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The Importance of an Accurate Benchmark Choice: The Spanish Case

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Abstract

The performance of a fund cannot be judged unless it is first measured, and measurement is not possible without an objective frame of reference. A benchmark serves as a reliable and consistent gauge of the multiple dimensions of performance: return, risk and correlation. The benchmark must be a fair target for investment managers and be representative of the relevant opportunity set. The objective of this paper is to analyse whether the different benchmarks generally used to measure the performance of the Spanish stock market are truly efficient, considering the importance of the selection of a benchmark in determining mutual funds' performance, investment style and risk. This study reveals that among the six representative indices considered, the Ibex-35 was the most accurate and widely used as a benchmark in this market.

Keywords:

Mutual fund, Ibex-35, Benchmark, Performance.

JEL classification:

G1, G20, G11.

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La importancia de seleccionar el *benchmark* adecuado: **El caso español**

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Resumen

El rendimiento de un fondo no puede ser juzgado sin ser primeramente medido, y esta medición no es posible sin considerar un marco de referencia objetiva. El *benchmark*, o índice de referencia, sirve como un indicador fiable y consistente de diferentes mediciones del rendimiento de un fondo: la rentabilidad, el riesgo y la correlación. Por lo tanto, el *benchmark* considerado debe ser representativo de la tipología del fondo y ser el objetivo adecuado a batir por el gestor. El objetivo de este trabajo es analizar si los diferentes *benchmarks* usados para medir el rendimiento de la bolsa española son verdaderamente eficientes, considerando la importancia de su elección para determinar el rendimiento de los fondos, su estilo de inversión y su riesgo. Este estudio revela que entre los seis índices representativos considerados, el Ibex-35 es el más adecuado y, también, el más comúnmente utilizado como un referente en este mercado.

Palabras clave:

Fondo de inversión, Ibex-35, Índice de referencia, Rentabilidad.

1. Introduction

Information used to analyse managers' efficiency or the performance of a mutual fund can be gathered by comparing mutual funds and the reference indices used. Consequently, benchmarks can be important from their inception, as market indices have been widely used to monitor overall market sentiment and portfolio performance. Condensing the prices of diverse securities in a market into a single statistic is useful because it reveals the net effect of all factors at play in a market. These factors include not only idiosyncratic factors that are specific to companies in the index but also broader factors, such as economic expansion or recession, that could potentially have an impact on share values. The performance of a fund cannot be judged unless it is first measured, and this measurement is not possible without an objective frame of reference. A benchmark serves as a reliable and consistent gauge of the multiple dimensions of performance: return, risk and correlation. The benchmark should be a fair target for investment managers and be representative of the relevant opportunity set.

This study analyses the most appropriate benchmark for Spanish equity investment funds considering the different possibilities offered by the Spanish Stock Market (Ibex-35 and IGBM) and international operators such as Morgan Stanley (MSCIs).

Given the importance of the selection of a benchmark in determining a mutual fund's performance, style and risk, the objective of this paper is to determine whether the different benchmarks generally used are truly appropriate (Treynor and Mazuy,1966, Vallejo, 2003, and Sainz *et al.*, 2006). Moreover, this paper intends to complement the results obtained by Ferruz and Vincente (2005, 2006) and Sainz *et al.* (2006) by using the same type of funds with a different analytical approach.

The main contributions of this study include the following:

1. Scanning that comprises a larger universe in terms of the number of cases, involving 83 equity funds (database not free of survivorship bias[1]).
2. The use of statistical research techniques alongside a mapping that determines the accurate benchmark in tune with market trends (Bull and Bear periods).
3. A long period of time is considered.
4. The use of the Spanish market introduces a difference in the most commonly studied data, thus increasing the utility of the obtained results.

[1] *As argued by Brown et al. (1992), survivorship bias could have an influence on the conclusions obtained in terms of efficiency, but we consider this factor to be relatively unimportant in this study.*

2. Importance of the choice of the benchmark: A justification

The literature on the proper choice of a benchmark in assessing the performance of investment funds is abundant and dense. A first approach introduced the suitability of using benchmarks in the assessment of the performance of funds. Accordingly, the contribution of Grimblatt and Titman (1993), which did not require the use of indices for the evaluation of portfolios, is interesting and represents a new development. However, most of the studies focus on the appropriateness of inclusion of benchmarks to compare and properly assess the performance between different funds. From here, the studies differ regarding how to build these benchmarks. On the one hand, we have studies that dispense with existing benchmarks, focusing on the homemade index (Cumby *et al.*,1990, Daniel *et al.*, 1997, and Fung, 2001). On the other hand, another line of research (the majority of studies being quantitative) advocates the use of benchmarks provided by the financial industry or by agreement valuation models and includes studies by Lehman (1987), Wermers (2000), and Cremers *et al.* (2009). Part of our study uses this approach, examining the degree of adjustment of several representative benchmarks for the evaluation of a series of Spanish mutual funds; thus, we focus on Spain. One of the most significant contributions is Ferruz and Vincente's (2006) argument that a variable to consider in analysing investment funds' performance is the funds' risk/profitability relative to a benchmark. Therefore, a fund manager or controller's selection of a reference with which to evaluate performance is the cornerstone on which to determine the degree of success or failure in portfolio management.

The benchmark to use may be determined explicitly by the manager and may be an existing market benchmark or a "synthetic" index that is specifically determined.

The attitude of managers towards the index determines, among other factors, the style of management (active or passive) and is a mechanism of performance control. The notion of active management (as opposed to passive management, which involves indexed management) presumes the opportunity to beat the *benchmark* (Reinganum, 1991, and Ferruz *et al.*, 2002), which is a phenomenon that is incompatible with the theory of market efficiency. The difficulty of beating the index is a fundamental position held by defenders of passive management, as is the unlikelihood of improving on passively managed funds after expenses and commissions (as defended Bogle, 1996, and Malkiel, 2003).

Following a series of statistical analysis on the choice of the best benchmark, it was decided to select the Ibex-35 index due to its higher correlation (0.95 R) and better kurtosis (6.64 CU) for 70% of equity investment funds in the universe. However, the

choice of this specific index has some limitations. First, the index does not represent the entire Spanish stock market, as it focuses on only a few sectors, and places such great importance on weighting that 60% of the index value comprises the four largest stocks. Furthermore, it is a price index, which does not consider other sources of profitability, such as dividends. However, the Ibex-35 is found to be easily replicable, and the index's compounds are highly significant.

This analysis employs descriptive statistics and concludes that the best index reference of this category of funds is the Ibex-35, consistent with the finding of Sainz *et al.* (2006) and contradicting the study of Matallin and Nieto (2002) which reflected the limited follow-up regarding the Spanish equity investment funds in the Ibex-35 index.

3. Data and Methodology

In the present study, we consider the returns of 83 Spanish mutual funds specialising in domestic equities with monthly data from January 1999 to December 2008. The six benchmarks considered include the Ibex-35 (the Spanish selective Index), MADX (Madrid General Stock Market Index), MSCI Spain Local Currency (MSDLSP Index), MSCI TR Gross Spain Local Currency (GDDLSP Index), MSCI TR Gross Value Spain Local Currency (GDLGSP Index), and MSCI TR Gross Growth Spain Local Currency (GDLGSP Index). Table 1 summarises the descriptive statistics of the benchmarks and funds.

Table 1. **Correlation analysis for the determination of the tightest reference index**

		R IBEX Index	R MADX Index	R MSDLSP Index	R GDDLSP Index	R GDLGSP Index (Value)	R GDLGSP Index (Growth)
1	R IBEX-35	1.000000	0.981766	0.996750	0.972770	0.965240	0.980548
2	R MADX Index	0.981766	1.000000	0.981872	0.992921	0.988075	0.963536
3	R MSDLSP Index	0.996750	0.981872	1.000000	0.976139	0.956584	0.981162
4	R GDDLSP Index	0.972770	0.992921	0.976139	1.000000	0.985912	0.977099
5	R GDLGSP Index	0.965240	0.988075	0.956584	0.985912	1.000000	0.928284
6	R GDLGSP Index	0.980548	0.963536	0.981162	0.977099	0.928284	1.000000
1	Actibolsa	0.912278	0.977901	0.937394	0.980060	0.985496	0.943764
2	Savings Corporation actions	0.997829	0.977706	0.995802	0.973130	0.960312	0.987239
3	Allianz stock exchange	0.983945	0.988391	0.990232	0.990045	0.969667	0.982157
4	Almagro values	0.994312	0.990304	0.993904	0.977602	0.969783	0.968157
5	Altae stock exchange	0.991470	0.988901	0.993831	0.987736	0.974462	0.984729
6	Asturfondo income Variable Spain	0.938389	0.876757	0.944396	0.880485	0.861302	0.970272
7	Bancaja equity	0.965203	0.993100	0.972791	0.997609	0.985416	0.973836

8	Banesto income Variable Spanish	0.992835	0.985477	0.997617	0.980756	0.964796	0.984278
9	Banif actions Spanish	0.986451	0.996359	0.990179	0.990104	0.983063	0.971716
10	Banif RV Spanish	0.980683	0.997596	0.986424	0.995353	0.984570	0.973532
11	Bankoa stock exchange	0.907127	0.983389	0.938417	0.987893	0.995162	0.947275
12	Bankpyme Iberbolsa	0.909090	0.992530	0.958483	0.986503	0.992035	0.946614
13	Barclays Exchange Spain	0.993562	0.984957	0.993465	0.977517	0.969356	0.972309
14	BBK stock exchange	0.992764	0.987929	0.996203	0.985306	0.968729	0.984274
15	BBVA stock exchange index	0.991734	0.991446	0.992058	0.990166	0.978241	0.982651
16	BBVA stock plus	0.982673	0.988092	0.992528	0.989527	0.973335	0.986697
17	BBVA stock exchange	0.991786	0.957303	0.988276	0.948698	0.948322	0.985696
18	Bestinver stock exchange	0.743897	0.897908	0.802521	0.902869	0.969392	0.849541
19	Beta actions	0.996907	0.983281	0.997810	0.975040	0.962384	0.979613
20	BK Exchange 2 Spain	0.969551	0.978438	0.971880	0.985098	0.965884	0.983409
21	BK Exchange Spain	0.992065	0.987055	0.992189	0.979235	0.969822	0.978120
22	BK Bolsa Euribex	0.991151	0.965154	0.989720	0.949315	0.944521	0.965793
23	BK future Ibex	0.980981	0.994974	0.987942	0.995951	0.982294	0.980074
24	BNP Paribas Exchange Spanish	0.948612	0.984406	0.975164	0.960293	0.960621	0.930097
25	Bolsalider	0.981786	0.982065	0.987436	0.970326	0.965524	0.970442
26	Caixa Catalunya Index	0.987336	0.949630	0.988965	0.940267	0.928195	0.977023
27	CaixaSabadell 7 equity	0.980875	0.997380	0.987227	0.995460	0.984572	0.974989
28	Caixatarragona Exchange 35 index	0.996539	0.983538	0.992481	0.982349	0.971241	0.987236
29	Bolsa Laboral box	0.992493	0.992815	0.995483	0.989673	0.974360	0.980597
30	Cajaburgos stock exchange	0.997745	0.974072	0.995475	0.968423	0.956508	0.986944
31	Cajasol bag I	0.997716	0.973812	0.995506	0.967830	0.956183	0.986621
32	CAM stock exchange index	0.996654	0.974220	0.991672	0.962174	0.961865	0.975119
33	Actions CAN	0.995767	0.987955	0.993349	0.985525	0.973294	0.984731
34	Portfolio variable	0.991026	0.956175	0.990470	0.952294	0.937946	0.989544
35	Citifondo equity	0.994372	0.986099	0.998095	0.982210	0.965186	0.983934
36	Credit Suisse stock exchange	0.938909	0.924315	0.953498	0.909209	0.922166	0.964443
37	Dexia Equities L Spain C Cap	0.985769	0.995473	0.986865	0.994137	0.981679	0.977332
38	Dexia Equities L Spain C Dis	0.996307	0.991548	0.993789	0.982315	0.973253	0.975269
39	DWS actions	0.995571	0.972828	0.990942	0.965215	0.963056	0.983416
40	DWS Exchange institutions	0.987926	0.985765	0.991257	0.982159	0.974094	0.982162
41	EDM investment	0.866413	0.964155	0.901037	0.966070	0.992624	0.913603
42	EMIF Spain Index Plus A Dis (load)	0.994888	0.990271	0.991742	0.987562	0.976002	0.982231
43	EMIF Spain Index Plus B Cap (load)	0.994024	0.991159	0.991380	0.988727	0.976705	0.981962
44	Mac Holy Spain stock exchange	0.980161	0.994071	0.991942	0.991750	0.976024	0.977166
45	Euroagentes Plus	0.844055	0.948059	0.874160	0.947748	0.988129	0.896270
46	Eurovalor stock exchange	0.998144	0.985944	0.994409	0.980413	0.971174	0.982357
47	Fibanc index	0.997994	0.984387	0.995410	0.981354	0.968830	0.986082
48	Fonbilbao actions	0.887303	0.972983	0.920447	0.982057	0.991121	0.941204
49	Foncaixa 33 stock management Spain	0.992970	0.977950	0.995218	0.976289	0.955359	0.987306
50	Foncaixa 65 stock exchange index Spain	0.926133	0.853829	0.928394	0.850489	0.827221	0.946406
51	Foncaixa private stock exchange	0.985868	0.992301	0.989169	0.990886	0.978132	0.977478

52 FondEspaña stock exchange	0.994765	0.991930	0.993665	0.988914	0.977228	0.981595
53 Fondguissona stock exchange	0.871077	0.960830	0.897461	0.953493	0.985764	0.894759
54 Fondmapfre strategy 35	0.794734	0.935550	0.870373	0.925236	0.968615	0.872253
55 Valencia equity fund	0.935955	0.989202	0.952866	0.994286	0.991842	0.957807
56 Fonduero stock exchange	0.680277	0.630443	0.752527	0.600852	0.615708	0.780843
57 Fonpastor equity	0.968633	0.996879	0.981924	0.997837	0.983876	0.976422
58 Fonpenedes Borsa	0.971642	0.997864	0.985552	0.990518	0.984460	0.964769
59 Gesconsult growth	0.840787	0.947342	0.878814	0.951038	0.982737	0.901290
60 Gesconsult equity	0.969491	0.986347	0.975052	0.990921	0.973012	0.977563
61 Ibercaja stock exchange	0.994135	0.992153	0.995743	0.988943	0.974236	0.981378
62 KutxaValor	0.994766	0.970153	0.991753	0.952537	0.950596	0.967994
63 Lloyds stock exchange	0.980553	0.996346	0.985719	0.995846	0.983638	0.976596
64 Madrid stock exchange opportunity	0.982164	0.990337	0.991691	0.987828	0.976830	0.982111
65 Madrid Stock Exchange	0.993310	0.957635	0.988027	0.954283	0.949024	0.991304
66 March values	0.985112	0.995370	0.976505	0.988898	0.993571	0.960537
67 Medivalor RV	0.989646	0.993522	0.990068	0.990688	0.981198	0.977553
68 Metavalor	0.854736	0.955754	0.886058	0.956643	0.988202	0.904583
69 PBP Exchange Spain	0.989553	0.976741	0.994884	0.963275	0.956886	0.973893
70 Privat stock exchange	0.945089	0.902083	0.951241	0.879495	0.875894	0.940705
71 Income 4 Exchange	0.979315	0.988847	0.991110	0.985135	0.972154	0.980187
72 Rural index	0.994251	0.986365	0.992620	0.969871	0.965939	0.963238
73 Safei opportunity Spain	0.967266	0.940501	0.979264	0.937070	0.932758	0.990720
74 Santander actions Spanish Plus	0.963962	0.997871	0.976220	0.996704	0.990977	0.965703
75 Santander actions Spanish	0.993504	0.984632	0.997409	0.980881	0.964056	0.985247
76 Santander index Spain	0.989321	0.994437	0.990094	0.993365	0.981457	0.979975
77 Santander income Variable Spanish 100	0.974303	0.998783	0.981215	0.995703	0.988153	0.968581
78 Santander Spanish Equity A	0.996241	0.985487	0.996581	0.976317	0.964710	0.977428
79 Santander Top 25 Spain	0.988266	0.995762	0.989693	0.989964	0.983127	0.971419
80 Segurfondo equity	0.991137	0.981492	0.985670	0.980766	0.974783	0.983411
81 Unifond income Variable I	0.986704	0.974344	0.986066	0.948882	0.949309	0.945275
82 Urquijo Spain stock exchange	0.691391	0.584379	0.711852	0.550325	0.585327	0.756832
83 Vital Ibex index	0.835246	0.945434	0.879375	0.950389	0.982329	0.900670

SOURCE: AUTHORS´ RESEARCH FROM LIPPER SPAIN DATA.

The table shows the correlation between the different considered benchmarks and between these benchmarks and the database. The table shows the strength of the relationships between funds and benchmarks (especially with Ibex-35), with some exceptions, such as Bestinver and Urquijo Spain Stock Exchange.

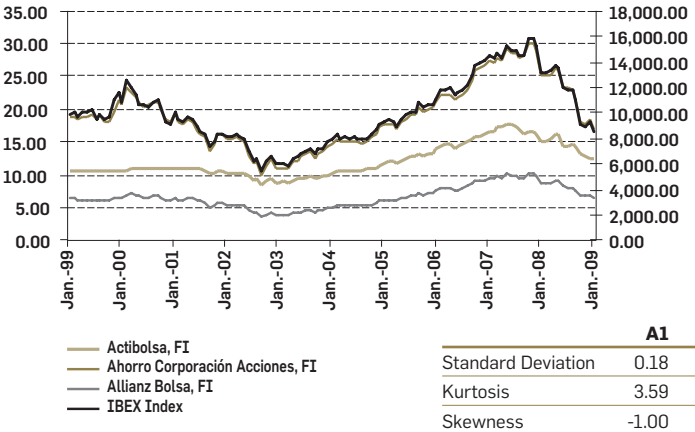
Following a structural analysis of the statistical data available, the six benchmarks will be used to detect upward and bear periods of mutual funds and will propose which of these indices is the best reference, using a graphical analysis illustrating the evolution of the reference indices and the funds under study (representing another means of determining the most accurate benchmark).

To detect upward and bear periods, it is necessary to estimate upward and bear periods of the Spanish stock market during the time period under study (1999-2009). To determine these periods, we make an initial mapping of the relationship between the six considered reference indices and three funds chosen at random from the sample *(Actibolsa FI, Union Corporation FI* and *Allianz Exchange FI)*. This study was conducted with all of the funds, obtaining a large volume of comparable correlation data with Ibex-35 and IGBM, and the outcome of this small sample is presented here.

The following tables show the periods of lowest correlation between mutual funds' performance and each benchmark considered until September 2001. It turns to be a point that features a shift in kurtosis, with less correlation found to the left of the point than to the right of the point. Past this point, investment funds generally exhibit behaviour similar to that of the six benchmarks considered. Accordingly, we chose to use this period of higher correlation for benchmark comparison. However, these indices show high and positive average correlation coefficients (with MSCI Cross Growth presenting the data that least fit any benchmark). We found the Ibex-35 to be the index that presents the highest correlation and skewness. The box next to each chart indicates the standard deviation, kurtosis and skewness coefficients of the three mutual funds randomly selected from the dataset. These funds are *Actibolsa* (A1), *Union Corporation* (A2), and *Allianz Stock Funds* (A3), which are shown with their regression coefficients against the different indices.

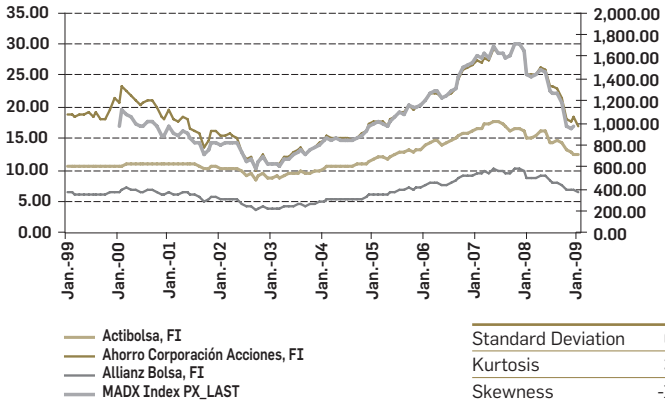
This selection will conclude with an analysis of the different stock trends within the date range under study.

Table 2. **Relationship: Investment funds vs Ibex-35**



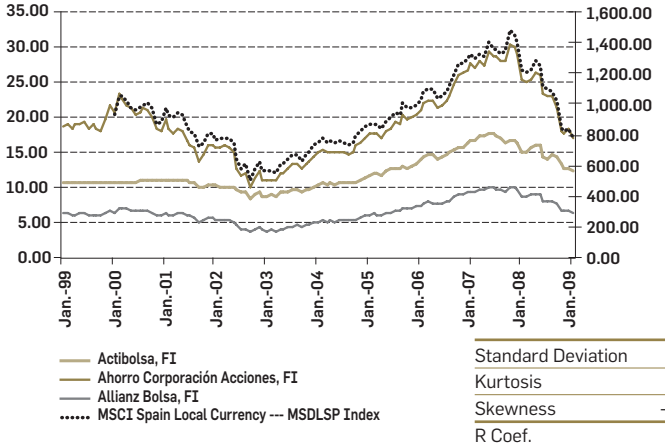
	A1	A2	A3
Standard Deviation	0.18	1.99	0.41
Kurtosis	3.59	0.73	2.08
Skewness	-1.00	-0.34	-0.58
R Coef.	0.20	0.98	0.92

Table 3. **Relationship: Investment funds vs MADX Index**



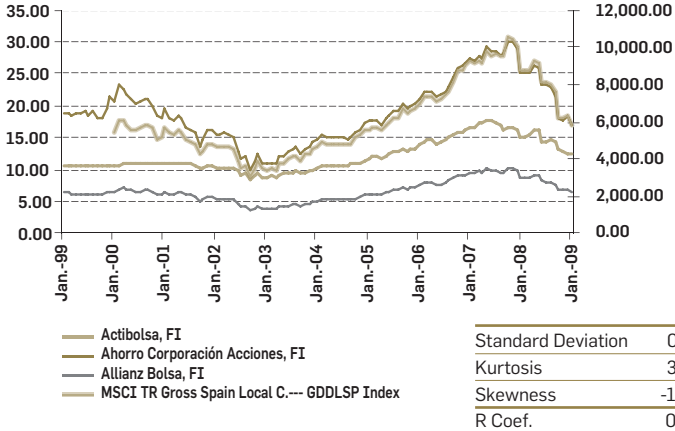
	A1	A2	A3
Standard Deviation	0.18	1.99	0.41
Kurtosis	3.59	0.73	2.08
Skewness	-1.00	-0.34	-0.58
R Coef.	0.31	0.98	0.96

Table 4. **Relationship: Investment funds vs *Spain Local Currency Index MSCI***



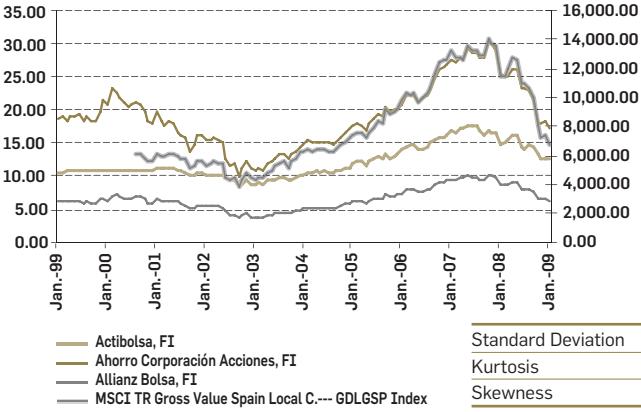
	A1	A2	A3
Standard Deviation	0.18	1.99	0.41
Kurtosis	3.59	0.73	2.08
Skewness	-1.00	-0.34	-0.58
R Coef.	0.46	0.96	0.97

Table 5. **Relationship: Investment funds vs TR *Gross Spain Local Currency Index MSCI***



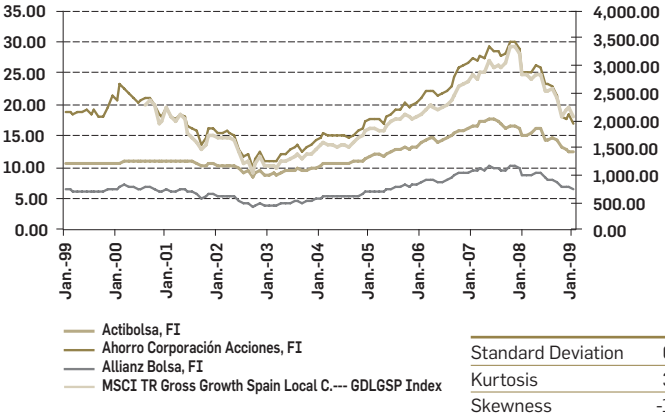
	A1	A2	A3
Standard Deviation	0.18	1.99	0.41
Kurtosis	3.59	0.73	2.08
Skewness	-1.00	-0.34	-0.58
R Coef.	0.49	0.94	0.97

Table 6. Relationship: Investment funds vs MSCI TR Gross Value Spain Local Currency Index



	A1	A2	A3
Standard Deviation	0.18	1.99	0.41
Kurtosis	3.59	0.73	2.08
Skewness	-1.00	-0.34	-0.58
R Coef.	0.80	0.65	0.84

Table 7. Relationship: Investment funds vs MSCI TR Gross Growth Spain Local Currency Index



	A1	A2	A3
Standard Deviation	0.18	1.99	0.41
Kurtosis	3.59	0.73	2.08
Skewness	-1.00	-0.34	-0.58
R Coef.	0.69	0.98	0.92

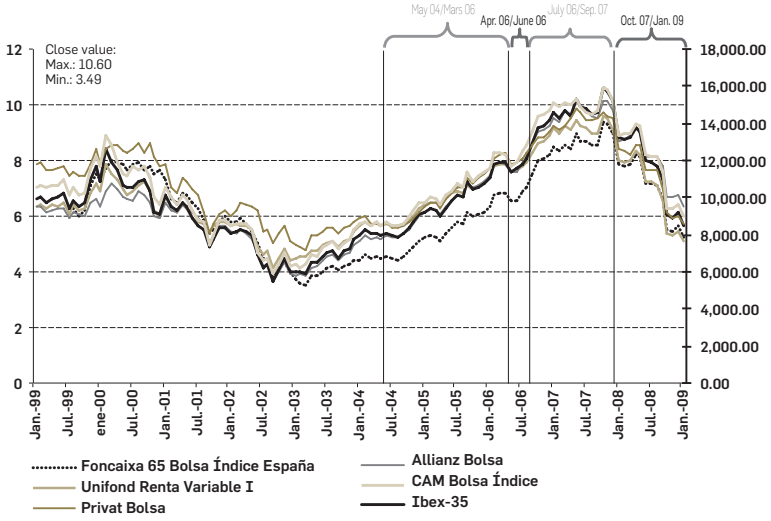
The determination of bull and bear market periods is based on the correlation between the Ibex-35 (benchmark selected as the most accurate) and each group of funds. We determine the correlation between each fund and this index over the period under study. We then perform a segmentation of 83 investment funds based on their maximum and minimum daily close values. Finally, we create 17 groups, each containing four or five funds, according to the funds' minimum and maximum close values, kurtosis and skewness coefficients with the Ibex-35.

We consider the following two periods of time:

- **Upward trend period:** May 2004-March 2006 and July 2006-September 2007.
- **Downward trend period:** April 2006- June 2006 and October 2007-March 2009.

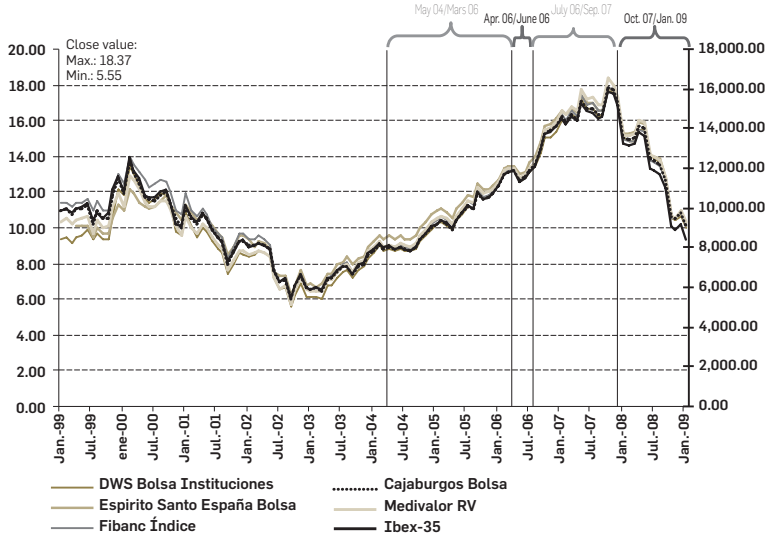
It is interesting that the analysis was first conducted on each individual fund, generally obtaining a strong link in the chosen periods. Tables 8, 9, and 10 show various examples of this analysis. A generally high correlation (among almost all funds) is evident, indicating high coincidence in the chosen periods, and there are groupings, such as in table 9, where the match or overlap in the closing level is very high. However, table 10 can be considered as an exception of the high correlation.

Table 8. Relationship between closing prices of the first group of funds and the Ibex-35



SOURCE: AUTHORS´ RESEARCH FROM LIPPER SPAIN DATA.

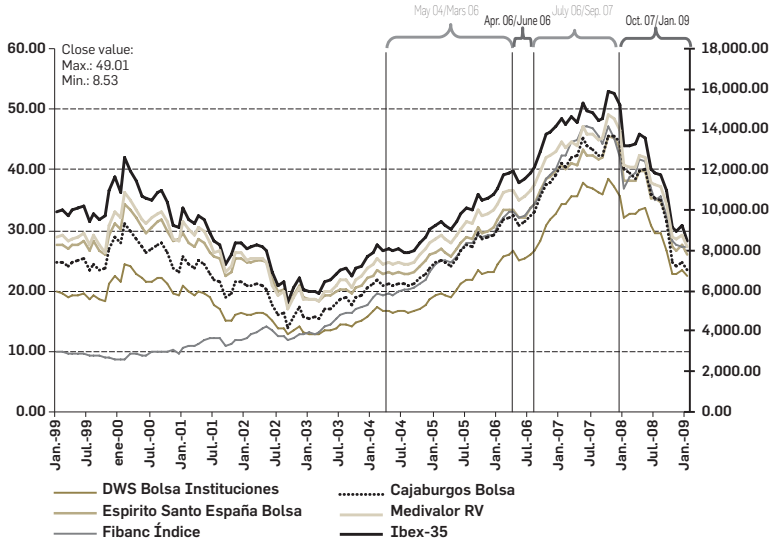
Table 9. Relationship between closing prices of the second group of funds and the Ibex-35



SOURCE: AUTHORS´ RESEARCH FROM LIPPER SPAIN DATA.

This group is characterised by especially high correlation in the indicated periods.

Table 10. Relationship between closing prices of the third group of funds and the Ibex-35



SOURCE: AUTHORS´ RESEARCH FROM LIPPER SPAIN DATA.

This group is unique in its high dispersion of data. In this group are two of the three funds that in the last five years obtained the highest profitability, which exceeded 30% (against the average of 4.63% for the category). These funds are Gesconsult equity, Bestinver bag and BK bag, which are among the most profitable and recorded below-average volatility in their category (according to data provided by Allfunds Bank). Here, we can observe the wide variety of management methodologies, even within the same category of funds, and the importance of choosing the correct equity fund to invest in.

In the case of Bestinver Bolsa, in trouble during 2008, its success is driven by its selection of equities and its preservation of capital in times of heavy losses (as noted by Ferdinand Bernard, Manager of Bestinver). One of the main characteristics of this fund is its ability to prevent losses in anticipation of weakness in the Spanish economy through its investment decisions, eliminating investment in banks and real estate until the market regained stability and internationally oriented companies and less cyclical companies.

Gesconsult Renta Variable maintains a clear defensive strategy, combining a long-term market perspective with the flexibility to modify its liquidity positions (after holding 25% of assets in liquidity in 2008, the proportion has been reduced to approximately 8%, according to Dolores Jaquotot, Manager of Gesconsult).

4. Main results obtained

This analysis has revealed that the Ibex-35 is the reference index that is most generally employed for 70 of the studied funds but is not used by the 13 remaining funds. In addition, two bullish and bearish periods were clearly identified. In general, all investment funds showed a high and positive correlation coefficient with the Ibex-35 (greater than 0.80), with the exception of three mutual funds: Fonduero Bolsa (R = 0.68); Urquijo Spain (R = 0.69) and Bestinver Bolsa (R = 0.74).

The results obtained can be summarised accordingly:

1. This analysis revealed several funds (approximately 12% of the considered 83) whose performance trending does not closely follow the Ibex-35.

2. The bullish periods are:
- May 2004 – Mars 2006
- July 2006 – September 2007

3. The bearish periods are:
- April 2006 – June 2006
- October 2007 – January 2009

4. The investment funds were classified by the maximum and minimum values of 83 investment funds. Accordingly, 17 groups, each comprising 5 investment funds (except groups 15 and 17, which both comprise 4 funds), are created.

In general, the 17 groups of investment funds showed a high and positive coefficient of correlation (over 0.80), with the exception of three investment funds:
- R=0.68 Fonduero Bolsa
- R=0.69 Urquijo España Bolsa
- R=0.74 Bestinver Bolsa

5. Conclusions

A benchmark serves as a reliable and consistent gauge of multiple dimensions of performance: return, risk and correlation. The benchmark must be a fair target for investment managers and be representative of the relevant opportunity set. The objective of this paper is to elucidate whether the different benchmarks that are generally used to measure the Spanish stock market performance are truly useful, considering the importance of selection in determining mutual funds' performance,

style and risk. The present study demonstrates that among the six indices considered, Ibex-35 was the most accurate and widely used as a benchmark in this market, consistent with the results obtained by Ferruz and Vincente (2005) and Sainz (2006), for 70 of the mutual funds under consideration. However, the benchmark to be used for the 13 remaining mutual funds must be determined. This study considered the impact of market trends.

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