Capturing the valuable trading decisions through a dynamic perspective of Active Share

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Abstract

The aim of the paper is to consider a dynamic perspective to the widely analyzed topic of the level of activity of portfolio managers. While the traditional Active Share measure only pays attention to the difference between portfolio and benchmark weights in each stock and in a specific moment, our alternative metric examines the variation of these differences in two consecutive periods. The ability of this new metric to anticipate subsequent performance is more accurate given that traditional Active Share measure is significantly biased by the levels of investment in stocks not included in the benchmark in concentrated markets. Finally, the wider informative content of this new measure allows us to examine whether the dynamic managers are able to add value to their clients through the isolation of the special bets of managers.

Keywords: Active Share, Dynamic Active Share, Investment decisions, Monthly Portfolio Holdings; Performance Consequences.

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1. Introduction

As indicated by Cremers and Pareek (2016), which, if any, actively managed portfolios can outperform passive benchmarks is a hot topic in financial literature. However, the discussion about the convenience of active versus passive management is not new. Previous literature has documented that, on average, the long-term net performance of actively managed mutual funds is near zero. However, some studies argue that certain actively managed mutual funds are able to consistently outperform due to their superior investment abilities (see, e.g., Cohen et al., 2005; Kacperczyk et al., 2005; Mamaysky et al., 2008; Kacperczyk and Seru, 2007; Cremers and Petajisto, 2009; and Fama and French, 2010). These papers, especially, Kacperczyk et al. (2005) and Cremers and Petajisto (2009) emphasize that the outperformance of the market requires some differentiation from the benchmark composition. Based on this reasoning, the Active Share measure (AS hereafter) proposed by Cremers and Petajisto (2009) emerged as a metric to determine the level of "activeness" of portfolio managers understanding active management as the differentiation of the portfolio from the benchmark composition.

Since the proposal of the AS measure, this metric has attracted great attention of both practitioners and academic researchers, especially in the current economic and financial context with the implementation of MIFID II (Markets in Financial Instruments Directive) and its increase of investor protection and transparency in the management fees and expenses charged to clients. Some of the strengths of the AS measure are its intuitive expression as well as its easy calculation. Cremers and Petajisto (2009) also assert that AS metric leads previous measures proposed in financial literature such as tracking error (TE hereafter) because it is supported by the analysis of portfolio holdings instead of portfolio actual returns. However, both metrics can be used together for a more comprehensive picture of active management.

AS measure has generated so much interest because stock pickers outperformed closet indexers in Cremers and Petajisto (2009) and the investment community has interpreted this finding as evidence that mutual fund investors are better off selecting high AS managers. However, as the authors of the AS measure themselves has recognized later, the metric shows some weaknesses. First, AS measure by itself is not necessarily associated with statistically significant outperformance. Ex ante, the portfolio differences from the benchmark can drive a fund to beat this benchmark as well as to be beaten by it. Different authors have demonstrated that the statistical evidence that high AS funds

outperform low AS funds is stronger for specific subsets of funds such as amongst funds with high TE, amongst funds with low expense ratios and amongst funds with patient investment strategies (see, e.g, Cremers and Pareek, 2016; Cremers, 2017 and Cremers and Curtis, 2016; among others). Second, Cremers (2017) indicates that AS does not directly measure stock picking skill. All you need for a high AS is to construct a portfolio that is very different than the benchmark portfolio. Hence, having a high AS is suggestive of an active stock picker but AS does not measure the skill with which stocks are picked. Third, AS results about future performance can be biased by the efficiency/inefficiency of the benchmark used to calculate the level of AS. Frazzini et al. (2016) show that small-cap US indices (which tend to be the benchmark of high AS funds) underperformed large-cap indices (which tend to be the benchmark of low AS funds).[1]

To be able to outperform the fund's benchmark, the manager should take positions that are different from the benchmark. However, a high value of AS can be achieved by two different strategies. On the one hand, by investing in assets included in the benchmark but with very different proportions (which should be the usual strategy because management companies are able to decide the reference benchmark) or by investing a high proportion of the portfolio in assets not included in the benchmark. Previous literature has only focused on robustness analyses using both mutual fund self-declared benchmarks and the benchmark that provides the lowest AS across all benchmarks considered. However, a deeper analysis about how mutual funds achieve high values of AS is needed. This analysis would provide a better knowledge about the existence or not of a spurious relationship between future outperformance and a high level of AS whether this level is achieved by investment bets in non-benchmark securities, i.e., by investing in small caps when the benchmark is a large cap index.

In our opinion, AS metric offers a static perspective of the portfolio management given that it only considers the weight differences between the portfolio and benchmark at a given moment of time. This static approach offers limited information about managers' activity given that a portfolio manager can follow a buy-and-hold strategy over time and it can maintain high levels of AS measure whether the original portfolio holdings

1 This fact is also recognized in Cremers and Pareek (2016), page 8. They indicate that Cremers, et al. (2013) further show that this benchmark-effect can be removed by either benchmark-adjusting the returns or by using the index-based seven-factor model. Our paper (as described in Section 2) does not suffer from this potential bias because we focus on large-cap mutual funds to have a homogenous sample. Therefore, the funds examined do not have small-cap indices as benchmarks.

were quite different from the benchmark composition, as recently recognized by Cremers (2017).

In this paper, we go a step forward in the concept of activity by introducing a dynamic perspective. Hence, we do not only measure the deviation from the benchmark in a given period as the AS metric but also we propose an improvement of the AS measure that considers how this deviation varies over time by examining managers' deviation from the benchmark in two consecutive periods.

The financial sense of this new measure is also intuitive and offers a dynamic perspective on the concept of activity. Our dynamic metric captures not only the long and short static positions in each stock included in the benchmark but also the previous long (short) positions that have been overweighted (underweighted) in the next period. Hence, the dynamic AS measure allows to split between investment decisions driven to reach portfolio weights closer to the benchmark (i.e., decisions that lead to a lower differentiation to the benchmark) and further from the benchmark (i.e., decisions that lead to a higher differentiation).

Another benefit of the dynamic AS measure in comparison to the AS metric is that it provides more useful information about fund manager's potential to add value to the portfolio because it allows us to determine which investment decisions are valuable, the key issue to both current and potential clients. As suggested by Cremers and Pareek (2016), ex-ante, it is not clear whether funds would generally be more successful through holding stocks for long periods or through frequently changing the portfolio. On the one hand, if markets are fairly information-efficient, managers may need to frequently trade in order to benefit from their temporary superior information. On the other hand, fund managers may be able to spot market mispricing that is only reversed over longer periods and therefore, the investment strategies should be patient.

The introduction of the dynamism in the analysis has different financial and management implications. This study is relevant from an investors' point of view. Mutual fund clienteles should be interested in knowing whether his/her fund manager is active and therefore, is searching for new investment opportunities (i.e., undervalued assets) to add value to the portfolio or if, on the contrary, the fund manager is passive because the management fees charged by these two types of funds should be different. Investors should not pay (too) much for low AS funds which generally underperform. Hence, the level of activity or dynamism should be relevant to regulators in order to align the

management fees charged by management companies to the actual level of activity carried out by mutual funds.

Our empirical analyses in the Spanish equity market demonstrate that Spanish stocks included in fund portfolios but not included in the main benchmark (Ibex-35 index) outperform those included in it along time. Specifically, the average monthly return of Ibex-35 stocks for the period 2000-2014 was 0.67% while this figure for Spanish stocks not included in the main stock market benchmark was 0.91%. Consequently, when measuring the level of AS against Ibex-35 in a given mutual fund, the higher the fraction of fund's AS derived from investing in stocks not included in that benchmark, the higher the probability of outperformance. This evidence shows a possible bias, at least in concentrated markets such as the Spanish stock market, in the conclusion that AS is a good predictor of future performance.

The dynamic AS measure proposed in this study is less sensitive to the investment proportion in non-benchmark securities and also serves as a tool to select funds although its predictive power is only statistically significant in the long-term. This new metric provides a lot of information and allows us to split the investment decisions into those that provoke a higher or lower deviation from the benchmark. The empirical findings show that those mutual funds with trading decisions with a higher conviction of the manager (i.e., decisions that leads them to deviate even more from the benchmark) outperform the remaining funds especially when buying decisions are considered.

This paper is organized as follows. Section 2 describes the database used in the study. Section 3 examines the relationship between AS and future fund performance while Section 4 examines the relationship between dynamic AS and fund performance. Section 5 splits the dynamic AS to determine which investment decisions are those able to add value to the portfolio. Finally, Section 6 concludes.

2. Database

2.1 Sample selection

The study includes actively managed Euro equity mutual funds domiciled in Spain from the Spanish Securities Exchange Commission (CNMV) survivorship-bias-free mutual fund database. From this database that includes 'dead', merged and delisted funds, we use the gross fund returns and total net assets (TNA) under management.

The study focuses on the Spanish mutual fund market for several reasons. First, to examine whether the AS results are exclusive of the US domestic market or are extensible

to other relevant markets, i.e., in the European mutual fund industry.[2] Second, the analysis of the Spanish market is relevant due to its importance in the Euro Zone and because it allows us to use a unique database that includes not only publicly disclosed fund holdings at the end of the quarter but also fund holdings in non-publicly disclosed months as we will explain in the next section.[3] Third, the Spanish fund industry deserves attention due to some particularities. On one hand, the market is highly concentrated. The top 10 of the existing 79 Spanish fund companies control more than 75% of TNA (Inverco, 2014). On the other hand, the median fund size in Spain is much smaller than in the US market (see, e.g., Golez and Marin, 2015 for more insights about the particularities of the Spanish mutual fund industry).

Additionally, the Spanish mutual fund industry shows a low supply of explicit indexing funds, and according to Cremers et al. (2016), this characteristic reflects a less competitive market and therefore low levels of AS.[4] Our results confirm these hypotheses. The high levels of closet indexers funds in the Spanish domestic equity mutual funds is particularly remarkable, with nearly 80% of the funds having an AS lower than 60%. This picture is far away not only from the US fund industry but also from the average activeness levels shown in the statement of the European Securities and Markets Authority (ESMA, 2016) for European countries, which reinforces the interest of studying the Spanish mutual fund industry.

We use the following sample criteria to focus on actively managed funds investing almost exclusively in Spanish equities to use the same equity benchmark to all funds and to be able to make homogenous comparisons. First, we require that the investment vocation category declared by the mutual fund in the prospectus is Euro equity mutual fund. These funds by definition must invest at least 75% of their portfolio in Euro stocks. Second, we verify that the fund is primarily focusing on Spanish equities by requiring a high percentage of Spanish stocks in the portfolio (ISIN code starting with "ES").[5] Third, we exclude index funds and ETFs. Fourth and finally, we exclude those mutual funds

[2] Only Muller and Ward (2011) examine the relationship between AS and future performance in a non-US market, specifically in the South Africa market.
[3] By the end of 2014, the Spanish fund industry was ranked eighth in the Euro Zone fund industry in terms of assets (European Fund and Asset Management Association, 2014).
[4] According to Cremers et al. (2016), only 9% of total net assets as of December 2010 in the Spanish mutual funds are explicit indexing funds.
[5] Our sample criteria follow these requirements because there is not a "domestic equity mutual fund" investment vocation in the Spanish market.

with a “mid cap” or “small cap” indication in the fund name or in the benchmark self-declared.

After the aforementioned screens, our final sample consists of 140 funds in the period 1999–2014 with a total of 11,582 portfolio holdings. For each year and each fund, the stock holdings are reported for an average of 9 separate report dates (rdate), which is substantially higher than the average three report dates in the paper of Cremers and Petajisto (2009), which reinforces the high information quality of the database used.

Panel A of Table 1 reports some descriptive statistics for the 140 funds in our sample of Spanish equity funds during the period 1999-2014. The table reports the average of the time series for each fund over the year and across the different funds to obtain the average of the portfolios that report in each year. This panel shows that the average total net assets (TNA) of the funds in our sample are €59.86 million, and the average number of investors is 2,404. The funds hold an average number of 36 stocks, being the majority of them stocks included in the index Ibex-35. Additionally, Panel B of Table 1 also reports the share of the fund portfolios classified in the main types of securities across the years of the time period analyzed. As expected, the main investment is in domestic stocks. Table 1 also shows that the percentage invested in fixed-income and other mutual fund units is relatively small. The low percentage of non-controlled securities (less than 1% of the portfolios) reinforces the quality of our database.

(Insert Table 1 around here)

2.2 Holdings information

In order to compute AS measure, we need data on the portfolio holdings composition of mutual funds as well as their benchmark. The portfolio holdings of mutual funds are from the Spanish Securities Exchange Commission (CNMV) and Morningstar Direct. CNMV provides us monthly portfolio holdings of all mutual funds domiciled in Spain from 1999 till 2006 for research proposes. Hence, the database is free of any selection bias because the information is available for all funds domiciled in Spain and is provided by the official supervisor of the market. From 2007 onwards, CNMV provides us quarterly portfolio holdings (publicly disclosed).[6] These official reports are complemented with monthly

[6] https://www.cnmv.es/Portal/Publicaciones/Descarga-Informacion-Individual.aspx

portfolio holdings voluntary disclosure by mutual funds in Morningstar. Both databases are matched with the ISIN code of mutual funds.[7]

Benchmarks composition is collected from Thomson Reuters Datastream on a monthly basis. As benchmarks for the funds, we include the Ibex-35 index because it is the most important benchmark for Spanish equity funds investing predominantly in domestic stocks, as seen in Panel B of Table 1. Ibex-35 index is the main large-cap benchmark index in the Spanish stock market, consisting of approximately the most liquid and largest thirty-five stocks. We preferred to use the most relevant large-cap benchmark for Spanish equity for all mutual funds of the sample instead of using the benchmark index self-reported by the manager in the fund prospectus.[8]

Both, index holdings and fund holdings are month-end. All stock holdings, for both mutual funds and benchmark, are matched with the stock returns through the ISIN code of each security.

2.3 Returns information

Returns for Spanish mutual funds are from the CNMV mutual fund database. Specifically, the database provides daily and monthly information about gross returns. Returns for both, the benchmark itself and its constituents are from Thomsom Returns Datastream database. Specifically, we examine the returns of Ibex-35 Total return index. We control price data information and splits, share increases, mergers and acquisitions for more than 1,700 stocks involved in 488,304 holding positions.

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The 4 factor alphas are obtained by regressing the risk-free rate adjusted returns of each fund on the four-factor model proposed by Carhart (1997). The 4 factor model controls for market, size, value and momentum. These factors have been calculated following the same procedure detailed on the website of Kenneth French considering the stocks traded in the Spanish stock market.[9]

[7] As previously mentioned, for each year and each fund, the holdings are reported for an average of 9 separate report dates.

[8] The problem of using the prospectus benchmark is that it is the index that the fund manager has publicly committed to beat but the manager can have reported a misleading benchmark that is easily beaten (Sensoy, 2009).

[9] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

3. Active Share and Fund Performance

Following Cremers and Petajisto (2009), Petajisto (2013) and Frazzini et al. (2016), among others, we firstly analyze AS performance results. The AS of a fund *p* in month *t* is defined as:

$$AS_{p,t} = \frac{1}{2}\sum_{i=1}^{N}(w_{i,t}^{p} - w_{i,t}^{b}) \quad (1)$$

where $w_{i,t}^{p}$ and $w_{i,t}^{b}$ are the portfolio weights of asset *i* in mutual fund *p* and the benchmark *b* in month *t* and *N* is the total number of stocks that is included in either the fund or the benchmark.[10]

AS has an intuitive economic interpretation, any difference in portfolio weights in comparison to the benchmark contributes to AS either by overweighting or underweighting. We divide the sum of portfolio weight differences by 2 so that a fund that has 0 overlap with its benchmark index gets a 100% AS (i.e., we do not count the long side and the short side of the positions separately). However, it does not clearly show that fund positions in the benchmark are treated differently from fund positions not included in the benchmark. Specifically, any position in a stock outside the benchmark contributes positively to AS. As a result, the only positions that decrease AS are positions that overlap, i.e., where the fund holds a security that is also included in the benchmark, which is better expressed by the new equation for AS develop in Cremers (2017):

$$AS_{p,t} = 100\% - \sum_{i=1}^{N} Min(w_{i,t}^{p} - w_{i,t}^{b}) \times d\left(w_{i,t}^{p}\right) > 0 \quad (2)$$

where *N* is the total number of stocks that is included in the fund, and $d(w_{i,t}^{p})$ is an indicator variable equal to 1 for all positions where the fund is positive (i.e., not short) and is zero otherwise. As long as all weights are positive, the minimum of each stock's weight in the fund ($w_{i,t}^{p}$) and in the benchmark ($w_{i,t}^{b}$) is the overlapping weight for the stock.

The simpler AS formula in (2) expresses AS as equal to 100% minus the sum of the overlapping weights between the portfolio and its benchmark, and thus emphasizes that AS is only lowered by overlapping positions that are in both the fund and the benchmark. The computational demands for the new formula (2) are lower than for the original formula (1), as the AS calculation using equation (2) only involves the weights for the

[10] The sum is taken over the universe of equity positions only, as we apply the measure exclusively to all-equity portfolios.

subset of stocks that are both in the fund and in the benchmark (rather than the weights of all of the stocks included in either the fund or the benchmark).

We calculate the AS measure for each fund and each month in our sample period. Then, each month we sort funds into AS quintiles and compute the equal-weighted performance within each quintile. Specifically, we calculate the benchmark-adjusted returns, the CAPM alpha and the Carhart alpha.[11] Table 2 shows the average performance on fund portfolios classified according to the quintile of the AS measure for the next month (period t+1), next quarter (t+3), next semester (t+6) and next year (t+12) for each of the performance metrics. As indicated by previous literature, AS (the deviation from the benchmark) improves fund performance since the difference in benchmark-adjusted return between the top quintile of AS (Q1) and the bottom quintile of AS (Q5) is 4.30% per year which is statistically significant. Similar figures are obtained when measuring performance through the CAPM alpha and the 4-factor alpha. Note that these annual figures are higher than those reported in other more developed markets as the US (see, i.e., a gross benchmark-adjusted return difference of 2.29% per year and a difference of 2.13% with the four-factor model in Cremers and Petajisto, 2009). Hence, Table 2 highlights that high AS funds outperform low AS funds. Additionally, Table 2 shows the negative performance obtained but those mutual funds with low levels of AS (quintile 5).

Column 14 of Table 2 reports the average level of AS obtained by each quintile. Top AS funds reports an average level of AS of 69% in contrast to bottom AS funds which show an average level of AS of 17%. The median AS of mutual funds in our sample equals 35% in our sample. These figures are significantly lower than those reported in the US market (see, e.g., Cremers and Pareek, 2016 with a median AS of 79%). The Spanish mutual fund industry shows a low supply of explicit indexing funds, and this characteristic reflects a less competitive market and therefore low levels of AS as suggested by Cremers et al. (2016).

Finally, it is important to examine how mutual funds achieve their level of AS. As previously stated, a high level of AS can be due to investment decisions in Ibex-35 stocks with different weights or to investment decisions in securities that are not included in the benchmark (i.e., non-Ibex 35 stocks). If securities not included in the benchmark

[11] In contrast to previous papers carried out in the US market, our sample consists of equity mutual funds that invest mainly in Spanish large cap companies (small and mid-cap funds have been removed in order to have a homogenous sample of funds) and therefore all of them are compared against Ibex-35 index. Additionally, we do not use a five-factor model or a seven-factor model because the Spanish stock market is not as wide as the US market and it is unable to construct different size and value orthogonalized factors.

outperform those included in it, the performance predictive power of AS would be misleading (i.e., non-Ibex stocks in our study).

Column 15 of Table 2 reports the average percentage of fund portfolios invested in non-Ibex 35 stocks for each quintile of AS. As can be seen, top AS funds (Q1) invest almost half of their portfolio in securities not included in the benchmark. This descriptive statistic calls our attention because it is not normal such a huge percentage of investment in securities not included in the index. In fact, this figure is reduced by nearly half in the second quintile till reach the value of 5.22% in bottom AS funds. Note that a high proportion of the outperformance of high AS funds can be explained by their huge investment in non-benchmark securities since Spanish large cap stocks included in Ibex-35 index underperform the remaining Spanish stocks included in fund portfolios by an average of 0.24% per month. Hence, the outperformance of high AS funds could be spurious in concentrated markets like the Spanish stock market.

(Insert Table 2 around here)

4. Dynamic Active Share and Fund Performance

Once the performance predictive power of the AS measure has been tested in our sample and once we have documented the huge differences in the investment strategies followed by Spanish mutual funds in terms of the stock holdings held, we examine the predictive power of our proposal, the dynamic AS. The dynamic AS is calculated as follows:

$$Dynamic\ AS = \frac{1}{2}\sum_{i=1}^{N} |(w_{i,t}^{p} - w_{i,t}^{b}) - (w_{i,t-1}^{p} - w_{i,t-1}^{b})| \quad (3)$$

where $w_{i,t}^{p}$ and $w_{i,t}^{b}$ are the portfolio weights of asset *i* in mutual fund *p* and the benchmark *b* in month *t* (as occurs in the AS metric), $w_{i,t-1}^{p}$ and $w_{i,t-1}^{b}$ are the portfolio weights of asset *i* in mutual fund *p* and the benchmark *b* in month *t-1* and N is the total number of stocks that is included in either the fund or the benchmark in either months, *t* or *t-1*.

A new metric of AS that captures not only the differences against the benchmark but also its variations over time is needed to capture the actual level of "activity". Dynamic AS metric is also intuitive as the original AS metric and have some advantages because it provides more information about the activity of fund managers and it allows us to determine which investment decisions are those that add value to the portfolio.

The mere subtraction of the level of AS in two consecutive periods is not enough to determine the level of activity of fund managers. Imagine that a stock has not changed its weight in the benchmark in two consecutive periods and a fund manager overweights

this stock in period *t-1* by 1% and then in period *t* decide to underweight it by 1%, the difference of $AS_t - AS_{t-1}$ equals 0 and however, there has been activity and investment decisions in the portfolio.

The aim of the paper through the dynamic AS is to test whether "active" investment decisions from one month to the next one are able to add value to the portfolio. Otherwise, investment expenses inherent to trading will cancel out the added value.

We calculate the dynamic AS measure for each fund and each month in our sample period.[12] Then, in each month we sort funds into dynamic AS quintiles and compute the equal-weighted performance within each quintile. These results are reported in Table 3.

(Insert Table 3 around here)

This table shows a general positive performance gap between the highest and the lowest dynamic AS funds. However, this positive difference is not as significant as when considering the original AS metric. This lower level of significance may be, at least partially, explained by the more similar proportions invested in non-Ibex stocks by dynamic AS quintiles as opposed to AS quintiles, as can be seen in column 15 and will be analyzed more deeply below. This finding reinforces the contribution of these stocks to the actual fund performance.

Despite this lower dispersion of the amount invested in non-Ibex stocks among the different quintiles, we still find that the performance gap between top and bottom dynamic AS funds is very significant in the long-term, i.e. when considering yearly periods (*t+12*) regardless of the performance metric used. This finding makes sense because a manager trading on long-term mispricing faces the possibility that such mispricing may become aggravated in the short term (i.e., that undervalued stocks become even more undervalued), and thus risks being fired or losing assets in the short-term before ex-post successful long-term bets would pay off. The finding reinforces the idea that regardless fund managers should be constantly searching for new investment opportunities when an opportunity is found it should be maintained in the portfolio a certain time period because they would be profitable in the long-term. Additionally, it is also important to note that frequently trading can reduce fund performance in the short-term due to the increase in the transaction costs.

[12] Note that the first month that a given mutual fund is in the database it is not possible to calculate the dynamic AS metric because we need information about two time periods.

Similarly, to Table 2, column 14 in Table 3 shows the average level of AS metric for each quintile of the dynamic AS. We observe a decreasing trend in the value of the average level of AS which is not surprising given that there is a certain concentration of mutual funds in the same quintile regardless of the metric used (i.e., mutual funds in *Q1* for AS and *Q1* for dynamic AS, mutual funds in *Q2*-*Q2*, etc.). However, this decreasing trend shows less dispersion than in Table 2.

Finally, it is important to study whether the spurious relationship between high level of AS and outperformance due to the high percentage of investment in non-ibex stocks of high AS funds is only present when using the AS measure or is extensible to the dynamic AS. In this sense, the dynamic AS is much less sensitive than AS metric to the percentage of non-Ibex securities held by the fund because it not only captures the differences in weights between the portfolio and the benchmark in one period of time *t* (i.e., the whole percentage in non-ibex securities contributes to AS) but the differences in two consecutive periods. Hence, the important figure for the dynamic AS metric is the difference in non-Ibex securities between *t-1* and *t* (e.g., the % in non-ibex stocks in *t* minus the % in non-ibex stocks in t-1 will contribute to dynamic AS) and obviously, this figure will be much lower that the percentage in *t*.

Column 15 of Table 3 reports the average percentage of fund portfolios invested in non-Ibex 35 stocks for each quintile of dynamic AS. As can be seen, the differences in the percentage of investment in securities not included in the benchmark is substantially lower than in Table 2. When analyzing AS, funds in the first quintile invest almost half of their portfolios in non-ibex securities (see, Table 2) while this figure has decreased till 23.55% when dynamic AS is examined. Column 15 shows that the percentage in non-ibex stocks is independent regardless of the quintile of dynamic AS, at least for the first four quintiles. Note that a given mutual fund can invest 24% of its portfolio in non-ibex in period *t-1*; if the fund maintains these investments in period *t*, these investments will not provoke any value of dynamic AS. Hence, we demonstrate that this metric is less sensitive to investment in securities not included in the benchmark.

Similarly to previous studies that have demonstrated that a high level of AS per se is not enough to outperform the benchmark and only certain high AS funds are able to add value to their clients, a high level of dynamic AS per se is also not enough to outperform. The dynamic AS brings together all the activity of portfolio managers and probably only certain investment decisions are the ones that are adding value to fund investors. In this sense, the main advantage of dynamic AS metric in comparison to AS

is that the new metric provides more information and can be split according to different investment decisions. For that reason, we propose the split of the dynamic AS metric to further examine which trading adds value to the portfolio.

5. The split of the Dynamic Active Share: An analysis of which investment decisions add value.

5.1 Investment decisions split into buying and selling decisions and their contribution to the dynamic AS.

Firstly, we take into account the existence or not of trading (i.e., we focus on those securities that have been bought or sold) and the type of trading (buying decisions versus selling decisions) instead of just analyzing the portfolio weights that have increased or decreased during the period of analysis.

Portfolio weights are unable to appropriately capture managers' trading due to the non-proportional changes in security prices. Imagine that a manager in a given month does not trade any security; the trading activity will be zero but the portfolio weights of the holdings may have changed just because the revalorization of all securities held by the fund is not the same. Hence, it is important to take into account both the trading decisions of fund managers and the variation in portfolio weights. Specifically, we calculate a separate dynamic AS metric for those securities that have been bought and those that have been sold.[13]

For the *buying decisions*, we additionally require a positive deviation from the benchmark in two consecutive periods (i.e., these buying decisions contribute positively to the dynamic AS measure).

$$(1) \qquad \left(w_{i,t}^{p} - w_{i,t}^{b}\right) - \left(w_{i,t-1}^{p} - w_{i,t-1}^{b}\right) > 0.$$

These are the buying decisions relevant for our study because they capture purchases that provoke an increase in the portfolio weight higher than the increase in the benchmark weight. Hence, these investment decisions clearly represent manager's bets and they should be the investment decisions that add value to the portfolio whether the manager has stock picking skills. In the extreme case, this subset of buying decisions can

[13] There is a buying decision in a given security whether the number of stocks held by the portfolio has increased in two consecutive periods. There is a selling decision whether the number of stocks held in the portfolio has decreased (partial sell) or has become 0 (termination sell) and there is not trading if the number of stocks has remained the same. Note that fund managers can have bought stocks of a certain holding and the portfolio weight can decrease for example whether the TNA of the portfolio has decreased or whether the buys carried out in the remaining holdings are higher.

include purchases of a security that has decreased its weight in the benchmark, which clearly represent a bet or a conviction of the manager to hold this stock in the portfolio and to increase its importance in it.

Similarly, for the *selling decisions*, we additionally require a negative deviation from the benchmark in two consecutive periods (i.e., these selling decisions contribute negatively to the dynamic AS measure).

$$(2) \qquad \left(w_{i,t}^{p} - w_{i,t}^{b}\right) - \left(w_{i,t-1}^{p} - w_{i,t-1}^{b}\right) < 0.$$

These are the relevant selling decisions for our study because they capture sales that provoke a decrease in the portfolio weight higher than the decrease in the benchmark weight. In the extreme case, they can gather sales even though the weight of the security in the benchmark has increased. Hence, these investment decisions clearly represent manager's bets and they should be the investment decisions that avoid reducing value to the portfolio whether the manager has stock picking skills when it comes to selling.

We calculate a dynamic AS measure for each fund and each month in the sample period whether the fund has made purchases in this month that positively contribute to the dynamic AS. Then, in each month we sort funds into quintiles based on the magnitude of the deviation from the benchmark in two consecutive periods and compute the future equal-weighted fund performance within each quintile for the next month (period *t+1*), next quarter (period *t+3*), next semester (period *t+6*) and next year (period *t+12*). These results are reported in Panel A of Table 4.

(Insert Table 4 around here)

Panel A of Table 4 shows that those fund managers that are "active" through high dynamism in buying decisions that contribute positively to the dynamic AS (Q1) outperform funds that are less "active" in buying decisions (Q5) because the performance difference between Q1 and Q5 is always positive. This difference is statistically significant when the 4-factor alpha is examined regardless of the time period examined and also for the CAPM alpha in the long-term.

Similarly, we calculate a dynamic AS measure for each fund and each month in the sample period whether the fund has made sales in this month that negatively contribute to the dynamic AS. Then, in each month we sort funds into quintiles based on the magnitude of the deviation from the benchmark in two consecutive periods and compute the future equal-weighted fund performance within each quintile. These results are reported in Panel B of Table 4. This panel shows that those fund managers that are

"active" through high dynamism in selling decisions that contribute negatively to the dynamic AS (Q1) underperform those funds with less selling trading (Q5), being this difference negative and statistically significant in the long-term (*t+6* and *t+12*) and specifically when benchmark-adjusted returns and CAPM alphas are considered. This finding suggest that managers are not skillful when it comes to make selling decisions.

In sum, Table 4 seems to suggest that Euro equity mutual funds domiciled in Spain that invest predominantly in domestic stocks are adding value to their portfolios through their stock picking skills in the buying decisions that represent a special bet or conviction of the managers. However, they are not skillful when it comes to selling securities. The wealth of information of the dynamic AS has allowed us to capture which investment decisions are those that add value to the portfolio.

5.2 Investment decisions split into buying and selling decisions, their contribution to the dynamic AS and their deviation from the benchmark.

Secondly, the dynamic AS metric also allows us to split those buying (selling) decisions that have contributed to the metric positively (negatively) taking into account an additional requirement; the deviation from the benchmark in period *t* and *t-1* to classify the security as overweighted or underweighted in each moment.

Specifically, we calculate a separate dynamic AS metric for those securities that fulfil the following criteria:

(1) They are buying decisions, that is, the number of stocks held for the analyzed security has increased.

(2) These securities contribute positively to the dynamic AS. In other words, this difference $\left(w_{i,t}^{p} - w_{i,t}^{b}\right) - \left(w_{i,t-1}^{p} - w_{i,t-1}^{b}\right)$ is positive. As previously indicated, this means that the manager is buying a security which leads to an increase in the portfolio weight higher than the increase in the benchmark or even that the manager is buying a security when its weight in the benchmark has been reduced.

(3) These securities must be overweighted in comparison to the benchmark in *t-1* and overweighted in *t*, being the value of the overweight in *t* higher than in *t-1*.

These are the buying decisions relevant to our study because with these requirements, we are able to capture investment decisions where the manager is showing a strong conviction. Whether certain managers are skillful, these investment decisions that represent special bets of fund managers' should be adding value to the portfolio.

Hence, we calculate a separate dynamic AS metric for those buying decisions that fulfil the abovementioned requirements in each mutual fund and in each month. The results are reported in Panel A of Table 5.

(Insert Table 5 around here)

Panel A of Table 5 shows that fund managers with a higher level of convictions in their buying decisions outperform funds that invest more conventionally. The performance gap between extreme quintiles is always positive and statistically significant regardless of the time period examined and the performance metric used. Therefore, this table reinforces the finding in Panel A of Table 4 although the isolation of those buying decisions that really represent special bets of managers leads to more significant results.

Additionally, we also calculate a separate dynamic AS metric for those securities that fulfil the following criteria:

(1) They are selling decisions, that is, the number of stocks held for the analyzed security has decreased.

(2) These securities contribute negatively to the dynamic AS. In other words, this difference $\left(w_{i,t}^{p} - w_{i,t}^{b}\right) - \left(w_{i,t-1}^{p} - w_{i,t-1}^{b}\right)$ is negative. This means that the manager is selling a security which leads to a decrease in the portfolio weight higher than the decrease in the benchmark or even that the manager is selling a security when its weight in the benchmark has increased.

(3) These securities must be underweighted in comparison to the benchmark in *t-1* and underweighted in *t*, being the value of the underweight in *t* higher than in *t-1*.

These are the selling decisions relevant to our study because with these requirements, we are able to isolate investment decisions where the manager is showing a strong conviction about his lack of interest in that stock. Hence, we calculate a separate dynamic AS metric for those selling decisions that fulfil the abovementioned requirements in each mutual fund and in each month. The results are reported in Panel B of Table 5.

Panel B of Table 5 shows outperformance of those funds where managers have strong convictions when they decide to sell a stock (Q1) in comparison to those funds with less convictions (Q5) when the CAPM and Carhart alphas are examined. Hence, this analysis provides evidence about the importance of capturing valuable trading decisions before making conclusions about the existence of skillful managers in the mutual fund

industry. Although fund managers are not able to add value systematically, we have provided evidence about the skills of certain type of trading.

6. Conclusions.

This article points out that active management should be measured taking into account a dynamic perspective of the well-known AS metric to really capture managers' activity and their skills. A high value of AS is simply achieved by constructing a portfolio that is very different from the benchmark but it does not necessarily inform about managers' skill. The new metric proposed in this paper pays attention to the variation of the difference between portfolio and benchmark weights in each stock in two consecutive periods to capture whether certain managers are able to add value to their portfolios and which investment decisions are the valuable ones.

The analysis of active management in a mutual fund industry with a highly concentrated benchmark has allowed us to detect some problems of the traditional AS metric. Specifically, this paper documents that the performance predictive power of the AS measure is biased by the superior performance of stocks not included in the benchmark. The performance gap between high AS funds and low AS funds is strongly explained by the huge difference in the percentage of investment in non-Ibex stocks (i.e., high AS funds investment more than 44 percentage of their portfolio in stocks not included in the benchmark). The dynamic AS metric proposed here is less sensitive to this fact but its predictive power is only statistically significant in the long-term because managers' activity implies more transaction costs that erodes performance in the short-term.

Finally, the use of the dynamic AS contributes to financial literature because it allows us to capture the valuable investment decisions. Our study shows that only those funds with a concentration of trading in stocks that represent strong manager convictions outperform the remaining funds. We define as manager convictions those buying (selling) decisions that suppose more deviation from the benchmark in a given moment than the deviation in the previous period. These decisions gather a clear intention of the manager to increase (decrease) the position in the portfolio regardless of its behavior in the benchmark.

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Table 1. Summary statistics of Spanish domestic equity funds over time

The table is split into Panel A and Panel B. Panel A reports characteristics of mutual funds, such as the number of funds analyzed, the size of the portfolios (Total Net Assets, TNA), the number of investors and the average number of stocks held by the portfolios with a breakdown according to the years of the sample period. Panel B reports the portfolio share of fund portfolios in the main types of securities across the years. The assets invested by funds are classified as follows: stocks (Spanish, European and others), fixed income, other mutual fund units, cash or equivalents, and non-controlled securities. Additionally, Spanish Stocks are split into Ibex-35 stocks and non-Ibex stocks. The data correspond to the average of the portfolios that report in each year.

Panel A	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**
Number of Funds	100	100	96	96	94	101	99	102	95	87	73	77	73	64	56
Total Net Asset	73,225	60,233	50,582	45,456	66,532	78,355	85,270	80,374	43,145	32,566	33,025	32,865	49,958	75,288	90,985
Number of Investors	2,863	2,770	2,733	2,595	2,863	2,803	2,978	2,999	1,790	1,471	1,567	1,573	1,808	2,242	3,002
Average No. Of stocks held	41	38	36	34	37	39	40	39	35	32	32	31	32	32	35
Spanish stocks	31	30	30	30	33	35	36	36	32	29	28	28	27	26	29
Ibex	23	23	23	23	24	25	26	26	25	23	21	21	19	18	19
Non-Ibex	8	7	7	7	9	10	10	10	7	6	7	7	8	8	10
Others stocks	9	8	6	4	4	4	3	3	3	3	4	4	5	6	6
Panel B															
Stocks	*81.89%*	*78.28%*	*78.24%*	*77.07%*	*76.44%*	*79.51%*	*81.90%*	*82.02%*	*76.17%*	*71.69%*	*76.78%*	*78.56%*	*81.94%*	*82.13%*	*83.29%*
Spanish	71.44%	69.22%	70.47%	70.98%	70.47%	74.55%	77.53%	78.19%	73.29%	66.95%	71.02%	72.79%	72.55%	72.08%	72.99%
Ibex	61.79%	59.55%	59.67%	61.11%	60.09%	62.99%	65.19%	65.76%	63.97%	57.54%	61.48%	61.35%	59.05%	59.56%	57.89%
Non-Ibex	9.65%	9.67%	10.80%	9.87%	10.38%	11.56%	12.34%	12.43%	9.32%	9.41%	9.54%	11.44%	13.51%	12.53%	15.10%
European	8.91%	8.20%	7.23%	5.85%	5.81%	4.80%	4.28%	3.64%	2.81%	4.72%	5.71%	5.57%	9.01%	9.67%	10.04%
Other	1.54%	0.86%	0.54%	0.25%	0.17%	0.16%	0.09%	0.19%	0.07%	0.02%	0.04%	0.20%	0.38%	0.38%	0.25%
Fixed-Income	*4.85%*	*5.43%*	*4.18%*	*3.22%*	*3.26%*	*3.69%*	*2.15%*	*1.80%*	*4.83%*	*4.73%*	*2.69%*	*2.51%*	*2.27%*	*1.74%*	*2.09%*
Other mutual fund units	*0.39%*	*0.20%*	*0.13%*	*0.16%*	*0.09%*	*0.06%*	*0.21%*	*0.50%*	*0.80%*	*0.74%*	*1.09%*	*0.79%*	*0.86%*	*0.59%*	*0.30%*
Cash or Equivalents	*12.03%*	*15.14%*	*17.01%*	*19.06%*	*19.79%*	*16.37%*	*15.38%*	*15.29%*	*17.53%*	*22.15%*	*18.99%*	*17.64%*	*14.85%*	*15.25%*	*13.90%*
Non-controlled securities	*0.83%*	*0.96%*	*0.45%*	*0.48%*	*0.42%*	*0.37%*	*0.36%*	*0.39%*	*0.67%*	*0.68%*	*0.47%*	*0.50%*	*0.08%*	*0.30%*	*0.42%*
Total	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 2. AS and performance results

The table reports the performance of mutual funds split into quintiles according to their level of active management measured by AS. Each month, mutual funds are ranked into quintiles according to their level of active management. Q1 compiles those mutual funds with the highest value in the measure while Q5 compiles those funds with the lowest value. Then, average performance for the next month (*t+1*), next quarter (*t+3*), next semester (*t+6*) and next year (*t+12*) is calculated for each quintile. The performance measures used are benchmark-adjusted returns (considering Ibex-35 index as benchmark), alpha from CAPM and 4-factor alpha. We compute alphas as the intercept in the regression of benchmark-adjusted fund returns on market, size, value and momentum factors for the Spanish market. The last columns of the table report the average level of AS of funds included in each quintile and the average percentage invested in Non-Ibex stocks. The difference between the extreme quintiles (Q1 and Q5) is calculated as well as its statistical significance. ** denotes significance at the 5% level and *** denotes significance at the 1% level.

	Benchmark-adjusted returns				**CAPM alpha**				**Carhart alpha**					
	t+1	**t+3**	**t+6**	**t+12**	**t+1**	**t+3**	**t+6**	**t+12**	**t+1**	**t+3**	**t+6**	**t+12**	**AS level**	**% in non-Ibex stocks**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**
AS1	0.33%	0.98%	1.90%	3.92%	0.55%	0.95%	1.68%	3.71%	0.30%	0.44%	0.65%	1.45%	69.29%	44.63%
AS2	0.03%	0.10%	0.12%	0.13%	0.14%	0.12%	0.06%	-0.10%	-0.05%	-0.15%	-0.40%	-1.15%	46.59%	24.04%
AS3	0.08%	0.13%	0.14%	-0.03%	0.05%	-0.04%	-0.13%	-0.41%	-0.13%	-0.32%	-0.68%	-1.67%	35.09%	13.72%
AS4	0.01%	0.05%	0.06%	-0.16%	0.03%	-0.04%	-0.12%	-0.44%	-0.16%	-0.31%	-0.71%	-1.74%	27.84%	9.81%
AS5	-0.01%	-0.09%	-0.15%	-0.39%	-0.01%	-0.12%	-0.23%	-0.65%	-0.18%	-0.39%	-0.79%	-1.99%	17.30%	5.22%
AS1 vs AS5	0.34%***	1.07%***	2.05%***	4.30%***	0.57%***	1.07%***	1.91%***	4.36%***	0.48%***	0.83%***	1.44%***	3.43%***		

Table 3. Dynamic AS and performance results

The table reports the performance of mutual funds split into quintiles according to their level of dynamic AS. Each month, mutual funds are ranked into quintiles according to their level of dynamic AS. Q1 compiles those mutual funds with the highest value in the measure while Q5 compiles those funds with the lowest value. Then, average performance for the next month (*t+1*), next quarter (*t+3*), next semester (*t+6*) and next year (*t+12*) is calculated for each quintile. The performance measures used are benchmark-adjusted returns (considering Ibex-35 index as benchmark), alpha from CAPM and 4-factor alpha. We compute alphas as the intercept in the regression of benchmark-adjusted fund returns on market, size, value and momentum factors for the Spanish market. The last columns of the table report the average level of AS of funds included in each quintile and the average percentage invested in Non-Ibex stocks. The difference between the extreme quintiles (Q1 and Q5) is calculated as well as its statistical significance. ** denotes significance at the 5% level and *** denotes significance at the 1% level.

	Benchmark-adjusted returns				**CAPM alpha**				**Carhart alpha**					
	t+1	**t+3**	**t+6**	**t+12**	**t+1**	**t+3**	**t+6**	**t+12**	**t+1**	**t+3**	**t+6**	**t+12**	**AS level**	**% in non-Ibex stocks**
(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**	**(11)**	**(12)**	**(13)**	**(14)**	**(15)**
d AS1	0.12%	0.18%	0.26%	0.63%	0.16%	0.05%	0.04%	0.24%	0.02%	-0.17%	-0.47%	-1.02%	48.43%	23.55%
d AS2	0.08%	0.35%	0.53%	0.89%	0.15%	0.19%	0.24%	0.64%	-0.05%	-0.09%	-0.35%	-0.82%	42.33%	21.76%
d AS3	0.05%	0.20%	0.34%	0.52%	0.15%	0.21%	0.32%	0.48%	-0.03%	-0.10%	-0.30%	-0.89%	40.24%	21.07%
d AS4	0.04%	0.20%	0.47%	0.72%	0.17%	0.26%	0.46%	0.60%	-0.04%	-0.07%	-0.25%	-0.94%	38.13%	19.85%
d AS5	0.03%	0.06%	0.15%	0.14%	0.10%	-0.02%	-0.01%	-0.23%	-0.11%	-0.30%	-0.60%	-1.61%	27.00%	11.35%
d AS1 vs d AS5	0.08%	0.12%	0.11%	0.49%***	0.06%	0.07%	0.05%	0.47%***	0.13%**	0.12%	0.12%	0.59%***		

Table 4. Dynamic AS split by buying and selling decisions and performance results

The table is split into two panels. Panel A reports the performance of mutual funds split into quintiles according to the variation of the differences between portfolio and benchmark weights in two consecutive periods in those securities that have been bought and have contributed positively to the dynamic AS. Panel B reports the performance of mutual funds split into quintiles according to the variation of the differences between portfolio and benchmark weights in two consecutive periods in those securities that have been sold and have contributed negatively to the dynamic AS. Each month, mutual funds are ranked into quintiles according to their level of variation. Q1 compiles those mutual funds with the highest value while Q5 compiles those funds with the lowest value. Then, average performance for the next month (*t+1*), next quarter (*t+3*), next semester (*t+6*) and next year (*t+12*) is calculated for each quintile. The performance measures used are benchmark-adjusted returns (considering Ibex-35 index as benchmark), alpha from CAPM and 4-factor alpha. We compute alphas as the intercept in the regression of benchmark-adjusted fund returns on market, size, value and momentum factors for the Spanish market. The difference between the extreme quintiles (Q1 and Q5) is calculated as well as its statistical significance. ** denotes significance at the 5% level and *** denotes significance at the 1% level.

	Benchmark-adjusted returns				CAPM alpha				Carhart alpha			
	t+1	t+3	t+6	t+12	t+1	t+3	t+6	t+12	t+1	t+3	t+6	t+12
Panel A: Buying decisions with $(w^p_{i,t}-w^b_{i,t})-(w^p_{i,t-1}-w^b_{i,t-1})>0$												
Q1	0.12%	0.26%	0.40%	0.65%	0.15%	0.14%	0.14%	0.34%	0.01%	-0.10%	-0.38%	-0.97%
Q2	0.04%	0.19%	0.25%	0.48%	0.12%	0.08%	0.04%	0.17%	-0.07%	-0.22%	-0.51%	-1.15%
Q3	0.06%	0.19%	0.36%	0.40%	0.14%	0.21%	0.35%	0.41%	-0.05%	-0.07%	-0.31%	-1.01%
Q4	0.08%	0.26%	0.47%	0.81%	0.21%	0.25%	0.48%	0.78%	-0.01%	-0.05%	-0.13%	-0.62%
Q5	0.04%	0.11%	0.29%	0.59%	0.10%	0.02%	0.05%	0.06%	-0.10%	-0.28%	-0.62%	-1.54%
Q1 vs Q5	0.08%	0.15%	0.11%	0.06%	0.05%	0.12%	0.09%	0.29%*	0.11%*	0.19%**	0.23%*	0.57%***
Panel B: Selling decisions with $(w^p_{i,t}-w^b_{i,t})-(w^p_{i,t-1}-w^b_{i,t-1})<0$												
Q1	0.10%	0.16%	0.21%	0.39%	0.12%	0.03%	-0.06%	-0.03%	-0.03%	-0.22%	-0.53%	-1.23%
Q2	0.04%	0.20%	0.18%	0.29%	0.10%	0.09%	0.06%	0.24%	-0.05%	-0.13%	-0.46%	-1.03%
Q3	0.05%	0.14%	0.36%	0.46%	0.16%	0.15%	0.27%	0.30%	-0.05%	-0.14%	-0.37%	-1.05%
Q4	0.08%	0.27%	0.52%	0.82%	0.18%	0.27%	0.43%	0.76%	-0.03%	-0.03%	-0.21%	-0.73%
Q5	0.08%	0.23%	0.49%	0.95%	0.16%	0.15%	0.34%	0.47%	-0.07%	-0.19%	-0.39%	-1.26%
Q1 vs Q5	0.02%	-0.07%	-0.29%**	-0.55%***	-0.04%	-0.13%	-0.40%***	-0.50%***	0.04%	-0.03%	-0.14%	0.03%

Table 5. Dynamic AS split by trading decisions collecting manager's convictions and performance results

The table is split into two panels. Panel A reports the performance of mutual funds split into quintiles according to the variation of the differences between portfolio and benchmark weights in two consecutive periods in those securities that (1) have been bought, (2) have contributed positively to the dynamic AS and (3) have increased their level of overweight from period *t-1* to period *t*. Panel B reports the performance of mutual funds split into quintiles according to the variation of the differences between portfolio and benchmark weights in two consecutive periods in those securities that (1) have been sold, (2) have contributed negatively to the dynamic AS and (3) have increased their level of underweight from period *t-1* to period *t*. Each month, mutual funds are ranked into quintiles according to their level of variation. Q1 compiles those mutual funds with the highest value while Q5 compiles those funds with the lowest value. Then, average performance for the next month (t+1), next quarter (t+3), next semester (t+6) and next year (t+12) is calculated for each quintile. The performance measures used are benchmark-adjusted returns (considering Ibex-35 index as benchmark), alpha from CAPM and 4-factor alpha. We compute alphas as the intercept in the regression of benchmark-adjusted fund returns on market, size, value and momentum factors for the Spanish market. The difference between the extreme quintiles (Q1 and Q5) is calculated as well as its statistical significance. ** denotes significance at the 5% level and *** denotes significance at the 1% level.

	Benchmark-adjusted returns				**CAPM alpha**				**Carhart alpha**			
Panel A: Buying decisions with $(w^p_{i,t}-w^b_{i,t})-(w^p_{i,t-1}-w^b_{i,t-1})>0$ and a higher overweight in period *t*												
	t+1	**t+3**	**t+6**	**t+12**	**t+1**	**t+3**	**t+6**	**t+12**	**t+1**	**t+3**	**t+6**	**t+12**
Q1	0.11%	0.36%	0.58%	1.10%	0.21%	0.31%	0.44%	0.92%	0.02%	0.00%	-0.17%	-0.53%
Q2	0.06%	0.23%	0.49%	0.79%	0.19%	0.24%	0.39%	0.60%	-0.02%	-0.03%	-0.20%	-0.81%
Q3	0.08%	0.19%	0.29%	0.44%	0.15%	0.11%	0.21%	0.40%	-0.03%	-0.14%	-0.37%	-0.95%
Q4	0.07%	0.21%	0.36%	0.42%	0.09%	0.02%	0.03%	-0.01%	-0.09%	-0.24%	-0.59%	-1.41%
Q5	0.00%	0.00%	0.03%	0.14%	0.09%	0.00%	-0.03%	-0.17%	-0.11%	-0.31%	-0.64%	-1.59%
Q1 vs Q5	0.11%*	0.36%***	0.55%***	0.96%***	0.12%***	0.31%***	0.47%***	1.09%***	0.13%***	0.31%***	0.47%***	1.06%***
Panel B: Selling decisions with $(w^p_{i,t}-w^b_{i,t})-(w^p_{i,t-1}-w^b_{i,t-1})<0$ and a higher underweight in period *t*												
Q1	0.02%	0.11%	0.08%	0.05%	0.06%	-0.01%	-0.09%	-0.23%	-0.12%	-0.23%	-0.55%	-1.46%
Q2	0.05%	0.13%	0.29%	0.41%	0.13%	0.14%	0.20%	0.40%	-0.06%	-0.12%	-0.36%	-0.94%
Q3	0.03%	0.15%	0.22%	0.53%	0.17%	0.22%	0.32%	0.64%	0.02%	-0.06%	-0.24%	-0.55%
Q4	0.11%	0.29%	0.60%	1.05%	0.20%	0.22%	0.39%	0.66%	0.01%	-0.07%	-0.20%	-0.83%
Q5	0.30%	0.87%	1.30%	0.40%	-0.13%	-0.82%	-1.01%	-3.23%	-0.82%	-1.82%	-4.28%	-8.50%
Q1 vs Q5	-0.28%**	-0.75%***	-1.22%***	-0.35%	0.19%	0.82%***	0.92%***	3.00%***	0.71%***	1.59%***	3.73%***	7.04%***