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# Active Management vs. Passive Management. An analysis in the Investment Funds of the Spanish Sector

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# Index

# Resumen

El presente trabajo tiene como objetivo poner de manifiesto el actual debate que existe hoy en día acerca de la gestión activa y pasiva. Lo que se pretende es demostrar, a través de un análisis práctico, si las afirmaciones de varios estudios recientes son aplicables una muestra de fondos de la categoría de Renta Variable Española de fondos de inversión.

Por un lado, que gran parte de los fondos que dicen ser de gestión activa en la práctica tienen prácticamente al índice de su categoría dentro de su cartera y podemos considerarlos de falsa gestión activa, también conocidos como "closet indexers" cuando, sin embargo, aplican comisiones elevadas afectando a las rentabilidades por el fondo. Por lo tanto, analizaremos también cómo afectan estas comisiones a un grupo de gestión activa del sector de la banca y de gestoras independientes que siguen la estrategia conocida como "value investing" y pasiva. Por otro lado, también analizaremos si es verdad que los fondos de gestión activa no consiguen batir a su benchmark o, si lo hacen, no consiguen mantenerlo en el largo plazo.

Con este análisis queremos comprobar si estas afirmaciones presentadas en el Active/Passive Barometer de Morningstar y en el informe SPIVA son ciertas para un grupo de fondos de la categoría Renta Variable España.

# Tables Index:

# Charts Index:

# 1. Introduction

Practitioners and academics have long debated the societal benefits and degree of competition in the asset management industry, particularly among equity mutual funds. This debate has focused primarily on the relative value of passive versus active management.

Elucidating this debate is particularly important because much of the recent growth in assets in the mutual fund industry has been in explicitly indexed equity funds (index funds and exchange-traded funds (ETFs)).

In this paper, we contribute to this debate by examining actively and passively managed equity mutual fund with the object to make an approximation as close as possible to the study of investment fund; it is intended to conduct a study of the behaviour of equity investment funds who have remained active for the past 10 years. This analysis will consist in analysing the funds we picked with different measures in order to find out which ones offer the best performance.

The thesis is organized as follows. On one hand, the theoretical part: theoretical framework; types of investment funds; explanation of the different indicators used in the practical analysis to measure the fund's performance. Active Management, Passive Management, where is shown the behaviour and its subsequent comparison of the different categories and a recent market review of the market.

On the other hand, analysis by categories and funds is divided into the sections of methodology; fund picking; comparison of performance of the different funds selected and, finally, in conclusions, the main ones will be summarized.

Thanks to this analysis, we hope to end up answering to the question proposed in the following lines, which is if the active portfolio management is less profitable than the passive portfolio management in the long term.

Keywords: Mutual Funds, Active Management, Index Funds, Exchange-traded Funds, Closet Indexers, Fees, Performance.

## 2. Purpose of the TFM and justification

The purpose and interest of this analysis is founded in the debate regarding the performance between the Active Investment and the Passive Investment and which one is the best strategy attending to different factors such as costs and returns. We are going to base our question to solve in the Active/Passive Barometer carried out by Morningstar, which evaluates active funds not versus a costless index, but against a composite of actual passive funds. In this way, the "benchmark" reflects the actual, net-of-fees performance of passive funds.

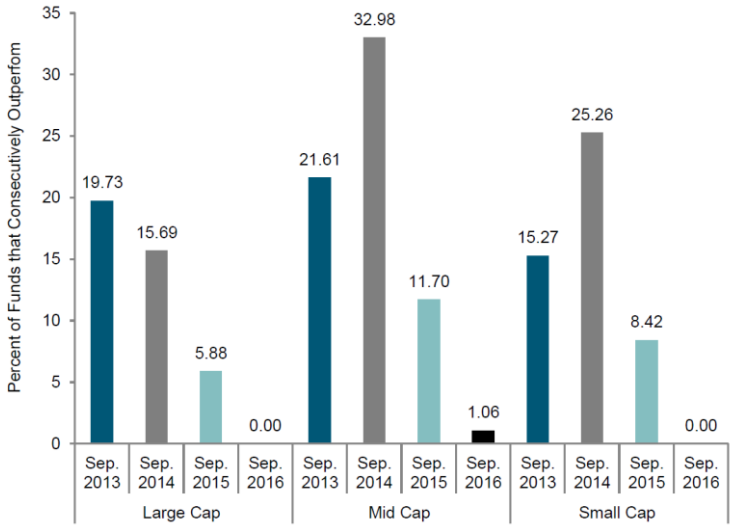
Regarding this analysis, the success of the fund managers active in the last ten years to beat the market has been low. In 28 of 49 categories, the percentage of active managers who beat the products of passive management was less than 25%. In fact, in all the analysis carried out by Morningstar it is difficult to find categories where the success rate of the active managers against the ETF exceeds 50%.

In addition to this, critics of mutual funds and other actively managed portfolios contend that it is next to impossible to generate excess returns on a consistent basis over the long term, because of which, most fund managers underperform the benchmark index over time.

“European stock-pickers' long-term success rates are low. Most active managers both survived and outperformed their average passive peer in just 3 of the 49 categories we examined over the decade through December 2018”[1].

Legendary investor Warren Buffet believes most investors would achieve better returns by investing in an index fund or ETFs as opposed to trying to beat the market. Research from S&P and Dow Jones indices supports Buffet’s thinking. Data revealed that active fund managers who outperform against a benchmark over a one-year period have a less than 50% chance of outperforming it again by the same rate in the second year. The study also found that, even if fund managers had a successful three-year record of generating active returns, they underperformed the benchmark in the following three years (Table 1).

Table 1. Percentage of Funds That Outperformed the S&P 500




Source: S&P Dow Jones Indices LLC and CRSP. Data as of Sept. 30, 2016.

[1] Morningstar European Active/Passive Barometer.

For example, out of 1,034 large-cap funds that existed in the universe as of Sept. 30, 2013, only 19.73%, or 204 funds, outperformed the S&P 500®. In the following year, 15.69% of those 204 funds outperformed the benchmark. By the end of the third year, none of those original 204 funds were able to outperform the S&P 500 on a consecutive basis (see Table 1).

“If you have an active manager who beats the index one year, the chance is less than a coin flip that the manager will beat the index again next year,” said Ryan Poirier, senior analyst at S&P Dow Jones Indices who co-authored the report.

The final objective of this thesis is to perform an analysis in the National variable income funds as the main object, with the main purpose of demonstrate, in a practical way, if the situation described by this Morningstar’s Report is also applicable to the National Equity Funds Category. In other words, our purpose is to demonstrate in a practical way, if it is true that active managers cannot beat the market in a long-term period and if passive managers are able to achieve higher returns by charging less fees for example than active. Through various methods, the analysis of each fund will be carried out individually and comparing it with the average result of the whole sample, dividing the categories in Active and Passive Management. All this will lead us to determine which funds have performed better during a period of 5 years and which type of management did better.

# 3. Theoretical framework

Harry Markowitz pioneered the “Modern portfolio theory” in his paper "Portfolio Selection," published in 1952 by the Journal of Finance; this theory is the pillar of passive management and therefore index funds are based.

In this theory he discusses that an investment's risk and return characteristics should not be viewed alone but should be evaluated by how the investment affects the overall portfolio's risk and return. He shows that an investor can construct a portfolio of multiple assets that will maximize returns for a given level of risk. Likewise, given a desired level of expected return, an investor can construct a portfolio with the lowest possible risk. He was later awarded a Nobel Prize for developing the MPT. His landmark 1952 paper showed how a subset of the possible portfolio compositions, the efficient frontier, represented the lowest level of risk for a given level of return.

While variants of Modern Portfolio Theory are still in use in the financial industry, and its main theorists had won the Nobel Prize for its creation, it has recently been the subject of increased criticism, citing its dependence on rational investor behavior and market efficiency (The Economist, 2009). Building on Markowitz’s earlier work, Sharpe (1964) proposed the Capital Asset Pricing Model (CAPM) for pricing risky securities. The CAPM uses the principles of Modern Portfolio Theory to determine if a security is fair valued.

Building on the quantified risk concept described by Markowitz (1952), Sharpe described a pricing theory for risky securities comprising two components: a risk-free rate of return equal to the return of a security with no default risk (such as a US Treasury bill) and systematic risk (“beta”) coefficient of risk responsiveness relative to market risk premium (Sharpe, 1964).[2]

The formula for calculating the expected return of an asset given its risk is as follows:

So, Sharpe observed that stocks leave their holders with two types of risks. One type of risk called “systematic” or “market” risk, relates to the market. That is, many economic and political factors affect all stocks, though some more than others. Other risk called “specific” or relates to an individual stock rather than the market.

The distinction is important. According to Sharpe, an investor can eliminate specific risk by holding a diversified portfolio but cannot eliminate systematic risk. Because you can readily reduce firm-specific risk, the market won’t pay you for holding it. The market will compensate you, however, with higher returns for taking systematic risk.

Systematic risk cannot be diminished with diversification. Users of the capital asset pricing model often quantify this risk as “Beta.” The Beta of a potential investment is a measure of how much risk the investment will add to a portfolio that looks like the market. If a stock is riskier than the market, it will have a beta greater than one. Beta simply represents the correlation of a stock’s historical price movements to that of the overall market. A stock with a beta of 2.0 tends to fall or rise by twice as large a percentage as the overall market. That is, if an interest rate cut pushes the market up 5 percent, then a stock with a beta of 2.0 will tend to be up 10 percent.

[2] Sharpe, W.F. (1964). Capital asset prices: A theory of market equilibrium under risk conditions. Journal of Finance.

Fama and French, two prestigious professors, maintained that the expected returns have little relation to the betas but related to the book value ratio between the value of market or size; other factors also appear such as momentum or liquidity.

What appeared obvious in theory had not worked in practice. Does this mean that risk and return don not go together? No. Does it mean that you should buy low beta stocks, thereby earning market returns with lower risk? No. What it probably means is that beta is an imprecise measure of risk and may not reliably carry predictive value.

Fama and French (1996) put an expressive title to their work: "The CAPM is wanted, dead or alive" and they discuss that although the prize is saved by beta, it is clear that the beta is not enough to explain the expected returns and, consequently, the CAPM cannot be saved.

We know that, although the Beta seems to be a relevant descriptor of the title risk, empirically the expected returns calculated based on the Beta as an indicator of risk through the CAPM differ from the expected returns obtained in the market. If, therefore, we use the CAPM to adjust the yields of the portfolios to your risk, we can find that several strategies can generate higher returns when in fact what has failed is the adjustment procedure, that is, the equilibrium model used.

The direct implication of the above is that any test that is intended carry out, it will be simultaneously of efficiency and of a certain equilibrium model of risk adjustment. It means, therefore, that any positive result will mean accept the efficiency of the market object of analysis as well as the characteristics that have assumed with respect to the equilibrium price formation model.

On the other hand, if the analysis results in a negative result, it will mean having to decide if it is can infer the inefficiency of the market or if, on the contrary, it reflects the inadequacy reality of assumptions made about market equilibrium. The empirical testing of the efficient market theory has been carried out traditionally in the stock markets by analysing the three efficiency hypotheses, enunciated by Harry Roberts, using various equilibrium models. Because the large number of studies of this type that have been carried out, we will highlight some of those that, perhaps, are more representative.[3]

In 1960, Eugene F. Fama, developed the other pillar of the passive management. In "The Behaviour of Stock Market Prices", he discussed that the price of shares is true within a market efficient. Since the value of the asset always reflects  past and current information.

Nevertheless, we live in an uncertain world where, according to Fama's own words: "Thus, there is always space for disagreement among market participants concerning just what the intrinsic value of an individual security is, and such disagreement will give rise to discrepancies between actual prices and intrinsic values. In an efficient market, however, the actions of the many competing participants should cause the actual price of a security to wander randomly about the intrinsic value. If the discrepancies between actual prices and intrinsic value are systematic rather than random in the nature, then knowledge of this should help intelligent market participants to better predict the path by which actual prices will move toward intrinsic value[4]".

Therefore, Eugene F. Fama concludes that, due to the volume of competitors in the market and the continuous movements of purchase and sale on each of the assets that are traded in the

[3] Gómez-Bezares (2014). El paradigma CAPM – Eficiencia. Análisis financiero, EAFI. Nº 125, pp. 6-22.
4 Eugene F. Fama. (1995). Random Walks in Stock Market Prices.

market, the value of these reflects all the past and current information. Therefore, it is impossible for an investor to predict the evolution of these, since we do not have future information.[5]

These conclusions were the basis of the Efficient Market Hypothesis (EMH)[6]. In 1970, Eugene Fama defined efficient markets as an "equitable game" in that the prices of the titles fully reflect all the available information. This implies that supply-demand allows the market to assign a price to each of the assets very close to the intrinsic value of these, and all the information that appears in the panorama is quickly reflected in its price. If markets are efficient, then all information is already incorporated into prices, and so there is no way to "beat" the market because there are no under or overvalued securities available and that market anomalies should not exist because they will immediately be arbitraged.

Passive management defends that there is no possibility to buy cheap and/or sell expensive as active management strategies advocate since the adjustments in the market are instantaneous or almost instantaneous due to arbitrage.

This hypothesis means that neither individual investors nor investment funds can systematically and continuously outperform market results (active management) except through luck, chance can be consistent in the short-medium term, in the long it has no relevance and privileged information, only available to some institutional investors or large multinationals that operate before an information is public. This practice is illegal and is persecuted and punished by the authorities.

Finally, say that the theory of efficient markets or as we mentioned earlier, efficient information, which has three forms: strong, intermediate and weak. These three concepts were introduced by Professor Harry Roberts (1967) and distinguish different situations that can occur in the market.

-Weak hypothesis of the efficient market assumes that the use of historical data of the company is not valid to predict the future value of the asset since it is already reflected in the value of this. It is therefore that technical analysis has no validity since it is exactly that; predict the value of an asset by knowing its past evolution. However, both public information and privileged information can be used to "beat the market" as pointed out by Mr. Juan Mascareña (1994).[7]

-Intermediate hypothesis of the efficient market is the most accepted generally and that Fama considered in his early work. He defends that all past and current information (public) is reflected in the price of the shares. Therefore, reflects what is known as intrinsic or objective value, this theory eliminates the value of fundamental analysis, that is why only those who have its privileged hand can improve the benchmark or those who are lucky (being last a variable that in the medium-long term is not sustainable).

- Strong hypothesis of the efficient market assumes that all past and present information; both public and private, is reflected in the price of the shares. It is difficult in practice that all investors perform technical and fundamental analysis and have all the information of a private nature that it exists at every moment that is why is just a theoretical hypothesis.

[5] Eugene F. Fama. (1995). Random Walks in Stock Market Prices.
[6] Eugene F. Fama. (1970). Efficient capital markets: A review of theory and empirical work. The Journal of Finance.
[7] Mascareña, J. (1994). La eficiencia y el equilibrio en los mercados de capital. (U. C. Madrid, Ed.) Análisis Financiero (64), 76-89.

# 4. Investment companies

An investment fund collects money from various investors in order to create a pool of money. Thanks to the great amount of money that the investors have invested in the investment fund, they can purchase a number of securities, such as equity shares, bonds, treasury bills and other financial instruments. As a result, every investor has ownership and control of its shares.

Thanks to the investment fund, the individual investors have access to a broader number of securities that wouldn´t have access if they were investing alone. Moreover, in a fund, there are several managers with expertise that individual investors don´t have. The individual investor has the advantage to take out their money easily. In addition, the risk is spread between all the investors of the investment fund, so the risk that is assuming an individual investor in the investment fund is lower than if he would invest out of the investment fund. Finally, individual investors will be charged with lower fees than if they were investing alone because the fees are spread between all the individual investors of the investment fund.

Collective Investment Institutions (CIIs) also called institutional investors are financial intermediaries that collect funds from individual investors and invest those funds in a potentially wide range of securities or other assets, in other words, merge the assets of various individuals and organizations to create a larger, well-diversified portfolio.

The key objective of investment companies is to pool money to purchase securities, real property, and other investment assets. Investment companies perform several important functions for their investors. Among them diversification and divisibility because they can act as large investors even if any individual shareholder cannot; professional management or lower transaction costs because they trade with large amounts of securities and they can achieve more savings than an individual investor by itself.

When talking about investment companies is important to speak about the Net Asset Value (NAV), which represents the per share/unit price of the funds on a specific date or time. NAV represents the value of each share and is calculated as the total value of the portfolio divided by the number or shares or units outstanding.

$$NAV = \frac{Market\ value\ of\ assets\ minus\ liabilities}{Shares\ outstanding}$$

The main investment funds are mutual funds, exchange-traded funds, money market fund, and hedge funds. However, each kind of investment funds differs depending on several factors such as investment strategy, maturity, underlying assets, etc. We proceed now to explain more deeply the funds that will be analysed in this thesis.

# 5. Mutual funds

Mutual funds are investment companies or trusts whose sole business is to make investments on behalf of individuals and institutions sharing a common investment goal. A fund's aim to do a better job of investing participant funds and managing the investments than individual investors could do for themselves. It is made up of the capital contributed by different investors

or participants who invest jointly through a manager who decides which assets to buy, both financial and non-financial, from a wide range.[8]

Mutual fund shares are "redeemable." This means that when mutual fund investors want to sell their fund shares, they sell them back to the fund, or to a broker acting for the fund, at their current NAV per share. They must maintain cash reserves to meet their redemption.

Mutual fund can be invested in a wide range of financial products ranging from stock, letters, bonds, derivatives, currencies, but also in non-financial products such as real estate. The investment portfolios of mutual funds typically are managed by separate entities known as "investment advisers".

The arrival of mutual funds allows retail investors to have access to all kind of financial assets at lower transaction costs through these investment vehicles. Therefore, the main task of the mutual funds in a perfect capital market would be to maximize the wealth of the clients through a diversified portfolio considering the risk profile of the client (Sharpe, 1966).

Advantages of mutual funds are that they provide economies of scale; you can achieve greater profitability, since professionals, who in principle know financial markets better than the average saver, manage this instrument; a higher level of diversification, they provide liquidity. On the negative side, investors in a mutual fund must pay various fees and expenses.

A mutual fund is constituted by several elements. Thus, we can find the investors, the shares, the management company and the depositary. Participations of a mutual fund are the equitable parts in which a mutual fund is divided. The management company of a mutual fund oversees managing and administering the mutual fund, but it is not the owner of the same. The owners of the mutual fund, as we have said before, are the participants, who hold the shares. The management company oversees determining the investment policy of the mutual fund, which means that it decides in what assets the mutual fund invests with the equity contributed by the unitholders. The mutual fund depository has the function of safeguarding the assets that make up the mutual fund's portfolio, and, apart from that, it assumes some control functions over the fund manager to protect the unitholders.

There are innumerable different types of mutual fund, with their own objectives, categories and investment methodologies. Management companies manage a family of mutual funds. They organize an entire collection of funds and then collecting a management fee for operating them. These companies make it easy for investors to allocate assets across market sectors. Some of the most well-known management companies are Fidelity, Vanguard, Putnam and Deyfrus.

Some of the most important fund types, classified by investment policy are described next (Luenberger, D., 2013):

- Money Market Funds: these funds invest in money market securities, highly liquid instruments such as cash, cash equivalent securities, and debt-based securities. As a result, these funds offer high liquidity with a very low level of risk.
- Equity Funds: they invest primarily in stocks, although they may, at the portfolio manager’s discretion, also hold fixed-income or other types of securities. Usually they also hold around a 5% in money market securities to provide liquidity necessary to meet potential redemption of shares.

[8] Luenberg, D. (2013). Investment Science. (2 Ed.). Oxford Univ PR.

- Bond funds: these funds specialize in the fixed-income sector. But they can specialize in one type, for example, some funds will concentrate on corporate bonds, treasury bonds, mortgage-backed securities or government bonds. Many funds will also be specialized by the maturity of the securities (long-term to short-term) or by the credit risk of the issuer (high yield bonds to 'junk' bonds).
- Index funds: a type of mutual fund with a portfolio constructed to match or track the components and the performance of a financial market index. The fund buys shares in securities included in a particular index proportion to each security's representation in that index. Investment in an index fund is a low-cost way for small investors to pursue a management passive strategy.

We are going to focus on a further definition of equity funds and index funds, since, as we said above, this type will be used after for the practical analysis of this thesis.

## 5.1. Equity funds

As the name implies, this sort of fund invests principally in stocks. The value of the mutual fund company depends on the performance of the securities it decides to buy. Therefore, when you buy a unit or share of a mutual fund, you are buying the performance of its portfolio or more precisely, a part of the portfolio's value. Investing in a share of a mutual fund is different from investing in shares of stock. Unlike stock, mutual fund shares do not give its holders any voting rights. A share of a mutual fund represents investments in many different stocks (or other securities) instead of just one holding.

Within this group is various sub-categories. A mutual fund may blend its strategy between investment style and company size.

Some equity funds are named for the size of the companies they invest in small-, mid- or large-cap.[9] Large-cap companies have high market capitalizations, with values over $5 billion. Market cap is derived by multiplying the share price by the number of shares outstanding. Large-cap stocks are typically blue-chip firms that are often recognizable by name. Small-cap stocks refer to those stocks with a market cap ranging from $200 million to $2 billion. These smaller companies tend to be newer, riskier investments. Mid-cap stocks fill in the gap between small- and large-cap.

Attending to the investment strategies, we considered a further detailed development due to its complexity in the explanation.

### 5.1.1. Stock Selection Investment Strategies

Within all stock selection techniques, three types of equity selection are considered the most popular. These are the value, growth, and momentum style. There is also a form called "blend", but this is still a combination or mixture of the value and growth style. These styles take different approaches to achieve outperformance

#### 5.1.1.1 Value investment

At the other end of the spectrum from Fama and his followers are the value investors, who believe stocks can become undervalued, or priced below what they are actually worth. Successful value investors make their money by purchasing stocks when they are undervalued and selling them when their price rises to meet or exceed their intrinsic worth.[10]

[9] Luenberg, D. (2013). Investment Science. (2 Ed.). Oxford Univ PR.
[10] Investopedia: Market Efficiency.

Value investing, as we know it, has its origins in the United States at Columbia University. Two professors named Benjamin Graham and David. L. Dodd began to coin this term that would soon become a well-known investment philosophy in the world of finance.

The first work where it begins to be known is in his book Security Analysis (1934). At the time of publication, in addition to being professors at Columbia University, they were also professionally engaged in the world of investment.

As founding fathers of value investing or investment in value, Benjamin Graham and David Dodd defines it as "a philosophy based on acquiring securities at a price below its intrinsic value [11]and with sufficient safety that could allow it to be protected against unpredictable situations or investment thesis errors affecting negatively to a company". This methodology was called the fundamental analysis or what is the same at a price below what it is worth. Value investors assume the efficient-market hypothesis [12] is false and that stocks do not always trade at intrinsic value.

Undervalued stocks are thought to come about through investor irrationality, from which value investors hope to profit, by investing in companies which may exhibit below average valuation multiples, such as price-to-book (P/B) and price-to-earnings (P/E) ratios.

After a review, the value investor will then decide to purchase shares if the comparative value is attractive enough. However, this task is not so easy in practice. Two different investors can analyze the exact same valuation data on a company and arrive at different decisions.

Because of this, value investors often set their own "margin of safety", based on their particular risk tolerance levels. Value investors require some room for error in their estimation of value and will seek to purchase shares they perceive to be deeply discounted.

Warren Buffett and Peter Lynch are both known for analyzing financial statements and looking at valuation multiples, in order to identify cases where the market has mispriced stocks and capitalize on reversions to the mean.

According to the CAPM in order to obtain a higher return, the investor must incur a higher risk. Here the risk is measured by beta, which is the increase in the price variation of an asset versus the market. The greater beta, the greater the asset's variation, either in terms of bullish or bearish market movements.

However, the risk in value investing is interpreted as the volatility of an asset, understanding as volatility the variation in the price of the asset at a present moment from a time in the future. The market is not considered but only the asset itself, as this technique aims to prevent the price of assets from falling in times of financial crisis. Therefore, if when choosing an asset, it has a higher safety margin, the beta would have no place in the value. According to Nicholson (1960), CAPM would not be a valid model for assessing the evolution of the value investing portfolio by using PER as a method of securities selection, as inconsistent results are obtained (more return incurring less risk).

In other words, applying it to the CAPM model, despite using this ratio in the development of the portfolio, applying it to the betas of the shares or the beta of the portfolio- the beta of the formed portfolio should be higher the higher the lower the PER was to select the shares, your

[11] Intrinsic value: perceived or calculated value of an asset, an investment, or a company. The term finds use in fundamental analysis to estimate the value of a company and its cash flows. (Investopedia).
[12] Efficient market hypothesis says that all available information is already priced into the cost of a stock.

betas should be lower as well as the beta of the portfolio. The problem occurs in practice, where it is the portfolios that have higher betas that get lower yields and the portfolios with lower betas that get higher yields.

Therefore, using value investing the CAPM model is invalid as we have seen, the more risk is included in the portfolio by more volatile assets does not have to lead to a higher return.

#### 5.1.1.2. Growth investing

The growth investing was born by the hand of value through the introduction of Cottle in the 4th edition of Security analysis. However, it was developed thanks to T. Rowe Price.

It has in common with the value investing the fact that it is looking for companies that have a history of dividend-sharing as a characteristic of the company being in good financial condition. It cannot be completely separated from the value since the latter uses growth within its formula to decide whether or not to invest in the value making predictions of future cashflows with a specific growth rate.

The difference is that in the investing growth that rate would be considered a cornerstone when performing the calculation and investing following that technique.

However, it does differ abysmal in one respect: while in value it is crucial that the intrinsic value is greater than the value that is actually reflected in the market, the investing growth does not take that into account and is considered that it can be invested in a company whenever it has a high yield or that it will have a great growth at a time in a very short time. Hence you can pay more for a growth company if it's really going to have a safe growth. Many studies have been conducted on which is the best investment style and generally the value outperforms the growth in terms of return and assumed risk. (Moskal, M. B., 2002).

This strategy is focused on increasing an investor's capital. Growth investors typically invest in growth stocks—that is, young or small companies whose earnings are expected to increase at an above-average rate compared to their industry sector or the overall market.

Growth investors scour the markets for businesses that have the potential to grow faster than the market. Some fund managers who specialise in the area focus their sights on small companies that can grow market share exponentially over the long term.

Others look for quality businesses that, all things being equal should be able to stand the test of time over the coming decades. Unlike other growth stocks, these quality growth shares tend to pay dividends.

Regarding the buying and selling of portfolio shares in the case of investment funds, in the case of portfolios with a growth profile the most common is to make a big change in the composition of portfolios.

#### 5.1.1.3. Momentum

Also known as market timing, this is an investment technique that relies on the use of trends, whether bullish or bearish, to obtain a return. Momentum investing holds that trends can persist for some time, and it is possible to profit by staying with a trend until its conclusion, no matter how long that may be[13]. The big difference with the two methods above is that this type of technique is used in the short term and not in the long term as we have seen.

[13] Investopedia: Momentum investment strategy.

The momentum style completely contradicts the old investment maxim, 'buy low and sell high'; instead, the strategy targets shares enjoying a purple patch. The approach sounds dangerous but has been validated by several authoritative academic studies.

Phil Oakley, an investment strategist at Share Pad, a data service for investors: “This approach involves buying shares which have already gone up enough in the hope that they will keep on doing so.”

However, Oakley points out that the strategy is hard to execute and more suitable for traders, rather than the average investor.

“The big risk with this strategy is that you are buying into shares where valuations and expectations are high. There is no room for disappointment. If profits fail to meet forecasts, the shares can get hammered. You must know when to sell and not get too greedy. This is not easy to do.”

Graham is very critical that this type of technique could not be considered investment as such but speculation, since according to him an investment should be a forecast that in the market the price does not actually reflect the price of the stock but it will in the future in the long term. Anything that is not done in this way is speculation.

In addition, it uses short selling, which can be considered unethically incorrect, to obtain short-term performance (Graham, 1949). It also uses derivatives but not as hedging but for speculation. It uses technical analysis as a means of interpreting the movements of these trends and tries to foresee it. Factors such as the volume of buy and sell make the price of a stock vary and therefore there are investors who using the momentum get performance. There are several indicators such as RSI or MACD, although the most well-known and used is the moving average.

## 5.2. Index Funds

"Indexing" is a form of passive fund management. Instead of a fund portfolio manager, actively stock picking and market timing, the fund manager builds a portfolio whose holdings replicate the securities of a particular index. The idea is that by mimicking the profile of the index—the stock market, or a broad segment of it—the fund will match its performance as well.

Portfolios of index funds substantially only change when their benchmark indexes change. If the fund is following a weighted index, its managers may periodically rebalance the percentage of different securities, to reflect the weight of their presence in the benchmark. Weighting is a method used to balance out the influence of any single holding in an index or a portfolio.[14]

The one fund that started it all, founded by Vanguard Chairman John Bogle in 1976, remains one of the best for its overall long-term performance and low cost. The Vanguard 500 Index Fund has tracked the S&P 500 faithfully, in composition and performance. It posts a one-year return of 9.46%, vs. the index's 9.5%, as of March 2019, for example. For its Admiral Shares, the expense ratio is 0.04%, and its minimum investment is $3,000.

One primary advantage that index funds possess over their actively managed counterparts is the lower management expense ratio. A fund's expense ratio also known as the management expense ratio includes all the operating expenses such as the payment to advisors and managers, transaction fees, taxes, and accounting fees.

[14] Luenberg, D. (2013). Investment Science. (2 Ed.). Oxford Univ PR.

Expense ratios directly affect the overall performance of a fund. Actively managed funds, with their often-higher expense ratios, are automatically at a disadvantage to index funds, and struggle to keep up with their benchmarks in terms of overall return.

Lowered expense leads to better performance. Advocates argue that passive funds have been successful in outperforming most actively managed mutual funds. It is true that most mutual funds fail to beat broad indexes. For example, during the five years ending December 2018, 82% of large-cap funds generated a return less than the S&P 500, according to SPIVA Scorecard data from S&P Dow Jones Indices.

On the other hand, passively managed funds do not attempt to beat the market. Their strategy instead seeks to match the overall risk and return of the market, on the theory that the market always wins. In the same belief, we find the ETFs, product derived from the indexed funds

## 6. Exchange Traded Funds (EFTs)

In the 1990s, a product derived from the indexed funds emerged in Canada and the United States, the ETFs (Exchange-Traded Funds) which, again, were only available at the beginning for institutional investors who developed investment strategies a priori more complicated. From the second half of this decade began to generalize its use among private investors, obtaining the monopoly of its commerce WEBs, now known as iShares, a company that is part of the multinational corporation BlackRock.

ETFs are publicly traded investment funds that replicates an index, so they are passive managed; they do not anticipate the market, they do not forecast. They combine the characteristics of open-end mutual funds and stocks. They trade like individual securities, as with mutual funds, they "wrap" an underlying basket of assets such as stocks, bonds or commodities.

The great advantage of this product, that can also imitate the evolution of an index, is that it can be negotiated during the period that the market is open with an updated value of this, so that you have more information of the situation. While an indexed fund does not offer this agility or liquidity, since like any other operation with funds, they are only made at the end of the day or, in the case of some markets, a couple of times per day[15].

An ETF can be bought and sold during the stock exchange session as a stock giving the investor greater control in a purchase or liquidation, so, it is traded on the stock exchange as a variable income. At any time, you can know the composition and value (market price and NAV) of the portfolio, allowing the investor to buy and sell at any time of the trading session. The traditional investment fund establishes its value after the session, making it more difficult to control its value when buying or selling. Another advantage is that the purchase is made at the price established in the market now.

An investor such as a brokerage house or large institutional investor purchases a creation unit with a ''portfolio deposit'' equal in value to the NAV of the ETF shares in the creation unit. After purchasing a creation unit, the investor can hold the ETF shares or sell a portion of the ETF shares to investors in the secondary market. The ETF shares purchased in the secondary market are not redeemable from the ETF except in creation unit aggregations (Luenberger, D., 2013).

Although the primary market is necessary for the very existence of ETFs, its main trading market is the secondary market, this is the differentiating element of listed investment funds, traditional

[15] Luenberg, D. (2013). Investment Science. (2 Ed.). Oxford Univ PR.

investment funds are not negotiated on the secondary market. Since the shares of listed funds are admitted to trading on the stock market (secondary market), the purchase and sale transactions of these shares are made at the market price, which will be determined by the supply and demand at any given time throughout the session.

The purchase and sale operations of this secondary market are carried out at the price that the market marks during the trading session. In order to be able to compare the evolution of the price of the listed fund with the evolution of the underlying index, a liquidate value indicative of the fund will be published and disseminated throughout the session, using the daily net asset value of the fund published by the fund for its calculation. In this way, the investor will always have the necessary information for the correct valuation of the quoted fund (Luenberger, D., 2013).

Some advantages of these funds are high liquidity; transparency, you can see how it behaves in each moment; very low expenses, they do not have custody, marketing or other type of expenses, only the expenses of the fund manager and minimum capital requirement very low. In the USA the management expenses (those expenses that are reflected in the liquidation price of their units) are approximately of 1.50%. In Spain it is usually a little over 1.75% average. On the other hand, ETFs have expenses from 0.05% to 0.20% depending on the ETF. The tax regime applicable to an ETF corresponds to that of shares instead of the regime of investment funds, so that capital gains are not subject to withholding.

# 7. Measures of Fund's Performance

It can be understood, following the theory of portfolios and the theory of capital markets, that the profitability obtained by a portfolio is not relevant if it is not analysed in turn the risk associated with that portfolio; In other words, "in a market in equilibrium there is a trade-off between yield and risk" (Suárez, 2005; p. 531).

To know the quality of the investment process that a manager follows, several factors must be considered. The study can be divided into two parts: a qualitative analysis, in which one seeks to understand the strategy and know where the results come from and a quantitative analysis, in which from a series of ratios , measures of profitability and risk, it is about drawing some conclusions about the skills and abilities of the manager.

There are various performance measures whose evolution has been parallel to CAPM. Throughout this heading, among the best known each one of them will develop, as well as other less used at the practical level, but which also have their basis in the theory reviewed here.

Before proceeding, it is important to emphasize that the review of performance measures that takes place in this work has not intended to be completely exhaustive, to understand that this would transcend the academic level of master, but enough to pick up a full range of interesting and at least potentially applicable measures in financial practice excess performance.

We start explaining what a benchmark is because performance measures will be compared with the benchmark.

## 7.1. Benchmark

"The benchmark is an index, title or portfolio used for the analysis of the evolution of a market and that also serves to measure the results obtained by portfolios or titles Similar. Therefore, the benchmark is considered as a base element for the comparison of results" (Brun and Moreno, 2008).

Benchmarks are tools that can be used in a variety of ways for investors. All managed funds will have an established benchmark for which to measure the performance of the fund; so, the fundamental characteristic of the benchmark is that it allows comparing the results obtained in a portfolio, as well as establishing the objectives of the same, considered an alternative reference portfolio. For its calculation, we make the weighted average or arithmetic of several equity or fixed income securities that share the same geographical characteristics, size, investment style, credit quality, debt maturity term…

To choose a properly a benchmark, it must meet, among others, the following requirements. We must obtain daily data, the quotes of the assets are made daily, and therefore, the data of the reference must be daily. Maximum similarity with the portfolio, for the results to be comparable, the assets that make up the portfolio should be as similar as possible to those that make up the reference portfolio. Below are other performance measures, alternatives to the three classic ones already exposed, in which the existence of a benchmark is fundamental. As it is easy to deduce, in the classic measures the benchmark should approximate the market portfolio.

The alpha and beta are both metrics relating to the level of risk or volatility experienced in a particular security. While the alpha provides a measurement concerning the asset's performance, the beta specifies the level of risk present when compared to the CAPM.

## 7.2. The beta

The beta is the slope of the line of regression of the returns of a fund against that of its benchmark. It is a measure of systemic risk, which is the fact of the entire market declining, or the volatility of the portfolio of a fund comparing to the market. We can avoid the systemic risk by diversifying. CAPM theory uses it to calculate the expected return of an asset based on its beta and market return; in this theory, the beta specifies the level of risk presented. Calculated using a form of regression analysis, the beta is a measure of the asset's ability to respond to market fluctuations.

$$\beta = \frac{Covariance\ (R_e, R_m)}{Variance\ R_m}$$

- **$R_e$:** return of an individual stock.
- **$R_m$:** return of the overall market.
- **Covariance:** how a change in the return of a stock is related to the change in the return of the market.
- **Variance:** how far the market´s data points spread out from their average value.

-β = 1 means that before a movement of the benchmark of 1%, the fund will collect a variation of 1%.

-β> 1 means that before a movement of the reference index of 1%, the fund will collect a variation of more than 1%.

-B< 1 means that before a movement of the reference index of 1%, the fund will collect a variation of less than 1%.

A fund with a beta higher than one will exaggerate more market movements (more profits than the market in case of rise, but more losses in case of a fall), while a beta lower than one means just the opposite (less profitability than the market in periods of rise in exchange for lower fall in correction periods).

## 7.3. Jensen's Alpha (α)

It is the excess of return achieved by a fund compared to the market. Consequently, the investment alpha is the return that a fund has reached which is over the return of the benchmark (when the fund has outperformed the market). So, in other words, the alpha is the result of an active portfolio management.

According to Jensen's alpha, the return of a portfolio can be broken down into two elements: the manager's ability to take positions in his portfolio according to market circumstances, as well as his ability to reduce the risk inherent in his portfolio through an adequate diversification of assets.

This indicator measures the return in absolute terms and allows knowing if the portfolio is well managed and making a comparison between funds of the same category, so it can be used to rank investment funds.

$$Alpha\ (\alpha) = (Rfund - R\ without\ risk) - (Rcategory - Rwithout\ risk\ \times\ \beta fund\ )$$

- **Rfund**: Fund's return.
- **Rwithout risk:** Return of the asset without risk. Calculated from the AFI Repo index on public debt.
- **Rcategory:** Return of the AFI category of the fund.
- **Beta of the fund**: indicates the sensitivity of the fund to variations of its category.

-α>0 means that the actual return obtained by the investment has exceeded the expected return.

-α<0 means that the actual return obtained by the investment has not exceeded the expected return.

It is necessary to emphasize that the value taken by Jensen's alpha also offers a measure of management efficiency on the part of managers. Thus, a positive Jensen alpha will represent that the manager's performance obtained returns that beat the market; however, a negative index is an indicator of an underperformance of the fund. From an active management point of view, the alpha should be different from zero because an alpha equal to zero will mean that the fund is replicating the market. A way of generating alpha is by diversifying the portfolio to eliminate the unsystematic risk.

## 7.4. Sharpe's Ratio

One of the first and best-known performance measures is the Sharpe ratio, presented in a work of this author of the year 1966. This value is interpreted as "the risk premium obtained for each unit of risk supported by the fund" (Suárez, 2005, p.534). In other words, this index measures "the excess performance of securities with risk per unit of risk" (Soldevilla, 1999, p.276) and provides the degree of desirability of the fund by investors.

Based on the average annual profitability of these funds, he deduced the risk-free interest (Rf) referred to the decade in which he conducted the study, thus obtaining the risk premium obtained by each fund. Then, divided this difference by the risk supported by the fund, measured by the typical deviation of their profitability($\sigma_c$). Thanks to the Sharpe ratio, the investor can know and understand the risk he is assuming for an extra return.

$$Sharpe\ Ratio = \frac{R_p - R_f}{\sigma_p}$$

**$R_p$**: return of portfolio.

**$R_f$:** risk-free rate.

**$\sigma_p$:** Standard deviation of the portfolio´s excess return (volatility).

This ratio is a measure of performance that allows comparing the results obtained by managers of different funds and ordering them from higher to lower preference. The Sharpe ratio aims to reveal if the return of an investment is simply due to an appropriate decision-making on the part of the manager or if this is because only more risk has been assumed.

The higher the sharper ratio, the more attractive the risk-adjusted return. If the Sharpe ratio is negative, it means that the risk-free rate is greater that the portfolio returns or that the portfolio return is expected to be negative.

The Sharpe ratio should only be used to compare homogeneous investments. It does not serve to evaluate the quality of the management, although it can be used from a purely investor point of view to know what pays more for the risk assumed.

Tools like R Squared and tracking error determines a portfolio's statistical deviation from the benchmark index.

## 7.5. R Squared ($R^2$)

The $R^2$ or the coefficient of determination, measures the degree of interrelation and dependence between two variables. In other words, it is a formula that determines how much a variable's behaviour can explain the behaviour of another variable. In investing, the $R^2$ is the percentage of a fund movements that can be explained by movement in a benchmark index. So, it is used in order to determine an investment correlation with the benchmark.

As a result, it is given a value of 100 to the benchmark, so if a certain fund has an $R^2$ of 98%, this means that 98% of the fund movements are explained by the benchmark movements, so the fund in replicating the market.

$$R^2 = 1 - \frac{Explained\ variation}{Total\ variation}$$

**Explained variation:** sum of squares due to regression, which measures how well the regression model represents the data that were used for modelling.

**Total variation:** is he total sum of squares, which measures the variation in the observed data.

It is stablished that an $R^2$ between 85% and 100%, the fund moves in the same way than the benchmark.

## 7.6. Tracking error

The tracking error measures the deviation of the return of the fund with respect to its index. Statistically speaking, tracking error is the standard deviation of the differences in return (fund versus benchmark) and quantifies the distance of this difference with respect to the average difference. Colloquially, we know it as "management risk", that is, the freedom that a manager takes to invest in assets outside the reference index, although it is also called "specific risk". The lower the tracking error, the more closely the manager will follow his reference index and vice versa. It is therefore a measure of relative risk.

Apparently, we could think that passive management is based on giving a button and wait for the index to rise or fall, is much more than all that and there are difficulties in replicating exactly the performance of the Benchmark in question. The need to do the same as the index led to create a quantity known as tracking Error, which is responsible for measuring the difference between the yields obtained by the funds and the index. In other words, is a measure that evaluates the deviation of the return of a certain portfolio with respect to its reference benchmark.

A higher tracking error is due to a greater difference between the return of the portfolio and benchmark. This may lead to think that the manager has obtained a much higher profitability than the benchmark because such a difference is great, "but this ratio does not offer information on whether the difference is positive or negative. Therefore, the tracking error only indicates that it has obtained very different results from the benchmark, but it does not indicate whether they have been better or worse" (García, 2013).

$$Tracking\ Error\ (TE)\ =\ \sigma\ \times (\mathrm{Rfund} - \mathrm{Rbenchmark})$$

**σ** : is the standard deviation

**Rfund:** is the return of the fund

**Rbenchmark:** is the return of the benchmark

If we speak of a passive management (where we understand that there is a faithful follow-up to the benchmark), the tracking error will remain as low as possible, because the goal is to replicate the benchmark, so they do not want to assume greater risk than the benchmark.

In the case of active management (where the manager's participation is stronger), we will find higher values. A higher tracking error shows that in order to achieve the return of the fund, it has assumed greater risk than the benchmark.

The expert puts an example: assume a tracking error of 6% would mean that if our benchmark had a yield of 10%, theoretically our return should be between 4% and 16%. "There are different ways to assume tracking in a portfolio: choosing assets outside the index; changing the weights of the assets or sectors of that index; investing in other geographical areas according to Merino, the assumption of tracking error not only It depends on the manager, but also on the objective of the investment and the tools that are enabled.

## 7.7. Treynor Index

The Treynor index is also known as the reward / volatility ratio, "because it represents the prize that on average the portfolio has paid for each unit of volatility" (Suárez, 2005, p.536), understanding volatility in this context as a coefficient of volatility or beta. Therefore, the management of a fund will be the better the higher the Treynor index, that is, the greater the prize that the portfolio offers per unit of systematic risk.

According to the CAPM model, in a market in equilibrium, the specific risk of a portfolio can be nullified by diversification; therefore, the portfolio should only maintain its systematic risk. That is why the Treynor index not only allows ordering or ranking the degree of preference of financial assets, but also offers the possibility of comparing the performance of the same with the market.

## 7.8. Information ratio

The information ratio, proposed by Treynor and Black (1973), is a measure that evaluates the performance of a fund managed according to the behaviour of a benchmark or reference portfolio. This index is based on the tracking error and, unlike it; it informs if the manager obtained better or worse results than the benchmark.

It is obtained from the quotient between the excess of average profitability and the Tracking Error, that is, Where, RI would be precisely the information ratio. "The higher the information ratio of a portfolio, the greater the surplus of return that is obtained for each point of standard deviation with respect to the reference portfolio and, therefore, the higher its performance" (García, 2013).

Although the quotient of information does not consider the risk of the portfolio being evaluated, it is able to correctly measure the value added by the manager, when estimating the excess of profitability. Furthermore, it does not presuppose compliance with any specific model of capital market equilibrium.

## 7.9. Survivorship bias

Survivorship bias understanding is crucial to judging any study on mutual fund performance. We believe it is also crucial to understand how the fund industry operates and markets itself.

Survivorship bias is the tendency of reported aggregate returns to be biased upward because they exclude funds that went out of business. Funds generally go out of business due to poor performance. Dropping those funds from reported results therefore inflates the returns of the overall mutual fund industry.

Survivorship rates are positively correlated with odds for success. The biggest driver of active funds' failure is their inability to survive, which is often a result of lacklustre performance. In the following table an example of survivorship bias is shown for the Europe Large Cap Blend Equity.

Table 2. Europe Large Cap Blend Equity

| | Active Funds | | Passive Funds | | Asset-Weighted Performance | | Equal-Weighted Performance | | |
|---|---|---|---|---|---|---|---|---|---|
| | # at Beginning of Period | Survivorship Rate (%) | # at Beginning of Period | Survivorship Rate (%) | Active (%) | Passive (%) | Active (%) | Passive (%) | Active Success Rate (%) |
| **Period** | | | | | | | | | |
| 1-Year | 615 | 94.8 | 135 | 91.1 | -13.4 | -10.1 | -13.1 | -10.6 | 22.1 |
| 3-Year | 597 | 84.3 | 129 | 77.5 | -1.0 | 1.6 | -1.5 | 0.8 | 12.6 |
| 5-Year | 570 | 73.3 | 91 | 73.6 | 2.4 | 3.7 | 1.8 | 3.2 | 17.7 |
| 10-Year | 616 | 44.8 | 54 | 63.0 | 6.7 | 7.7 | 6.4 | 7.4 | 16.6 |

Source: "Morningstar Analysis "Active/Passive Barometer".

Despite the poor results generated, most of these products continue to be commercialized in the market. Of the 616 European stock exchanges with style blend that had ten years ago, almost half are still alive (45%). Moreover, if we analyse it to five years, the percentage rises to 73% (practically three out of four). However, this is not a problem for the European equity funds. It happens in practically all categories, in some cases even more accentuated.

Fernando Luque, financial editor at Morningstar reveals: "This is relevant because there are products that have been around for more than ten years and that have not only never beaten their reference index but have never exceeded the average of their category".

## 7.10. Active share

The concept was developed by researchers Martijn Cremers and Antti Petajisto in 2006. The active share score is a way to quantify how much of an equity portfolio's holdings differ from its benchmark. Is therefore important when it comes to justifying the fees applied by the fund, which explains its popularity among investors.

Considering 0% as indicative of a portfolio that fully replicates its benchmark and 100% as a portfolio that does not match at all. At the extremes, a portfolio with an active share of 100% would have no common value with the index, while a portfolio with an active share of 0% would be identical to that of the benchmark. The greater the active share, the more active is the management of the fund.

As Petajisto says it "implies that an active manager should be able to select his investments from what he considers to be the top 40% of all stocks based on their future alphas." So, the limit of active management is usually 60%. In other words, it is very difficult for a fund to beat the index after commissions if it has less than 40% of positions different from the reference.

When the active share is lower than 40% it means that funds behave almost like an index fund, which is known as “closet indexing”.

Closet indexing is the common term used to describe funds that claim to actively purchase investments but wind up with a portfolio not much different from the benchmark by doing so, portfolio managers achieve returns like an underlying benchmark, without exactly replicating the index.

In addition, they charge the considerably higher fees associated with active management, but that are not sufficiently differentiated from the benchmark to warrant either the claim or the fees. After Cremers & Petajisto (2009), the closet indexing threshold is generally set at an active share of 60%.

First, calculate the common percentage between the investment fund and the benchmark. Leť s imagine that the benchmark and the fund have 3 stocks in common:

Table 3. Active Share calculation

| Stock | Fund | Benchmark |
|---|---|---|
| A | 10% | 11% |
| B | 5% | 4% |
| C | 3% | 1% |

Source: Own processing,

If we sum all the percentages of the fund, we have a total percentage in common of 15%. In order to calculate the active share, we must subtract that 15% to 100%, which is 85%. So, the active share is 85%, which is a good percentage because is considered that an active share below 60% is a management too close to the benchmark, while a management over 60% is a portfolio different from the benchmark. The higher the active share, the more different the portfolio will be from the benchmark and the more active the fund will be.

Regarding the Morningstar Analysis, “Active Share in European Equity Funds”, which focuses on long-only non-index funds within the three European large-cap Morningstar Categories: Europe Large-Cap Value Equity, Europe Large-Cap Blend Equity, and Europe Large-Cap Growth Equity active shares are shown in the following chart (Chart 1).

Chart 1. Active share by Morningstar Category


Source: Morningstar Analysis "Active Share in European Equity Funds".

Although most of the funds the study had three-year average active share levels that fall tightly between 60% and 80%, the level of active share for individual funds ranged from 19.8% to 95.8% over the three-year period ended March 2015.

# 8. Active vs passive management

The increased popularity of both and actively managed funds passive investment funds (also known as index funds or EFTSs) in the Europe and the Eurozone, makes a first part of the project focuses on comment the pros and contras to both forms of investment must place the reader in the context, which the thesis is performed.

## 8.1. Active management

It arises with the beginnings of stock exchanges back in the seventeenth century, with the creation of what is considered the first stock market, the Amsterdam Stock Exchange. Where it was already possible to appreciate the disadvantages of speculation in the Crisis of the Tulips [1630 -1637], considered the first speculative bubble.

Active management is characterized by a continuous control of the market and the situation of the companies, and seeks to beat the market index, since it considers that by means of a correct analysis and an adequate purchase-sale of the securities, the benchmark can be improved. What is the Benchmark? The Benchmark or market index is calculated as the weighted yield of all the assets quoted in a stock market, or what is the same, the benefits that would be obtained when buying the whole market.

In order to beat and outperform the market, the manager uses its own intuition to select the individual securities and decides when to buy and sell them. Considering its aim is to beat the actual benchmark index, the manager or the management team must know well the market.

By In these circumstances, the managers think that they can beat the market by anticipating their movements based on the price malformations that they estimate may exist in the market. This strategy is based on the possibility of identifying undervalued or overvalued securities whose purchase can generate enough profitability to cover the transaction costs and the risk assumed. On the other hand, the passive strategy that supposes the fulfilment of the hypothesis

of market efficiency, developed at the end of the sixties. That is to say, the price of quotation of a title reflects all the existing information in the market on its behaviour. Therefore, there is perfect information and no investor can beat the market. Under these conditions, passive management is designed to follow a reference portfolio that reflects market movements (Mendizábal and Tamayo, 2000).

Active mutual funds follow supports dynamic methodologies and strategies to beat the market and have higher returns than the benchmark or a mix of benchmarks. Usually the active investing management involves the use of the Capital Asset Pricing model (CAPM) to have a linear relation between the expected returns of an asset or a portfolio and the market beta in order to look for the so-called "alphas" which is the difference between the portfolios against the benchmark, in other words the excess return.

The funds of active management use different styles in their eagerness to beat their respective benchmarks. Two of the most used techniques are the "top-down" and the "bottom-up". The top-down managers begin by analysing the macroeconomic scenario of the areas in which the fund invests. They decide on the distribution of assets for the fund based on the analysis of the current situation of the markets and possible future trends. For example, they can decide, based on the good prospects they have for the financial sector, that a certain proportion of the fund's portfolio are invested in shares of the banking sector. For these managers the individual values matter less than the sectors they represent.

## 8.2. Passive management

We could consider that it arises even before s. XVII attending to its purest definition. Since time immemorial, people have invested in businesses or companies with the aim of achieving profit in the medium-long term and without the intention of changing their position in such companies, these being some of the characteristics of passive management.

However, in a more updated and rigorous sense, the term "passive management" does not become relevant until the emergence of index funds. The origin of these has its own name, The Vanguard Group, being John C. Bogle his founder.

Funds following passive investment strategies do not need to perform any fundamental analysis of the companies because the fund manager's aim following the passive portfolio strategies is to replicate a specific index by buying proportionally to the specific market index. Moreover, periodically the manager will need to rebalance the weights on the portfolio according to the market capitalization of each security. However, an active fund manager, will buy and construct the portfolio depending on its fundamental analysis and its ability to detect profitable companies or companies that are undervalued. Moreover, it will adjust the weights on the portfolio to take advantage on the market conditions and to maximize the value of the portfolio.

There is another approach of semi-active portfolio management also called enhanced indexing or controlled risk of active management, this approach is the variant before the active management of portfolios.

In a portfolio of semi-active management, the investor tries to exceed a given reference point, this occurs in the same way as the active management portfolios. A semi-active management portfolio, however, has more concerns about risk monitoring than an active management portfolio and will tend to build a portfolio whose performance will have a volatility limited to the yields of the reference portfolio.

Nevertheless, neither has the key to success, it will depend on the preferences of each individual and the level of risk that is willing to assume the same. Both forms of management have their advantages and disadvantages and the situation of the market will favour one or the other.

## 8.3. Costs

There are different theories about commissions, but all of them have a common point, and the costs are lower in the index funds. These funds may have very low equity expense ratios, while active management funds may reach higher commissions.

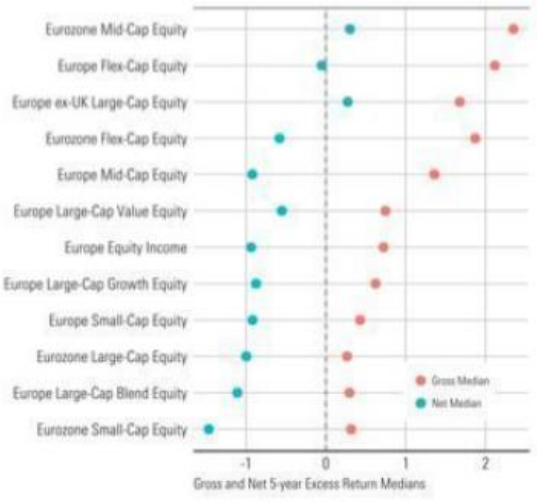
Investment funds normally need a much larger management team than an indexed fund so the access commissions to it will be higher. Normally the index funds do not have high management costs, because the team in charge of managing the fund does not need to be as big as that of a fund of Active Management, so it is not necessary to hire either specialized managers or analysts.

According to the Morningstar website, the costs of an indexed fund are around 0.30%, while those of an active management fund can be around 1.5% or 2%. Then we represent the commissions of a randomly indexed fund where the low commissions are clearly appreciated.

However, sometimes the high commissions charged by active funds does not have a reward in the practice. According to a study presented by Fernando Luque, Morningstar's financial editor, only in two of the twelve European equity categories (Eurozone Mid Cap and Europe ex UK Large cap Equity), the average net returns offered by active managers have exceeded of the indices against which they are compared.

On the other hand, if the gross profitability is analysed, before discounting the costs; in all the categories the managers have beaten their benchmarks. As we can see on Chart 2, the red points indicate the difference with respect to the index in terms of gross return to five years and the blue points in terms of net profitability (Morningstar)[16].

Chart 2. Gross and Net median in the different categories in Europe




Source: "Should You Go Active in European Equities?" Morningstar.

[16] Should You Go Active in European Equities? Morningstar.

This shows that costs play a fundamental role in the possibility of a fund beating its benchmark and that the problem is not in the manager's ability.

What this means is that even if your fund manager is talented enough to beat the market, he or she would have to consistently beat the market by at least one to two percentage points, depending on how much the fund charges.

For example, Warren Buffett put the following idea to the Berkshire Hathaway investors in one of his last letters: if I had invested the $ 114 that I had in 1942 in the S & P 500 without paying commissions, 77 years later I would have obtained $ 600,000 with a profitability Annual average of 11.8%. However, if I had been charged 1% of commissions and had reached a 10.8% average annual return, I would have obtained $ 300,000, that is, half profitability with only 1% of costs. Worse yet, most likely today the active management of most major banks does not even exceed the benchmark.

Related with the costs of an investment fund is important to explain the total expense ratio (TER) is a measure of the total costs associated with managing and operating an investment fund, such as a mutual fund. These costs consist primarily of management fees and additional expenses, such as trading fees, legal fees, auditor fees, and other operational expenses.

## 8.4. Market review

As reported by Morningstar, in the main asset classes, stocks and bonds, passive vehicles were the preferred products of investors, in other words, growth of index funds continues to increase. Although, the most positive part is that both active and passive variable income funds enjoyed a strong demand.

In 2018, the passive strategies captured 695,000 million, while the active management funds recorded outflows of 87,000 million. More specific, in the stock equity, in the total calculation of 2018, the passive funds registered entries of 506,000 million for the 153,000 million departures of active funds in the same category.

Regarding to both types of managing strategies investors' increasing interest in passive management products has made ETFs and funds indexed to passive equity funds already represent 16% of the European market. Moreover, the tendency is that, each time that percentage will increase. This is mainly affecting equity strategies, where the investor uses these products more and more in the conviction that these vehicles are the best way to channel investment both when building positions on the American and European stock markets. However, are investors right or wrong to trust more and more their money to this type of strategy?

Regarding to the perform of the funds compared with their benchmarks funds that invest in the American market, the data are disappointing for active management funds, since in most cases the percentages are below 50% (Table 4).

Table 4: Actively Managed Stock Equity Funds outperforming the Benchmark in USA (in %)


Source: Morningstar.

For five years, for example, there is no category that the fund category beat their benchmark.

In the European market, Global equities lost 1.74% in 2015 (in euros), as measured by the S&P Global 1.200 index, while European equities, measured by the S&P Europe 350 index lost up to 10.47% in the same period.

In a period characterized by a generalized rebound in volatility, driven by fears of Brexit and partly by the introduction of negative rates as part of the ECB's monetary policy. "Usually, these would have been the ideal conditions in which the active managers would be expected to beat the market, being able to theoretically use their stock picking skills to take advantage of the inefficiencies and manage the volatility", says the S&P Dow Jones Indices (SPIVA Europe Scorecard report)[17].

However, all categories generated a lower return than their reference indices in all the time horizons used. As we can see on the Table 5, funds that invest in equities in the euro area, 91.28% failed to beat the benchmark index over a period of ten years, while in the case of Global Equity Funds, the proportion shoots up to 98.33% in the same period.

Table 5: Percentage of European Equity Funds Outperformed by Benchmarks

| FUND CATEGORY | COMPARISON INDEX | ONE-YEAR | THREE-YEAR | FIVE-YEAR | TEN-YEAR |
|---|---|---|---|---|---|
| **DATA IN EUROS (EUR)** | | | | | |
| Europe Equity | S&P Europe 350 | 57.43 | 72.61 | 79.93 | 87.47 |
| Eurozone Equity | S&P Eurozone BMI | 67.50 | 86.27 | 85.93 | 91.28 |
| Nordic Equity | S&P Nordic BMI | 47.73 | 60.47 | 71.43 | 82.14 |
| Global Equity | S&P Global 1200 | 87.94 | 94.81 | 96.72 | 98.33 |
| Emerging Markets Equity | S&P/IFCI | 64.38 | 90.41 | 89.06 | 96.65 |
| U.S. Equity | S&P 500 | 93.53 | 95.81 | 99.11 | 99.15 |
| France Equity | S&P France BMI | 55.80 | 68.94 | 80.23 | 85.86 |
| Germany Equity | S&P Germany BMI | 60.44 | 76.40 | 77.01 | 81.25 |
| Italy Equity | S&P Italy BMI | 29.41 | 52.94 | 50.00 | 74.19 |
| Spain Equity | S&P Spain BMI | 42.35 | 74.36 | 67.74 | 81.15 |
| Netherlands Equity | S&P Netherlands BMI | 40.00 | 92.31 | 100.00 | 96.97 |

Source: SPIVA Inform.

[17] SPIVA Inform

Of the active European equity funds, 57% failed to beat the S&P Europe 350 from June 2017 to June 2018. The mean one-year performance for the fund category was 28 bps higher than the benchmark. This may indicate the minority of funds outperformed sufficiently to prop up the group's average. The proportion of funds in the category failing to beat the same benchmark rise to 87% over the 10-year period.

Regarding the Active/Passive Barometer offered by Morningstar; which, as we already saw, measures active funds against a composite of actual passive funds, the success of the fund manager's active in the last ten years to beat the market has been low.

The worst results of the last decade belong to the Europe Large Cap Blend category where, according to Morningstar, only 16.6% of the active funds have beaten the average of the products that replicated the index. In Europe Large Cap Value, the percentage was 17.2%, while in Europe Small Cap the success rate barely reaches 28% so, these categories will be the further interest for our analysis.

Table 6. Active Funds' Success Rate by Category (%)

| | | | | |
|---|---|---|---|---|
| Europe Large-Cap Blend Equity | 22.1 | 12.6 | 17.7 | 16.6 |
| Europe Large-Cap Value Equity | 33.0 | 7.8 | 22.3 | 17.2 |
| Europe Small-Cap Equity | 39.7 | 54.1 | 63.2 | 28.6 |

Source: Morningstar's "European Active/Passive Barometer" (February 2019).

Even in complicated years, there are funds that manage to shine. Despite the final situation left by the main stock indices, there are equity vehicles that have closed 2018 with double-digit returns and up to 116 funds from international managers have ended the year positive. While emerging markets and the American have managed to save a complicated year, it has been a very complex year for European equity strategies. Until dive to position 251 of the lists to reach the first European stock market vehicle for profitability, but even then, the return is concentrated in specialized funds in emerging regions of Europe: the Pictet Russia Index (+ 3.66%) or the Amundi Funds II - Russian Equity (+ 3.49%).

Limiting the selection to funds of European actions of developed regions, we must deepen further. In the category of Europe Equity Large Cap, the most profitable in 2018 was the Seilern Stryx Europe (-0.32%), followed by the Jupiter European Feeder (-1.32%). Regarding the category of Europe Equity Mid/Small Cap, the first for profitability is the Comgest Growth Europe Smaller Companies, which loses 5.41%. Thus, no fund of both categories closed 2018 in green.

In Spain, only 2% of all Spanish equity funds have managed to close 2018 in positive. According to the data that Morningstar offers, it is 12 of the 560 products that are domiciled in Spain for which data are available. In addition, practically all of them have something in common: they invest in the health and technology sectors.

As has happened with fixed-income funds, equity funds have also benefited from the rise of the dollar against the euro, since both the monetary policy of the US Federal Reserve (Fed) and the volatility of the markets have taken brightness to the condition of active refuge of the dollar, which appreciated by 4.6% against the euro last year.

# 9. Methodology

The methodology that we use is a statistical analysis of two sets of funds. From this database we obtain individual fund characteristics. The sample is not survivorship bias-free, as it just includes both active funds, not the defunct funds.

We examine in the following practical part the relation between indexing and active management in the mutual fund industry using different measures of performance, which first we are going to prove if it is true that they are real active management fund. To examine this behaviour, we use fund portfolio holdings to calculate the Cremers and Petajisto (2009) active share measure, which captures the proportion of a fund's holdings that differs from its benchmark.

The funds that we have chosen are set of funds of Spain Equity. For the research funds based in euros currency has been selected. Thus, the reflected return is what an investor in euros would have received. After, we are going to proceed with an analysis, using the same methodology, with a group of Equity Funds that follow the Value Investing Strategy.

Our analysis of active management requires the identification of funds' benchmarks. We use the benchmark assigned by Morningstar, the Ibex 35 NR.

All the data on active management funds and passive management funds are taken from Inverco and Morningstar. The temporary frequency that we have used in the work is annually.

We have focused on our analysis on the last 5 years, so we will start analysing these investment funds from the 2014 to the beginning of 2019.

We analyse the performance from investing in truly active funds and whether the performance relates to the availability of explicitly indexed products. Thus, we first measure the ability of the active funds in these markets to provide not just beta exposure but to also generate alpha. After, Sharpe Ratio will tell us the best management among these funds in the past. Tools like R Squared and Tracking Error, which determines a portfolio's statistical deviation from the benchmark index, are also analysed. Finally, we will speak also about returns and costs of the sample.

The methodology used covers several practical aspects:

1) Fund picking.
2) Active share.
3) Returns obtained during the last five, three and one year.
4) Comparison with the benchmark.
5) Beta and Alfa Jensen.
6) Sharpe ratio.
7) Tracking error (TE).
8) Costs (TER).

# 10. Practical study: Analysis by funds

During this part of the project, we analysed the empirical results previously described in the methodology.

## 10.1. Fund picking

In the following analysis, a study is carried out on the behaviour of the best Investment Funds that are included in Stock Equity Spain category.

The main advantage of this category is none other than the funds that invest in these assets are trained to protect us against inflation because companies grow as the economy grows. Because the profits of companies depend on their sales and the price of their products increases as inflation increases, their profits move in the same direction as the growth of prices. Although this statement is not mathematical, the rise in the sale price does not have to be coincident with the inflationary levels, there are sectors that are more affected than others are. However, it does have a correlation.

Our chosen funds belong to the same category and have in common that have more than 10 years of history. This has its reason in the question exposed in the introduction where we saw that in the S&P Dow Jones Indices the study found that, even if fund managers had a successful three-year record of generating active returns, they underperformed the benchmark in the following three years. The equities vary between all of them because we want to analyze funds with different characteristics, but all of them with long term record.

The first group picked (Table 7) define themselves as active managers that invest, directly or indirectly, at least 75% of total exposure in equities and of at least 80% of it will correspond to Spanish issuers (listed in Spain and in other markets). That is why our Benchmark will be the BME IBEX 35 NR EUR. Most of them belong to the banking sector.

Table 7. Fund picking Active Management (Bank sector)

| FUND | ISIN Code | Equity | Manager | Creation date |
|---|---|---|---|---|
| **Santander Acciones Epañolas A FI** | ES0138823036 | 1239,13 | José Antonio Montero | 01/04/1991 |
| **BBVA Bolsa FI** | ES0138861036 | 152,46 | Rodrigo Ultrera | 01/04/1991 |
| **Rural Renta Variable España** | ES0175734039 | 118,64 | Beatriz Gutiérrez<br>Carlos Camacho | 20/04/1998 |
| **Mutuafondo España A FI** | ES0165144009 | | Ángel Fresnillo | 20/02/2019 |
| **Sabadell España Bolsa Base FI** | ES0174404030 | 77,58 | Antonio Hormigos<br>Carlos Catalán | 12/07/2001 |
| **Ibercaja Bolsa** | ES0147186037 | 66,89 | Ana Isabel Laín Aliaga | 12/01/1995 |
| **Unifond Renta Variable España de Unigest** | ES0138628039 | 57,72 | Raúl Urízar | 27/07/2004 |
| **Fondmapfre Bolsa Iberia FI** | ES0165198039 | 51,46 | Fernando Santos<br>Pilar Pastor | 18/01/1993 |
| **Catalana Occidente Bolsa Española FI** | ES0116901036 | 34,43 | Jordi Viladot | 19/02/2003 |
| **Bankoa Bolsa FI** | ES0113418034 | 9,95 | Javier Hoyos | 23/05/1997 |

Source: Own processing with Morningstar data.

The other group picked belongs to individual managers who has the value investment as strategy (Table 8). We decided to separate this group from the first one to make easier to differentiate them from the other active management funds. During the years 2000 to 2015 this group of funds has obtained the highest returns big among all the funds in Spain. At the head, "Bestinfond", obtained a total return of 542%. It must be mentioned that these funds exceeded

the profitability of market and the 15-year Spanish bond during the aforementioned period. (Inverco).

Table 8. Fund picking Active Management (Value Investing Strategy)

| FUND | ISIN | Equity | Manager | Creation date |
|---|---|---|---|---|
| **Cobas Iberia FI** | ES0119184002 | 54 | Francisco García Paramés | 03/03/2017 |
| **Magallanes Iberian Equity M FI** | ES0159201013 | 127,78 | Iván Martín Aránguez | 09/01/2015 |
| **Bestinver Bolsa FI** | ES0147622031 | 256,98 | Ricardo Cañete | 29/06/1994 |
| **Renta 4 Bolsa FI** | ES0173394000 | 91,02 | Javier Galán | 24/03/2018 |
| **Metavalor FI** | ES0162735031 | 78,1 | - | 01/04/1991 |

Source: Own processing with Morningstar data.

On the other hand, our third group (Table 9) of funds the managers define the management objective is to replicate the IBEX-35 index, made up of the 35 most liquid and most capitalized securities of the Spanish Stock Exchanges, thus being able to overcome the general limits of diversification. The portfolio will be structured according to the composition of the IBEX-35 index to try to achieve a similar profitability, investing 100% of the total exposure (except for the legal liquidity ratio) in index values, and derivatives on the index (Morningstar).

Table 9. Fund picking Passive Management

| FUND | ISIN | Equity | Manager | Creation date |
|---|---|---|---|---|
| **ING Direct FN Ibex 35** | ES0152741031 | 308,4 | Lionel Brafman | 08/03/2002 |
| **Santander Indice España I FI** | ES0119203000 | 270,74 | Lola Pérez | 14/04/2013 |
| **Caixabank Bolsa Índice España Extra FI** | ES0138392032 | 254,63 | Belén Álvarez | 14/07/1999 |
| **BBVA Bolsa Índice FI** | ES0110182039 | 140,05 | Nerea Alarcón | 29/08/1996 |
| **Accion Ibex 35 etf fi** | ES0105336038 | 189,93 | Nerea Alarcón | 23/06/2006 |
| **Lyxor IBEX 35 ETF** | FR0010251744 | 525,57 | Sébastien Foy | 03/10/2006 |
| **Amundi ETF MSCI Spain UCITS ETF** | FR0010655746 | 56,27 | Lionel Brafman | 16/09/2008 |
| **Bankia Índice Ibex Universal FI** | ES0158967036 | 51,47 | Gerardo Rodríguez | 19/04/2005 |
| **Bankinter Futuro Ibex R FI** | ES0114794037 | 117,65 | Cristina Lastra | 27/04/1998 |

Source: Own processing with Morningstar data.

Nevertheless, even if the funds in Tables 1 and 2 describe themselves as active managers we are going to calculate the active share to know if it exists some fund that is not truly active.

Not all indexing in mutual funds is necessarily explicit as some so-called “active” funds are largely passively managed, even if their managers market the funds and charge fees as if they are active (a practice that is commonly termed “closet indexing”). Here resides the interest of calculate the active share of the active management funds.

## 10.2. Active share

Once we calculated the active share, our results show that closet indexing is common in the first group. Defining closet indexers as funds with an active share below 60% (following the cut off established in Cremers and Petajisto (2009)).

The lowest active share in the first group (Table 10) belongs to the Ibercaja Bolsa with just a 29,60%, followed by Rural Renta Variable with a 38,23%. The following others are next to 50%. And Santander Acciones Españolas FI and Sabadell España Bolsa FI are 60,54% and 60,30% respectively, which is higher than 60% but really close, so we will consider other measures like $R^2$ and tracking error to decide if the management is more passive than active and we can consider them closet trackers. So, from the whole sample of the first group five out of ten funds

are considered closet indexers and two are next to 60%. We also see that most of them belong to the banking sector.

Table 10. Active share for Active Management Funds

| FUND | Active share |
|---|---|
| **Santander Acciones Epañolas A FI** | 60,54% |
| **BBVA Bolsa FI** | 80,23% |
| **Rural Renta Variable España** | 38,23% |
| **Mutuafondo España A FI** | 76,31% |
| **Sabadell España Bolsa Base FI** | 63,30% |
| **Ibercaja Bolsa** | 29,60% |
| **Unifond Renta Variable España de Unigest** | 55,48% |
| **Fondmapfre Bolsa Iberia FI** | 65,98% |
| **Catalana Occidente Bolsa Española FI** | 51,82% |
| **Bankoa Bolsa FI** | 56,84% |

Source: Own processing.

However, in the value investment group (Table 11) none of them have an active share lower than 60%, so we can confirm that they are actively managed.

Table 11. Active share for Active Management Funds (Value Investment)

| FUND | ACTIVE SHARE |
|---|---|
| **Cobas Iberia FI** | 93,02% |
| **Magallanes Iberian Equity M FI** | 92,67% |
| **Bestinver Bolsa FI** | 85,38% |
| **Renta 4 Bolsa FI** | 72,26% |
| **Metavalor FI** | 85,93% |

Source: Own processing.

The passive management funds that they define themselves as replicators of the index have the portfolio's benchmark in their portfolio, so the active share of all of them were lower than 60%, confirming that they are passively managed.

Once we defined which funds of the sample are active and which not, we proceed to analyse different performance measures. We mark the closet indexers to differentiate them from the real active funds for the rest of the analysis.

## 10.3. Returns

We are going to analyse accumulated return and annualized return of the sample. First, we are going to define them. When we refer to accumulated profitability, we are talking about the sum of all those returns obtained in an investment. That is, the set of all the benefits that a particular result of investing in certain financial assets during a period. It calculates what the total returns of these investments have been.

The annualized return of an investment fund is the average annual return that an investment fund has obtained over a period. The annualized return serves to put in perspective the return that a fund obtains in the long term. Annualized return is not the arithmetic average of the annual return of each year, however, is the geometric mean. In the following tables (Tables 12, 13 and 14), these returns are shown for the whole sample.

Table 12. Returns of the Active Management Funds

| RETURN | Accumulated Return | | | Annualized Return | | |
|---|---|---|---|---|---|---|
| **Fund name** | **1 year** | **3 year** | **5 year** | **1 year** | **3 year** | **5 year** |
| **Santander Acciones Españolas A FI** | -9,99% | 24,25% | 10,22% | -9,54% | 7,51% | 1,97% |
| **BBVA Bolsa FI** | -0,92% | 17,81% | 7,40% | -2,21% | 5,61% | 1,44% |
| **Rural Renta Variable España** | -8,06% | 18,33% | -15,43% | -8,99% | 5,77% | -3,30% |
| **Mutuafondo España A FI** | -4,34% | 31,89% | 10,05% | -5,17% | 9,66% | 1,93% |
| **Sabadell España Bolsa Base FI** | -15,76% | 0,38% | -26,68% | -17,32% | 0,13% | -6,02% |
| **Ibercaja Bolsa** | -4,48% | 19,10% | -10,23% | -5,34% | 6,00% | -2,14% |
| **Unifond Renta Variable España de Unigest** | -7,02% | 20,72% | -11,47% | -8,08% | 6,48% | -2,41% |
| **Fondmapfre Bolsa Iberia FI** | -6,65% | 19,81% | -8,59% | -6,52% | 6,21% | -1,78% |
| **Catalana Occidente Bolsa Española FI** | -1,87% | 27,08% | 3,77% | -3,05% | 8,32% | 0,74% |
| **Bankoa Bolsa FI** | -4,97% | 17,55% | -7,01% | -4,97% | 5,54% | -1,44% |

Source: Own processing.

In the Closet Indexers that we identified calculating the active share, we see that both accumulated and annualized returns for all the funds they have negative returns in the 1 year period; positive returns in the 3-year and negative in the 5 years, except the Catalana Occidente FI which has a positive return in the 5-year (0,74%). For the active funds, the returns for the 1-year period are negative but three of them have positive returns on the long term, while the other three have negative returns.

For the Active Management funds the best one in terms of return is the BBVA Bolsa FI, because it has the biggest return from the whole group, which is also negative (-0,92%) and the only fund of this group with Mutuafondo FI, that have a positive return in the 5-year period (7,40%).

For the Value Investing Funds in Spain the problem is that most of them are recently created. Many have two years of life, some reach three, and only a few spend 5 years. It is difficult to analyse the performance of the fund only having one, two or three years as reference, because even if now is performing good, we do not know how it will do in the long term.

Table 13. Returns of the Active Management Funds (Value Investing)

| RETURN | Accumulated Return | | | Annualized Return | | |
|---|---|---|---|---|---|---|
| **Fund name** | **1 year** | **3 year** | **5 year** | **1 year** | **3 year** | **5 year** |
| **Cobas Iberia FI** | -15,23% | - | - | -7,59% | - | - |
| **Magallanes Iberian Equity M FI** | -8,90% | 32,52% | - | -8,90% | 9,83% | - |
| **Bestinver Bolsa FI** | -12,70% | 22,37% | 4,61% | -12,70% | 6,95% | 0,90% |
| **Renta 4 Bolsa FI** | -4,23% | 35,93% | 27,49% | -4,23% | 10,76% | 4,97% |
| **Metavalor FI** | -15,39% | 15,42% | 25,30% | -15,39% | 4,89% | 4,61% |

Source: Own processing.

On Table 14, we can see that for the 1-year period all this category funds have negative accumulated and annualized returns. However, focusing on Bestinver, Renta 4 and Metavalor FI, which have more history, for both the 3 year and the 5-year period they have positive returns, having Renta 4 and Metavalor FI the largest accumulated returns of the whole sample, 27,49% and 25,30% respectively.

For the Passive Funds (Table 15) they obtain in the short term, 1-year period, lowest negative returns than the Active Management Funds, in the 3-year the returns are higher also; and for the 5-year the returns are also negative, but lower than compared to the AM.

Table 14. Returns of the Passive Management Funds

| RETURN | Acummulated Return | | | Anualized Return | | |
|---|---|---|---|---|---|---|
| Fund name | 1 year | 3 year | 5 year | 1 year | 3 year | 5 year |
| ING Direct FN Ibex 35 | -2,85% | 28,92% | -3,70% | -2,85% | 8,86% | -0,75% |
| Santander Indice España I FI | -2,17% | 32,75% | 0,98% | -1,91% | 9,90% | 0,19% |
| Caixabank Bolsa Índice España Extra FI | -3,33% | 27,75% | -5,18% | -3,07% | 8,51% | -1,06% |
| BBVA Bolsa Índice FI | -3,02% | 28,37% | -4,60% | -3,04% | 8,71% | -0,94% |
| Accion Ibex 35 etf fi | -5,73% | 18,46% | -16,79% | -5,77% | 5,83% | -3,61% |
| Lyxor IBEX 35 ETF | -0,93% | 31,57% | 0,97% | -5,77% | 9,58% | 0,19% |
| Amundi ETF MSCI Spain UCITS ETF | -0,49% | 20,37% | -3,75% | -0,49% | 6,38% | -0,76% |
| Bankia Índice Ibex Universal FI | -1,84% | 28,22% | -3,80% | -3,21% | 8,64% | 3,03% |
| Bankinter Futuro Ibex R FI | -1,81% | 27,78% | -3,67% | -3,14% | 8,51% | -0,74% |

Source: Own processing.

Once that we analysed the returns, we are going to see the performance of these funds compared to their benchmark.

## 10.4. Comparison with the benchmark

In the following charts, the green line is the fund's performance, red is the benchmark and the orange category performance. We start analysing the funds we have identified as closet indexers (Tables 16, 17, 18 and 19).

Chart 3. Rural Renta Variable España performance


Source: Morningstar.

Chart 4. Ibercaja Bolsa performance


Source: Morningstar.

Chart 515. Catalana Occidente performance


Source: Morningstar.

Chart 6. Unifond Renta Variable España FI


Source: Morningstar.

Chart 7. Bankoa Bolsa performance


Source: Morningstar.

As we can see from the four closet indexers, we identified that three of them underperform the benchmark for almost the whole period analysed, but following exactly their movements, when the benchmark goes down the fund goes down and when the benchmark goes up the fund goes up too, but always underperforming it. Just Catalana Occidente outperform the benchmark for the last 3-year period.

The following chart is to show that from the Active Management Funds there are also some that don not outperform the benchmark for all the period-analysed (Table 21).

Chart 8. Sabadell España Bolsa Base FI performance


Source: Morningstar.

Following charts analysing belong to Value Investment Funds, we just show the ones with more history, which are Bestinver FI, Renta 4 Bolsa FI and Metavalor FI.

Chart 9. Bestinver FI performance


Source: Morningstar.

Chart 10. Renta 4 Bolsa I FI performance


Source: Morningstar.

Chart 11. Metavalor FI performance


Source: Morningstar.

For the passive management funds, all of them have a similar tendency like the one showed in the following table (Table 20). As it was expected, we can see they replicate the benchmark.

Chart 12. BBVA Bolsa Índice FI performance


Source: Morningstar.

## 10.5. Beta and Alfa Jensen

The beta measures the relationship between the performance of an asset and the performance of the market in which that asset is traded. It comes to measure the elasticity of the fund in function of the variation of the market.

On the other hand, Jensen's Alpha is a measure of the fund's management quality so, it is the one the managers must generate. Indicates the excess return obtained by the fund for a given level of risk. Jensen's Alpha explains the difference between the expected return, that is, the one that corresponds to the systematic risk assumed, and the one obtained by the fund. Depending on whether the fund exceeds, equals or is below the expected return, it will have a positive, neutral or negative Alpha.

A positive return premium over its corresponding one due to the systematic risk assumed. More alpha a fund has, the better the fund has done than the standard index in the past. The higher the Alpha of the fund, the better has been its management. However, nothing says about what he will do in the next 3 years.

Table 16. Alpha and Beta of the Active Management Funds

| FUND | ALPHA | BETA |
|---|---|---|
| Santander Acciones Epañolas A FI | 0,48 | 1,01 |
| BBVA Bolsa FI | -3,46 | 1,23 |
| Rural Renta Variable España | -2,95 | 1,16 |
| Mutuafondo España A FI | 2,95 | 0,93 |
| Sabadell España Bolsa Base FI | -8,66 | 1,26 |
| Ibercaja Bolsa | -2,36 | 0,99 |
| Unifond Renta Variable España de Unigest | -0,82 | 0,97 |
| Fondmapfre Bolsa Iberia FI | -1,99 | 1,1 |
| Catalana Occidente Bolsa Española FI | 1,07 | 0,93 |
| Bankoa Bolsa FI | -1,86 | 0,91 |

Source: Own processing.

Regarding beta, we realize that funds we had considered closet indexers (Table 21) have betas lower but almost equal to one. This means they move almost in the same proportion as the market; Just Rural Renta Variable FI has a beta higher that one, which means that if the market rise up the funds rises up more and the same would happen if the market goes down. All of them have negative Alfas except Catalana Occidente Fund, this means that the actual return obtained by the investment has not exceeded the expected return.

Table 17. Alpha and Beta of the Active Management Funds (Value Investing)

| FUND | ALPHA | BETA |
|---|---|---|
| Cobas Iberia FI | -4,87 | 1,19 |
| Magallanes Iberian Equity M FI | 4,09 | 0,98 |
| Bestinver Bolsa FI | 1,93 | 0,92 |
| Renta 4 Bolsa FI | 3,92 | 1,04 |
| Metavalor FI | 2,01 | 0,85 |

Source: Own processing.

Funds with greatest Alfas are the Value Investing group (Table 22). A positive alpha means that they did better than the benchmark, and as they have the highest ones, it means that they are the ones that better performed compared with the benchmark of the whole sample.

However, Cobas Iberia Fi is the exception, which was created in 2017 and it did not outperform the benchmark until now, as we have seen in the previous section comparing its returns with the benchmark.

Table 18. Alpha and Beta of the Passive Management Funds

| FUND | ALPHA | BETA |
|---|---|---|
| ING Direct Fondo Naranja IBEX 35 | -0,36 | 1,08 |
| Santander Indice España I FI | 0,72 | 1,08 |
| Caixabank Bolsa Índice España Extra FI | -0,39 | 1,08 |
| BBVA Bolsa Índice | -0,44 | 1,07 |
| Accion Ibex 35 ETF | -2,91 | 1,02 |
| Lyxor IBEX 35 ETF | -2,94 | 1,08 |
| Amundi ETF MSCI Spain UCITS ETF | 0,86 | 1,09 |
| Bankia Índice Ibex Universal FI | -0,14 | 1,09 |
| Bankinter Futuro Ibex R FI | -0,12 | 1,08 |

Source: Own processing.

Regarding passive management funds, all of them have betas almost equal to one, so their returns are almost the same as the benchmark, but negative Alfas. However, Alfas are close to zero.

## 10.6. Sharpe Ratio

Sharpe ratio measures the excess return we can obtain per unit of determined risk. Consequently, the higher the Sharpe ratio, the better the management of the fund will have been in the past. the Sharpe ratio is not linked to any specific market, which allows us to compare different funds by homogenizing the criterion.

Table 19. Sharpe Ratio of the Active Management Funds

| FUND | SHARPE RATIO |
|---|---|
| **Santander Acciones Epañolas A FI** | 0,53 |
| **BBVA Bolsa FI** | 0,24 |
| **Rural Renta Variable España** | 0,26 |
| **Mutuafondo España A FI** | 0,74 |
| **Sabadell España Bolsa Base FI** | -0,12 |
| **Ibercaja Bolsa** | 0,27 |
| **Unifond Renta Variable España de Unigest** | 0,38 |
| **Fondmapfre Bolsa Iberia FI** | 0,33 |
| **Catalana Occidente Bolsa Española FI** | 0,59 |
| **Bankoa Bolsa FI** | 0,30 |

Source: Own processing.

Table 20. Sharpe Ratio of the Active Management Funds (Value Investing)

| FUND | SHARPE RATIO |
|---|---|
| **Cobas Iberia FI** | -0,62 |
| **Magallanes Iberian Equity M FI** | 0,80 |
| **Bestinver Bolsa FI** | 0,64 |
| **Renta 4 Bolsa FI** | 0,79 |
| **Metavalor FI** | 0,59 |

Source: Own processing.

Table 21. Sharpe ratio of the Passive Management Funds

| FUND | SHARPE RATIO |
|---|---|
| **ING Direct Fondo Naranja IBEX 35** | 0,45 |
| **Santander Indice España I FI** | 0,54 |
| **Caixabank Bolsa Índice España Extra FI** | 0,45 |
| **BBVA Bolsa Índice** | 0,45 |
| **Accion Ibex 35 etf fi** | 0,23 |
| **Lyxor IBEX 35 ETF** | 0,24 |
| **Amundi ETF MSCI Spain UCITS ETF** | 0,54 |
| **Bankia Índice Ibex Universal FI** | 0,47 |
| **Bankinter Futuro Ibex R FI** | 0,47 |

Source: Own processing.

Funds with the highest Sharpe Ratio are the Value Investment ones, being Magallanes Iberian Equity FI with a ratio of 0,80, followed by Renta 4 FI with also a 0,79; except the Cobas Iberia FI (that also had the lowest Alfa of all the whole sample) that has a negative ratio, this indicates

that the return on investment has been less than the return on an asset without risk, in other words it is more profitable to invest the money in bonds or deposits without risk than to invest in this fund.

Closet indexers funds have the lowest ratios except Catalana Occidente Bolsa Española FI. In the passive management funds, most of the ratios are higher than the active management funds where just Mutuafondo España FI has a high ratio (0,74), the rest are the same or lower to the passive management ratios and Sabadell FI has a negative ratio of -0,12.

## 10.7. R Squared ($R^2$), Tracking Error (TE) and Standard Deviation

Tools like R Squared and tracking error determines a portfolio's statistical deviation from the benchmark index.

Tracking error is the difference between a fund's returns and the benchmark, otherwise known as active risk. A higher tracking error is due to a greater difference between the return of the portfolio and benchmark.

R Squared represents the percentage a fund deviates or conforms to a benchmark. It is stablished that a $R^2$ between 85% and 100%, the fund moves in the same way than the benchmark. The funds with a $R^2$ lower than 70% are considered that they are not doing the same movements as the index.

The standard deviation measures the variability of returns or the total risk of an asset associated with its price variations. It will be more interesting, for the same expected return, a fund that has less volatility or standard deviation than one that has it higher.

Table 22. Tracking error, $R^2$ and Stand Dev. of the Active Management Funds

| FUND | TRACKING ERROR | R2 | STANDARD DEVIATION |
|---|---|---|---|
| **Santander Acciones Epañolas A FI** | 2,90 | 94,00 | 11,82 |
| **BBVA Bolsa FI** | 3,36 | 97,74 | 14,13 |
| **Rural Renta Variable España** | 3,69 | 94,4 | 13,57 |
| **Mutuafondo España A FI** | 4,05 | 87,63 | 11,32 |
| **Sabadell España Bolsa Base FI** | 6,17 | 87,41 | 15,3 |
| **Ibercaja Bolsa** | 3,36 | 91,86 | 11,76 |
| **Unifond Renta Variable España de Unigest** | 2,97 | 94,53 | 12,59 |
| **Fondmapfre Bolsa Iberia FI** | 2,62 | 96,59 | 12,74 |
| **Catalana Occidente Bolsa Española FI** | 2,56 | 94,96 | 10,88 |
| **Bankoa Bolsa FI** | 3,40 | 91,04 | 10,89 |

Source: Own processing.

Lowest tracking error belongs to the Closet Index Catalana Occidente FI (2, 56) followed by Unifond FI (2, 97). The biggest tracking error in this group is the Sabadell FI (6,17), which has the lower $R^2$.

Table 23. Tracking error, $R^2$ and Stand Dev.of the Active Management Funds (Value Investing)

| FUND | TRACKING ERROR | R2 | STANDARD DEVIATION |
|---|---|---|---|
| **Cobas Iberia FI** | 5,94 | 88,16 | 15,79 |
| **Magallanes Iberian Equity M FI** | 5,33 | 81,37 | 12,34 |
| **Bestinver Bolsa FI** | 4,08 | 87,41 | 11,25 |
| **Renta 4 Bolsa FI** | 4,49 | 87,46 | 12,63 |
| **Metavalor FI** | 6,63 | 69,47 | 11,6 |

Source: Own processing.

As it was expected passive management funds have greater $R^{2,}$ Amundi ETF is the only fund with an R squared lower than 93%, which means that the rest of the funds moves in the same way than the benchmark in, at least, 93%. Caixabank FI has a TE of 5,32, which compared to the other funds of this group is high.

Table 24. Tracking error, $R^2$ and Stand Dev. of the Passive Management Funds

| FUND | TRACKING ERROR | R2 | STANDARD DEVIATION |
|---|---|---|---|
| **ING Direct Fondo Naranja IBEX 35** | 3,33 | 93,64 | 12,7 |
| **Santander Indice España I FI** | 3,17 | 94,18 | 12,62 |
| **Caixabank Bolsa Índice España Extra FI** | 5,32 | 93,46 | 12,68 |
| **BBVA Bolsa Índice** | 3,30 | 93,46 | 12,55 |
| **Accion Ibex 35 etf fi** | 3,11 | 93,38 | 12,04 |
| **Lyxor IBEX 35 ETF** | 3,43 | 93,25 | 12,73 |
| **Amundi ETF MSCI Spain UCITS ETF** | 4,48 | 88.94 | 13,14 |
| **Bankia Índice Ibex Universal FI** | 3,4 | 93,46 | 12,76 |
| **Bankinter Futuro Ibex R FI** | 3,28 | 93,7 | 12,63 |

Source: Own processing.

The lowest R2, as it was expected are the Value Investment Funds. The lowest R2 belongs to Metavalor FI (69,47%), which is the one with the highest tracking error, this means that is the fund that less follows the benchmark.

## 10.8. Costs

We find that fund characteristics matter for a fund's total shareholder costs. Higher active share, higher tracking error, smaller and older funds are associated with greater fees. The problem is, actively managed funds come with higher fees than index funds, often charging 1% or more of assets annually. In addition, those fees come straight out of your total returns. Using the tracking error and the TER, if you have a tracking error of 3 and a net cost of 3, in the best case you could match the index (since the 3% that could be obtained above the index via TE, will disappear due to the commissions of the 3%) and in the worst case lose 6% of it (3% of TE and 3% of commissions).

With this we will calculate the Maximum and Minimum Expected Return. For the maximum expected return we have taken a yield of the benchmark of 10%, being: Max Return expected = 10% + TE - costs, Expected Min Return = 10% - TE - costs, Dif. Max vs market = Max Rent expected -10% and Rent Min vs Market = Rent Min expected-10%).

As we can see, they have a low difference between TE and Costs (TER). This difference is the maximum that we can obtain above the index, while the minimum is the sum of both (TE and TER). In the best case we will have returns practically equal to the index and in the worst, much lower returns.

Table 25. TE, TER and expected returns of the Active Management Funds

| FUND | TE | TER | Max. return | Min. Return | Dif. Max. Return vs mk | Dif. Min. Return vs mk |
|---|---|---|---|---|---|---|
| Santander Acciones Españolas A FI | 2,90% | 2,45% | 10,45% | 4,65% | 0,45% | -5,35% |
| BBVA Bolsa FI | 3,36% | 2,45% | 10,91% | 4,19% | 0,91% | -5,81% |
| Rural Renta Variable España | 3,69% | 2,40% | 11,29% | 3,91% | 1,29% | -6,09% |
| Mutuafondo España A FI | 4,05% | 0,91% | 13,14% | 5,04% | 3,14% | -4,96% |
| Sabadell España Bolsa Base FI | 6,17% | 1,85% | 14,32% | 1,98% | 4,32% | -8,02% |
| Ibercaja Bolsa | 3,36% | 1,70% | 11,66% | 4,94% | 1,66% | -5,06% |
| Unifond Renta Variable España de Unigest | 2,97% | 2,10% | 10,87% | 4,93% | 0,87% | -5,07% |
| Fondmapfre Bolsa Iberia FI | 2,62% | 2,45% | 10,17% | 4,93% | 0,17% | -5,07% |
| Catalana Occidente Bolsa Española FI | 2,56% | 2,33% | 10,23% | 5,11% | 0,23% | -4,89% |
| Bankoa Bolsa FI | 3,40% | 2,35% | 11,05% | 4,25% | 1,05% | -5,75% |

Source: Own processing.

In the active management group (Table 22), the best funds are Mutuafondo FI and Sabadell FI with maximum returns of 13,14% and 14,32% respectively, also higher than some Value Investment Funds (Table 23). In Mutuafondo FI case it has also the second largest minimum return, this is due to the low costs this fund has (0,91%), as we can see here the costs of the fund are determinant for the fund's return. In Sabadell FI, this high return is due to two factors, the high TE they register (6,17%), which is the largest of this group and the commissions that they charge are not excessively high. However, higher return, higher risk so, this fund has one of the lowest minimum expected returns of the sample.

It is also appreciated that some of the funds we have defined as closet indexers charge most of them commissions around 2,40%, charging amounts like if they were actively managing the funds when what they are doing is replicating the benchmark, having in their portfolios almost all the benchmark's companies.

In the following table we this the same procedure with the Value Investment Funds.

Table 26. TE, TER and expected returns of the Active Management Funds (Value Investment)

| FUND | TE | TER | Max. Return | Min. Return | Dif. Max. Return vs mk | Dif. Min. Return vs mk |
|---|---|---|---|---|---|---|
| Cobas Iberia FI | 5,94% | 1,85% | 14,09% | 2,21% | 4,09% | -5,91% |
| Magallanes Iberian Equity M FI | 5,33% | 1,85% | 13,48% | 2,82% | 3,48% | -6,52% |
| Bestinver Bolsa FI | 4,08% | 1,88% | 12,20% | 4,04% | 2,20% | -7,80% |
| Renta 4 Bolsa FI | 4,49% | 1,45% | 13,04% | 4,06% | 3,04% | -6,96% |
| Metavalor FI | 6,63% | 2,08% | 14,55% | 1,29% | 4,55% | -5,45% |

Source: Own processing.

In the Value Investing the maximum return they can get is the highest among all the groups selected, but as they are riskier, because more return implies also more risk, they have also the smallest minimum returns.

In Table 24 we see the Passive Management Funds. The costs of this group are the lowest of all the sample, as we already explained indexed funds and ETFs charge lower commissions because they replicate the benchmark allowing to these funds obtain higher returns. ETFs TER are around 0,30%, and indexed fund costs are around 1%, we can see they are low compared to the active management and closet indexers funds.

They have higher Maximum Expected Returns than active management funds and they also have bigger Minimum Expected Return, this could be also linked to the less commissions that they charge, because when there are not good returns funds charge in any case their commissions and, if they are high, the returns will be negatively affected for this effect.

Table 27. TE, TER and expected returns of the Passive Management Funds

| Funds | TE | TER | Max. return | Min. Return | Dif. Max. Return vs mk | Dif. Min. Return vs mk |
|---|---|---|---|---|---|---|
| **ING Direct Fondo Naranja IBEX 35** | 3,33% | 1,09% | 12,24% | 5,58% | 2,24% | -4,42% |
| **Santander Indice España I FI** | 3,17% | 0,13% | 13,04% | 6,70% | 13,04% | 6,70% |
| **Caixabank Bolsa Índice España Extra FI** | 5,32% | 1,02% | 14,30% | 3,66% | 14,30% | 3,66% |
| **BBVA Bolsa Índice** | 3,30% | 1,30% | 12,00% | 5,40% | 12,00% | 5,40% |
| **Accion Ibex 35 ETF** | 3,11% | 0,38% | 12,73% | 6,51% | 12,73% | 6,51% |
| **Lyxor IBEX 35 ETF** | 3,43% | 0,30% | 13,13% | 6,27% | 13,13% | 6,27% |
| **Amundi ETF MSCI Spain UCITS ETF** | 4,48% | 0,25% | 14,23% | 5,27% | 14,23% | 5,27% |
| **Bankia Índice Ibex Universal FI** | 3,40% | 1,00% | 12,40% | 5,60% | 12,40% | 5,60% |
| **Bankinter Futuro Ibex R FI** | 3,28% | 1,10% | 12,18% | 5,62% | 12,18% | 5,62% |

Source: Own processing.

# 11. Conclusions

It exists a great debate in asset management in recent years in asset management about Active and Passive management. Both have strong defenders. What is missing in the debate about the value of active funds and index funds is how much management fees affect returns, said Alex Bryan, Morningstar's director of passive strategies research. "It is not really active versus passive, it's more high-cost versus low-cost funds".

In the new configuration of the sector, the funds that can provide value will survive. The bulk of the value has always been in the investment strategy, in the distribution of assets in the fund portfolio, not in the selection of managers. Above all, in recent years, managers have become less able to beat benchmark indices, which makes them fear for the future of active management in the face of indexed alternatives (which are limited to following an index in exchange for a very low commission). But active management worthy of that name and, of that commission, will not disappear. Those who are not able to justify the commission will disappear. You cannot eternally charge 2% for something that the opposite does for 0.20%.

We build on this evidence and hypothesize that increasing competition from indexed funds will lead active funds to compete via price (by lowering their fees) and/or product differentiation (by diverging more from their benchmark index). This competitive pressure could benefit fund investors directly through lower fees and indirectly through stronger incentives for skilled active managers to collect information and generate alpha.

The conclusion that we draw, after analysing the different options, is that in the active management funds most banking sector funds are closet indexers charging commissions not explained by fund returns obtained.

On the other hand, we think value investment in Spain is going to increase, and that the supply is growing. They are achieving great results, so not all active managers are performing bad.

The only drawback is that most of the Spanish Value Investment Funds have few years of history. Many have two years of life, some reach three, and only a few spend 5 years. It is difficult to know the expertise of a value investor, only having one, two or three years as reference. Make no mistake, any investor moderately intelligent, with some preparation could have achieved good results in the last two or three years. However, if we throw away 10 years or more, it's more complicated. This was the problem for this study.

Passive investment as well as active investment are unable to generate stable positive returns in each computation period. In this sense, in order to achieve positive long-term returns, investment flexibility is more important, and, above all, it is right to make the most of the cycle in which the investment is undertaken, rather than in the form active or passive of doing so. This could be a further study of this thesis, analyze in which period which strategy is best depending on the moment of the economic cycle we are.

They do not have to be exclusive. On the contrary, some experts recommend using one or the other depending on the market moment and the economic cycle. This is the case of the Fidelity fund manager. Investment opportunities change throughout the business cycle. Depending on each moment, it may be more interesting to use active or passive management.

In a Grossman and Stiglitz (1980) world, one would expect passive and active funds to coexist in equilibrium with their relative market shares depending on information costs and overall market

efficiency. Specifically, for investors primarily interested in achieving exposure to beta, explicitly indexed funds are low-cost substitutes to the more expensive actively managed funds. If indexed funds create competitive pressure, then we expect active funds facing higher market penetration by indexed products to differentiate themselves by more actively deviating from their benchmarks through stock picking, sector bets, and market timing or by lowering their prices (fees). In alternative, actives funds' behaviour may not be affected by indexed funds

The primary implication of these results is that the growth of explicitly indexed funds worldwide enhances competition in the asset management industry. Further, the continued growth of index-based investing could have broader implications for markets and asset prices, which deserves increased attention from future research.

# 12. Abbreviations:

AM: Active Management.

CAPM: Capital Asset Pricing Model.

EMH: Efficient Market Hypothesis.

FI: Fixed Income.

NAV: Net Asset Value.

PM: Passive Management.

TE: Tracking Error.

TER: Total Expenses Ratio.

UIT: Unit Investment Trust.

VI: Variable Income.

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