attributed to public information, is not considered to reflect market timing ability.

The Merton and Henriksson Model: Traditional and Conditional Versions

Merton and Henriksson (1981) and Henriksson (1984) propose a different model of market timing. This model assumes that for each period the manager will try to forecast whether or not the market will have positive or negative excess returns ($r_{m,t+1} > 0$ or $r_{m,t+1} < 0$). A manager who believes that a positive value will be produced for $r_{m,t+1}$ will probably take more systematic risk than if s/he expects a negative value for $r_{m,t+1}$. For Merton and Henriksson, if the manager is able to anticipate the market, then the coefficient γ_{hmu} in the following regression will be positive:

$$r_{p,t+1} = \alpha_p + b_p r_{m,t+1} + \gamma_{hmu}\left[r_{m,t+1}\right]^+ + \upsilon_{p,t+1} \tag{3}$$

Where, $[r_{m,t+1}]^+ = \text{Max}\,[0, r_{m,t+1}]$ - Merton and Henriksson (1981) interpret this expression as the payoff to an option on the market portfolio with exercise price eqnal to the risk free asset - and γ_{hmu} measures the manager's market timing skill.

Ferson and Schadt (1996) propose a conditional version of the model in which the manager tries to predict $u_{m,t+1} = r_{m,t+1} - E(r_{m,t+1}|Z_t)$, or rather, the deviation of the market returns from its expected conditional mean. It is also assumed that in the case of a bullish market prediction, the conditional beta of the portfolio will be: $\beta_{up}(Z_t) = b_{up} + B'_{up} z_t$. For bearish market predictions, the conditional beta of the portfolio will be $\beta_{down}(Z_t) = b_{down} + B'_{down} z_t$. Using these assumptions, the conditional version of Merton and Henriksson (1981) model is as follows:

$$r_{p,t+1} = \alpha_p + b_{down} r_{m,t+1} + B'_{down}\left[z_t r_{m,t+1}\right] + \gamma_{hmc}\left[r_{m,t+1}\right]^+ + \Delta'\left[z_t r_{m,t+1}\right]^+ + \upsilon_{p,t+1} \tag{4}$$

Where:

$$\left[r_{m,t+1}\right]^+ = \left[r_{m,t+1}\right] \times I\left[\left\{r_{m,t+1} - E\left(r_{m,t+1}|Z_t\right)\right\} > 0\right] \tag{5}$$

$$\gamma_{hmc} = b_{up} - b_{down} \tag{6}$$

$$\Delta = B_{up} - B_{down} \tag{7}$$

I is the binary function that indicates the prediction of positive market returns. Positive market timing ability is reflected by a positive value for $\gamma_{hmc} + \Delta' z_t$, which states that conditional beta is higher when the market is above its conditional mean, given public information, than when it drops below said mean. This implies that $E(\gamma_{hmc} + \_\Delta' z_t) > 0$, in other words that market timing is, on average, positive. In the case of no market timing ability γ_{hmc} and Δ are zero.

EMPIRICAL ANALYSIS

Information about Spanish Investment Funds Market, Data and Sample Selection

The growth of assets under management by Spanish funds has been one of the biggest in Europe for the past fifteen years (the markets of most European countries are also young, with the exception of the British, German and French), with a compounded annual rate of growth greater than 25% 243,000 million euros are currently managed by approximately 2,600 Spanish investment funds, representing approximately 9% of all the investment funds existing in the whole of the European Union.

Investment funds are the third most important investment alternative in Spanish private portfolios, ahead of other products such as pension funds and life insurance.

Now a days, more than 8 million unit holders invest in Spanish funds, with a total net increase of 7.5 million investors since 1990.

The average assets managed by each Spanish fund are one of the lowest in the European Union, reporting a market map where a small number of large funds coexist with a vast majority of small funds. This characteristic shows the strong influence of the most important Spanish financial groups in this market. In fact, there are more than one hundred financial firms managing mutual funds, but the ten most important manage more than 70% of the total assets of Spanish investment funds.

The interest of management firms in obtaining profits from management fees has been an important reason to explain the growth of the number of investment funds existing in Spain. In that sense, the new legal framework of Spanish investment funds establishes maximum levels for the management fees charged to investors.

Moreover, the favorable Spanish taxation on capital gains realized by private investors is another important reason to explain the growth of the Spanish investment fund industry: if private investors switch their money from one fund to another they pay no tax on the capital gains realized.

Table 1 shows the great growth experienced by the Spanish investment fund market during the last years.

For this study a sample of 225 Spanish domestic equities was analyzed. Table 2 shows the summary statistics of our sample:

Table 1: Evolution of the Spanish mutual fund market during the last 10 years

Variables	1995	2005
Total net assets (millions of €)	73,282	242,900
No. of shareholders	2,943,714	8,037,698
No of mutural funds	751	2,621
TNA/GDP	16.7%	29%
TNA per capita	1,869 €	5,465 €

Table 1 shows the great growth experimented by the principal magnitudes of Spanish investment funds market during the last 10 years. Source: Data from Spanish Securities Exchange Commission (CNMV) and INVERCO

Table 2: Summary statistics on the returns of the funds and the benchmark

Years	No. of mutual funds	Mean return (%)	Standard deviation	Maximum return (%)	Minimum return (%)	Benchmark return (%)
July 1994/June 1995	92	-0.65	0.0470	6.44	-18.99	1.66
July 1995/June 1996	108	18.31	0.0774	41.66	-5.18	36.72
July 1996/June 1997	112	45.56	0.1473	70.03	6.17	70.33
July 1997/June 1998	160	29.04	0.1189	52.52	-1.44	55.60
July 1998/June 1999	198	0.94	0.0466	13.93	-18.57	2.56
July 1999/June 2000	225	6.32	0.0770	48.96	-23.55	13.09
July 2000/June 2001	225	-9.84	0.0851	27.34	-33.61	-9.83
July 2001/June 2000	222	-14.98	0.0849	11.54	-39.28	-23.09

Summary statistics for monthly raw returns of the Spanish mutual funds and of the MSCI-Spain Index computed for the period of July 1994 to June 2002. For each year, the number of mutual funds, the mean return, the standard deviation of returns, the maximum return and the minimum return are shown and the benchmark mean return. We include all the funds existing at some point during this period. The information about monthly returns is obtained from the Spanish Securities Exchange Commission (CNMV)

The database is free of survivorship bias. With this aim, the funds must fulfill two requirements: first, for a reasonably long period (almost the entire period analyzed) their investment objective has been the acquisition of equity assets and second, they must have a lifetime of over two years within the overall time period analyzed (July 1994 to June 2002 the period in which the Spanish mutual fund market had its main growth). This second requirement is related to what is known as the look-ahead bias. This kind of bias, as indicated by Carhart *et al*. (2002), arises when we demand a certain amount of information about each fund in order to use the proposed methodology.

The return data used in the analysis is monthly; hence we have a total of 96 observations. The majority of these data comply with the hypothesis of normality. The equity benchmark selected for the analysis of conditional performance is the MSCI-Spain. We obtained information about monthly returns from the Spanish Securities Exchange Commission (CNMV).

Information about Predetermined Information Variables

For our conditional performance analysis we used the predetermined information variables indicated by the financial literature as being the most powerful in the prediction of variable returns and risks over time. However, those studies did not obtain very high levels of prediction for said variables. In this study, we carried out a predictive power analysis on these variables and similarly obtained low levels of prediction. As we mentioned in the introductory section, the inability of the variables selected to predict the market leads us back t o a preference for passive investment or indexing strategies (Table 3).

The following predetermined information variables were used:

- The lagged level of one month Treasury Bill yield, reported in annnalized form.
- The lagged dividend yield of the MSCI-Spain index.
- A lagged measure of the slope of the term structure of the yield curve.
- A dummy variable for the month of January.
- A measure of inverse relative wealth.
- The real bond yield.

All the data from these variables are monthly.

The first variable refers to 30-day Spanish Treasury bill repos. We obtained these data from the Statistics Reports compiled by the Bank of Spain.

Table 3: Predictive power of predetermined information variables

Variables	R^2
Treasury bill yield	0.492
Term spread	0.735
Dividend yield	1.873
Real bond yield	1.969
Inv. relative wealth	1.066
Dummy January	0.866

We run six regressions. In each one, the monthly market excess returns are regressed on one predetermined information variable being the monthly excess returns of the MSCI-Spain index the dependent variable and one of the predetermined information variables the independent variable. All the predetermined information variables are lagged one month. Treasury Bill yield refers to 30-day Spanish Treasury bill repos; Term spread refers to the difference between the 10-year Government bond yield and the 3-month Treasury bill yield; Dividend yield refers to the ratio between the total sum of the previous 12 months of dividend payments by the index during the period t-1 and the price level of the MSCI-Spain during t; Real bond yield refers to the difference between the long-term yield of a bond (10 years) and the expected rate of inflation during the bond's remaining lifespan; Inverse relative wealth refers to the ratio of past real wealth to current real wealth. As a variable representing wealth we used the MSCI-Spain index and Dummy variable for January will take a value of 1 in January and 0 in the other month. This table reports the R-square adjusted coefficients, expressed in percent, obtained from each regression

The dividend yield is calculated as the ratio between the total sum of the previous 12 months of dividend payments by the index during the period t-1 and the price level of the MSCI-Spain during t. These data were taken from Morgan Stanley's price history.

The slope of the term structure is the difference between the 10-year Government bond yield and the 3-month Treasury bill yield. These data were obtained from the Statistics Reports compiled by the Bank of Spain.

Keim and Stambaugh (1986) believe that any study on changing expectations should take into account seasonality. The variables used by these authors to predict returns on bonds and stocks demonstrate the January Effect, which suggests an increase in risk around the turn of the year. To explore this possibility, we included a dummy variable to take account of the January Effect, with a value of 1 in January and 0 in the other months.

Inverse relative wealth is calcnlated as the ratio of past real wealth to current real wealth. As a variable representing wealth we used the stock index since, although stock markets only represent a small portion of world wealth, they are focused on the most volatile part and are positively related to other segments of wealth. Therefore, we used the MSCI-Spain deflated by the CPI. Data about the CPI were obtained from the Statistics Reports compiled by the Bank of Spain.

Real bond yield is the difference between the long-term yield of a bond (10 years) and the expected rate of inflation during the bond's remaining lifespan. The year-on-year rate of inflation was used. Bond yield and inflation data were obtained from Statistics Reports compiled by the Bank of Spain.

Before including all these variables in the conditional versions of market timing models we analyzed the possible problems of mnlticollinearity between the variables, finding the correlations between each pair of variables, as shown in Table 4.

Table 4 shows that there are three variables that have a high correlation between them, specifically real bond yield, dividend yield and one-month Treasury bill yield. In order to solve the problem of linearity between these three variables, we performed a factor analysis, which provided us with a summary variable of the three and which we have used in our analysis instead of the three aforementioned variables. Therefore, our conditional analysis has four predetermined information variables.

Table 4: Correlations between predetermined information variables

Variables	Treasury bill yield	Term spread	Dividend yield	Real bond yield	Inv. Relative wealth	Dummy January
Treasury bill yield	1	0.302 (***)	0.940 (***)	0.872 (***)	-0.055	-0.020
Term spread		1	0.411 (***)	0.563 (***)	0.048	-0.043
Dividend yield			1	0.950 (***)	-0.135	0.001
Real bond yield				1	-0.123	-0.004
Inv. relative wealth					1	-0.058
Dummy January						1

Table reports the Pearson correlation coefficients between each pair of predetermined information variables in order to detect possible multicollinearity problems. All the predetermined information variables are lagged one month. Treasury Bill yield refers to 30-day Spanish Treasury bill repos; Term spread refers to the difference between the 10-year Government bond yield and the 3-month Treasury bill yield; Dividend yield refers to the ratio between the total sum of the previous 12 months of dividend payments by the index during the period t-1 and the price level of the MSCI-Spain during t; Real bond yield refers to the difference between the long-term yield of a bond (10 years) and the expected rate of inflation during the bond's remaining lifespan; Inverse relative wealth refers to the ratio of past real wealth to current real wealth. As a variable representing wealth we used the MSCI-Spain index; and Dummy variable for January will take a value of 1 in January and 0 in the other month. The asterisks are used to represent the statistically significant coefficients at the 1% (***) significance level

Table 5: Measures of performance and market timing using conditional and unconditional Treynor-Mazuy and Merton-Henriksson models

Variables	α_p	$t(\alpha_p)$	γ	$t(\gamma)$	R^2
Panel A: Results of the two bigges fund families					
Traditional treynor and mazuy model	-0.0035	-1.6901	-0.0012	0.0521	0.8529
Conditional treynor and mazuy model	-0.0036	-1.7803	0.0139	0.2327	0.8688
Traditional merton and henriksson model	-0.0032	-1.2011	-0.0133	-0.1266	0.8530
Conditional merton and henriksson model	-0.0030	-1.1566	-0.0453	-0.0565	0.8853
Panel B: Results of the two small fund families					
Traditional treynor and mazuy model	-0.0036	-1.9305	0.1082	0.5239	0.8153
Conditional treynor and mazuy model	-0.0047	-2.0498	0.0499	0.6379	0.8486
Traditional merton and henriksson model	-0.0041	-1.7072	0.0382	0.5460	0.8150
Conditional merton and henriksson model	-0.0043	-1.7837	-0.0581	0.1249	0.8674

Panel A presents the results obtained for the two biggest banks and panel B presents the results obtained for the rest of the fund families (the smallest banks). The coefficients α_p and γ_are the intercept and market timing coefficients in equations (1), (2), (3) and (4). Heteroskedasticity-consistent t ratios are shown as t(.) and R^2 are the R-squares of the regressions. The data are monthly from July 1994- June 2002. All the results are average values

Traditional versus conditional performance results. Comparison between the results obtained by the two biggest fund families and those obtained by the rest of the banks

The first stage in our analysis involved analyzing the statistical significance level of the conditional information. Table 5 contains the average values of the alpha and gamma parameters and their respective t-statistics, as well as the R-square coefficients of the Treynor and Mazuy and Merton and Henriksson models, both in their traditional and conditional versions. These results are shown first for the two biggest fund families (Panel A), which control 40% of the market and second for the rest of the banks (Panel B).

From this table we can see (for both of the panels) that the conditional versions of the models present a greater explanatory power than their respective traditional versions, since the R-square coefficient is higher in the conditional versions of these models. Nevertheless, the average alpha, in general, is lower in the conditional versions of the models. However, we cannot conclude that the performance of these models is worse, since we have not considered the significance level of said parameter.

And if we compare the results obtained by the two biggest fund families with those got by the rest of the banks, we observe that the two biggest banks obtain a higher R-square coefficient for all the models. They also obtain a higher average alpha. But we cannot speak of a better performance for the two biggest fund families, since we have to consider the significance level of this parameter.

Table 6 shows the distributions of the t-ratios for the alpha parameter, considering different levels of statistical significance (1, 5 and 10%) and distingnishing between the results obtained by the two biggest banks (Panel A) and those reached by the rest of the banks (Panel B). In general, we can confirm the superior performance of the traditional versions of both models in relation to their conditional versions; conditional versions of the Treynor-Mazuy and Merton-Henriksson models produce a higher number of negative significant alphas. Nevertheless, in all cases and using any model, the number of negative significant alphas is much higher than the number of positive significant alphas (approximately 90% of the alphas are negative in all models).

On the other hand, if we analyze panel A and panel B separately, considering a significance level of 5%, we observe that, for the two biggest fund families, between 20 and 50% of the funds show a negative and significant alpha. For the rest of the banks these percentages are 45 and 59%, respectively. So, we can confirm the superior performance (or the superior stock picking ability) of the two biggest banks.

Market Timing Results. Comparative Analysis.

Table 5 shows that, in general, the two biggest fund families present negative average gamma coefficients, whereas the rest of the banks obtain, in general, positive average gamma coefficients. These results might lead us to believe that only the smallest banks display market timing ability. However, this result lacks validity since we have not considered the statistical significance level of this parameter.

Table 6: Number of funds with significantly negative or positive alpha estimates for conditional and unconditional Treynor-Mazuy and Merton-Henriksson models

Parameters	Traditional T-M model	Conditional T-M model	Traditional M-H model	Conditional M-H model
Panel A: Results of the two bigges fund families				
$\alpha>0$	2	1	3	4
$\alpha>0$ (***)	0	0	0	0
$\alpha>0$ (**)	0	0	0	0
$\alpha>0$ (*)	0	0	0	0
$\alpha<0$	24	25	23	22
$\alpha<0$ (***)	3	7	3	3
$\alpha<0$ (**)	10	13	5	5
$\alpha<0$ (*)	12	13	6	7
Panel B: Results of the two small fund families				
$\alpha>0$	17	23	20	29
$\alpha>0$ (***)	0	0	0	0
$\alpha>0$ (**)	1	0	0	3
$\alpha>0$ (*)	2	2	0	3
$\alpha<0$	182	176	179	170
$\alpha<0$ (***)	61	79	46	55
$\alpha<0$ (**)	105	117	90	92
$\alpha<0$ (*)	131	131	107	116

Panel A presents the results obtained for the two biggest banks and panel B presents the results obtained for the rest of the fund families (the smallest banks). Alphas are the intercepts in regressions (1), (2), (3) and (4). The distributions of the heteroskedasticity-consistent t ratios for the alphas are summarized. For each model, this table reports the number of funds which obtain a positive or negative alpha; and the number of funds which obtain a positive or negative significant alpha at the 1% level (***), 5% level (**) or 10% level (*)

Table 7: Number of funds with significantly negative or positive gamma estimates for conditional and unconditional Treynor-Mazuy and Merton-Henriksson models

Parameters	Traditional T-M model	Conditional T-M model	Traditional M-H model	Conditional M-H model
Panel A: Results of the two bigges fund families				
$\gamma>0$	12	14	8	13
$\gamma>0$ (***)	0	0	0	1
$\gamma>0$ (**)	1	1	0	1
$\gamma>0$ (*)	2	2	2	1
$\gamma<0$	14	12	18	13
$\gamma<0$ (***)	0	0	0	0
$\gamma<0$ (**)	0	0	0	1
$\gamma<0$ (*)	0	0	1	3
Panel B: Results of the two small fund families				
$\gamma>0$	133	128	133	106
$\gamma>0$ (***)	7	5	4	5
$\gamma>0$ (**)	22	15	21	17
$\gamma>0$ (*)	34	24	47	25
$\gamma<0$	66	71	66	93
$\gamma<0$ (***)	2	2	1	7
$\gamma<0$ (**)	6	5	7	13
$\gamma<0$ (*)	9	11	10	18

Panel A presents the results obtained for the two biggest banks and panel B presents the results obtained for the rest of the fund families (the smallest banks). Gammas are the market timing coefficients in regressions (1), (2), (3) and (4). The distributions of the heteroskedasticity-consistent t ratios for the gammas are summarized. For each model, this table reports the number of funds which obtain a positive or negative gamma; and the number of funds which obtain a positive or negative significant gamma at the 1% level (***), 5% level (**) or 10% level (*)

In general, we observe better market timing results from traditional versions of the models.

Table 7 shows the distribution of the t-ratios for the gamma parameter, for the two biggest banks (Panel A) and for the smallest fund families (Panel B). We can see that all the models, for the smallest banks, present a higher number of positive rather than negative parameters (for the two biggest banks, this statement is not very clear), although the significance levels are low; hence there is no real evidence to support the existence of market timing ability on the part of the managers. This finding is in line with the financial literature, which finds scarce evidence of significant market timing.

Analyzing panels A and B separately and considering a significance level of 10% (we choose a significance level of 10% because the significance levels of gamma parameter are very low), we observe that, for the two biggest fund families, between 4 and 8% of the funds show a positive and significant gamma and between 0 and 11% of the funds show a negative and significant gamma. However, if we focus on the results obtained by the smallest banks, we observe that between 12 and 24% of the funds show a positive and significant gamma and between 5 and 9% show a negative and significant gamma. Therefore, we observe very low significance levels. Perhaps, we might only highlight a majority of small banks showing positive and significant gammas. This statement could lead us to confirm that Spanish banks follow a different strategy depending on their size: the biggest follow a stock picking strategy whereas the smallest follow a market timing strategy.

CONCLUSIONS

This study assesses the performance and market timing ability of a set of 225 Spanish domestic equities based on the traditional and conditional versions of the Treynor and Mazuy and Merton and Henriksson models. The conditional versions of the models have been built based on various economic information variables that we have demonstrated to be both economic and statistically significant. Furthermore, we have performed a factor analysis on these variables in order to resolve the problems of multicollinearity.

Moreover, considering the special features of the Spanish mutual fund market, where a high level of concentration is registered (two banks control 40% of the market), we carry out our performance and market timing analysis distinguishing between the results obtained by the two biggest banks and those reached by the rest of the fund families.

With this study, we demonstrate that the general conclusions obtained by the financial literature, focused on highly scrutinized markets such as the US market, can also be applied to other relatively unexplored markets, such as the Spanish investment funds market -one of the most relevant financial industries in the European markets, as has been demonstrated before-.

The conclusions reached are as follows:

- Conditional Models Are Better Specified than Traditional Ones. In our study, conditional models obtain higher R-square coefficients-Ferson and Schadt (1996) obtain the same result-, together with a considerable increase in the number of siguificant alpha coefficients.
- Managers Do Not Choose Securities Adequately (Negative Performance Measures) with the Public Information Available for the Whole Market. In this study, we observe that the traditional versions of the models obtain better performance results, but, in general, negative results dominate.
- Managers bring no added value to their management by the possession and appropriate use of private information (negative conditional performance measures).

- The general results of underperformance, both traditional and conditional, together with the minimal prediction power of the economic information variables, lead us to agree with the literature in general and specifically with Malkiel (2003), in favor of passive investment strategies, since, for the market as a whole, the empirical evidence clearly demonstrates that it is very difficult to systematically outperform the market using an active strategy.
- Fund performance is not determined by the fund manager's market timing ability. In our study, we obtain, in general, positive non-significant coefficients; hence there is no evidence to support the existence of positive market timing ability on the part of the fund managers.
- The two biggest banks appear to have a stock picking ability and the smallest ones appear to have a market timing ability. Therefore, in the Spanish mutual fund market, the size of the banks determines the strategy to be followed: The biggest banks obtain better alpha coefficients whereas the smallest ones obtain better gamma coefficients.

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