A new look at the meeting clustering effect

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Abstract

Purpose – The study aims to test the existence of a meeting clustering effect in the Spanish Stock Exchange (SSE).

Design/methodology/approach – This paper studies the relationship between the clustering of annual general meetings and stock returns in the SSE. A multivariate analysis is carried out in order to analyse the relationship between monthly returns and the clustering of general meetings in the SSE.

Findings – The authors show that meeting clustering exists and that some months exhibit significant and positive additional returns related to the holding of ordinary or extraordinary general meetings.

Research limitations/implications – The authors have explored some possible explanations for the meeting clustering effect, such as a potential link with the "Halloween" effect or the presence of higher-than-normal levels of volatility, trading volumes or investor attention. However, none of these can explain the meeting clustering effect that emerges as a new anomaly in the SSE.

Practical implications – The authors have documented significant and positive abnormal returns in some months that coincide with the holding of general meetings. Therefore, the holding of ordinary and/or extraordinary meetings in some months involves the release of relevant information for investors.

Originality/value – This study complements the financial literature because it is focused on the clustering of meetings and its effect on a stock market whose legal order is based on civil law. This fact allows us to shed new light on meeting clustering and its effect on other types of markets.

Keywords Meeting clustering effect, Annual general meetings, Stock returns, Civil-law country, Spanish Stock Exchange, Investor sentiment

Paper type Research paper

1. Introduction

Calendar anomalies have been the object of numerous studies that have detected several intriguing effects both for academics and practitioners [1]. Recently, some researchers have shown interest in a new monthly seasonal effect, that of meeting clustering. On the one hand, Wang and Hefner (2014) have analysed 21,789 general meetings of 1,500 firms belonging to the US markets from 1992 to 2012 and have documented the clustering of annual general meetings in the months of March, April and May. Furthermore, they show that this clustering of meetings on dates is positively related to average monthly stock returns in these months. In fact, they point to the clustering of meetings in certain months as the cause of the appearance of positive returns in the stock prices. Thus the clustering of these events in a month creates positive stock returns, which they consider a new anomaly. On the other hand, Lawal (2016), taking the previous work as reference, has carried out a similar analysis for the UK market. He studies 15,375 general meetings of 2,107 firms for the period 2004–2014 and observes

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evidence of meeting clustering around May to July. However, unlike Wang and Hefner (2014), he observes a significantly negative relationship between stock returns and the monthly frequency of general meetings, suggesting that investors exit the market during the clustering months. Furthermore, his results are consistent with the Halloween effect, which leads him to caution against interpreting his results as evidence of a new anomaly.

The study of the clustering of general meetings and its effect on stock returns has not been analysed in other markets to date. Both the US and UK markets belong to countries that can be classified as countries with common-law systems in which accounting practices are determined primarily in the private sector. Following Ball *et al.* (2000), with regard to the political influence on accounting, we can speak about countries with code-law systems, having high levels of political influence at the national and firm levels and countries with common-law systems. They hypothesise that the politicisation of accounting standard setting and enforcement increases the demand for an income variable with low volatility in code-law systems and, as a consequence, the informational role of meetings should be less in code-law countries than in common-law ones.

This paper focuses on the Spanish Stock Exchange (SSE), which belongs to the category of code-law countries. Blandón *et al.* (2012) have analysed the disclosure of information around the meeting date in the Spanish market following the classical event study methodology. Specifically, they have investigated the effects of 226 annual general meetings from January 2002 to June 2009 on stock returns, volatility and trading volumes and they have found that the holding of those meetings had no significant effect on any of the three variables. The paper by Blandón *et al.* (2012) looks into the effect of holding the annual general meetings, but without taking into account either the clustering of meetings or the seasonality of each month. Unlike Blandón *et al.* (2012), our main purpose is to analyse the clustering of general meetings and its effect on Spanish stock returns.

In this work, we follow the line of research proposed by Wang and Hefner (2014) and Lawal (2016). Our paper contributes to several research streams. To begin with, it is the first paper that examines the clustering of general meetings and its effect in the Spanish stock market. Second, this study complements the financial literature because it is focused on the clustering of meetings and its effect on a stock market whose legal order is based on civil law. This fact allows us to shed new light on meeting clustering and its effect on other types of markets. Finally, the Spanish legislation (LSC, 2010) differentiates between ordinary annual general meetings and extraordinary general meetings. Given that the nature of them is different, both meetings will be analysed in order to detect a possible differentiating effect of each one on the return of the companies that call them. The rest of the paper proceeds as follows. Section 2 provides details on the data. Section 3 explains the methodology. Section 4 presents and discusses the results of the empirical analysis. Section 5 analyses several variables that can theoretically help to explain our findings. Section 6 concludes.

2. Data

This study has been carried out using monthly return series of the IBEX 35 stock index from January 2000 to December 2017. The IBEX 35 index was created in 1992 to represent the most liquid stocks in the SSE and to be used as an underlying index for trading financial derivatives. The IBEX 35 index is weighted by market capitalisation, reviewed twice a year and composed of the 35 most liquid stocks in the six-month interval prior to the date of the review. Specifically, we have the opening price of the first working day of the month, the closing price of the last working day of the month, the minimum and the maximum price recorded during the month and the monthly trading volume expressed in euros. Overall, we have 219 monthly observations for each variable.

Furthermore, we have obtained similar information for the 60 Spanish firms that compose or have been part of the IBEX 35 from 2000 to 2017. Given that there exist some firms that

have belonged to the IBEX 35 intermittently, and we have obtained monthly data only for their periods of permanence. All in all, we have 6,386 monthly observations. Both the data for the 60 firms and the IBEX 35 have been obtained from the Reuters database [2].

Finally, we have also obtained the dates of the annual general meetings of shareholders, differentiating between ordinary meetings and extraordinary ones. This distinction is pertinent because Spanish law determines that their character is different. In this way, following articles 164 and 165 (LSC, 2010), the ordinary general meeting, previously convened for this purpose, will necessarily meet within the first six months of each tax year, in order to approve the corporate management, the accounts of the previous fiscal year and to decide on the application of the result. Any other meeting will be considered as an extraordinary general meeting. For example, in an extraordinary meeting decisions can be taken related to the cessation or appointment of positions; the increase or reduction of capital; the dissolution, liquidation or transformation of the firm; and, in general, any modification of the bylaws.

The holding of the ordinary general meeting by SSE-listed firms is mandatory every year, while convening an extraordinary one is voluntary. However, this fact does not prevent ordinary and extraordinary general meetings from being held on the same date. This occurs when the approval issues have the characteristics of being both ordinary and extraordinary. The joint holding of both meetings on the same day has happened six times in our sample period. All in all, we hand-collected 533 dates for ordinary annual general meetings (hereafter OMs) and 76 dates for extraordinary general meetings (hereafter EMs) from the *Comisión Nacional del Mercado de Valores* web page (www.cnmv.es) and from the corporate web pages of the companies.

3. Methodology

First, a basic statistical analysis has been carried out to establish the presence of OM and EM clustering. We have applied the Hirshmann-Herfindahl index (henceforth HHI) to measure the concentration of meetings in months. The HHI is calculated by summing the squared values of the market shares of all market participants. In our case, we substitute shares of markets participants for percentages of all meetings that occur in all available months. If there was no meeting clustering, the HHI would be equal to 100/N, with N being the number of months in the sample, 7 for OMs and 12 for EMs. Additionally, we have tested the statistical significance of meeting clustering in one sample. If we assume a uniform distribution of meetings, the observed frequency of meetings for each month will be the same. To test this fact, we use the standard Chi-square goodness-of-fit statistic, whose null hypothesis is the absence of difference between the observed distribution of meetings and the expected distribution of meetings under uniform distribution.

Second, we have obtained several monthly measures. We have calculated the monthly stock return as the first log-difference of the price series:

$$R_t = \mathrm{Ln}\left(\frac{P_t}{P_{t-1}}\right) \tag{1}$$

where R_t is the monthly return, P_t is the closing price in month t, and P_{t-1} is the closing price in month $t-1$. Monthly volatility has been estimated following the measure proposed by Parkinson (1980):

$$\sigma_t = \frac{1}{4\,\mathrm{Ln}(2)}(\mathrm{Ln}(H_t) - \mathrm{Ln}(L_t))^2 \tag{2}$$

where H_t is the highest and L_t is the lowest traded prices during month t. Finally, we have calculated the variation in the monthly trading volume as the first log-difference of the monthly trading volume series:

$$\Delta \mathrm{Vol}_t = \mathrm{Ln}\left(\frac{\mathrm{Volume}_t}{\mathrm{Volume}_{t-1}}\right) \tag{3}$$

where $\Delta \mathrm{Vol}_t$ is the variation in trading volume in month t, Volume_t is the trading volume in euros in month t, and Volume_{t-1} is the trading volume in euros in month $t-1$. These three variables have been obtained for each stock and for each month in the sample.

Next, based on previous empirical works by Wang and Heffner (2014) and Lawal (2016), a multivariate analysis is carried out in order to analyse the relationship between monthly returns and the clustering of general meetings in the SSE. Specifically, the following dummy variable regression models have been estimated using both ordinary least squares and the Newey and West correction that accounts for heteroskedasticity and serial correlation problems:

$$R_{it} = \sum_{t=1}^{12} \propto_t M_t + \varepsilon_{it} \tag{4}$$

where R_{it} is the monthly return for the firm i in month t; M_t is a monthly dummy that takes value 1 if the observation belongs to the month indicated in the subscript and zero otherwise; and ε_{it} is the error term. Then, we have estimated a new regression model taking into account the effect of the ordinary meeting clustering:

$$R_{it} = \sum_{t=1}^{12} \propto_t M_t + \sum_{t=2}^{7} \beta_t OM_t + \varepsilon_{it}^{*} \tag{5}$$

where OM_t represents the ordinary monthly dummy variable that takes the value 1 if the firm holds an ordinary general meeting in month t and zero otherwise, and ε_{it}^{*} is the error term. Note, that in the Spanish case, unlike the papers by Wang and Hefner (2014) and Lawal (2016), the subscript of the ordinary variable takes values only from February to July. Finally, we have also considered the effect of the extraordinary meeting clustering:

$$R_{it} = \sum_{t=1}^{12} \propto_t M_t + \sum_{t=2}^{7} \beta_t OM_t + \sum_{t=1}^{12} \gamma_t EM_t + \varepsilon_{it}' \tag{6}$$

where EM_t represents the extraordinary monthly dummy variable that takes the value 1 if the firm holds an extraordinary general meeting in month t and zero otherwise, and ε_{it}' is the error term. A similar procedure has been followed when the dependent variables considered have been the monthly volatility or the change in the monthly trading volume.

4. Results

4.1 Clustering analysis of general meetings

Panel A of Table 1 presents the monthly distribution of each subsample for the period 2000–2017. We observe that OMs are concentrated from April to June. These three months account for 77.3% of the ordinary meetings. June is the most preferred month for holding shareholders meetings (at least 28.5%). On the other hand, January is the least chosen month. No ordinary general meeting has been held in January and the same occurs for the months from August to December. However, as we have mentioned, the absence of OMs from August to December is because Spanish law requires ordinary meetings to be convened within the first six months of each fiscal year, in other words from January to June, for all the firms except Inditex, whose fiscal year runs from February to July. In fact, the 17 OMs held in the month of July belong to this firm.

Panel A: Clustering of GMs depending on the month

	Number of observations			%			
	OM	EM	GM	OM	EM	GM	R_{IBEX}(%)
January	0	3	3	0	3.95	0.50	0.193
February	8	5	13	1.50	6.58	2.16	0.106
March	96	5	101	18.01	6.58	16.75	1.399
April	143	1	144	26.83	1.32	23.88	−1.775
May	117	4	118	21.95	5.26	19.57	−1.754
June	152	8	158	28.52	10.53	26.20	0.853
July	17	6	22	3.19	7.89	3.65	−0.383
August	–	1	1	–	1.32	0.17	−0.602
September	–	10	10	–	13.16	1.66	2.269
October	–	10	10	–	13.16	1.66	−0.927
November	–	8	8	–	10.53	1.33	0.523
December	–	15	15	–	19.74	2.49	−0.453
Total	533	76	603				
ρ(%)				−21.26	32.34	−19.26	

Panel B: Hirshmann-Herfindahl indices (HHI) and clustering tests

	OM	EM	GM
HHI(%)	23.52	11.37	19.52
Goodness-of-fit statistic	344.44	29.16	809.48
p-value	0.00	0.00	0.00

Note(s): Panel A reports the monthly distribution of Annual Ordinary General Meetings (OM) and Extraordinary General Meetings (EM) and the sum of both (GM) for the period January 2000 to December 2017. R_{IBEX} indicates the monthly return of the IBEX 35; ρ*(%)* stands for the Pearson correlation coefficient between the percentage of meetings and the monthly return. Panel B presents the Hirshmann-Herfindahl indices (HHIs), obtained by summing the squared values of the monthly percentage of all the months. If there was no GMs clustering, the HHI should be equal to 100/N, where N is 7 for OMs and 12 for EM and TOTAL. The last row presents the *p*-value of the goodness-of-fit statistic, which tests the absence of difference between the observed distribution and the expected distribution

Table 1. Monthly clustering of GMs and tests

Regarding EMs, Panel A shows that extraordinary meetings are concentrated in the last four months of the calendar year (56.58%). Therefore, the monthly patterns followed by OMs and EMs are totally different. The last column of Panel B in Table 1 presents the IBEX 35 monthly returns. The highest return is observed in September (2.269%) and the lowest one in April (−1.775%). The last row of Panel B indicates the cross correlation between the percentage of monthly clustering and monthly returns. They are negative for OMs and positive for EMs. However, this calculation has taken into account neither the monthly return of each firm nor the monthly return seasonality.

Panel B of Table 1 presents the HHI indices and the results of the clustering tests. If there was no meeting clustering, the HHI would be equal to 14.29% (≈100%/7) and 8.33% (≈100%/12) for OMs and EMs, respectively. Both values are above these figures, suggesting meeting clustering. This result is confirmed by the Chi-square goodness-of-fit statistic and its *p*-value. The large value of this statistic for all the samples of meetings implies that a significant deviation from a uniform distribution exists and involves significant meeting clustering.

4.2 Monthly stock return and meeting clustering

Both the preference to cluster general meetings in specific months of the year and the reluctance to do so in other months indicate that boards of directors of SSE-listed firms are following some kind of pattern when convening ordinary or extraordinary general meetings

of shareholders. Wang and Hefner (2014) argue that the release of more sensitive information in months with relatively high frequencies of annual general meetings suggests that returns for these months should be significantly different from those of other months. This section analyses this hypothesis for the SSE.

First, we have estimated Eqn (4), the results of which are shown in Table 2. Of greatest interest in this table is the fact that the estimated monthly returns obtained from Eqn (4) in Table 2 do not coincide with the monthly return pattern for the IBEX 35 that appears in the last column of Panel A of Table 1. This is due to the fact that our sample is composed of 60 equally-weighted firms, while the IBEX 35 is composed of 35 value-weighed firms. Regarding the results of estimating Eqn (4) in Table 2, we report significant mean monthly returns for 5 months at the 5% level (January, April, May, June and October). January exhibits the highest monthly return (1.421%) while May has the lowest (−2.139%). Furthermore, we have observed that the months with significant and negative mean returns (May and June) belong to the May–October period, whereas the majority of the

	Eqn (4)			Eqn (5)			Eqn (6)		
Coefficient	R_{it}	t-statistic	p-value	R_{it}	t-statistic	p-value	R_{it}	t-statistic	p-value
α_1	1.421	2.254	0.024	1.421	2.253	0.024	1.425	2.245	0.025
α_2	1.060	1.549	0.121	1.017	1.466	0.143	1.021	1.457	0.145
α_3	0.370	0.665	0.506	0.629	1.335	0.182	0.636	1.347	0.178
α_4	1.079	2.618	0.009	1.173	2.335	0.020	1.172	2.327	0.020
α_5	−2.139	−4.171	0.000	−2.738	−4.477	0.000	−2.733	−4.462	0.000
α_6	−1.399	−3.533	0.000	−1.197	−2.653	0.008	−1.274	−2.819	0.005
α_7	−0.066	−0.169	0.866	−0.150	−0.376	0.707	−0.138	−0.343	0.732
α_8	−0.113	−0.314	0.754	−0.113	−0.313	0.754	−0.131	−0.362	0.717
α_9	−0.350	−0.770	0.442	−0.350	−0.769	0.442	−0.334	−0.725	0.469
α_{10}	1.187	2.703	0.007	1.187	2.701	0.007	1.168	2.616	0.009
α_{11}	−0.588	−1.613	0.107	−0.588	−1.612	0.107	−0.537	−1.459	0.145
α_{12}	0.008	0.014	0.989	0.008	0.014	0.989	−0.118	−0.214	0.831
β_2				2.814	1.272	0.204	2.811	1.268	0.205
β_3				−1.423	−0.634	0.526	−1.430	−0.636	0.525
β_4				−0.346	−0.402	0.688	−0.346	−0.401	0.688
β_5				2.713	2.618	0.009	2.759	2.661	0.008
β_6				−0.706	−0.766	0.444	−0.693	−0.751	0.453
β_7				2.656	2.516	0.012	2.718	2.728	0.006
γ_1							−0.679	−0.184	0.854
γ_2							−0.345	−0.085	0.933
γ_3							−0.629	−0.110	0.913
γ_4							0.034	0.068	0.946
γ_5							−1.984	−0.418	0.676
γ_6							4.845	1.549	0.122
γ_7							−1.259	−0.626	0.532
γ_8							9.507	26.377	0.000
γ_9							−0.869	−0.283	0.777
γ_{10}							1.024	0.499	0.618
γ_{11}							−3.425	−1.329	0.184
γ_{12}							4.544	2.826	0.005
Adjusted-R^2		0.007			0.007			0.006	
# Obs		6386			6386			6386	

Note(s): This table reports the estimation results for the dummy variable regression models described in Eqs (4)–(6) for the period January 2000 to December 2017. R_{it} is the dependent variable that stands for the monthly return for firm i in month t; the monthly dummy variable takes value 1 if the observation belongs to the month indicated in the subscript and zero otherwise, and the event monthly dummy variable takes the value 1 if the firm holds an ordinary/extraordinary general meeting in the month t and zero otherwise

Table 2.
Monthly return and meeting clustering

months with significant and positive mean returns (January and April) are included in the November–April period. These results would suggest the possible existence of the Halloween effect in the SSE [3].

Next, we have estimated Eqn (5), the results of which are presented in Table 2. The coefficients of the ordinary dummy variables in May and July are positive and significant at the 5% level. Specifically, companies that schedule their ordinary general meetings for the months of May and July get an additional monthly return of 2.713 and 2.656%, respectively. These results seem at odds with the empirical evidence obtained by Blandón *et al.* (2012), who do not observe abnormal returns in the SSE around the date of the ordinary meeting. However, these authors neither differentiate the meetings by months, nor take into account their clustering.

Finally, we have estimated Eqn (6), the results of which are reported in the last column of Table 2. The coefficients of the ordinary dummy variables in May and July remain significantly different from zero at the 1% level. Furthermore, the coefficients of the extraordinary dummy variables present significant and positive returns at the 5% level in meetings called in the months of August and December. The result for August is for a meeting scheduled by only one firm (Zeltia) and, as a consequence, is not representative. However, those companies that hold their extraordinary meetings in December obtain an additional return of 4.544%. Therefore, the results obtained from Eqs (5) and (6) suggest that both ordinary and extraordinary meetings held in specific months have relevant information for investors.

Spanish law (article 176 of LSC, 2010) obliges firms to announce the ordinary annual shareholders meeting a minimum of one month before it is held. In our sample, one out of three companies has held its meeting in the first half of the month. Furthermore, there is prior empirical evidence for the US markets (Brickley, 1986) that the holding of annual general meetings can affect the performance of the stock up to 40 days before. For both reasons, we have performed a robust analysis. Specifically, we have redefined the event monthly dummy variable both for ordinary and for extraordinary meetings so that the new event variable can take the value 1 if the firm holds an ordinary or extraordinary general meeting in month t or in the previous one and zero otherwise. The results confirm the persistence of positive and significant returns in the ordinary meetings held in May and in the extraordinary ones arranged in December. Therefore, our results are robust to alternative definitions of the event monthly dummy variables [4].

4.3 Correlation between monthly return and meeting clustering

Finally, we have examined the relationship between the frequency of annual general meetings and stock returns in the SSE. We have formally tested the correlation between the average monthly stock returns, obtained from the estimation of Eqn (3) and the percentage of ordinary and/or extraordinary general meetings. Specifically, we have calculated the Spearman cross correlation coefficients that takes into consideration the ranks of the values of two series.

Table 3 reports the pair-wise cross-correlation coefficients between the considered variables. The three cross correlation coefficients are negative, but none of them is significantly different from zero. The null hypothesis of no relationship between the monthly percentage of meetings and the average monthly stock return cannot be rejected in any case. Therefore, the absence of a significant correlation between frequency of meetings and stock returns obtained for the SSE fuels the controversy within the previous scarce empirical evidence. Recall that Wang and Hefner (2014) found a significantly positive correlation in the US markets, while Lawal (2016) reported just the opposite for the UK markets.

5. Possible explanations

In this section, we look for possible explanations for the positive additional returns detected in the previous section, both in OM and EM events. First, we study if these returns can be explained by the interaction with the "Halloween" effect and, second, we analyse three variables

that the financial literature has linked to significant increases in the stock prices. These variables are volatility, the trading volume and the number of Google search queries on the Internet.

5.1 "Halloween" effect

As we have mentioned, Lawal (2016) documents significantly negative average returns for the OM cluster months (from May to July) in the UK market. They indicate that the OM clustering effect is consistent with the Halloween effect (stock returns are higher in the November–April period than the May–October period), suggesting that the OM effect may not be a new anomaly. In Table 2, we showed that stocks perform better in "winter" months than in "summer" months, suggesting the possible existence of the Halloween effect in the SSE. This effect had been already detected in the Spanish market by Bouman and Jacobsen (2002). They analysed monthly stock returns of the MSCI market indices of 19 countries, including Spain and observed the Halloween effect in the SSE in a sample period that ran from 1970 to 1998.

Given that our sample period covers 2000 to 2017, we have tested the persistence of the Halloween effect in the SSE in the long run, both for the sample of the 60 companies and for the IBEX 35 index. We have run a regression separating "winter" months (November to April) from "summer" ones (May to October). The results presented in Table 4 confirm the persistence of this effect in the sample of 60 equally-weighted companies, but not in the case of the value-weighted IBEX 35 index. The evidence from these findings suggests that the Halloween effect in the SSE in the latest sample is due to the companies with the lowest market capitalisation.

Although the "Halloween" effect is compatible with the higher average monthly return observed in the EM December dummy variable (see Table 2), it cannot explain the positive returns observed in the OM variables in May and July. The coefficients of these two dummy variables are significantly positive at the 5% level in a period in which the "Halloween" effect should be significantly negative. Therefore, unlike the UK markets, the Halloween effect in the case of Spain cannot explain the meeting clustering effect in the SSE.

		OM	EM	Total
$\overline{R}_t$	ρ_{Spearman}	−0.257	−0.176	−0.242
	p-value	0.623	0.584	0.449
	# Obs	6	12	12

Note(s): $\rho_{Spearman}$ stands for the Spearman's rank correlation coefficient expressed in percentage; $\overline{R}_t$ is the monthly average stock return obtained from the estimation of Eqn (3); *OM* indicates the monthly percentage of Annual Ordinary General Meetings; *EM* is the monthly percentage of Extraordinary General Meetings; *TOTAL* is the sum of both; *p-value* is the critical significance probability level where the null hypothesis is that the correlation is equal to zero; and # *Obs*. is the number of observations. Sample period studied goes from January 2000 to December 2017

Table 3. Cross correlation between monthly return and meeting clustering

	60 firms		IBEX 35	
	$\overline{R}$	p-value	$\overline{R}$	p-value
November_April	0.551	0.002	0.057	0.917
May_October	−0.475	0.007	−0.091	0.890
# Obs	6386		219	
Wald test	0.010 (0.002)		−0.178 (0.009)	

Note(s): *November_April* stands for the average stock return from November to April; *May_October* stands for the average stock return from May to October; *60 firms* makes reference to the sample of the 60 companies that have belonged to the IBEX 35 from January 2000 to December 2017; and *IBEX 35* makes reference to the IBEX 35 index. # Obs. is the number of observations and Wald test indicates the statistic and its p-value. Sample period studied goes from January 2000 to December 2017

Table 4. "Halloween" effect

5.2 Volatility analysis

Extra monthly returns observed in OM months can be interpreted as an additional compensation for bearing extra risk. To test this hypothesis, we have estimated the Parkinson's monthly volatility for each month and for each firm from 2000 to 2017. Then we have carried out the same multivariate analysis followed in the previous section, taking the estimated volatility as the dependent variable.

Table 5 presents the estimation output for the three regressions considering the dummy variables and both the OM and the EM dummy variables. The results are conclusive. The coefficients of all the event monthly dummy variables that are significant are negative. We observe that both the holding of ordinary meetings in February and July and the holding of extraordinary ones in the months of April, August, October and November lead to a significant decrease in monthly volatility. Therefore, the meeting clustering effect cannot be considered as a reward for bearing extra risk in any way.

	Eqn (4)			Eqn (5)			Eqn (6)		
Coefficient	σ_{it}	*t*-statistic	*p*-value	σ_{it}	*t*-statistic	*p*-value	σ_{it}	*t*-statistic	*p*-value
α_1	1.300	4.386	0.000	1.300	4.384	0.000	1.297	4.346	0.000
α_2	1.749	3.399	0.001	1.770	3.386	0.001	1.775	3.360	0.001
α_3	1.242	4.127	0.000	1.011	8.360	0.000	0.997	8.180	0.000
α_4	1.076	3.247	0.001	1.192	2.629	0.009	1.195	2.626	0.009
α_5	1.357	2.683	0.007	1.531	2.360	0.018	1.530	2.356	0.019
α_6	0.922	15.930	0.000	0.882	13.966	0.000	0.881	13.871	0.000
α_7	1.016	11.177	0.000	1.031	11.003	0.000	1.035	10.947	0.000
α_8	0.887	13.296	0.000	0.887	13.290	0.000	0.888	13.267	0.000
α_9	1.148	13.750	0.000	1.148	13.744	0.000	1.152	13.542	0.000
α_{10}	1.226	11.532	0.000	1.226	11.526	0.000	1.240	11.445	0.000
α_{11}	0.832	12.766	0.000	0.832	12.760	0.000	0.828	12.570	0.000
α_{12}	1.116	3.683	0.000	1.116	3.681	0.000	1.132	3.641	0.000
β_2				−1.373	−2.539	0.011	−1.379	−2.524	0.012
β_3				1.271	0.814	0.416	1.285	0.822	0.411
β_4				−0.427	−0.921	0.357	−0.430	−0.923	0.356
β_5				−0.789	−1.209	0.227	−0.793	−1.221	0.222
β_6				0.141	0.997	0.319	0.141	0.998	0.319
β_7				−0.492	−3.239	0.001	−0.472	−3.028	0.003
γ_1							0.695	0.581	0.561
γ_2							−0.571	−0.798	0.425
γ_3							1.225	1.381	0.168
γ_4							−1.074	−2.360	0.018
γ_5							0.154	0.560	0.576
γ_6							0.044	0.113	0.910
γ_7							−0.402	−1.324	0.186
γ_8							−0.448	−6.700	0.000
γ_9							−0.186	−0.645	0.519
γ_{10}							−0.763	−5.334	0.000
γ_{11}							0.246	0.848	0.396
γ_{12}							−0.649	−2.078	0.038
Adjusted-R^2		−0.001			−0.001			−0.002	
# Obs		6386			6386			6386	

Note(s): This table reports the estimation results for the dummy variable regression models described in Eqs (4)–(6) for the period January 2000 to December 2017. σ_{it} is the dependent variable that stands for the Parkinson's monthly volatility for firm i in month t; the monthly dummy variable takes value 1 if the observation belongs to the month indicated in the subscript and zero otherwise, and the event monthly dummy variable takes the value 1 if the firm holds an ordinary/extraordinary general meeting in month t and zero otherwise

Table 5.
Monthly volatility and meeting clustering

These results do not coincide with those obtained by Blandón *et al.* (2012) for the Spanish case when analysing the behaviour of the volatility around the date of the holding of ordinary meetings in the period 2002–2009. Their results indicate that the holding of OMs do not have significant effects on volatility. This discrepancy could be due to the fact that, unlike the paper by Blandón *et al.* (2012), we study the effects separately for each month.

5.3 Trading volume

The empirical literature suggests that trading volume is positively correlated with stock returns. Furthermore, Pritamani and Singal (2001) examine return behaviour in the NYSE following large price change events and observe that when these changes are conditioned both on large trading volumes and public announcements, the abnormal returns become large. Specifically, Pritamani and Singal (2001) find that when an increase in volume is accompanied by public announcements, abnormal returns are observed in a 20-day period. Given that returns observed in OM and EM event months have higher average monthly returns, if a link between volume and return existed, we would expect that the trading volume in months in which meetings are held would be higher than the trading volume in months without meetings. To study this hypothesis, we have taken the trading volume for each month and for each firm from 2000 to 2017 as the dependant variable and we have applied the same procedure followed previously for monthly returns and volatility.

Table 6 presents the results. No OM dummy variables have coefficients statistically different from zero. This result coincides with that obtained by Blandón *et al.* (2012) for the Spanish case. They analyse trading volumes in cumulative terms and conclude that the occurrence of the OM does not involve a net increase in volume.

Furthermore, the findings for the estimation of Eqn (6) in Table 6 show that EM dummy variables in April and December are significant and negative at the 5% level. Therefore, the level of trading volume in months in which general meetings are held remains at the same level or diminishes, but it never increases. As a consequence, the positive additional returns detected in the previous section cannot be explained by an increase in the trading volume.

It is important to note that our findings regarding the volatility and the trading volume are consistent with the reduction in the information asymmetries that we would expect around the holding of GMs in code-law countries. Recall that, following Ball *et al.* (2000), information asymmetry is lower in code-law countries than in common-law ones due to the advantages of closer shareholder-manager relations. If GMs matter, as this study seems to suggest, it is theoretically intuitive that they reduce information asymmetry and thus affect volatility and trading volume. Therefore, the results we have observed for both variables could be treated as possible consequences of meeting clustering [5].

5.4 Google searches and investor attention

Recently, the Internet search volume for queries related to firms has been taken in the financial literature as a proxy for investor attention and investor sentiment (see Kim *et al.*, 2019). Although there are caveats such as the availability of search volumes merely as an index and the potential ambiguity of search terms (see Behrendt *et al.*, 2020), numerous papers have documented the role of online search activity in different markets around the world. Da *et al.* (2011), Takeda and Wakao (2014) and Gwilym *et al.* (2016) have observed that an increase in Google's search volume index (hereafter SVI) helps to predict higher stock prices in the US, Chinese and Japanese stock markets, respectively. In our context, if investor attention increased in the months that meetings were held, we should find significant differences between SVIs in the months in which the OMs or the EM s have been held and the SVIs of months in which no meetings have been held.

Coefficient	ΔVol_{it}	Eqn (4) *t*-statistic	*p*-value	ΔVol_{it}	Eqn (5) *t*-statistic	*p*-value	ΔVol_{it}	Eqn (6) *t*-statistic	*p*-value
α_1	12.234	6.802	0.000	12.234	6.799	0.000	12.331	6.821	0.000
α_2	1.335	0.885	0.376	1.424	0.939	0.348	1.466	0.959	0.338
α_3	3.507	2.272	0.023	3.996	2.370	0.018	3.875	2.320	0.020
α_4	−9.951	−6.324	0.000	−11.298	−6.024	0.000	−11.258	−5.982	0.000
α_5	7.189	3.906	0.000	6.360	2.978	0.003	6.428	3.019	0.003
α_6	0.256	0.163	0.871	−0.087	−0.052	0.959	−0.179	−0.104	0.917
α_7	−11.832	−7.355	0.000	−11.546	−7.086	0.000	−11.569	−7.024	0.000
α_8	−14.511	−7.669	0.000	−14.511	−7.666	0.000	−14.507	−7.642	0.000
α_9	15.897	10.329	0.000	15.897	10.324	0.000	16.002	10.238	0.000
α_{10}	7.762	5.064	0.000	7.762	5.062	0.000	7.928	5.103	0.000
α_{11}	−6.218	−3.617	0.000	−6.218	−3.615	0.000	−6.120	−3.522	0.000
α_{12}	−5.390	−2.985	0.003	−5.390	−2.984	0.003	−4.820	−2.626	0.009
β_2				−5.857	−0.440	0.660	−5.899	−0.443	0.658
β_3				−2.685	−0.644	0.520	−2.564	−0.616	0.538
β_4				4.963	1.424	0.154	4.924	1.411	0.158
β_5				3.758	0.909	0.363	4.414	1.047	0.295
β_6				1.196	0.306	0.759	1.211	0.310	0.757
β_7				−8.994	−0.915	0.360	−9.110	−0.960	0.337
γ_1							−9.813	−1.123	0.262
γ_2							−4.368	−0.344	0.731
γ_3							10.447	0.348	0.728
γ_4							−15.247	−8.102	0.000
γ_5							−28.227	−1.250	0.211
γ_6							5.750	0.489	0.625
γ_7							2.361	0.139	0.889
γ_8							−2.085	−1.098	0.272
γ_9							−5.646	−0.703	0.482
γ_{10}							−8.943	−0.980	0.327
γ_{11}							−7.539	−0.645	0.519
γ_{12}							−21.496	−1.972	0.049
Adjusted-R^2		0.053			0.050			0.057	
# Obs		6386			6386			6386	

Note(s): This table reports the estimation results for the dummy variable regression models described in Eqs (4)–(6) for the period January 2000 to December 2017. ΔVol_{it} is the dependent variable that stands for the change in the monthly trading volume for firm *i* in month *t*; the monthly dummy variable takes value 1 if the observation belongs to the month indicated in the subscript and zero otherwise, and the event monthly dummy variables takes the value 1 if the firm holds an ordinary/extraordinary general meeting in month *t* and zero otherwise

Table 6.
Monthly volume and meeting clustering

The tool used to obtain the necessary information is Google Trends. This tool analyses the searches performed on Google and allows one to collect these searches by classifying them on a scale from 1 to 100. The value 1 represents the absence of searches and the value 100 indicates the maximum volume of searches. Google Trends offers historical data since January 2004 and, in addition, automatically recalculates the monthly indexes. For this reason, we have limited our sample to the characteristics of Google Trends. Specifically, the final sample contains companies listed on the IBEX 35 index since January 2004 and that have remained on the index continuously until December 2017 [6].

We have calculated the monthly averages of the SVI, differentiating three subsamples: the SVIs for the months in which no meetings have taken place (No GM), the SVIs for the months that have held ordinary meetings (OM) and the SVIs for the months that have convened extraordinary ones (EM). Table 7 shows the number of observations and the SVI values,

	No GM		OM		EM	
	# Obs	SVI	# Obs	SVI	# Obs	SVI
January	209	50.431			1	39
February	205	52.854	4	41	1	55
March	149	49.691	60	53.433	1	80
April	164	49.311	45	51.089	1	67
May	164	52.317	46	46.870		
June	166	50.892	41	46.927	3	36
July	193	49.119	14	53.929	3	61.333
August	210	42.962				
September	208	49.423			2	80
October	207	51.879			3	37.333
November	209	51.459			1	35
December	207	45.725			3	38
Average		49.672		48.875		52.867
Variance		8.032		24.210		334.079
Z-test				0.357		0.292

Note(s): *SVI* stands for the Search Volume Index; # *Obs.* is the number of observations; *No GM* indicates the months in which no meeting is held: *OM* indicates the months in which an Annual Ordinary General Meeting takes place; *EM* shows the months in which an Extraordinary General Meeting occurs; *Z-test* shows the *p*-value of the statistic where the null hypothesis is that the average between the samples is the same. Sample period studied goes from January 2004 to December 2017

Table 7.
SVI and general meetings

consisting of 210 observations for each month. In the case of the month of August, the total number of observations indicated in the *No GM* column is 210 since in that month no meetings of either type have been held, while in the month of May the observations are shared between the *No GM* and the *OM* samples. In the rest of the months, the observations are distributed among the three subsamples. The last arrow of Table 7 shows the *p*-values of the *Z*-tests. There are no significant differences between the searches carried out in the months where there are OMs compared to the months in which no meetings have been held, and the same occurs with the EMs. Therefore, attention investor is similar for all the subsamples and it seems very unlikely that SVIs can help to explain the meeting clustering effect.

6. Conclusions

This paper has studied, for the first time, the clustering of ordinary and extraordinary general meetings of shareholders and its effect on stock returns in Spain, a civil-law country. Similar to what is observed in common-law countries (US and UK), an analysis of meeting clustering confirms the preference to cluster general meetings in specific months of the year. In fact, this preference, together with the reluctance to schedule meetings in other months, suggests that boards of directors are following some kind of pattern when ordinary or extraordinary general meetings of shareholders are convened.

We have documented significant and positive additional returns in some months that coincide with the holding of general meetings. Therefore, the holding of ordinary and/or extraordinary meetings in some months involves the release of relevant information for investors. Furthermore, we have also observed that the holding of both ordinary and extraordinary meetings leads to a significant decrease in monthly volatility, which is consistent with the reduction in the information asymmetries that we would expect around the holding of meetings in code-law countries hypothesised by Ball *et al.* (2000).

Finally, we have explored some possible explanations for the detected extra monthly returns, such as the "Halloween" effect, the behaviour of monthly volatility, the pattern of

the trading volume and the level of Google searches as a proxy for investor attention. None of them can explain the meeting clustering effect that emerges as a new anomaly in the SSE.

Notes

1. See Rossi (2015), Tadepalli and Jain (2018) and Plastun *et al.* (2020) for comprehensive reviews of the principal studies on calendar effects.
2. In order to know the historic constituents of the IBEX 35, we have used the information contained in the file "compoIBEX.pdf" (available at www.bolsasymercados.es). This document provides information about the initial firms that have made up the index IBEX 35 since 1991, indicating the review date of additions and deletions. It is important to note that the 60 firms that fell in and out of the IBEX-35 over the study period were the most liquid and had the largest firm sizes during the period of permanence in the IBEX-35. These 60 firms were probably less affected by asymmetric information and, therefore, we study the clustering effect in a sample of firms in which it is more likely to reject its presence.
3. The Halloween strategy is based on the premise that most capital gains are made between October 31 (Halloween) and May 1. Therefore, the investment technique would consist in selling stocks before May 1 and refraining from reinvesting in the stock market until October 31.
4. These results are not presented in the paper to conserve space, but they are available upon request from the authors.
5. The authors wish to thank to the reviewer for this suggestion.
6. Specifically, the 15 companies selected have been: Abertis, ACS, Acciona, BBVA, Bankinter, Enagás, Gas Natural, Iberdrola, Indra, Inditex, Mapfre, Repsol, REE, Santander and Telefonica.

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