PARAMETRIC & NONPARAMETRIC APPROACHES TO EVENT STUDIES: AN APPLICATION TO A HOTEL'S MARKET VALUE*

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A B S T R A C T

The main objective of this paper is twofold: on the one hand, to analyse the impact that the announcement of the opening of a new hotel has on the performance of its chain by carrying out an event study, and on the other hand, to compare the results of two different approaches to this method: a parametric specification based on the autoregressive conditional heteroskedasticity models to estimate the market model, and a nonparametric approach, which implies employing Theil's nonparametric regression technique, which in turn, leads to the so-called *complete nonparametric approach* to event studies. The results that the empirical application arrives at are noteworthy as, on average, the reaction to such news releases is highly positive, both approaches reaching the same level of significance. However, a word of caution must be said when one is not only interested in detecting whether the market reacts, but also in obtaining an exhaustive calculation of the abnormal returns to further examine its determining factors.

KEYWORDS: Abnormal Returns; Hotel Opening: Market Value

1. INTRODUCTION

The decisions made by a hotel chain's management are obviously aimed at increasing the value of the company, and, as a final objective, the creation of profits for the firm's investors. Consequently, a value-creating decision-maker must choose worth-creating investments, not just for present prosperity but for the future stability as well. It is not surprising, therefore, that the economic value of strategic decisions has been attracting greater interest in the literature (Agrawal y Kamakura, 1995). Analysing the hotel industry means examining one of the most important components of the tourism and travel industry, which in turn, is an essential and primarily profit-generating activity in many countries. As a matter of fact, all realms of the hoteliers' decisions have been widely assessed from different perspectives, since learning about their decision-processes as well as the results derived from them, have important implications for both, the development of public policies and company management.

Accurate strategic decision-making, however, implies a complex process that entails satisfying the following principles (Klammer, 1994): i) To relate investment decisions to the strategic plans and operating goals of the company, by considering both its long-term and short-term objectives; ii) To evaluate the investment alternatives consistently, by recognising the inter-relationships among major investments; iii) To evaluate investment alternatives by using multiple decision attributes that include both financial and non-financial criteria; iv) To assess risk in evaluating investment alternatives; and v) To establish a management system that provides the cost and performance data needed to evaluate investment decisions.

In short, there are a great number of factors that affect the viability of the project to be developed and which have to be taken into consideration. This leads us to the co-alignment principle, which is applied to the hotel industry and is systematised in a four-stage process (Olsen et al., 1998): i) *Environmental Events*, a phase during which the different aspects of the current atmosphere in the marketplace that could influence the firm's strategic decisions, either positively or negatively, are analysed to find opportunities of increasing the value of the hotel chain; ii) *Choice of Strategy*, when methods are developed for exploiting such threats and opportunities. In the hotel industry portfolios of products and services are designed to pool the unique resources and capabilities of the firm in order to achieve some advantage in the marketplace; iii) The *Firm's Structure*, which implies identifying the capacities to be developed and efficiently allocating the available resources to each of them; and, iv) The

Firm's Performance, when an evaluation is done on the progress of the strategy employed to decide whether its objectives are being achieved, especially those related to profit-maximisation.

In this respect, one of the most important decisions that are made in the hotel industry is to open a new hotel within an existing chain. In this paper, we analyse the impact that the opening of a new establishment has on a hotel chain's performance. In the following section, we examine the decision to open a new hotel as the result of a chosen strategy. The event-study technique and sundry methodological issues are then explained in section 3; specifically, we first go over the basic foundations of this methodology to show its appropriateness for the decision analysed, and secondly we revise parametric and nonparametric approaches to advance and accomplish the objective proposed, to show later how they perform in this particular application presented subsequently (section 4). Finally, we highlight the main conclusions that can be drawn from them.

2. THE OPENING OF A NEW HOTEL

In general terms, when a chain decides to open a new hotel in a specific geographical area, it aims, among other things, to increase its market share, to maintain or boost its image, or to implement a segmentation strategy (Withiam, 1985). Regardless of its reasons, however, such a decision is particularly important in the hotel industry as it implies an enormous financial investment which often involves appealing to the banking sector for finance and, therefore, undertaking the subsequent additional loan expenses (Mestres, 1999). Before a chain can decide on the amount of money which is required to establish itself in a given area, it has to estimate the real potential of the market involved (Wynegar, 1994). In fact, a pre-opening market study and analysis can be a crucial element in determining the ultimate success of a lodging facility (Peters, 1978).

This justifies the existence of several studies that analyse the elements that influence a new hotel's success. Along these lines, Rushmore (1994) highlights the importance of recognising the forces that affect hotel values, which, at the same time, provide a basis for making well-informed, low-risk hotel investments. Turkel and Stewart (1996) focus on the operational realm, and show the significance of paralleling external factors with internal ones that are controllable by the company. Zhao and Olsen (1997) analyse the opening mode by means of factors related to the external environment or macro-environment, and factors of the task environment or micro-environment, as well as other aspects like the location of the new hotel, the choice of a partners if necessary, and the human factor.

Other studies have analysed special circumstances surrounding the opening of new hotels, like the determining factors of success in acquisition processes (Kim and Olsen, 1999), the optimal way of investing in public relations in advance of the opening (Weiner, 1984), the cyclical trend of the hotel industry (Rushmore and Goldhoff, 1997), or the so-called territorial encroachment, which is a specially controversial topic in franchisor-franchisee relationships (Roginsky, 1995). Equally interesting are those studies that evaluate specific zones as possible host markets for hotel investments (Dunning y McQueen, 1982; Bell, 1992), and those that analyse the different outlooks for the opening of a vacation-oriented hotel as opposed to one that is business-oriented (Mattila, 1997).

The opening of a new hotel, therefore, is directly connected to the process described in the previous section, since, once the decision has been made, the following step is to determine the optimum allocation of resources, specifying the areas in which to invest, and subsequently, to estimate expected profits. In other words, to evaluate the viability of a new establishment, the economic returns are considered by means of some future-oriented measure of the cash-flow (Tarras, 1991). Olsen et al. (1998) claim that the instrument that is most commonly used is that of cash-flow per share of owner's or investor's equity.

So, given that share prices are deemed to be the present value of cash-flow per share[1], the main aim of this study is, firstly, to observe whether this measure subsumes news releases related to new hotel openings, and secondly, to determine the magnitude of such a change, observing whether the use of different methodological approaches lead us to obtain the same conclusions. Additionally, the existence or not of changes in volatility is also examined. As a

[1] The relation between share prices and future cash flows is well established in the event-study literature (Bromiley and Marcus, 1989; Chaney et al., 1991; Simon and Sullivan, 1993; McWilliams and Siegel, 1997). Horsky and Swyngedouw (1987) literally point out that the price of a security is the discounted value of future cash flows that are expected to accrue to the asset. They also note, however, that this statement is only true providing the efficient markets/rational expectations hypothesis is fulfilled. This implies that the asset's price reflects all the relevant information available and that there is no opportunity of making a profit by buying (selling) assets whose prices are too low (high). On many occasions, however, investors hope to make gains through merely speculative movements in share prices; in such cases, stock markets are not driven by analyses of future cash flows. Bearing this caveat in mind, suffice it to say that if the market for a particular share is bullish, it would be a tricky task to try relating movements in the stock market to movements in the marketplace.

novelty for the tourism industry, the analysis is done by means of the event-study methodology.

3. THEORETICAL AND METHODOLOGICAL ISSUES

3.1. An Intuition on Event-Studies

The method used for developing the empirical application consists of estimating the expected returns on a new hotel through an event study, which implies the identification of the date of the first announcement.

The event-study methodology has been widely applied to different economic fields. In accounting and finance research, a large number of events has been analysed through this technique, such as mergers (Manne, 1965; Ekbo, 1983), increases in capital (Asquith and Mullins, 1986; Mikkelson and Partch, 1986), tender offers (Jarrel and Poulsen, 1989; Fernández and García, 1995), splits (Lamoroux and Poon, 1987; Kryzanowski and Zhang, 1993; Gómez Sala, 1999), among others. This versatility has been taken advantage by marketing researchers as well, to extract managerial implications when assessing different phenomena such as the introduction of new products (Eddy and Sunders, 1980, Chaney et al., 1991; Koku, et al., 1997) and the withdrawal of existing ones (Jarrell and Peltman, 1985; Pruitt and Peterson, 1986; Hoffer et al., 1987; 1988; Davidson and Worrell, 1992), the advertising on financial relationships (Bobinski and Ramírez, 1994), and other singular issues, say, the selection of famous people for advertising campaigns (Agrawal and Kamakura, 1995) or the change of a firm's advertising slogan (Mathur and Mathur, 1995).

This methodology seems to be suitable for examining decisions concerned with the opening of new lodging facilities. The most common way of evaluating the success of an establishment is to use its accounting data, but considering the frequency with which such data are made available, and the fact that sundry observations would also be required, a long time interval would have to be used to be able to measure the opening effect. On the other hand, it is well-known that accounting figures are not always reliable indicators of a firm's true economic performance, due not only to the diversity of accounting procedures that exists, but also because of the CEO's discretion in choosing such a procedure.

Furthermore, in the years following the inauguration, the so-called “champagne effect” could appear, as it does in the case of theme parks. In other words, the firm’s performance during its initial years could be misleading with regard to the real business trend and, a few years later, a decrease in activity reveals that the business is gradually losing its “froth”. If such were the case, the revenue obtained would conceal the real situation, since it would not implicitly indicate the future cash-flow.

An alternative way of measuring the “surplus” revenue that comes from the event that is being analysed is to employ capital market data (Horsky and Swyngedouw, 1987; McWilliams and Siegel, 1997). That is to say, assuming a rational behaviour of the investors, the share price should reflect the firm’s real value. In other words, it shows the present value of future cash flows, and immediately changes in response to any fact that could potentially affect them. Consequently, any excess in returns found on a particular day arises as a result of positive information. Hence, the method’s fundamental logic lies in the comparison of real returns to expected returns, that is, to those not being influenced by new information.

To calculate the volume of abnormal returns, the market model is used. The rate of returns on the share price of firm *i* on day *t* is therefore expressed as:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$$

where R_{it} is the rate of returns on the share price of firm *i* on day *t*, R_{mt} is the rate of returns on a market portfolio of stocks on day *t*. The parameters α_i and β_i are the constant and the systematic risk of stock *i*, respectively, and ε_{it} is the error term.

3.2. Parametric and Nonparametric Return-Generating Approaches

Several authors suggest that disturbances in the market model might well not fulfil the basic hypotheses of the linear regression model, which would cause some loss of efficiency in the OLS estimate. On the one hand, the existence of kurtosis and heteroskedasticity, which have been detected in various empirical applications, would lead to defective estimates (Morgan and Morgan, 1987; Connolly and McMillan, 1989; Dewatcher and León, 1996; Gómez Sala, 1999; Abad and Rubia, 1999). For this reason, alternative parametric models were examined in an effort to find the one that best fits the model. The ones expressly considered are the autoregressive conditional heteroskedasticity models whose main purpose is to be able to model the conditional variance of the returns. Such models distinguish between unconditional variance, which is constant and stationary, and conditional variance, which is modified by the available information[2]. The specific ones appraised here are the symmetric models, ARCH by Engle (1982) and GARCH by Bollerslev (1986), and the asymmetric ones, EGARCH by Nelson (1990) and TGARCH by Glosten et al. (1993). On the other hand, another problem arises when normality hypothesis is no fulfilled. Thus, a distribution free estimate is carried out. To be precise, Theil's nonparametric regression technique is employed.

In the Spanish case, there exists contradictory evidence as to the selection of the optimum parametric specification: Alonso (1995) and Abad and Rubia (1999) found that the symmetric models better represent the returns, whereas León and Mora (1999) claim that the asymmetric ones are superior. However, it is important to stress that, the results obtained in the previous works are hardly comparable, given that they differ in terms of the period of time being considered, the data frequency and the securities used. Specifically, Alonso (1995)'s work is based on monthly series, from February 1974 to December 1992, selecting a sample of securities appearing in the Morgan Stanley Capital International Perspective. With respect to the analysis due to León and Mora (1999), they rely upon daily closing prices of the Spanish equity index IBEX-35, in the period comprised from January 1987 to June 1995. Finally, regarding the work of Abad and Rubia (1999), it is an assessment carried out for stocks trading under the call auction system, on a daily basis, between October 21 1997 and December 31 1998. Because of these non conclusive results, we test for the different aforementioned specifications of the volatility.

A symmetric model assumes that the effect of new information on the variance is independent of its sign. Thus, letting p be the number of lags, returns defined by means of an ARCH(p) model are obtained by the expression

$$R_{it} = \alpha_i + \beta_i R_{mt} + \beta_2 D_{it} + \varepsilon_{it}$$

where

$$\varepsilon_{it} = h_{it}^{1/2}\eta_{it} \text{ and } \varepsilon_{it}/\varepsilon_{it-1},\varepsilon_{it-2},\ldots \sim \mathrm{N}(0, h_{it})$$

being

$$\eta_{it} \text{ i.i.d. with } \mathrm{E}(\eta_{it})=0 \text{ and } \mathrm{E}(\eta^2_{it})=1$$

[2] The financial literature indicates that the risk premium imposed on a stock is a function of the conditional variance of the return (Abad and Rubia, 1999; León and Mora, 1999)

In this context, h_{it} is the conditional variance and is represented as

$$h_{it} = c_i + \sum_{j=1}^{p} \lambda_{ij} \varepsilon_{it-j}^2$$

where c_i and λ_{ij} are parameters to be estimated.

The generalisation of this model gives rise to GARCH(p,q) models, where q is the number of lags of the autoregressive part. In this case, the conditional variance is expressed as

$$h_{it} = c_i + \sum_{j=1}^{p} \lambda_{ij} \varepsilon_{it-j}^2 + \sum_{k=1}^{q} \gamma_{ik} h_{it-k}$$

Notwithstanding, returns can sometimes show a different degree of sensitivity in the face of good or bad events. Considering such possible asymmetry, other generalisations have been proposed. The first of these is the EGARCH(p,q) model, in which the conditional variance is

$$h_{it} = \exp\left\{ c_i + \sum_{j=1}^{p} \left(\lambda_{ij} \left| \frac{\varepsilon_{t-j}}{h_{it-j}^{1/2}} \right| + \delta_{ij} \frac{\varepsilon_{t-j}}{h_{it-j}^{1/2}} \right) + \sum_{k=1}^{q} \gamma_{ik} \ln(h_{it-k}) \right\}$$

and finally, the TGARCH(p,q) model, whose conditional variance is represented by the expression

$$h_{it} = c_i + \sum_{j=1}^{p} \lambda_{ij} \varepsilon_{it-j}^2 + \phi_i \varepsilon_{it-1}^2 D_{it-1} + \sum_{k=1}^{q} \gamma_{ik} h_{it-k}$$

where $D_{it-1} = 1$ if $\varepsilon_{it-1}^2 < 0$ and $D_{it-1} = 0$ otherwise.

An alternative estimation to all of these parametric specifications is Theil's nonparametric regression technique. In so doing, and when using in turn a nonparametric test, it leads to a *complete nonparametric event study approach* (Dombrow et al., 2000). The benefits of using this robust estimation arise when violation of the basic hypothesis of normality occurs. If this were the case, the above specifications could provide us with inefficient estimators; in fact, it is well known that under conditions of non-normality OLS does not produce minimum variance. Hussian and Sprent (1983) arrive at the conclusion that Theil's estimate is outstandingly superior to OLS under non-normal distributions and slightly inefficient with respect to it under normality. In this context, Talwar (1993) finds Theil's estimators to perform better than autoregressive conditional heteroskedasticity models.

To carry out Theil's estimation, a process in several stages must be followed (Dombrow et al., 2000): i) sort the T pairs of (R_t, R_{mt}) in the estimation period in ascending order of the R_{mt}; ii) separate the data pairs into two groups based on the median, excluding the median pair if T is odd; iii) calculate a slope parameter β for each of the $T/2$ data pairs in each group by computing the expression:

$$\beta_{i,t,t+\frac{T}{2}} = \frac{R_{i,t+\frac{T}{2}} - R_{i,t}}{R_{m,t+\frac{T}{2}} - R_{mt}}$$

iv) Sort the calculated slope parameters in ascending order; v) estimate β with the median slope and compute the values of $\hat{\alpha}_t$ for all data pairs; and vi) estimate α with the median value of the $\hat{\alpha}_t$.

Given that this procedure is median-based, it is easy to see that it will remove the undue influence of outliers, since these will fall at the beginning or at the end of the ranking process.

3.3. Testing the Abnormal Returns

The calculation of the abnormal returns in the event window is, thus, computed as:

$$AR_{it} = R_{it} - (\hat{\alpha}_i + \hat{\beta}_i R_{mt})$$

where $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the estimates obtained from the regression of R_{it} on R_{mt} over an estimation period preceding the event window.

Once the abnormal returns have been obtained, we test to see whether they are significantly distinct from zero for each day within the event window. To do so, we rely on the parametric test proposed by Boehmer et al. (1991), which is specified as

$$t_1 = \frac{\frac{1}{N}\sum_{i=1}^{N} SAR_{i0}}{\sqrt{\frac{1}{N(N-1)}\sum_{i=1}^{N}\left(SAR_{i0} - \sum_{i=1}^{N}\frac{SAR_{i0}}{N}\right)^2}}$$

where N is the number of securities and SAR_{i0} is the standardised abnormal return on day 0 or the event day, which is defined by dividing AR_{i0} by the standard deviation of the asset i obtained from the estimation period.

Nonetheless, this test requires that the abnormal returns are normally distributed. So, following McWilliams and Siegel (1997)'s indications, the nonparametric test of Corrado (1989) is also used.

$$t_2 = \frac{\frac{1}{N}\sum_{i=1}^{N}\left[K_{io} - \frac{1}{2}(T+1)\right]}{\sqrt{\frac{1}{T}\sum_{t=1}^{T}\left[\frac{1}{N}\sum_{i=1}^{N}\left[K_{it} - \frac{1}{2}(T+1)\right]\right]^2}}$$

where K_{it} is the rank of the abnormal returns in the time series estimated for the security i, and T is the total number of days being observed.

4. EMPIRICAL APPLICATION

4.1. Data

An empirical application was designed to analyse the impact of the opening of a new hotel on the chain's performance. Bromiley and Marcus (1989) indicate that in an event study, aggregate results can be misleading under a variety of conditions, as, for example, if the stock market's reaction to an event differs across companies or if there is an outlier in the sample. On this account, the intense activity in the hotel industry allows us to use a unique news-generating firm, and dodge, in turn, these potential problems[3]. Exactly 72 news items on new hotel projects were gathered from newspapers during the period from the beginning of 1997

[3] On the other hand, from a management perspective, Zhao and Olsen (1997) find this approach to be more suitable for this industry, what lead them to recommend its use.

to the middle of 1999 (730 days). This information was taken from the *Baratz* database[4]. Nevertheless, the original sample was filtered to avoid any possible confounding effects, considering the following aspects: on one hand, any news items in whose event day other news releases were published that could have had disturbing effects on returns were discarded; in other words, if on the same day as the news release on the future opening, any other relevant information is also made available, one could hardly determine to what extent any departure from "normal" returns is attributable to the actual opening. To be more precise, whenever other important facts were published on the same day as the opening announcement, such as executive appointments, declarations of profits, increases in capital, awards for high quality, the incorporation of new services and announcements of tenders, the opening announcements were eliminated. In doing so, the individual effect of the new opening project is exclusively recognised. On the other hand, we discarded any announcements of new establishments that were very close, in time, to one another, (those appearing within a 5-day event window, to be explicit), otherwise, it would not have been possible to determine which of them was generating abnormal returns, if any. Finally, after all of these adjustments were made, 42 news releases remained. These are described in Table 1, by the year of opening and the geographical area where the new property is set up.

Table 1. Description of the Sample of Opening News

Geographical Area	Year of Opening		
	1997	**1998**	**1999**
Urban Europe	2	1	0
Mediterranean Europe	2	9	0
Latin America	5	14	6
Asia	1	2	0

The study period covers 153 days, of which 148 comprise the estimation period and 5 the event window. At this point, we should mention that since the sample contains announcements of different openings by the same chain, the possible impact of a given announcement within the estimation period of another release has also been taken into account, as otherwise, the estimation of the abnormal returns from one might well be affected

[4] From the newspapers included in this database, we have obtained the date of the event. At this stage, it is essential that such news items be the very first announcements made, so that we operate strictly on the moment that new information is reflected, if indeed it is, in share prices. Once the first announcement has been identified, its publication date is considered as the "event day" for that specific opening.

by those of an earlier announcement, which would obviously influence the estimation of α_i and β_i. A dummy variable is, therefore, included in the market model[5]:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \beta_2 D_{it} + \varepsilon_{it}$$

where D_{it} has a value of 1 when there has been another announcement on day t of i's estimation period and a value of 0 otherwise.

Returns are adjusted by dividends, capital increases and splits, so that they are expressed by $R_{it}=Ln(P_{it}\cdot SF_{it}+r_{it}+d_{it})-LnP_{i,t-1}$, where P_{it} is the price, SF_{it} the split factor, r_{it} the subscription right and d_{it} the dividend paid, all of which refer to day t. The data were obtained from the *Servicio de Información Bursátil* (SIB).

4.2. Assessing the Abnormal Returns

The first step in assessing the abnormal returns is the selection of the best fitting model. We primary choose the best one among the parametric alternatives to subsequently compare its results to Theil's procedure. To do this, we rely upon two criteria: on the one hand, considering that the above parametric models are nested, it is possible to determine how well each is fitting the data by examining the significance levels of its parameters. And on the other hand, all estimated models can be compared by using Schwarz's and Akaike's Information Criteria, defined as $\text{SIC}=\log(L_{\text{ML}})-(k/2)\log(M)$ and $\text{AIC}=\log(L_{\text{ML}})-k$ respectively, in which L_{ML} represents the likelihood function of the model evaluated in the ML estimate, M is the number of observations and k the number of parameters in the model. These measures, apart from considering the likelihood function, take the parsimony of the model into account by adjusting for the number of parameters, which are considered as a penalty. The model with highest value will obviously be preferred. Table 2 shows each model's fit.

To estimate all of the autoregressive conditional heteroskedasticity models the maximum likelihood method has been employed, using, at the same time, the optimisation algorithm of Berndt, Hall, Hall and Hausman (1974). The standard errors were computed by the quasi-maximum likelihood (QML) variances and covariances based on the methods

[5] As a proxy of the market portfolio the IBEX-35 index is used.

proposed by Bollerslev and Wooldridge (1992). The resulting matrix is robust in the possible absence of conditional normality.

Table 2. Alternative Model Specifications

Variables	OLS	Arch(1)	Garch(1,1)	Egarch(1,1)	Tgarch(1,1)
α	4E-05 (0.0008)	-0.0001 (0.0006)	-4E-05 (0.0006)	-0.0006 (0.0006)	-3E-05 (0.0006)
β_1	0.264*** (0.03)	0.804*** (0.054)	0.768*** (0.046)	0.700*** (0.067)	0.768*** (0.046)
β_2	0.007* (0.0037)	0.005 (0.0035)	0.005* (0.0032)	0.007** (0.0036)	0.005* (0.0032)
c	-	0.0003*** (0.0006)	0.0001*** (0.00006)	-3.067 (5.968)	0.0001*** (6E-05)
λ	-	0.269** (0.123)	0.199** (0.089)	0.088 (0.182)	0.206* (0.118)
γ	-	-	0.317*** (0.091)	0.617 (0.750)	0.314*** (0.088)
δ	-	-	-	0.046 (0.091)	-
ϕ	-	-	-	-	-0.011 (0.128)
SIC	1708.784	1809.551	1810.786	1788.110	1807.498
AIC	1715.673	1821.034	1824.565	1804.185	1823.573

*p<0.10;**p<0.05; ***p<0.01. Standard errors in brackets.

The specification that appears to be the optimum one is the GARCH(1,1) model. In fact, although in Table 2 only a small number of the total alternatives tested are presented, we should stress that, as a thumb-rule, as the values of p and q increase, the models fit worse. This evidence agrees, in general, with Lamoreaux and Lastrapes (1990)'s and Bollerslev et al. (1994)'s conclusions which led them to prefer this model.

Once the model that best fits the return series has been determined, we proceed to calculate the abnormal returns. Table 3 and 4 display the analysis of the abnormal returns obtained from the alternative estimation procedures -namely, the GARCH(1,1) and Theil's technique-.

Second column of Table 3 presents the average abnormal returns derived from the announcements within the 5-day event window, the event-day return appearing to have the largest gain in excess returns over this period. What is more, the 1.55% of abnormal returns for the event day is statistically significant at 1 per cent. The results, therefore, show that, on average, announcements of hotel openings are associated with positive excess returns. Column 5 presents that 61.9% of returns on the event day are positive, being significantly higher (at 5% using a Binomial test) than the percentage of positive residuals observed over the estimation period, which is 47.1%.

Table 3. Excess Returns Derived from Hotel Opening Announcements
(Abnormal Return Tests based on GARCH Estimate)

Event Day	Average Abnormal Returns	Boehmer et al.'s Test[2] t_1	Corrado's Test t_2	% of Positive AbnormalReturns[1]
-2	0.0062	0.3873	0.4473	50.0
-1	0.0102	0.4942	0.6185	50.0
0	0.0155	2.8095***	3.1003***	61.9**
+1	0.0007	0.6948	0.5835	47.6
+2	0.0029	0.7624	0.6107	52.4

**p<0.05; ***p<0.01. [1]The percentage of positive residuals observed over the estimation period is 47.10.
[2]Considering that the GARCH(1,1) model has been employed to gauge the abnormal returns, the t_1-statistic has been calculated by computing the predicted values of the conditional variance for every day within the event window and for each series.

This high level of significance is first found through Boehmer et al.'s parametric test, t_1. Nevertheless, an analysis of the behaviour of the abnormal returns on day 0 indicates that its distribution is skewed slightly to the right and presents lepto-kurtosis; in fact, the Jarque-Bera test does not validate the hypothesis of normality ($\chi_2^2 = 75.09$; p<0.000). Those prior conclusions, therefore, must be corroborated by a nonparametric test that is robust in the absence of normality, such as that proposed by Corrado (1989). As seen in Table 2, the t-value of the event day estimates derived from this test t_2 is 3.10, which is statistically significant (p<0.01)[6]. Furthermore, two outliers are detected when a box-plot analysis is employed. So these are excluded by the minimum trimming fraction of 0.05 to permit the replication of the entire analysis without their potential effect, arriving at the same levels of significance.

With respect to Theil's estimation, and operating as before, we find the same levels of significance in both tests (Table 4). It provides us with a strong evidence on the reaction of the market to this kind of event.

[6] Apart from both tests indicated here, three tests were additionally performed to further examine the significance of the results: two of them being parametric, such as the cross-section test with constant variance and the Patell's standardised residuals one, and the nonparametric test of Wilcoxon, arriving at the same conclusions in all cases. For the sake of briefness neither the mathematical expressions nor the results are reported in the text.

Table 4. Excess Returns Derived from Hotel Opening Announcements
(Abnormal Return Tests based on Theil estimate)

Event Day	Average Abnormal Return	Boehemer et al.'s Test t_1	Corrado's Test T_2	% of Positive Abnormal Returns[1]
-2	0.0065	0.7858	0.2349	54.8
-1	0.0106	1.2655	0.4660	50.0
0	0.0155	2.4177***	2.8722***	66.7**
+1	0.0007	0.2016	0.3107	50.0
+2	0.0035	0.8423	0.5873	52.4

**p<0.05; ***p<0.01. [1]The percentage of positive residuals observed over the estimation period is 49.53.

At this point, an aspect that appears to be interesting is the comparison between the distinct results obtained for the abnormal returns from both estimation procedures. By applying the parametric t-statistic test and the nonparametric test of Wilcoxon, we find that there is not a significant difference between the two estimates in any of the window days. Additionally, given that the OLS estimate has been widely used for this task, we further compare it to Theil's nonparametric regression technique, the abnormal return of the event day being different at 5% (only for the t-statistic test) and the rest of the days at 1% (for both tests). This indicates that it is central to detect the best fitting model, as otherwise, it could be misleading as to the measurement of the excesses in returns (though not as to the detection). The fact that on the day 0 we find a lower level of significant difference (than in other days of the event window) is readily explained by considering that in this given day, a reaction does effectively appear in the market, and whatever procedure being employed will detect to some extent the "kink" displayed in the return series. Notwithstanding, we replicated the entire analysis without controlling for the news being released in the estimation period of another news item by means of the dummy variable, D_{it}, described previously. In this case, the OLS estimate still lead to significant arbnormal returns on the event day, but, the fact of the matter is that, both t-statistic and Wilcoxon tests do find an important difference in these excesses between the two procedures at a level of 1% for all the window days. Thus, when calculating the abnormal returns, always that the analyst arrive at high significance levels through a possible inefficient estimate (for example, by using OLS when the real underlying model is another, say a GARCH-family model), evidently, it does not mean that there are not misspecification errors, what, in turn, would be concealing the "exact quantity" of excess in returns. This result could have relevant consequences when one is not only interested in detecting whether the market reacts, but also in obtaining an accurate measurement of this reaction to further examine its determinants. If the latter were the case, a thorough estimation of the amount of the excesses in returns must be required.

4.3. Appraising the Effects on Volatility

Another topic of interest is the appraisal of the behaviour of the volatility, before and after the announcement. In other words, we attempt to see whether there is a change -increase or reduction- in volatilities. To carry out this analysis we gauge the impact on the average level of the conditional variance that the event could generate. The use of dummy variables to reflect this circumstance is supported by previous studies (Karafiath, 1988; Abad and Rubia, 1999). So, we define the specification of the conditional variance of he GARCH(1,1) model as:

$$h_{it} = c_i + \lambda_{i1}\varepsilon_{it-1}^2 + \gamma_{i1}h_{it-1} + \xi_1 D_{1,t-3} + \xi_2 D_{2,t+3}$$

where the binary variables $D_{1,t-3}$ and $D_{1,t+3}$ take the value of 1 during three days preceding and following the event day, respectively; ξ_1 and ξ_2 represent the sensitivity of the autonomous coefficient of the conditional variance in the time period considered[7]. The results are depicted in the following expression (*t*-statistics in brackets):

$$h_{it} = \underset{(2.742)}{0.0001} + \underset{(2.708)}{0.186}\,\varepsilon_{it-1}^2 + \underset{(10.401)}{0.546}\,h_{it-1} + \underset{(0.105)}{0.000004}\,D_{1,t-3} - \underset{(-2.275)}{0.00011}\,D_{2,t+3}$$

Focusing on the variables of interest, it seems to be clear that, as in the abnormal-return analysis, there is not an anticipated response (allegedly, due to a lack of leakages) before the event day regarding the variance either, given that the parameter ξ_1 is not significant. On the contrary, after the announcement has been released, a decrease in the conditional variance is shown by the coefficient ξ_2 which is negative and significant at 5%.

[7] Some news so close in time, prevent us from using longer windows.

5. CONCLUSIONS

This paper has found that a new hotel opening is a news item which has a considerable impact on the share price, which at the same time is reflecting the present value of the firm, so the excess in returns encountered can be assigned to this announcement, showing an increase in the chain's worth. To measure this, and as a novelty for the tourism industry, the event-study methodology has been used, which is able, at the same time, to dodge several of the nuisances of the company's accounting system. As a kind of a future-oriented measure of cash-flow, it can be useful, complementing others, for hotel managers analysing the future success of their hotel.

In this respect, the study has important management implications: i) once the opening of a hotel has been announced, managers might observe the evolution of share prices to determine how valuable this news item is perceived to be by the shareholders. If the shareholders' perceptions of it are not as favourable as the managers would have expected, they may want to discover whether this is due to a lack of information (or even to erroneous information), or, what might be even worse, to the fact that the future opening is not really a worthwhile investment. In the former situation, a new flow of information should be released, in order to clarify the hotel's strategy; the latter could lead management to re-examine the decision in such a way that a new formulation of the profile of the new establishment could be considered; ii) On the other hand, hoteliers could find out the *a priori* key success-determining factors of new lodging facilities by analysing its characteristics in a disaggregate way insofar as possible, so that a "successful profile" could be determined.

Along with these lines, the procedures employed here can shed some light on the operational realm:

i) For the application proposed, the model that best fit the market model is that of the GARCH(1,1). This is consistent with the general recommendations of Lamoreaux and Lastrapes (1990) and Bollerslev et al. (1994), and in agreement with the results obtained by Abad and Rubia (1999).

ii) When applying Theil's nonparametric regression technique, the estimation of the abnormal returns arrived at is comparable to that obtained by the GARCH(1,1). At this point it is important to stress that, although the use of OLS has been broadly recognised as capable to detect the market's reaction

(Brown and Warner,1980; 1985), a word of caution must be said with respect to its ability to capture the true and precise amount of excesses in returns. This is due to the fact that, in spite of not being the real underlying model, it is able to catch the "kink" of the series on the event day. Within the context of this application, it could be especially problematic if the objective were to shape a "successful profile" as mentioned in the previous paragraph.

iii) In the face of an event study with more than a news release per firm, it seems to be opportune to control those ones appearing in the estimation period of others. Otherwise, the reaction in share prices in any day of the estimation period would cause errors in parameter estimates of the market model, leading in turn to generate misleading abnormal returns.

Finally, in addition to the reaction in daily returns, for the investments investigated here there is also associated a reduction in the volatility after the announcement day, which means that a higher degree of protection in the marketplace (expansion of the chain implies diversification of risk), lead the assets to be less exposed to fluctuations.

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