

INVESTOR INATTENTION TO ACQUISITION ANNOUNCEMENTS: JOINT ANALYSIS OF WEEKDAYS AND TIMES OF DAY IN THE SPANISH MARKET

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Abstract

Prior studies suggest that investors have limited attention, what determine the speed in which information is incorporated into prices and, in turn, affect the efficiency of the markets. Most of the research on the inattention hypothesis have been performed in the context of relatively small corporate events, particularly earnings announcements, which are characterized by involving the arrival of scheduled and periodic information. However, the information contained in an acquisition announcement is generally less standard and more complicated to process. Therefore, investor inattention is less likely around this event. In this paper we test the existence of investor's inattention for a sample of *all-cash* acquisition announcements of listed and unlisted target firms released by listed Spanish firms from 1998 to 2018. Cash acquisitions allow us to control for the strategic behaviour of overvalued companies engaged in stock-financed acquisitions. We find evidence consistent with the notion that investors are less attentive to Friday announcements as we find a significant lower market reaction to acquisition announcements released during market trading hours either in terms of price and trading volume.

Keywords: investor inattention; acquisition announcement; weekday; times of the day; listed status of target firm

JEL classification: G14, G34, G41

1. Introduction

Investors' attention drives the decision-making process and the incorporation of new information on prices. Individuals are exposed to a great amount of information (from market-specific, to sector-specific or firm-specific information) that they have to process, incorporate in trading and, finally, would be reflected in the stock prices. As investor attention is a scarce resource, a fundamental point in this process is the extent to which new information capture investor attention.

One feature of interest in the literature is whether investors pay less attention to information released on Friday than to similar information released on other days of the week. The reasoning is that investors and traders may be distracted by the weekend and thus pay less attention to corporate news on Friday that should result in a market underreaction to the announcement.

The study of the impact of limited investor attention on the market reaction to news covers different types of corporate events. Initially, empirical evidence of the impact of limited investor attention was on programmed accounting information release, as earnings announcements (e.g. Dellavigna and Pollet, 2009; deHaan, Shevlin and Thornock, 2015; Michaely, Rubin and Vedrashko, 2016a). Next, some authors analyse whether investor inattention affects the market response to merger announcements (e.g. Louis and Sun, 2010; Adra and Barbopoulos, 2018; Reyes, 2018; Siganos 2019). Also, some authors extend to corporate news events other than earnings and merger announcements and include announcements of stock repurchases, seasoned equity offerings and dividend changes (e.g. Michaely, Rubin and Vedrashko, 2016b; Autore and Jiang, 2019) or analyst recommendation changes (Ben-Rephael, Da and Israelsen, 2017).

We focus on acquisition announcements performed by Spanish listed firms. The analysis of the effect of investor attention on the value creation for the acquirer is of interest for two reasons. First, corporate acquisition is a strategic business decision with an uncertain result for the acquirer. Previous research has documented significant positive abnormal announcement returns to acquirers of unlisted targets, whereas the results for the acquirers of listed companies are mixed, either zero or significantly negative (Martynova and Renneboog, 2008). Second, merger announcement is an event that implies a great analysis by investors; among others it is needed a deep analysis of the

target value, the potential synergies, the premium paid and the rest of conditions of the deal. So, although investor inattention is less likely around this event, the level of inattention that could difficult the efficient processing of the merger information is much lower than on less important events as earnings announcements (Louis and Sun, 2010).

The aim of the paper is to analyse whether investor inattention affects the information processing of an unanticipated and complex corporate event as an acquisition announcement. We consider not only the day of the week but also the time of the day (prior to the market opens, during trading, after the market closes) regarding the firm announcement of the corporate acquisition. This *day-time* combination analysis extends previous research on mergers announcements and contributes to the analysis of strategic timing of corporate acquisitions.

We employ a sample of 313 *all-cash* acquisition announcements of listed and unlisted target firms released by listed Spanish firms from 1998 to 2018. Cash acquisitions allow us to avoid the interferences from the strategic behaviour of overvalued companies engaged in stock-financed acquisitions. We find evidence consistent with the notion that investors are less attentive to Friday announcements as we find a significant lower market reaction to acquisition announcements of unlisted target firms released during market trading hours either in terms of price and trading volume.

This study makes important contributions to the literature. First, it contributes to extending the research on acquisitions by presenting the effect of investor inattention in the market response to acquisition announcements when the method of payment is cash. Second, the joint analysis of *day-time* combination expands previous evidence on limited attention on merger announcement since include the time of the day when the event is released.

The remainder of the paper is structured as follows. Section 2 presents the literature review and the hypotheses to test. Section 3 describes the sample used and define the variables. We present the methodology in Section 4. Results are discussed in Section 5. Finally, Section 6 concludes.

2. Literature review and hypothesis to test

Investors' attention plays an important role in the decision-making process and in the determination of asset prices. Traditional asset-pricing models suppose that information revealed in the markets is analysed by the investors and impounded into prices through trading. The quantity or quality of information revealed, the knowledge of this information by all the investors and the speed in which it is incorporated into prices determine the efficiency of the markets. In this regard, some anomalies have been detected together with investor behavioural bias that have explained the incomplete or delayed responses of prices to new information.

One determinant point in the incorporation of information into prices or in the decision-making process is the level of attention. Kahneman (1973) claims that attention is a limited cognitive resource. Therefore, individuals have not the capabilities to process all the sources of information available and attention determines the choice set. Afterwards individual preferences would determine the decision-making (Barber and Odean, 2008).

There is previous evidence on attention based on psychological research that is the base of subsequent work on economics and finance (e.g. Kahneman, 1973; Pashler, 1999). As regards of finance work on attention, some authors have attempted to explain how investor attention affect to the incorporation of information into prices.

Peng and Xiong (2006) and Peng, Xiong and Bollerslev (2007) show that limited attention affects to the processing of information since it leads investors to determine asset prices based more on market and industry information than on firm-specific information. Other authors study the impact of investors' attention on trading. Thus, Barber and Odean (2008) show that individual investors, unlike institutional investors, buy attention grabbing stocks. Reyes (2019) observe a negative-positive attention asymmetry since retail investors are more attracted by negative stock market performance than comparable positive performance. Peres and Schmidt (2020) show that distracting news affect the limited attention of retail traders and determine their trading decision making process.

One of the most significant developments in this area of research is the consequences of limited investor attention when new firm-specific information is

released. The literature suggests that investors suffer of limited attention and, consequently, underreact to corporate announcements. As a result, prices do not fully reflect all available public information. Daniel *et al.* (2002) state that the limited attention of the investor is the cause of the investor's lack of credibility in the process of new information emerging from the market.

Most of the empirical evidence is based on the Friday effect, that is, the less attention of investors to releases on Friday since weekends distract investors and lower the quality of decision-making (Dellavigna and Pollet, 2009). The investor inattention due to Friday effect has been investigated on earnings and on mergers announcements.

Dellavigna and Pollet (2009) find evidence of market inattention on Friday earnings announcements. They observe that the immediate response to Friday earnings announcement is less pronounced and that the post-earnings announcement drift is greater due to the delayed incorporation of the new information into prices. On the contrary, De Haan, Shevlin and Thornock (2015) and Michaely, Rubin and Vedrashko (2016a) do not find such evidence on earnings announcements. De Haan *et al.* (2015) do not find lower attention on Fridays. However, they observe that managers' report bad earnings news aftermarket hours when market attention is expected to be lower. Michaely *et al.* (2016a) analyse the timing of the earnings release considering day-time combinations and observe that the Friday evening is the period with more negative earnings announcements. However, they show that the announcement of bad earning announcements on Friday is due to managers' strategic timing behaviour who exploit the trading opportunity since Friday news are not fully incorporated into prices.

Regarding merger announcements, Louis and Sun (2010) find evidence of the Friday effect. They find that when the announcements are made on Fridays the acquirers' average abnormal return is less positive for stock finance acquisitions involving listed targets and less negative for those involving unlisted targets. Also, they observe a lower acquirers' abnormal trading volume for Friday stock acquisitions than for non-Friday stock acquisitions.

In reference to this issue, trading volume is used as a measure of the investor's degree of attention. Thus, Miller (1977) suggests that high trading volume implies that investors pay more attention. Gervais *et al.* (2001) argue that the increase in trading of a

share makes it more visible and exposes it to greater demand. Thus, the abnormal trading volume of announcements made on Fridays could be significantly lower than the abnormal trading volume of announcements made on the other days of the week.

Meanwhile, Michaely, Rubin and Vadrashko (2016b) extend the analysis of the Friday effect to corporate news events other than earnings and merger announcements and include announcements of stock repurchases, seasoned equity offerings and dividend changes. Surprisingly they observe that the initial reduced reaction to Friday announcements disappears when the firm selection bias is taken into account. They conclude that the different market reaction is due to the type of announcing firms but not to limited investor attention to Friday announcements.

Following the idea that investor attention is low on Friday and high on Mondays, Siganos (2019) observes that target firms experience a greater positive abnormal return on mergers announced on Monday than on other days of the week, and that investors overreact to merger announcements on Mondays after daylight saving times. Glasner (2002) suggests that on Mondays, investors pay more attention to the market than the rest of the day of the week.

Also, for merger announcements, Adra and Barbopoulos (2018) show that overvalued acquirers subject to limited attention are more likely to engage in stock acquisition of public firms and do not experience significant abnormal wealth losses. As a measure of investor attention, they employ the average daily percentage of the number of shares traded.

Autore and Jiang (2019) analyse whether investors are distracted on preholiday announcements. They show that limited attention on preholiday announcements do not drive the market reaction to the corporate events. Instead, they find that the effect of holiday mood, the optimism, is what drives investors to underreact to negative information and overreact to positive firm news.

Reyes (2018) studies the relationship between investor attention and the merger performance of acquirers of public companies. They obtain that there is an increase in the level of investor's attention around merger announcements. The greater attention of retail investors lead to an overvaluation of the acquirer stocks and to higher announcements returns. In contrast, the greater attention of sophisticated investors lead to a more precise

market response to the merger announcement, resulting in less overvaluation of the acquirer stocks and lower announcements returns. They employ Google's internet search volume index as a measure of level of attention.

The Google's search index has also been employed in the study of the level of attention around earnings announcements. Ben-Rephael, Da and Israelsen (2017) find that greater institutional attention facilitates the incorporation of information into prices on the announcement day reducing the posterior drift.

Based on the above evidence, we analyse whether the Friday effect exists in the Spanish market as investors are distracted by the weekend and pay less attention to merger announcements on that day. We include the timing of the announcement to make a joint analysis of *day-time* and consider three times of the day (before, during and after trading hours). We analyze the differential market response to Friday and non-Friday *all-cash* announcements. We use *all-cash* acquisitions, for two reasons. First, prior studies find that, on average, investors do not significantly react to announcements of cash offers involving publicly owned targets and positively to those involving privately owned targets (Chang 1998, Fuller *et al.* 2002, Moeller *et al.* 2004). Targets' private status is the single most important determinant of acquirers' abnormal returns at cash acquisitions in the Spanish market (Farinós *et al.*, 2017a,b; Farinós *et al.*, 2020). Therefore, the differential acquirers' abnormal returns at the announcements of cash acquisitions involving publicly owned and privately owned targets offer a natural setting to test whether the inattention hypothesis holds for acquisition announcements.

Following the above reasoning, if investors' attention is limited on Friday, trading activity would also be affected and we expect less trading activity for Friday announcements than for non-Friday announcements. Accordingly, the following hypotheses may be formulated:

H1: If investors experience a limited attention, we expect lower abnormal returns and lower abnormal trading volume activity for acquisition announcements made after the market closes.

H2: If the Friday effect applies and investors' attention is limited on Friday, we expect lower abnormal returns and lower abnormal trading volume activity for acquisition announcements made on Friday than on non-Friday days.

3. Sample Selection

Information on acquisitions (announcement date, identity of bidders and targets, payment method, etc.) driven by Spanish listed firms is hand collected from the Spanish Security Exchange Commission (*Comisión Nacional del Mercado de Valores* -CNMV) web page. Once the official date was identified for each acquisition, we searched into the financial press in the Factiva database for any previous rumour or leak in order to price the market information arrival. Given the Spanish Equity Market Law, the CNMV orders a firm trading halt when it considers that a relevant piece of information could affect a firm's market price. Therefore, we only consider a rumour about an acquisition if the CNMV halts the acquirer's trading.

Given our goal, we need to define the acquisition announcement-day and the event-day (t_0). The announcement-day is the natural day in which the CNMV publish the official acquisition communication regardless the time of the day in which it takes place. The event-day (t_0) is the trading-day in which the first closing price is available after the official acquisition communication to the CNMV. This distinction is important because of the computing of the price and trading activity reaction to acquisitions announced after the closing of the market.

The necessary economic and financial information for this research comes from Sociedad de Bolsas S.A., Banco de España (Spanish Central Bank) web page and SABI, Amadeus and Thomson ONE databases. As do Chang (1998) and others, for an acquisition to be included in the sample, we require that it be a "completed control acquisition". We define a completed control acquisition as one in which the buyer increased its ownership position to greater than 50%, regardless of the amount of the target firm's stake previously owned by the buyer. Therefore, our initial sample consists of all acquisitions conducted by listed firms in the Spanish market (*Sistema de Interconexión Bursátil Español*, hereafter SIBE) over the period 1991 - 2018. For an acquisition announcement to remain in the final sample, it needs to meet the following criteria:

- i. We require that the exact time of the official acquisition announcement appear in the CNMV web site.

- ii. We require that no other contaminating event must exist in the five days prior to and after the event-day that may affect the target firm price, such as dividend payments, profit announcements or stock splits.
- iii. We select those acquirers for which data on the method of payment, the listing status of the target firm and the exact time of the acquisition announcement were available.

The final sample includes 361 acquisitions announcements from 1998 to 2018 that satisfy these selection criteria.

Table 1 shows comparative descriptive statistics for acquisitions involving private and public companies. In line with previous studies from other markets, the number of unlisted target firm announcements in our sample greatly exceeds that for listed companies and cash is employed as the mode of payment in most of the cases both for listed and unlisted target acquisitions. Given the size of the samples, we focus our study on acquisition announcements for what cash is the mode of payment.

Table 1

Number of acquisition announcements by listing status of target

	Full sample	Listed targets	Unlisted targets
Total	361	103	258
By method of payment			
• Cash	317	81	236
• Stock + Mixed	44	22	22

Table 2 presents the daily distribution of the *all-cash* acquisition announcements. As trading in the SIBE starts at 09:00 and ends at 17:30 we define three time slots: *pre-market*, *during-trading* and *post-market*. The distribution of the acquisition announcements in the three time slots is as follows: *pre-market* is the period from midnight (00:00) to 09:00; *during-trading* is the period during which the market is open, from 09:00 to 17:30; and *post-market* is the period from 17:30 to midnight (24:00).

Sample data is presented in the Figure 1. The number of announcements for the full sample declines during the week in the *pre-market*, with 41.17% of the announcements being made on Mondays and 37.10% on Fridays. However, in the *during-*

trading period there is a decline if we compare Monday and Friday with a percentage of 50.79% and 48.39%, respectively. For the rest of the days of the week, there is a decrease of announcements on Tuesday, but an increase on Wednesday and on Thursday with values of 38.46%, 44.29% and 52.83%, respectively. Regarding the *post-market* period, the number of announcements with which the week begins is less than those that take place on Friday, with 7.94% of the announcements being made on Mondays and 14.52% on Fridays.¹ The rest of the days of the week present a similar behavior, highlighting the four announcements on the weekend that we have considered for our sample as *post-market*.

Figure 1

Daily distribution of the full sample

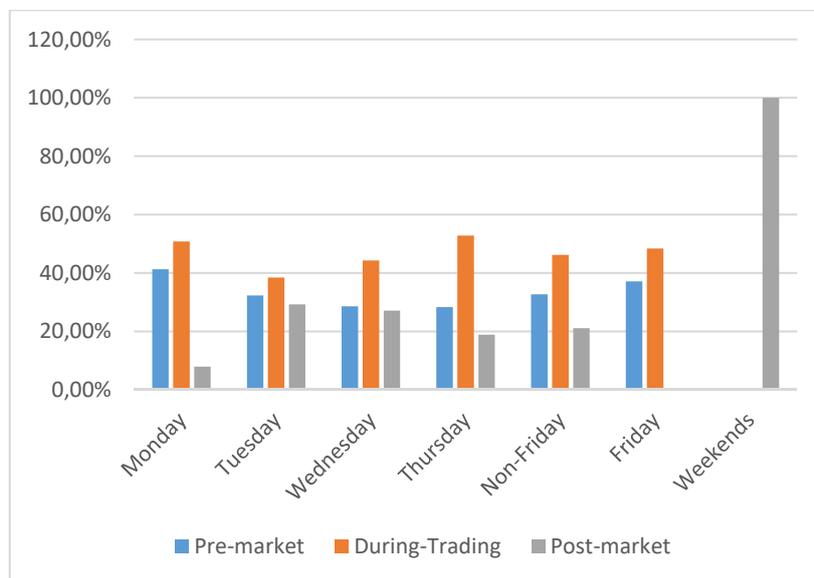


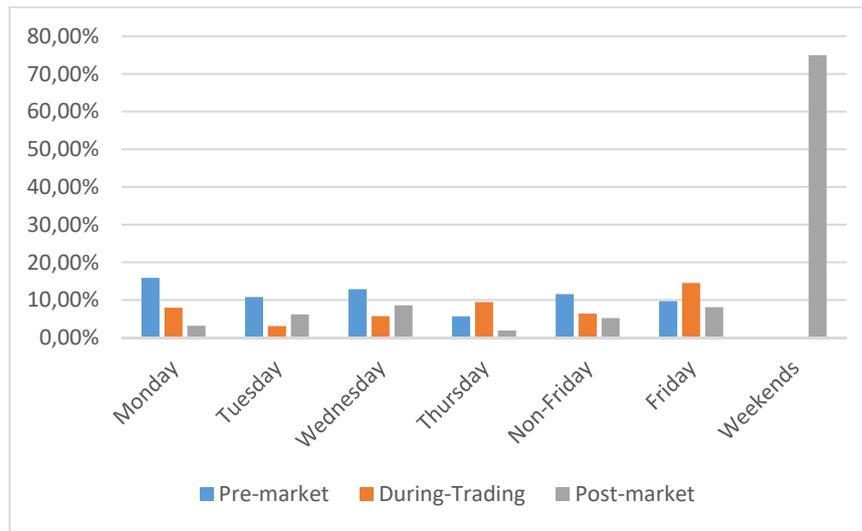
Figure 2 shows the daily distribution of acquisition announcements of listed target firms. The number of announcements decline during the week in the *pre-market*, with 15.87% of the announcements made on Mondays and 9.68% on Fridays. In this line, the percentages for the other days are increase and decrease in comparative with on Fridays. They are 10.77%, 12.86% and 5.66% on Tuesdays, on Wednesdays, and on Thursdays, respectively. However, in the *during-trading* there is an increase if we compare Monday and Friday with a percentage of 7.94% and 14.52%, respectively. For the rest of the days of the week, there is a decrease in announcements on Tuesday and on Wednesday and an increase in announcements on Thursday with values of 3.08%, 5.71% and 9.43%,

¹ There is an announcement that the relevant event date is Thursday and the announcement is made on Monday. We reclassify this announcement as Friday.

respectively. Regarding the *post-market* period, the number of announcements with which the week begins is less than those that take place on Friday, with 3.17% of the announcements made on Mondays and 5.18% on Fridays. The rest of the days of the week present a similar behavior, highlighting the three announcements on the weekend that we have considered for our sample as *post-market*.

Figure 2

Daily distribution of the listed target firms



In the case of unlisted target firms (see Figure 3), we observe that the number of announcements for the daily distribution of the sample is greater compared to the listed firms. The number of announcements declines during the week in the *pre-market*, except for the Friday.

However, in the *during-trading* period there is a decrease if we compare Monday and Friday with a percentage of 42.86% and 33.87%, respectively. For the rest of the days of the week, the number of announcements is higher. Regarding the *post-market*, the number of announcements with which the week begins is less than those that take place on Friday, with 4.76% of the announcements made on Mondays and 6.45% on Fridays. The rest of the days of the week, there is a higher increase of the number of announcements on Tuesdays, which decreases on Wednesdays and Thursdays, but on these three days of the week, they are higher than the announcements made on Friday. The number of observations for these three days of the week are 23.08%, 18.57% and 16.98%, respectively. Also, there is an announcement on the weekend, that we have considered for our sample as *post-market*.

Figure 3

Daily distribution of the unlisted target firms

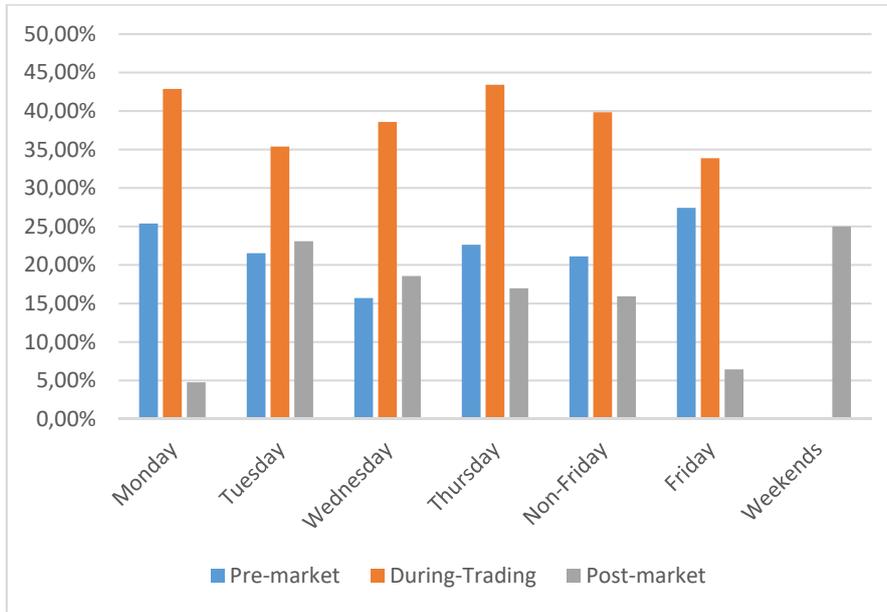


Table 2

Daily distribution of cash acquisition announcements

	Full sample				Listed target firms				Unlisted target firms			
	Pre-market	During-Trading	Post-market	Total on weekday	Pre-market	During-Trading	Post-market	Total on weekday	Pre-market	During-Trading	Post-market	Total on weekday
Monday	26	32	5	63	10	5	2	17	16	27	3	46
% of observations	41.17	50.79	7.94	100.00	15.87	7.94	3.17	26.98	25.40	42.86	4.76	73.02
Tuesday	21	25	19	65	7	2	4	13	14	23	15	52
% of observations	32.31	38.46	29.23	100.00	10.77	3.08	6.15	20.00	21.54	35.38	23.08	80.00
Wednesday	20	31	19	70	9	4	6	19	11	27	13	51
% of observations	28.57	44.29	27.14	100.00	12.86	5.71	8.57	27.14	15.71	38.57	18.57	72.86
Thursday	15	28	10	53	3	5	1	9	12	23	9	44
% of observations	28.30	52.83	18.87	100.00	5.66	9.43	1.89	16.98	22.64	43.40	16.98	83.02
Non-Friday	82	116	53	251	29	16	13	58	53	100	40	193
% of observations	32.67	46.22	21.12	100.00	11.55	6.37	5.18	23.11	21.12	39.84	15.94	76.89
Friday	23	30	9	62	6	9	5	20	17	21	4	42
% of observations	37.10	48.39	14.52	100.00	9.68	14.52	8.06	32.26	27.42	33.87	6.45	67.74
Weekends			4	4			3	3			1	1
% of observations			100.00	100.00			75.00	75.00			25.00	25.00
Total in time-of-day slots	105	146	66	317	35	25	21	81	77	121	45	236

4. Methodology

In this section we describe the methodology that we use to analyze the market reaction in terms of prices and trading activity to an acquisition announcement conditional to the day of the week and time of the day.

In order to compute the abnormal returns in the event-day (t_0) we employ the adjusted market model, as per Fuller *et al.* (2002) and Bae *et al.* (2013). In the adjusted market model case, the daily abnormal return for each acquisition in the sample is measured as the difference between the observed daily return of the firm and the daily return of the domestic market index, specifically, the *Índice General de la Bolsa de Madrid* (IGBM). Extreme values (outliers) have been considered as those that exceed three times the standard deviation of the abnormal returns.

Regarding trading activity, we employ the abnormal trading volume in order to analyze the market behavior to acquisition announcement conditional to the day of the week and time of the day. To measure abnormal trading volume, we follow Louis and Sun (2010), DellaVigna and Pollet (2009) and Hirshleifer *et al.* (2009). First, we take the log transformation of the market value of the shares traded (\log_V). Then, we estimate the abnormal trading volume as the difference between \log_V at the acquisition announcement and \log_V over the premerger announcement period. In order to remove the effect of normal trading volume variations across the days of the week and capture the effect of the acquisition announcements on the trading volume, we match the event-day (t_0) with the corresponding weekdays over the previous four weeks. Specifically, for each acquisition announcement, we compute the acquirer's abnormal trading volume for day 0 as the difference between the \log_V for day t_0 and the average \log_V for days -7 , -14 , -21 , and -28 . This process allows us to match the acquisition announcement days with their corresponding pre-acquisition announcement days.

We tested the significance of the average abnormal returns with the conventional heteroskedasticity-robust t -test. The t -tests for the mean differences assume unequal variances.

5. Results

5.1. Abnormal returns

The acquirers' average *all-cash* acquisition announcement abnormal returns are reported in Table 4. In computing the abnormal returns, we detected and removed from the final sample 4 outliers (2 acquisition announcements of listed targets and 2 acquisition announcements of unlisted targets). Therefore, the final sample consists of 313 acquisition announcements, where 79 of the targets were listed firms and 234 were unlisted firms.²

Consistent with previous studies in the Spanish market (Latorre *et al.*, 2014; Farinós *et al.*, 2017 a,b; and Farinós *et al.*, 2020) and in other international markets (Draper and Paudyal, 2006; Petmezas, 2009; Martynova and Renneboog, 2011; and Feito-Ruiz *et al.*, 2014; for example), Table 3 exhibits that acquirers on average earn significant abnormal returns when buying unlisted target firms and insignificant average abnormal returns when the target firm is a listed one.

Table 3

Acquirers' average abnormal returns around Friday vs. Non-Friday *all-cash* acquisition announcements conditional on the public status of the target.

Weekday of the event-day (t_0)	Listed target	N	Unlisted target	N
All days	0.01 (0.965)	79	0.86 (0.000)	234
Monday	-0.20 (0.664)	23	1.02 (0.000)	47
Tuesday	-0.79 (0.327)	10	1.02 (0.001)	41
Wednesday	0.06 (0.915)	18	0.91 (0.009)	53
Thursday	0.19 (0.840)	14	0.78 (0.033)	46
All no-Friday	-0.14 (0.669)	65	0.93 (0.000)	187
Friday	0.70 (0.262)	14	0.56 (0.121)	47
Friday – non-Friday	0.84 (0.230)		-0.37 (0.335)	

Notes. The abnormal returns are expressed in percentages. The p -values are presented in parentheses. The t -tests for the mean differences assume unequal variances.

² We employ this sample in the following analyses.

When we compute the average abnormal return by weekday, we find that it is non-significant for acquisitions of listed targets regardless of the day of the week. However, and consistent with the inattention hypothesis, Table 3 shows that for acquisitions of privately owned targets the average abnormal return is statistically significant for all the business days except on Fridays. Actually, for acquisitions of privately owned targets, the average abnormal return is 0.93% for the non-Friday announcers, but only 0.56% for the Friday announcers. Nevertheless, the Friday differential returns of 0.84% and -0.37% (for acquisitions involving publicly owned and privately owned targets, respectively) are both non statistically significant.³

Table 4 shows the abnormal return of acquisition announcements for listed and unlisted target firms conditional to weekday (Friday vs. non-Friday) and time of the day (*pre-market*, *during-market* and *post-market*). According with the inattention hypothesis, we expect lower abnormal returns for those announcements made after the market closes, being the lowest for those acquisitions that were officially announced to the CNMV once the market had closed on Friday.⁴

As in Table 3, we do not find any significant abnormal return in the case of unlisted target firm acquisitions. When we compute abnormal return differences, we find that *during-market* announcements on Fridays are significantly higher than (i) *during-market* announcements on any other business day; and (ii) *post-market* announcements on Friday. However, the small size of these samples prevents us of the reliability of these results.

For acquisitions of privately owned targets (Panel A from Table 4), we find significant abnormal returns any time of the day for announcements that take place on a non-Friday. Interestingly, we find a significantly higher market reaction to announcements made before the market opens. This result may indicate that these sort of

³ Our inference also holds if we use the absolute values of the acquirers' abnormal returns, as opposed to the signed abnormal returns. In the case of listed target announcements, the difference between the average absolute abnormal return for the non-Friday announcers and for the Friday announcers is 0.13%, with a *p*-value of 0.758. Regarding the unlisted target announcements, the difference between the average absolute abnormal return for the non-Friday announcers and for the Friday announcers is 0.22%, with a *p*-value of 0.420.

⁴ Note that the computation of the abnormal return on this last case implies the use of the closing price of the following Monday relative to the closing price of Friday.

announcements made in the beginning of the day capture the investors' attention better than those made during the rest of the day (either *during-* or *post-market* times).

Table 4

Acquirers' average abnormal returns for *all-cash* acquisition announcements conditional on the public status of the target, weekday and time of the day of the acquisition announcement.

	Pre-market (1)	During- market (2)	Post- market (3)	(1) – (2)	(3) – (2)
Panel A: Listed target firms					
All days	-0.03	-0.01	0.10	-0.02	0.11
<i>p</i> -value	(0.946)	(0.990)	(0.852)	(0.982)	(0.898)
N	40	18	21		
All non-Friday	-0.05	-0.97	0.40	0.92	1.37
<i>p</i> -value	(0.915)	(0.279)	(0.648)	(0.346)	(0.268)
N	34	11	13		
Friday	0.09	1.50	-0.39	-1.41	-1.89
<i>p</i> -value	(0.923)	(0.139)	(0.299)	(0.276)	(0.081)
N	6	7	8		
Friday – non-Friday	0.13	2.47	-0.79		
<i>p</i> -value	(0.893)	(0.061)	(0.409)		
Panel A: Unlisted target firms					
All days	1.15	0.46	1.26	0.69	0.80
<i>p</i> -value	(0.000)	(0.016)	(0.000)	(0.034)	(0.042)
N	81	108	45		
All non-Friday	1.18	0.56	1.19	0.62	0.63
<i>p</i> -value	(0.000)	(0.006)	(0.002)	(0.077)	(0.131)
N	63	88	41		
Friday	1.05	0.02	1.95	1.03	1.92
<i>p</i> -value	(0.125)	(0.962)	(0.094)	(0.225)	(0.091)
N	18	20	4		
Friday – non-Friday	-0.13	-0.54	0.76		
<i>p</i> -value	(0.854)	(0.338)	(0.440)		

Notes. The abnormal returns are expressed in percentages. The *p*-values are presented in parentheses. The *t*-tests for the mean differences assume unequal variances.

Similar to Table 3, acquisition announcements of unlisted targets made in the *pre-market* and *during-market* periods on Friday (so that, both the announcement-day and the event-day are on Friday) do not show significant abnormal returns (Panel B from Table 4). Interestingly, this result does not hold for those announcements that take place when the market closes. Note that, for these last announcements, the announcement-day is on Friday but the event-day is on Monday. However, although Friday *post-market*

announcements are significantly higher than *during-market* announcements, we must be cautious because of the small size of the sample (4 observations).⁵

5.2. Market trading volume by weekday

Prior to perform the analysis of the trading volume reaction to weekday and time of the day acquisition announcements, we explore the trading volume behaviour of the Spanish market (SIBE and the Alternative Stock Market –MAB) by weekday. This analysis is needed in order to properly adjust the volume traded at the acquisition announcement and, therefore, to remove the effect of normal trading volume variations across the days of the week.

Table 5 exhibits mean differences of euro trading volume (in thousands) from November 1998 to December 2018.⁶ Contrary to Meneu and Pardo (2004) for the Spanish market, we find that trading activity on Monday and on Tuesday is significantly lower than the other business days. When we compare non-Friday and Friday trading volume, we find a significantly higher trading activity on Friday than on non-Friday days. These results are interesting because (i) they confirm that we need to remove the effect of normal trading volume variations across the days of the week when computing the abnormal trading activity at the acquisition announcement; and (ii) our results are contrary to the notion that investors' attention decline on Fridays.

Table 5

Differences in mean of daily euro trading volume (in thousands) on the Spanish stock market (SIBE and the Alternative Stock Market –MAB) from November 1998 to December 2018.

	Monday	Tuesday	Wednesday	Thursday	Non-Friday	N
vs.						
Monday						1,039
Tuesday	-1,715.04 ^a					1,035
Wednesday	-2,585.27 ^a	-870.23 ^b				1,038
Thursday	-2,308.16 ^a	-593.12 ^c	277.11			1,050
Friday	-2,723.51 ^a	-1,008.47 ^a	-138.24	-415.35	-1,069.94 ^a	1,029

Notes. We truncate the top and bottom one-percentiles of the weekday trading volume series. Trading volume mean differences are computed as row minus column. ^{a, b, c} Significantly different from zero at the 1%, 5% and 10% levels, respectively.

⁵ Conclusions remain unaltered when we use the absolute values of the acquirers' abnormal returns.

⁶ To mitigate the possible effect from extreme values, truncation threshold of 1% is employed in the trading volume weekday series.

5.3. Abnormal trading volume to Friday and time of the day acquisition announcements

The acquirers' abnormal trading volumes are reported in Table 6. Similar to Louis and Sun (2010), we find that the abnormal trading volume is significantly greater than zero for all the weekdays either for listed and unlisted target firms, except in the case of acquisition announcements of listed targets on Friday. However, and contrary to the inattention hypothesis, we find that, on average, the abnormal trading volume for the Friday announcers is not significantly different from the abnormal trading volume for the non-Friday announcers, neither for listed nor unlisted target firms.

Table 6
Acquirers' Average Abnormal Trading Volume: Friday vs. Non-Friday *all-cash* acquisition announcements

Weekday of the event-day (t_0)	Listed target	N	Unlisted target	N
Monday	0.124 (0.009)	23	0.153 (0.018)	41
Tuesday	0.112 (0.056)	9	0.132 (0.028)	37
Wednesday	0.192 (0.074)	15	0.143 (0.010)	48
Thursday	0.199 (0.027)	13	0.151 (0.022)	42
All no-Friday	0.156 (0.000)	60	0.145 (0.000)	168
Friday	0.126 (0.173)	12	0.103 (0.020)	40
Friday – non-Friday	-0.030 (0.751)		-0.042 (0.414)	

Note. The p -values are presented in parentheses.

Table 7 shows the abnormal trading volume on acquisition announcements for listed and unlisted target firms conditional to weekday (Friday vs. non-Friday) and time of the day (*pre-market*, *during-market* and *post-market*). When we decompose the abnormal trading volume for public target firms (Panel A from Table 7) into our two vectors of interest (weekday and time of the day), we find that the statistical higher abnormal trading volume on all non-Fridays showed in Table 6 concentrates in those announcements made in the *pre-* and *post-market* periods, not in the *during-market* period. From the inattention story perspective, this result suggests that investors perceive all these *out-of-the-market* announcements to be of special interest, though this interest

do not eventually become in statistically higher abnormal returns (see Panel A from Table 4). This pattern does not hold for Friday announcements. Anyway, the interpretation of our results is conditioned by the small size of the samples.

Table 7

Acquirers' average abnormal trading volume around Friday vs. Non-Friday *all-cash* acquisition announcements conditional on the public status of the target and time of the day of the acquisition announcement.

	Pre-market (1)	During- market (2)	Post- market (3)	(1)-(2)	(3)-(2)
Panel A: Listed target firms					
All days	0.185	0.070	0.160	0.116	0.091
<i>p</i> -value	(0.000)	(0.307)	(0.032)	(0.147)	(0.351)
N	34	17	21		
All non-Friday	0.170	0.105	0.267	0.065	0.162
<i>p</i> -value	(0.000)	(0.259)	(0.013)	(0.514)	(0.215)
N	29	11	13		
Friday	0.273	0.004	-0.014	0.269	-0.018
<i>p</i> -value	(0.155)	(0.967)	(0.860)	(0.189)	(0.887)
N	5	6	8		
Friday – non-Friday	0.103	-0.101	-0.281		
<i>p</i> -value	(0.550)	(0.461)	(0.029)		
Panel A: Unlisted target firms					
All days	0.160	0.115	0.142	0.045	0.028
<i>p</i> -value	(0.000)	(0.006)	(0.008)	(0.424)	(0.674)
N	74	91	43		
All non-Friday	0.147	0.149	0.146	-0.002	-0.003
<i>p</i> -value	(0.003)	(0.002)	(0.013)	(0.981)	(0.968)
N	57	76	39		
Friday	0.204	-0.057	0.109	0.261	0.166
<i>p</i> -value	(0.005)	(0.377)	(0.186)	(0.006)	(0.093)
N	17	15	4		
Friday – non-Friday	0.057	-0.206	-0.037		
<i>p</i> -value	(0.478)	(0.013)	(0.671)		

Notes. The *p*-values are presented in parentheses. The *t*-tests for the mean differences assume unequal variances.

Regarding the abnormal trading volume for private target firms (Panel B from Table 7) into our two vectors of interest (weekday and time of the day), we find that the statistical positive abnormal trading volume on all non-Fridays showed in Table 6 remains regardless the time of the day the announcement is made. Besides, none of the differences

in average abnormal trading volume are statistical significant when we compare the different time intervals under study.

Nevertheless, a compelling feature arises in the Panel B of Table 7 when we decompose Friday announcements from Table 6: only the acquisition announcements of unlisted target firms made before the market opens (*pre-market* period) show a significant abnormal trading volume. After that moment (the market opening), announcers show a non-significant abnormal trading volume. Actually, the difference in average abnormal trading between the *pre-market* and *during-market* periods is statistical significant. Actually, the abnormal trading volume of the *during-market* period for the Friday announcers is significantly lower than the largest and important corporate events, i.e, the acquisition of a firm, confirming previous results by Louis and Sun (2010).

6. Conclusions

This paper provides empirical evidence of the existence of investors' inattention to acquisition announcements in the Spanish market. We use a sample of 313 acquisition announcements of listed and unlisted target firms released by Spanish listed firms over the period 1998 – 2018 and with a joint analysis of weekday and time of trade.

Consistent with the inattention hypothesis, we find that the acquirers' average abnormal return for acquisitions of privately owned targets is positive and statistically significant any time of the day for all the business days except on Fridays. Also, we find that the average abnormal trading volume during trading hours is significantly lower for the Friday announcers versus the non-Friday announcers. Interestingly, the acquisition announcements of unlisted target firms made on Friday before the market opens (*pre-market* period) show a significant abnormal trading volume, indicating that the announcements made before the market opens capture the investor's attention better than those made during the rest of the day.

Consistent with the notion that investors are less attentive to Friday news, we find that acquirers' abnormal trading volume of publicly owned targets are higher on all non-Fridays announcements than on Friday announcements. This higher abnormal trading volume is concentrated in those announcements made before and after the trading hours, suggesting that investors perceive these sort of announcements to be of special interest.

Nevertheless, the small size of these subsamples made us to be cautious in interpreting these results.

Our findings have several implications. First, they provide evidence of investors' inattention around acquisition announcements. Second, they support the relevance of consider the *day-time* combination when making an announcement. Given the value of our results, we believe that this line of research should be extended to investigate whether the level of investor's attention and the assimilation of information depends on the sophistication of the investor. Future research will also analyse the behaviour of insider trading around the announcement to detect whether managers attempt to gain from the Friday announcements.

Funding

This research was supported by *Universidad Católica San Vicente Mártir* under Grant 2020–246–001.

References

- Adra, S., & Barbopoulos, L. G. (2018). The valuation effects of investor attention in stock-financed acquisitions. *Journal of Empirical Finance*, 45, 108-125.
- Autore, D., & Jiang, D. (2019). The preholiday corporate announcement effect. *Journal of Financial Markets*, 45, 61-82.
- Bae, S.C., Chang, K., & Kim, D. (2013). Determinants of target selection and acquirer returns: Evidence from cross-border acquisitions. *International Review of Economics & Finance*, 27, 552-565.
- Barber, B.M., & Odean, T. (2008). All that glitters: The effect of attention and news on the buying behavior of individual and institutional investors. *The review of financial studies*, 21(2), 785-818. <https://doi.org/10.1093/rfs/hhm079>
- Ben-Rephael, A., Da, Z., & Israelsen, R. D. (2017). It depends on where you search: Institutional investor attention and underreaction to news. *The Review of Financial Studies*, 30 (9), 3009-3047.
- Chang, S. (1998). Takeovers of privately held targets, methods of payment, and bidder returns. *J. Finance* 53, 773–784.
- Daniel, K., Hirshleifer, D., & Teoh, S. H. (2002). Investor psychology in capital markets: Evidence and policy implications. *Journal of Monetary Economics*, 49 (1), 139-209.
- GDraپر, P., & Paudyal, K. (2006). Acquisitions: private versus public. *European Financial Management*, 12(1), 57-80.
- DeHaan, E., Shevlin, T., & Thornock, J. (2015). Market (in) attention and the strategic scheduling and timing of earnings announcements. *Journal of Accounting and Economics*, 60(1), 36-55.
- DellaVigna, S., & Pollet, J.M. (2009). Investor inattention and Friday earnings announcements. *The Journal of Finance*, 64(2), 709-749.
- Farinós Viñas, J.E., Herrero, B., & Latorre Guillem, M.A. (2017a). The Decision to Acquire Listed vs. Unlisted Firms: Determinants and Value Effects in the Spanish Stock Market. *Revista de Economía Aplicada*, 73, 55-94.
- Farinós, J.E., Herrero, B. & Latorre, M.A. (2017b). Self-selection bias and the listing status of target firms: Value effects in the Spanish market. *Czech Journal of Economics and Finance*, 67 (5), 423–438.
- Farinós, J.E., Herrero, B. & Latorre, M.A. (2020). Market valuation and acquiring firm performance in the short and long term: Out-of-sample evidence from Spain. *Business Research Quarterly*, 23, 1–14.
- Feito-Ruiz, I., Fernández, A.I., & Menéndez-Requejo, S. (2014). Determinants of the acquisition of listed versus unlisted firms in different legal and institutional environments. *Applied Economics*, 46(23), 2814-2832.

- Fuller, K., Netter, J., & Stegemoller, M. (2002). What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions. *The Journal of Finance*, 57(4), 1763-1793.
- Gervais, S., Kaniel, R., & Mingelgrin, D.H. (2001). The high-volume return premium. *The Journal of Finance*, 56 (3), 877-919.
- Glasner, J. (2000). And now, for those other deals. *Wired*, (January 11).
- Hirshleifer, D., Lim, S. S., & Teoh, S.H. (2009). Driven to distraction: Extraneous events and underreaction to earnings news. *The Journal of Finance*, 64(5), 2289-2325.
- Kahneman, D. (1973). *Attention and effort* (Vol. 1063). Englewood Cliffs, NJ: Prentice-Hall.
- Latorre, M. A., Herrero, B., & Farinós, J.E. (2014). Do acquirers' stock prices fully react to the acquisition announcement of listed versus unlisted target firms? Out-of-sample evidence from Spain. *Applied Economics Letters*, 21(15), 1075-1078.
- Louis, H., & Sun, A. (2010). Investor inattention and the market reaction to merger announcements. *Management Science*, 56(10), 1781-1793.
- Martynova, M. & Renneboog, L. (2008). A century of corporate takeovers: What have we learned and where do we stand? *Journal of Banking and Finance*, 32, 2148-2177.
- Martynova, M., & Renneboog, L. (2011). The performance of the European market for corporate control: Evidence from the fifth takeover wave. *European Financial Management*, 17(2), 208-259.
- Meneu, V., & Pardo, A. (2004). Pre-holiday effect, large trades and small investor behaviour. *Journal of Empirical Finance*, 11 (2), 231-246.
- Michaely, R., Rubin, A., & Vedrashko, A. (2016a). Further evidence on the strategic timing of earnings news: Joint analysis of weekdays and times of day. *Journal of Accounting and Economics*, 62(1), 24-45.
- Michaely, R., Rubin, A., & Vedrashko, A. (2016b). Are Friday announcements special? Overcoming selection bias. *Journal of Financial Economics*, 122(1), 65-85.
- Miller, E. M. (1977). Risk, uncertainty, and divergence of opinion. *The Journal of finance*, 32 (4), 1151-1168.
- Moeller, S., Schlingemann, F., & Stulz, R. (2004). Firm size and the gains from acquisitions. *Journal of Financial Economics*, 73, 201-228.
- Pashler, H.E. (1999). *The psychology of attention*. MIT press.
- Peng, L., & Xiong, W. (2006). Investor attention, overconfidence and category learning. *Journal of Financial Economics*, 80 (3), 563-602.
- Peng, L., Xiong, W., & Bollerslev, T. (2007). Investor attention and time-varying comovements. *European Financial Management*, 13 (3), 394-422.

- Peress, J., & Schmidt, D. (2020). Glued to the TV Distracted Noise Traders and Stock Market Liquidity. *The Journal of Finance*, 75 (2), 1083-1133.
- Petmezas, D. (2009). What drives acquisitions? Market valuations and bidder performance. *Journal of Multinational Financial Management*, 19(1), 54-74.
- Reyes, T. (2018). Limited attention and M&A announcements. *Journal of Empirical Finance*, 49, 201-222.
- Reyes, T. (2019). Negativity bias in attention allocation: Retail investors' reaction to stock returns. *International Review of Finance*, 19 (1), 155-189.
- Siganos, A. (2019). The daylight saving time anomaly in relation to firms targeted for mergers. *Journal of Banking & Finance*, 105, 36-43.