

THE DECISION TO ACQUIRE LISTED vs. UNLISTED FIRMS: DETERMINANTS AND VALUE EFFECTS IN THE SPANISH STOCK MARKET*

JOSÉ E. FARINÓS
BEGOÑA HERRERO
University of Valencia

MIGUEL A. LATORRE
Catholic University of Valencia "San Vicente Mártir"

We examine the determinants of the decision to acquire a listed vs. an unlisted firm and extend the previous evidence of value creation after controlling for endogeneity due to self-selection bias. We also control for market valuation conditions, finding that results are conditional to them. On the one hand, our results show that investors see unlisted firm acquisitions as a value creation transaction in a bull market period, whereas we find value destruction in the acquisition of listed firms. During the bear market period we do not find value creation in any case. On the other hand, our results suggest that managerial opportunism is a determinant in the acquisition of listed firms, either in bull or bear market periods. However, under information asymmetry, acquirers change their preferences depending on the market conditions..

Key words: private vs. public firm targets, managerial opportunism, asymmetric information, market valuations.

JEL classification: G14, G34, L33.

In this research we present for the first time evidence on the determinants of the decision to acquire a listed versus an unlisted firm by a large sample of Spanish listed firms and extend previous evidence of value creation triggered by this choice. A large body of studies documents significant positive abnormal announcement returns to acquirers of unlisted targets, whereas results for acquirers of listed com-

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panies are mixed, either zero or significant negative abnormal announcement returns. Most of them can be found in Martynova and Renneboog (2008), as they overview 65 studies performed on samples that cover all the 20th century. More recent papers include those of Draper and Paudyal (2006) and Petmezas (2009) for the UK market; Martynova and Renneboog (2011) and Feito-Ruiz *et al.* (2014) for 28 and 19 European countries, respectively; Rani *et al.* (2012) for the Indian market; Shams *et al.* (2013) for the Australian market; and Farinós *et al.* (2011) and Latorre *et al.* (2014) for the Spanish market. Previous evidence shows that acquirers of private targets gain, irrespective of the mode of payment (cash, shares or mixed) and the size of the bidder—or the relative size of the target compared to the acquirer—. In contrast, abnormal returns for acquirers of listed firms depend on the mode of payment and size, meaning the higher the relative target size (the larger acquirer size) paying with shares, the greater the loss.

Thus the study of private company acquisitions is of interest not only because of the large volume of operations in which they are involved, but also because they exhibit different characteristics from listed targets. For example, liquidity, ownership structure, information asymmetry and bargaining power make differences between both groups of firms, suggesting the need for a separate analysis¹.

All these papers focus on value effects and determinants of announcement abnormal returns, but few papers investigate the determinants of the decision to purchase a private versus a public firm. Capron and Shen (2007), Bae *et al.* (2013) and Feito-Ruiz *et al.* (2014) analyse the determinants of the strategic decision to acquire an unlisted or a listed firm. Though all three papers posit that differences in information availability influence the acquirer's choice, Bae *et al.* (2013) and Feito-Ruiz *et al.* (2014) extend the range of determinants to managerial opportunism and, in the case of cross-border acquisitions, to some country-specific characteristics.

In this paper, we extend the existing literature on acquisitions of private and public target firms with several contributions. First, previous research on acquirer's abnormal returns in the Spanish market is scarce and shows mixed results. Thus, García and Ferrando (1992), Fernández and Gómez-Ansón (1999) and De Miguel *et al.* (2003) find that acquirer's shareholders gain an insignificant abnormal return on the announcement date of the acquisition. However, Fernández and García (1995) show statistically (but not economically) significant positive returns one day after the announcement date. Nevertheless, these studies perform their analyses on mixed samples of listed bidder and target firms. Only Farinós *et al.* (2011) and Latorre *et al.* (2014) split their samples into listed and unlisted target firms². They find insignificant abnormal returns for public targets but significant positive abnormal returns for private targets in univariate tests. We extend this previous evidence on acquisition value effects as we employ the largest sample of completed control acquisition announcements from Spanish listed firms over a 21-year period. Moreover, (i) we control for a variety of firm and transaction characteristics, namely method of payment,

(1) In section 2 we discuss these differential characteristics further.

(2) Farinós *et al.* (2011) employ a sample of 134 acquisition announcements (46 of listed target firms and 88 of unlisted target firms) for the period 1991-2006, whereas Latorre *et al.* (2014) use a sample of 92 acquisition announcements (30 of listed target firms and 62 of unlisted target firms) for the period 1990-2011.

bidder size, relative size of the target and industry and geographical diversification; (ii) we perform either a univariate or a multivariate analysis of factors affecting value creation, and (iii) we examine the robustness of previous results by estimating abnormal returns in cross-sectional regressions of the CAPM and the three-factor model developed by Fama and French (1993).

Second, as far as we know, this research is the first to explore the determinants of the Spanish listed firms' decision to acquire an unlisted versus a listed firm. We test two main hypotheses: on the one hand, we propose that managerial opportunism promotes the acquisition of listed firms, whereas, on the other hand, information asymmetries may lead to the acquisition of unlisted firms.

Third, given the evidence of Petmezas (2009) of acquisition abnormal returns being affected by market sentiment, we split our time horizon of study into a strong bull regime from 2003 to 2007 (pre-Global Financial Crisis) and a strong bear regime from 2008 to 2011 (post-Global Financial Crisis) in order to examine whether results from the full sample (and previous evidence for the Spanish market) are consistent in these subsamples.

Fourth, we recognise that the selection of a public versus a private firm is not a random choice. Most of the previous studies on the analysis of value creation when acquiring an unlisted firm have not considered the endogeneity of the acquirer's choice of target. In our estimations we account for self-selection in the acquiring firm's decision to purchase an unlisted versus a listed target. We employ the two-step estimation procedure of Heckman (1979) in order to control for endogeneity bias and thus the unobservable private information that would impact the bidder's choice.

Employing 261 complete acquisition announcements of Spanish listed firms during 1991-2011, we show that the number of private company purchase announcements in our sample largely exceeds the quantity for public companies (72%), that cash is the usual mode of payment and that bidders of listed targets are larger than those of unlisted targets, whereas unlisted targets are much smaller than listed targets.

Consistent with previous studies, our results for the full sample show 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. The univariate tests reveal that the acquirers of unlisted firms gain irrespective of the characteristics of the acquirer, the deal or the target. Nevertheless, bidders of private targets do not gain significantly more than bidders of public targets even after accounting for self-selection. Besides, the multivariate test shows that announcement abnormal returns are negatively related to the market-to-book ratio and positively related to the leverage ratio of the acquirer. The study of the determinants of the decision to acquire an unlisted or a listed target firm gives some support to the managerial opportunism hypothesis, as we find that the probability of acquiring a listed firm increases (i) the larger the bidder firm, and (ii) when the payment is made with stock or stock and cash. However, we find little support for the asymmetric information hypothesis. In fact, and contrary to previous evidence in other markets, we find that under excessive information asymmetry, Spanish listed firms prefer to acquire private firms rather than public firms, except for cross-border acquisitions.

In splitting the sample period into a strong bull regime and a strong bear regime, we find different results depending on the subsample period. Regarding value effects,

while investors do not view the announcement of an acquisition of either a public or a private firm as a value transaction during the strong bear period, we find similar results for unlisted target acquisitions to those from the full sample during the strong bull market, but quite different when buying a listed firm. Specifically, the results show value destruction when the bidder firm is large, the relative size ratio of the acquisition is high and the acquisition is between related industry companies. We highlight that during the strong bull market acquirers of unlisted firms gain significantly more than acquirers of listed firms, in contrast to either the full sample or the strong bear market period results both in the univariate and the multivariate analysis (in which endogeneity bias is taken into account). Moreover, only in the case of bidders of listed firms abnormal returns around the acquisition announcement are significantly different between pre and post-crisis periods. Finally, determinants to bid a listed or an unlisted firm for the pre-crisis period are quite similar to those from the whole horizon of study. Nevertheless, managerial opportunism seems to be a stronger determinant for the acquisition of listed targets during the bear market period, whereas contrary to the full sample and strong bull market period evidence, we find that during the strong bear market period Spanish listed firms seem to protect themselves from high asymmetric information environments by buying listed firms.

Although researchers have made much effort in performing multi-country studies (particularly in Europe), studies like that of Moschieri and Campa (2014) lead to the necessity of individual country studies in this field of research. These authors analyse merger and acquisition (M&A) activity in all the member states of the European Union between 1997 and 2007 and evaluate the characteristics and the key determinants of the likelihood of completion. They conclude that despite the creation of a common institutional framework for mergers and acquisitions in Europe, M&As are still subject to country idiosyncrasies, so residual country factors continue to affect them. In this context, Feito-Ruiz *et al.* (2014) claim that country characteristics lead to differences either in the choice between listed vs. unlisted firm acquisition or in the acquiring-firm shareholders' value. Thus, a weak legal and institutional environment, which, in turn, lead to a weaker investor protection, promote the acquisition of listed firms in order to get private benefits because of managerial opportunism and the higher agency costs and asymmetric information between managers and shareholders. Therefore, a separate analysis for Spain is of interest if we consider that, according to the *Doing Business* project³, Spain is ranked 44th out of 189 countries in the topic "Protecting Minority Investors" in the year 2015⁴, whereas UK is ranked 4th, Ireland 12th, France 27th, USA 32nd or Italy 33rd.

Our results are consistent with Feito-Ruiz *et al.* (2014) and Moschieri and Campa (2014) as our evidence from Spain differs from that found in multi-country studies in

(3) The *Doing Business* project is a dataset developed by The Global Indicators Group (GIG) Department within the Development Economics Network at the World Bank Group.

(4) This topic measures the strength of minority shareholder protections against misuse of corporate assets by directors for their personal gain as well as shareholder rights, governance safeguards and corporate transparency requirements that reduce the risk of abuse. See the *Doing Business* project web page for further details.

which Spanish acquiring firms were included⁵. Therefore, individual-country studies can be a good way to test the robustness of evidence from multi-country studies.

The remainder of the paper is organized as follows. Section 1 discusses some hypotheses to explain the choice between listed vs. unlisted firm acquisition. Section 2 reviews several determinants of acquirer's return and the evidence obtained in previous studies. Section 3 describes our sample. In Section 4 are found the methodology used to resolve the self-selection bias, the abnormal return estimation and the analysis of the determinants of the target status choice. The results for the full sample and the subsamples analysis are discussed in Sections 5 and 6, respectively. Section 7 concludes.

1. WHY SHOULD THE LISTING STATUS OF THE TARGET FIRM AFFECT THE ACQUISITION CHOICE? LITERATURE REVIEW AND HYPOTHESIS

Various hypotheses have been proffered to explain the observed phenomenon of different bidder firm reactions to the announcement of a private firm acquisition, that is, the acquisition discount for private targets. These hypotheses include greater monitoring through the creation of blockholders in the unlisted targets [Chang (1998)]; weak competition in the market for private companies [Chang (1998)]; liquidity needs of selling firms [Fuller *et al.* (2002), Officer (2007)]; and information asymmetry associate with private targets [Capron and Shen (2007), Reuer and Ragozzino (2008)]. Following Feito-Ruiz *et al.* (2014) we group them into two sets: managerial opportunism and information asymmetry. More recently, some studies [Bae *et al.* (2013), Feito-Ruiz *et al.* (2014), Moschieri and Campa (2014)] claim that country characteristics may influence the decision of choosing between private or public firm acquisition. Specifically, they point out that unlisted target firms settled in countries with underdeveloped financial markets face greater difficulties in obtaining financing. As a result, unlisted firms are more likely to be placed on sale as a means of obtaining liquidity in those countries with higher costs and difficulties in accessing external financing, which, in turn, increases the probability of unlisted firm acquisition. Of all these hypotheses, we focus on those included in the two first groups.

1.1. Managerial opportunism

Managers motivated by a desire to maximise their private benefits will be willing to buy large and prestigious firms and to pay high premiums for them [Roll's (1986) managerial hubris hypothesis] which, in turn, will have a negative effect on the bidder's stock price [Moeller *et al.* (2004), Faccio *et al.* (2006)]. Listed firms are usually larger and better known than private companies.

In addition, the listing status of the target firm introduces relevant differences in the negotiation process. The selling of public targets is typically an auction-like procedure in order to increase the number of potential bidders [Milgrom (1987)]. In this context, Varaiya (1988) provides support for the existence of the winner's curse [Roll (1986)], which, in consequence, also supports the hubris hypothesis. On the contrary,

(5) For instance, Faccio *et al.* (2006) include 119 Spanish listed acquirers, Martynova and Renneboog (2011) use 55 Spanish listed bidders and Feito-Ruiz *et al.* (2014) include 5 listed and 29 unlisted Spanish firms. However, none of them perform a separate analysis for Spain.

competition in the market for private companies is likely to be weak as they often lack financial resources and the social connections with investment bankers needed to obtain them [Graebner and Eisenhardt (2004)]. Thus, private targets are typically sold through negotiations based on voluntary exchange [Koepling *et al.* (2000)].

Therefore, our first hypothesis to test is:

H1: Under the presence of managerial opportunism the likelihood of acquiring a public firm increases.

1.2. Information asymmetry

Acquisition discounts when bidding for private targets may reflect the unwillingness of acquiring firms to pay very much for assets sold in an opaque information environment [Bae *et al.* (2013)]. Officer (2007) concludes that information asymmetry is the likely explanation for the portion of the acquisition discount for private targets that remains unexplained after controlling by the liquidity proxies employed in his research. As well, Officer *et al.* (2009) show that information asymmetries between the acquiring and target firms about the target firm's value should be more intense with unlisted targets.

This lack of information availability on private firms has a twofold implication. On the one hand, it limits the extent of the acquirer's search and increases the evaluative uncertainty when evaluating a private target [Reuer and Ragozzino (2008)]. Reduction of the offer price is a classic response to the threat of adverse selection [Akerlof (1970)]. On the other hand, private targets, particularly small ones, face greater difficulties in signalling their value to investors [Becchetti and Trovato (2002)]. As a result, acquirers of private firms increase their bargaining power so that they can experience positive abnormal returns since the likelihood of underpayment rises.

Furthermore, unlisted firms suffer from a lack of market liquidity, which leads a private seller to experience transaction costs or grant price concessions [Chang (1998), Officer (2007), Officer *et al.* (2009)].

In this context, Capron and Shen (2007) and Feito-Ruiz *et al.* (2014) wonder why listed firms would be acquired. They consider that if information asymmetry is excessive, acquirers would prefer to buy a listed firm even though that asymmetry would lead to a discount in the price paid for a private firm.

Therefore, our second hypothesis to test may be stated in two parts:

H2a: Acquiring firms are likely to purchase an unlisted target over a public target due to information asymmetry

H2b: When the asymmetric information level is considered to be excessive, acquiring firms are likely to purchase a listed target over a private target

2. FIRM AND TRANSACTION CHARACTERISTICS EFFECT ON BIDDER WEALTH CREATION

Extant literature has documented several determinants of bidder returns that we present below. Specifically, we discuss the method of payment for the target, the size of the acquirer, the relative size of the target compared to the bidder, whether acquirer and target belong to related or unrelated industries and whether the acquisition is a domestic or a cross-border transaction. We highlight the related evidence found on private firm acquisitions.

2.1. Method of payment

Within the framework of the Myers and Majluf (1984) model, bidding firm managers will offer stock as the medium of exchange when they believe that their own shares are overvalued. Hence, the market reaction to this sort of acquisition proposal will be negative.

On the contrary, evidence on unlisted targets shows that acquirers gain higher abnormal returns for stock offers relative to cash offers. Fuller *et al.* (2002) explain this different behaviour by the creation of a blockholder and favourable tax implications for private firm owners. They argue that when cash is used as the mode of payment, the purchasing firm's owners face immediate tax implications, which are deferred if stock is employed. If this tax deferral option is valuable to owners, they may accept a discounted price equal to, at most, the value of the option. This lower price will be reflected in the higher bidder returns for stock offers. As a result, Travlos (1987), Chang (1998) and Fuller *et al.* (2002) suggest that the listing effect is actually a method of payment effect.

However, Ang and Kohers (2001) for the US market, Draper and Paudyal (2006) and Petmezas (2009) for the UK market, and Faccio *et al.* (2006) for 17 Western European countries find similar results: regardless of the payment method, abnormal returns for acquirers of private targets are significantly greater than zero and significantly greater than abnormal returns for acquirers of public targets. Therefore, these findings suggest that although a method of payment effect exists, it is separate and distinct from the listing effect.

2.2. Size of the acquirer

Previous literature has documented a size effect on the acquirer's stock returns in which larger bidders get lower abnormal returns. Moeller *et al.* (2004) perform a thorough study of this issue on a large sample of US mergers and acquisitions. They find that acquisitions by small firms gain higher abnormal returns. When they split their sample into listed and unlisted targets, they report that small bidders obtain significant positive abnormal returns regardless of the listing status of the target, but large bidders' gains depend on the listing status of the target firm. In fact, large acquiring firms have significant positive abnormal returns for unlisted targets but significant negative abnormal returns for listed targets. They conclude that large firms offer larger acquisition premiums than small firms, which is consistent with Roll's (1986) managerial hubris hypothesis of corporate takeovers.

As Moeller *et al.* (2004) find that small firms make small acquisitions and large firms make large acquisitions, Faccio *et al.* (2006) conjecture if their results (that is, European acquirers of listed targets gain insignificant abnormal returns but significant positive ones when bidding unlisted targets) may be a size effect, since larger bidders tend to buy listed targets whereas smaller bidders tend to buy unlisted targets. However, they find that both large and small acquirers earn significant positive abnormal returns when buying unlisted targets and negative abnormal returns when buying listed targets.

2.3. *Relative size of the acquisition*

Asquith *et al.* (1983) report that bidders' abnormal returns are related to the relative size of the merger since even good acquisitions could have little impact on the bidder's stock price if targets are small relative to the bidder. Fuller *et al.* (2002) document, for the US market, that there is a positive relationship between the unlisted target's relative size and the acquirers' positive abnormal returns, whereas for public targets, acquirers gain significant negative abnormal returns if the relative size of the target is high⁶. Specifically, they find that as the relative size of the target increases for a private acquisition, returns to the acquirer using stock are greater than if the bidder had used cash. On the other hand, they find that for public targets, as the relative size of the target increases, the returns become more positive for cash offers, more negative for stock offers, and hardly change for combination offers. Fuller *et al.* (2002) argue that this market reaction discrepancy to the acquisition of private and public targets could be explained by: (i) an illiquidity effect in unlisted firms due to a lack of competition in the market for private corporate control; and/or (ii) the increasing likelihood of a blockholder formation when stock is used as the method of payment since the relative size of the private target to the bidder increases.

Draper and Paudyal (2006) also analyse the relative size effect on listed and unlisted bidders' abnormal returns at the announcement date, but for a sample from the UK market⁷. Similarly to Fuller *et al.* (2002), they report greater significant positive abnormal returns for high relative size ratio acquisitions of unlisted targets, though this result only holds when the offer is paid with cash since they find greater positive abnormal returns for unlisted targets with low relative size ratio when stock is used as the mode of payment⁸.

2.4. *Related vs. unrelated industry acquisition*

Although diversifying acquisitions are expected to generate operational and financial synergies, previous literature [Comment and Jarrell (1995), Healy *et al.* (1997) and more recently Martynova and Renneboog (2011), for instance] documents value destruction from unrelated industry (diversifying) acquisitions. Several difficulties with diversification have been pointed out as bidders face a higher likelihood of overvaluing targets outside of their core business as their knowledge base of the target industry is lower [Balakrishna and Koza (1993)], or because of bureaucratic rigidities between bidder and target firms [Shin and Stulz (1998)].

Evidence on acquisitions of unlisted targets is mixed and most of it comes from cross-sectional regression analysis⁹. Thus, Ang and Kohers (2001) report that within-

(6) They compute the relative size of the target as the target value divided by acquirer market value in the month prior to the announcement date.

(7) In order to clarify the exposition, we have altered the original results of Draper and Paudyal (2006) as they calculate relative size in an inverse way to Fuller *et al.* (2002), dividing the bidder's market capitalization 10 days prior to the announcement by the value of the deal.

(8) For public targets they find similar results to Fuller *et al.* (2002).

(9) In this sort of analysis, several independent variables are used in order to explain estimated bidders' abnormal returns.

industry acquisitions evoke less positive bidder reactions than diversified deals¹⁰; Fuller *et al.* (2002) and Faccio *et al.* (2006) show insignificant industry impact on abnormal announcement returns for both listed and unlisted targets, whereas Draper and Paudyal (2006) find that only acquirers of listed firms show a significant negative effect.

In a thorough study, Petmezas (2009) investigates acquisitions during high and low-valuation periods and finds significant positive abnormal announcement returns to acquirers of private targets either in diversifying or non-diversifying acquisitions during high-valuation periods. During low-valuation periods, diversifying acquisitions of unlisted targets show significant positive abnormal returns¹¹. Therefore, the results on unlisted target acquisitions do not support the previous evidence.

Finally, in related research, Capron and Shen (2007) find that acquirers are less likely to buy a private target when they enter a new industry. They suggest that this result agrees with the difficulties in identifying a private firm outside the acquirer's core business or when facing greater evaluative uncertainty when evaluating a private target in an unfamiliar domain.

2.5. Domestic vs. cross-border acquisition

Firms involved in cross-border acquisitions are likely to benefit from a number of synergies that are unavailable to firms involved in domestic acquisitions, such as expanding their business into new markets as a response to globalisation. Therefore, *ceteris paribus*, the wealth effect may be higher in cross-border deals¹². However, regulatory and cultural differences between countries may impede the integration of target companies. If the market anticipates these difficulties, it may discount the expected acquisition gains [Conn *et al.* (2005), Moeller and Schlingemann (2005)].

Focusing on the listing status of the target firm, Hansen and Lott (1996) explain the listing effect by arguing that shareholders of the acquirer are diversified investors. Faccio *et al.* (2006) argue that a necessary condition for the Hansen and Lott (1996) argument is that shareholders of the acquirer and target companies overlap to some extent, and point out that given the wide documented home bias in investors' portfolios [Lewis (1999), for instance] it is highly unlikely that shareholders of acquirers will own shares in a significant number of foreign companies. If this is the case, abnormal returns for cross-border acquisitions of listed targets should be similar to those for unlisted targets. The results of Faccio *et al.* (2006) do not support the Hansen and Lott (1996) hypothesis as they find significant positive abnormal returns for bidders regardless of whether the unlisted targets were domestic or not¹³.

(10) However, they find insignificant different reactions when they refined their diversification measure by controlling cross-industry transactions which are small relative to the size of the acquirer.

(11) Petmezas' (2009) results for public targets are considerably different from unlisted target acquisitions since non-diversifying acquisitions exhibit significant negative abnormal returns either during high- or low-valuation periods while diversifying acquisitions show insignificant abnormal returns.

(12) Martynova and Renneboog (2011) report that bidders gain higher significant positive abnormal returns in cross-border acquisitions using a 28-European country sample.

(13) They find insignificant abnormal returns when the target company is a listed firm either for domestic or cross-border acquisitions.

On the contrary, Fuller *et al.* (2002) report that bids for foreign private firms have a negative and significant impact on abnormal returns on the acquisition's announcement date, but insignificant abnormal returns when the foreign target firm is public.

3. SAMPLE SELECTION AND DESCRIPTIVE CHARACTERISTICS

Information on acquisitions (announcement date, identity of bidders and targets, payment method, etc.) driven by Spanish listed firms is obtained 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 the financial press in the Factiva dataset 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 price¹⁴. Therefore, we only consider a rumour about an acquisition if the CNMV halts the acquirer's trading. Consequently, the event-day (t_0) will coincide with the halt date because a rumour appeared in the press or the date of official acquisition communication to the CNMV. 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.

Similarly to Chang (1998), Fuller *et al.* (2002), Faccio *et al.* (2006), 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 acquirer increased its ownership position to greater than 50%, regardless of the amount of the target firm's stake previously owned by the acquirer. As a result, our initial sample consists of 289 purchases conducted by listed firms in the Spanish market (SIBE) over the period 1991 to 2011 for which we know the listing status of the acquired firm. For an acquisition announcement to remain in the final sample, it needs to meet the following criteria:

- (i) 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, equity issues or stock splits. Nineteen acquisition announcements were excluded.
- (ii) We select those acquirers for which stock market data was available in the window (t_0-20, t_0+20). The application of this criterion excluded eight acquisition announcements.
- (iii) After the application of (i) and (ii), we exclude those acquirers with returns in the three-day window centred on the announcement date (t_0-1, t_0+1) exceeding the sample return mean plus/minus three standard deviations¹⁵. One observation was excluded.

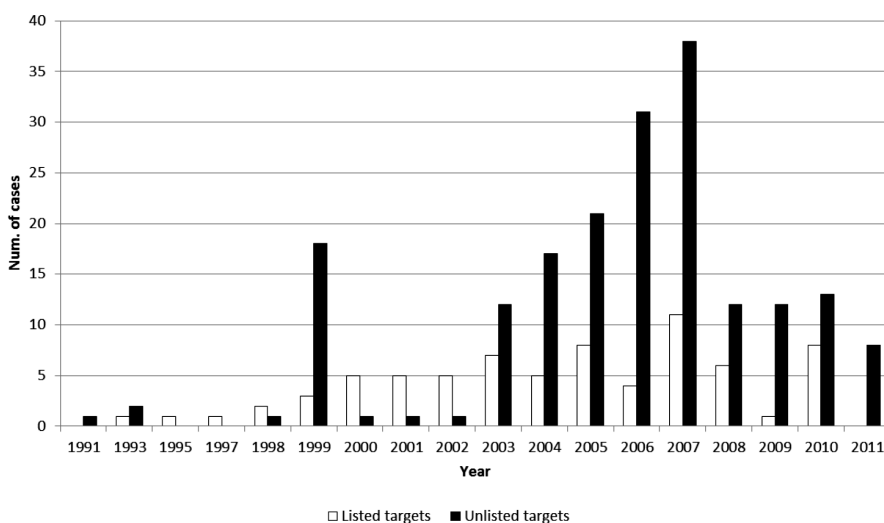
Application of these criteria yielded a sample of 261 acquisitions where 73 of the targets were listed on an exchange and 188 were unlisted companies. Figure 1

(14) For instance, the CNMV always orders the trading halt of firms involved when a takeover is officially announced (article 33 of the Spanish *Equity Market Law*).

(15) See Section 4.1 for return computation.

exhibits the time profile for the acquisitions of listed and unlisted targets. Note that the number of acquisitions is relatively low until 2003 (except for the number of unlisted firm acquisitions in 1999 when the dot-com bubble was at its peak) and then it increases dramatically until 2007. Actually, the 154 acquisition announcements from 2003 to 2007 accounts for 59% of the total number of cases in the sample (35 acquisitions of listed targets, i.e., 48% of total listed targets, and 119 acquisitions of unlisted targets, i.e., 63% of total unlisted targets). During the early years of the financial crisis (2008-2011) the number of acquisitions falls (109 acquisitions, 26 of listed targets and 83 of unlisted targets). However, when comparing this period with that prior to 2003, it is interesting to highlight two observations: (i) the number of acquisitions is higher, and (ii) unlisted firm acquisitions dominate listed targets.

Figure 1: TIME PROFILE FOR ACQUISITIONS OF LISTED AND UNLISTED TARGETS



Source: Own elaboration.

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 company purchase 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. The sample shows some interesting features regarding geographical and industry characteristics. For example, acquisitions of unlisted targets are quite likely to involve a domestic (43%) or a cross-border deal (57%), but in acquisitions of listed targets, cross-border acquisitions are mainly involved (74%). Using 2-digit CNAE codes to classify industries¹⁶, Table 1

(16) CNAE codes are the Spanish equivalent to US SIC codes.

**Table 1: SUMMARY STATISTICS FOR ACQUIRER AND TARGET COMPANIES
BY LISTING STATUS OF THE TARGET**

	Full sample	Listed targets	Unlisted targets
Number of acquisition announcements			
– Total	261	73	188
– By method of payment			
<i>Cash</i>	229	57	172
<i>Stock</i>	15	10	5
<i>Mixed</i>	17	6	11
– By geographical scope			
<i>Domestic</i>	100	19	81
<i>Cross-border</i>	161	54	107
– By industry scope			
<i>Diversification</i>	64	10	54
<i>Within-industry</i>	197	63	134
Market value of the bidder (in million €)			
<i>Mean</i>	7,441.15	17,931.19	3,367.89
<i>Median</i>	1,442.25	4,137.11	880.93
<i>No. cases</i>	261	73	188
Acquirer total assets (in million €)			
<i>Mean</i>	35,510.55	93,626.28	12,823.66
<i>Median</i>	1,457.13	8,300.63	1,068.01
<i>No. cases</i>	260	73	187
Target total assets (in million €)			
<i>Mean</i>	4,044.40	12,752.47	230.13
<i>Median</i>	52.34	863.46	20.59
<i>No. cases</i>	174	53	121
Relative size of the target			
<i>Mean</i>	0.26	0.45	0.18
<i>Median</i>	0.03	0.19	0.02
<i>No. cases</i>	173	53	120

Note: An acquisition is classified as cross-border if the acquirer and the target are from different countries. An acquisition is classified as within-industry if the target has the same primary two-digit CNAE code (the Spanish equivalent to US SIC code) as the acquirer. The acquirer's market value is the market value of the acquirer's common stock in the most recent December or June to the acquisition announcement date. Acquirer and target's total assets are the value of total assets at the end of the year prior to the announcement date. Target firm's relative size is computed as target's total assets divided by acquirer's total assets.

Source: Own elaboration.

indicates that firms acquiring either listed or unlisted companies focus on a non-diversification strategy as purchases are concentrated on within-industry transactions (86% and 71%, respectively).

Table 1 also gives data on the size of the bidder and the target and their relative sizes. Acquirer's size is measured (i) by the market value of acquirer's common stock in the most recent December or June prior to the acquisition announcement date, and (ii) by total assets at the end of the year previous to said date. Regardless of how size is measured, bidders of listed targets are larger than bidders of unlisted targets (five times larger when market value is used and seven times larger when total assets is the measure employed). The target's size is measured through total assets at the end of the year prior to the announcement date¹⁷. In this case, differences in size between listed and unlisted companies are even greater as the average public target firm is fifty-five times bigger than the average private target firm¹⁸. As a result, the target firm's relative size (computed as the target's total assets divided by the acquirer's total assets) is higher both on average and median for public companies.

4. METHODOLOGY

4.1. Estimation of announcement-period abnormal returns to acquiring firms

Conventional event study methodology uses the CAPM (or any other multifactor model) in order to estimate abnormal returns around the event day. In such methods, estimating 'uncontaminated' risk factors requires a long estimation period ('uncontaminated' interval or estimation window) to ensure that the estimated risk parameters are independent of the effect of the event. In our case of study, as a number of bidding firms are involved in purchases on more than one occasion, this requirement reduces the available data by 35% (i.e. 93 cases would be lost). In order to overcome this problem, we follow Draper and Paudyal (2006) and examine the significance of abnormal returns using Jensen's alpha in a cross-section estimation using the CAPM and the three-factor model developed by Fama and French (1993) that we show in expressions [1] and [2], respectively:

$$R_i - R_f = \alpha_\tau + \beta_\tau (R_{m\tau} - R_f) + \varepsilon_{i\tau} \quad [1]$$

$$R_i - R_f = \alpha_\tau + \beta_\tau (R_m - R_f) + s_\tau \text{SMB}_{i\tau} + h \text{HML}_{i\tau} + \varepsilon_{i\tau} \quad [2]$$

where R_i is the acquirer firm's return, R_f is the return on *Letras del Tesoro* (Spanish Treasury Bill), R_m is the return on a value-weighted market index (specifically the Madrid Stock Exchange Index -IGBM), SMB is the difference in the returns of value-weighted portfolios of small stocks and big stocks, and HML is the difference in the returns of value-weighted portfolios of high book-to-market stocks and low book-to-market stocks¹⁹.

(17) Unfortunately, 88 cases are lost from the full sample (20 cases from the listed target's subsample and 68 cases from the unlisted subsample) as target's size measured through total assets was not available.

(18) Consequently, our sample reflects the assertion of Moeller *et al.* (2004) that small firms make small acquisitions and large firms make large acquisitions.

(19) See Fama and French (1993) for details on the construction of the SMB and HML factors.

For estimation purposes R_i , R_f , R_m , SMB and HML are measured both as “buy and hold returns” (BHR) and “cumulative returns” (CR) for each event window under analysis, that is: the pre-announcement period (t_0-20 , t_0-3), the announcement period defined either as a three-day period around the event day (t_0-1 , t_0+1) or a five-day period around the event day (t_0-2 , t_0+2), and the post-announcement period (t_0+3 , t_0+20). Therefore, R_i in expressions [1] and [2] is computed as the buy and hold return (cumulative return) over the event window of τ days as in expression [3] ([4]):

$$R_{i\tau} = \left[\prod_{t=s}^{s+\tau-1} (1 + R_{it}) \right] - 1, \tag{3}$$

$$R_{i\tau} = \sum_{t=s}^{s+\tau-1} R_{it}, \tag{4}$$

where R_{it} is the simple daily return of the acquirer firm i on day t and s is the first day of the window under study²⁰.

Consequently, a significant α in equations [1] and [2] will indicate an abnormal return in response to the announcement of a purchase. The analysis of abnormal returns during the above windows reveals the value of the information content of acquiring announcements.

Finally, in order to obtain an estimation of the abnormal return for each case, we compute Buy-and-Hold Abnormal Returns (BHAR) for each event window as in expression [5]²¹:

$$BHAR_{i\tau} = R_{i\tau} - R_{m,\tau} \tag{5}$$

4.2. Determinants of the decision to acquire unlisted target firms and determinants of announcement-period returns: The self-selection issue

In this section we put together the study of the determinants of the acquirer’s choice between public and private firms and the relation of the announcement-period returns of acquiring firms to several characteristics of acquiring and target firms, as well as to characteristics of the deal since they are methodologically related.

This relationship comes from the fact that the choice of the listing status of the target firm is not random, but it is a deliberate decision made by acquiring firms or their managers to *self-select* into their preferred choice. As a result, if self-selecting firms are not random samples of the population, the usual OLS estimators applied to cross-sectional regressions of announcement-period returns on firms and deal characteristics are no longer consistent.

In order to control for this source of endogeneity, we employ the Heckman (1979) two-step estimation procedure, similar to that used in related studies like Shaver (1998), Capron and Shen (2007) and Bae *et al.* (2013). At the first step, we model the acquirer’s propensity to acquire a private target as a function of managerial opportunism and information asymmetry proxy variables. Specifically, we use a probit mo-

(20) R_f , R_m , SMB and HML computation is analogous to R_i .

(21) Cumulative Abnormal Returns (CAR) are computed analogously.

del to estimate the likelihood of private firm acquisition. At the second step, the cross-sectional return equation is estimated using the announcement-period abnormal return as a dependent variable by including the Lambda endogeneity bias control variable (the inverse of the Mills ratio) obtained from the choice equation at the first step²². The coefficient for Lambda in the return equation captures the effects on performance of unobserved, unmeasured differences between acquisitions of private targets and public targets. According to Li and Prabhala (2007), correcting for self-selection allows one to either (i) prevent parameter estimates from being biased, or (ii) incorporate and control for unobservable private information that influences corporate finance decisions. This private information comes from the fact that managers do not initiate a bid unless they have specific information about the target firm. As Akhtar (2015) points out, this set of information has a positive value and it is unobservable to outsiders (investors and researchers). Therefore, firms that announce a purchase are self-selecting themselves as bidders (that is, making a non-random choice), using some private information that is unobservable to investors (and researchers).

Drawing from Capron and Shen (2007) and Feito-Ruiz *et al.* (2014), and others, we test the managerial opportunism and information asymmetry hypotheses through a number of variables that are expected to be related to the aforementioned hypotheses in Section 1. In addition, we employ some control variables. We define all these variables below and summarize them in the Appendix.

4.2.1. Managerial opportunism proxy variables

The proxy variables we employ in order to test the relevance of management opportunism in the choice between acquiring listed vs. unlisted firms are: acquiring firm size, cash flow, market-to-book ratio (MTB) and method of payment.

- Acquiring firm size. As stated in Section 1.1, managerial opportunism and “hubris” is expected to have more influence on larger firms. Therefore, we expect a positive relationship between the firm size and the probability of acquiring a listed firm. This variable is defined as the market value of the acquirer’s common stock in the most recent December or June prior to the acquisition announcement date (in millions of euros) divided by the level of the IGBM market index at each point of time. This is to avoid the obvious problems with unstandardized values when using a wide sample horizon [Mitchell and Stafford (2000)].
- Cash flow and market-to-book ratios. According to Jensen (1986), we expect the lower their free cash flow and their market-to-book ratios, the fewer acquisitions will be made in order to “build empires”. The cash flow variable is defined as the EBITDA divided by the acquiring firm’s total assets at the end of the year prior to the acquisition announcement [Moeller *et al.* (2004)]. The market-to-book ratio is defined as the market value of the acquirer’s common stock divided by the book value of the acquirer’s common stock at the end of the year prior to the acquisition announcement date.

(22) Note that the set of variables determining selection (the probit model) and those determining the outcomes (the return model) can be identical in the Heckman selection model because the model is identified by non-linearity (see Li and Prabhala (2007) and Akhtar (2015) for a further discussion).

- Method of payment. As discussed in Section 2.a, the negative signal associated with the use of stock as the method of payment in an acquisition may turn positive if the target firm is unlisted. Therefore, when the acquisition of a private firm is paid with shares, it is likely that an outside blockholder could be created, since, by definition, private firms are closely held [Fuller *et al.* (2002)]. Nevertheless, when a listed company is acquired, such concentration is unlikely to emerge since public targets generally have less concentrated ownership. Consequently, the existence of a large blockholder allows for greater monitoring of a bidder's management, thus increasing value [Chang (1998)]²³. Hence, under the managerial opportunism hypothesis, we expect a lower probability of acquiring a private firm when stock is chosen as the method of payment. We define a dummy variable that takes the value of one in the case of a non *all-cash* bid, and zero otherwise.

4.2.2. Information asymmetry proxy variables

The proxy variables we employ in order to test the relevance of information asymmetry in the choice decision between acquiring listed vs. unlisted firms are: relative size of target firm, prior stake, diversified acquisition, cross-border acquisition and high-tech. We relate relative size of target firm and prior stake variables with hypothesis H2a, whereas diversified acquisition, cross-border acquisition and high-tech variables are expected to be associated with excessive asymmetric information, that is, with hypothesis H2b.

- Relative size of the target. According to Asquith *et al.* (1983), we expect less information asymmetry the larger the acquired firm is compared to the bidder firm. Moreover, larger firms have more negotiating power. Therefore, we expect a lower probability of unlisted firm acquisition when the relative size of the target firm to the acquiring firm is high. The relative size of the target is computed as the target's total assets divided by the acquirer's total assets in the most recent December prior to the acquisition announcement date.
- Prior stake. This variable represents the percentage of ownership that the acquiring firm holds in the target firm. A lower degree of information asymmetry is expected if the acquiring firm has a stake in the acquired firm.
- Diversified acquisition. This is a dummy variable that takes the value of one when the target firm is not in the same industry as the acquirer and zero otherwise. An acquisition is classified as within-industry if both the acquirer and the target have the same 2-digit CNAE code. As stated above, bidders face a higher likelihood of overvaluing targets outside of their core business as their knowledge base of the target industry is lower [Balakrishna and Koza (1993)]. Therefore, the acquisition of unlisted firms is less likely if the transaction is an inter-industry deal.
- Cross-border acquisition. The acquisition of foreign firms involves higher information asymmetry, search costs and valuation difficulties [Shimizu *et al.* (2004)]. Moreover, target firms integration may be harder because of regu-

(23) The correlation between active monitoring of managerial activities and lower agency costs has been documented by Ang *et al.* (2000) and others.

latory and cultural differences between countries. As a result, cross-border transactions involving a private target are less often than domestic targets [Moeller and Schlingemann (2005)]. This is a binary variable that takes the value of one when the target firm is foreign and zero otherwise.

- High-tech. This is a dummy variable equal to one if the target firm is a high-tech firm and zero otherwise. We follow Loughran and Ritter (2004) in order to define this variable. Capron and Shen (2007) argue that firms whose asset value is highly uncertain, such as high-tech firms, have difficulties in sending a credible signal of their value to bidders. One way to reduce information asymmetry and adverse selection problems is to be listed, so that high-tech firms send a signal of high quality and the likelihood of long-term survival.

4.2.3. Control variables

- Leverage is defined as the acquiring firm's total debt to total assets at the end of the year prior to the acquisition's announcement date. Theories proposed by Novaes (2003), and others, claim that higher debt reduces the probability of a takeover since leverage may act as a corporate control mechanism, reducing the probability of acquiring public firms for opportunistic reasons [Feito-Ruiz *et al.* (2014)].
- Run-up. Similar to Martynova and Renneboog (2011), this variable is defined as the buy-and-hold abnormal return in the pre-announcement period (t_0-20 , t_0-3). We use this variable in order to control for the possible existence of inside information prior to the acquisition announcement [Farinós *et al.* (2005)].

We also control for the GDP annual growth rate (GDP rate) and fixed effects of year.

5. RESULTS FOR THE WHOLE SAMPLE HORIZON

5.1. Announcement-period abnormal returns to acquiring firms

Table 2 exhibits the bidder's buy and hold abnormal returns (BHAR) and cumulative abnormal returns (CAR) estimated over different windows for the full sample of acquisitions and for acquisitions classified into listed and unlisted targets and t-tests differences between them. Abnormal returns have been estimated employing a broad market index (IGBM) as in expression [5] (panel A and D), and through cross-sectional regressions of the CAPM (panel B and E) and the Fama-French three-factor model (panel C and F) as in expressions [1] and [2], respectively.

Consistent with previous evidence, we find in Table 2 that acquirers of unlisted targets gain significant positive abnormal returns on the acquisition announcement period regardless of the model and the return computation used. For instance, the mean BHAR ranges from 1.09% to 1.16% for the three-day event period of $[t_0-1, t_0+1]$ and from 0.95% to 1.04% for the five-day event period of $[t_0-2, t_0+2]$. However, shareholders of firms purchasing listed companies experience insignificant positive abnormal returns in any case.

Faccio *et al.* (2006) conjecture that any leakage of information would be more likely to happen for deals involving two listed firms than for transactions in which only the acquirer is listed. If such leakage occurs and the purchase is anticipated, sig-

Table 2: ABNORMAL RETURNS AROUND THE ACQUISITION ANNOUNCEMENT DAY (t_0)

Interval relative to the announcement-day (t_0)	Full sample	Listed targets (1)	Unlisted targets (2)	Diff. test p value (1) vs (2)
Num. of observations	261	73	188	
Panel A: Mean BHARs				
(-1,+1)	0.99 ^a	0.72	1.10 ^a	0.602
(-2,+2)	0.93 ^a	0.76	1.00 ^a	0.787
(-20,-3)	1.04 ^b	0.69	1.17 ^c	0.557
(+3,+20)	0.76	1.86	0.33	0.388
Panel B: BHARs estimated through the CAPM				
(-1,+1)	1.01 ^a	0.71	1.15 ^a	0.538
(-2,+2)	0.94 ^a	0.78	1.04 ^a	0.767
(-20,-3)	1.05 ^b	0.72	1.18 ^c	0.580
(+3,+20)	0.76	1.80	0.37	0.398
Panel C: BHARs estimated through the Fama-French three-factor model				
(-1,+1)	0.98 ^a	0.96	1.09 ^a	0.862
(-2,+2)	0.91 ^a	0.90	0.95 ^a	0.948
(-20,-3)	1.01 ^b	0.60	1.13 ^c	0.522
(+3,+20)	0.72	1.74	0.36	0.376
Panel D: Mean CARs				
(-1,+1)	0.98 ^a	0.69	1.10 ^a	0.568
(-2,+2)	0.91 ^a	0.69	1.00 ^a	0.714
(-20,-3)	0.99 ^b	0.77	1.08 ^c	0.694
(+3,+20)	0.58	1.41	0.25	0.399
Panel E: CARs estimated through the CAPM				
(-1,+1)	1.00 ^a	0.68	1.16 ^a	0.502
(-2,+2)	0.92 ^a	0.70	1.04 ^a	0.693
(-20,-3)	1.01 ^b	0.81	1.08 ^c	0.740
(+3,+20)	0.60	1.39	0.29	0.410
Panel F: CARs estimated through the Fama-French three-factor model				
(-1,+1)	0.98 ^a	0.92	1.10 ^a	0.806
(-2,+2)	0.89 ^a	0.81	0.96 ^a	0.863
(-20,-3)	0.96 ^b	0.68	1.02 ^c	0.670
(+3,+20)	0.61	1.35	0.33	0.406

^{a, b, c} Significantly different from zero at the 1%, 5% and 10% levels, respectively.

Note: Firm and risk factor returns are measured as Buy and Hold Returns (BHR) and Cumulative Returns (CR). Abnormal returns are estimated employing a broad market index (IGBM) as a control, the Capital Asset Pricing Model (CAPM) and the Fama-French three-factor model. Abnormal returns are calculated for different intervals relative to the acquisition announcement day (t_0). The table exhibits results for the full sample of acquisitions and acquisitions of listed and unlisted targets, respectively. Heteroskedasticity has been corrected using White's methodology. Abnormal returns are expressed in percentage.

Source: Own elaboration.

nificant abnormal returns prior to and zero abnormal returns on the announcement date of listed firm acquisitions would be consistent. However, we find that significant abnormal returns on the pre-announcement period for the full sample are exclusively due to the subsample of bidding announcement of unlisted targets.

Finally, it is noteworthy to highlight that none of the differences between the abnormal returns acquirers gain when bidding an unlisted versus a listed target is statistically significant.

Table 3 reports the results for the three-day window BHARs centred on the announcement date (t_0-1, t_0+1) when the sample is split according to bidder, target and transaction characteristics²⁴. A common feature for all the subsamples is that differences in abnormal returns between acquisition announcements of listed and unlisted targets are not statistically significant, except in the case of acquisitions paid with cash and stocks (mixed payment). However, the small size of the subsample (6 and 11 observations, respectively) makes us to be cautious with this result.

5.1.1. Method of payment

Panel A of Table 3 shows that when acquisitions are paid for with cash, shareholders of acquiring firms gain significant positive abnormal returns for unlisted target biddings, but insignificant CARs when acquiring a listed company. This result differs from Chang's (1998) for the US market, but is similar to Fuller *et al.* (2002) and Moeller *et al.* (2004) also for the US market, Draper and Paudyal (2004) and Petmezaz (2009) for the UK market, and Faccio *et al.* (2006) and Feito-Ruiz *et al.* (2014) for 17 and 19 European countries, respectively.

The results when cash is the mode of payment are consistent with a different level of competition in the market for listed and unlisted corporate control. Hence, insignificant abnormal returns for bidders of listed targets reflect a zero NPV transaction due to a highly competitive market, whereas positive abnormal returns for acquirers of unlisted targets show that the acquiring firm's shareholders appropriate the excess value gained from underpayment.

We find insignificant abnormal returns when the choice of payment is different from an *all-cash* acquisition, except for one estimation. However, this evidence must be treated with caution because of the small size of the subsample.

5.1.2. Size of the acquirer

Panel B of Table 3 exhibits three-day BHARs of listed and unlisted targets sorted by the size of the acquiring company. We classify bidders according to their market value, where the market value is computed as the number of shares outstanding times market price per share at the end of the most recent December or June prior to the acquisition announcement date. Then we classify an acquirer as big if its market value is greater than the median market value of all companies listed in the Spanish market on the date of its market value computation. Otherwise, the acquirer is classified as small. We also show results for big firms in the higher quartile (biggest firms).

(24) For the sake of brevity we do not show compounded and cumulative abnormal returns computed using either a broad market index as a control or CARs estimated through the CAPM and the Fama-French three factor model as they do not alter the main conclusions.

Table 3: ACQUIRER'S THREE-DAY BUY AND HOLD ABNORMAL RETURNS (BHAR) BY CHARACTERISTICS OF ACQUIRER, DEAL, TARGET AND LISTING STATUS OF TARGET

	CAPM				FF three-factor model			
	Full sample (1)	Listed targets (2)	Unlisted targets (3)	Diff. test p value (2)vs(3)	Full sample (5)	Listed targets (6)	Unlisted targets (7)	Diff. test p value (6)vs(7)
Panel A: By method of payment								
Cash	1.05 ^a	1.07	1.06 ^a	0.999	0.98 ^a	1.13	1.00 ^a	0.869
	229	57	172		229	57	172	
Stock	0.76	0.89	0.83	0.421	0.40	0.31	0.23	0.103
	15	10	5		15	10	5	
Mixed	0.69	-3.18	2.68	0.034	0.34	-3.46	1.91	0.059
	17	6	11		17	6	11	
Stock+Mixed	0.72	-0.54	2.24 ^c	0.125	0.40	-1.57	1.64	0.110
	32	16	16		32	16	16	
Panel B: By size of the acquirer								
Biggest	-0.07	-0.58	0.31	0.287	-0.05	-0.68	0.44	0.205
	96	46	50		96	46	50	
Big	0.50	0.02	0.80 ^a	0.296	0.51	0.23	0.81 ^a	0.476
	158	60	98		158	60	98	
Small	1.69 ^a	3.70 ^c	1.39 ^a	0.257	1.58 ^a	3.07 ^c	1.17 ^a	0.269
	103	13	90		103	13	90	

^{a, b, c} Significantly different from zero at the 1%, 5% and 10% levels, respectively.

Note: The table exhibits three-day window buy and hold abnormal returns (BHAR) centred on the announcement date (t_{p-1}, t_{p+1}) and associate statistics. BHARs are estimated employing the Capital Asset Pricing Model (CAPM) and Fama-French (FF) three-factor model. The top number for each group is the acquirer's BHAR and the second number is the number of observations. Heteroskedasticity has been corrected using White's methodology. Abnormal returns are expressed in percentage.

Source: Own elaboration.

Table 3: ACQUIRER'S THREE-DAY BUY AND HOLD ABNORMAL RETURNS (BHAR) BY CHARACTERISTICS OF ACQUIRER, DEAL, TARGET AND LISTING STATUS OF TARGET (continuation)

	CAPM				FF three-factor model			Diff. test p value (6)vs(7)
	Full sample (1)	Listed targets (2)	Unlisted targets (3)	Diff. test p value (2)vs(3)	Full sample (5)	Listed targets (6)	Unlisted targets (7)	
Panel C: By relative size of the acquisition								
High	1.58 ^b	1.23	1.84 ^a	0.644	1.14 ^b	1.07	1.18 ^b	0.925
	86	36	50		86	36	50	
Low	0.91 ^b	1.14 ^b	0.86 ^c	0.686	0.92 ^b	0.82	0.86 ^c	0.953
	87	17	70		87	17	70	
Panel D: By related vs. unrelated industry acquisition								
Diversifying	1.30 ^b	2.81	0.96 ^c	0.512	1.26 ^b	3.51	0.94 ^c	0.340
	64	10	54		64	10	54	
Within-industry	0.91 ^a	0.35	1.23 ^a	0.211	0.85 ^a	0.54	1.08 ^a	0.487
	197	63	134		197	63	134	
Panel E: By domestic vs. cross-border acquisition								
Domestic	1.29 ^b	1.51	1.28 ^a	0.903	0.97 ^b	0.95	1.09 ^b	0.932
	100	19	81		100	19	81	
Cross-border	0.81 ^a	0.37	1.04 ^a	0.350	0.82 ^a	0.40	1.05 ^a	0.395
	161	54	107		161	54	107	

^{a, b, c} Significantly different from zero at the 1%, 5% and 10% levels, respectively.

Note: The table exhibits three-day window buy and hold abnormal returns (BHAR) centred on the announcement date (t_0-1, t_0+1) and associate statistics. BHARs are estimated employing the Capital Asset Pricing Model (CAPM) and Fama-French (FF) three-factor model. The top number for each group is the acquirer's BHAR and the second number is the number of observations. Heteroskedasticity has been corrected using White's methodology. Abnormal returns are expressed in percentage.

Source: Own elaboration.

The results from Panel B are consistent with the evidence from Moeller *et al.* (2004) as we find that the smaller the acquirer is the higher the abnormal returns are. Thus, small acquirers gain significant abnormal returns regardless of the target's listing status and large acquirers' abnormal returns depend on the listing status, that is, big acquirers obtain significant positive abnormal returns only when the purchase involves an unlisted firm. However, the largest acquirers (i.e. those in the higher quartile) do not show significant abnormal returns.

5.1.3. Relative size of the acquisition

We partition the returns to acquirers on the relative size of the target company compared to the acquirer in Panel C of Table 3. The relative size of the target is computed as the target's total assets divided by the acquirer's total assets. We classify a relative size as high if it is greater than the sample median relative size, and low otherwise.

Full sample results seem to suggest the notion that as acquisitions of small companies generate smaller amounts of synergy (in absolute terms), even good acquisitions could have little impact on the bidder's stock price if targets are small relative to the bidder. When the sample is split into public and private targets, our evidence suggests that the listed status dominates. As well, and consistent with Fuller *et al.* (2002) and Draper and Paudyal (2006), we find that high relative size acquirers earn greater significant positive abnormal returns for unlisted targets than low relative size acquirers. For listed target firms, Panel C shows insignificant abnormal returns for high relative size acquirers and significant positive abnormal returns for low relative size ones only when the CAPM is used in the estimation²⁵.

Therefore, our results suggest that (i) the acquisition of less well-known firms are viewed by investors as value-orientated transactions, and (ii) that the acquisition of small companies relative to the bidder have little impact on the bidder's stock price. On the other hand, as most of the acquisitions in our sample are non *all-stock* bids, the results do not support an explanation based on a large blockholder formation that could reduce agency costs.

5.1.4. Related vs. unrelated industry acquisition

In Panel D of Table 3 we compare announcement date abnormal returns of diversifying and within-industry acquisitions for acquirers of private and public companies. An acquisition is classified as within-industry if both the acquirer and the target have the same 2-digit CNAE code.

In contrast to the previous evidence, we do not find value destruction from unrelated industry (diversifying) acquisitions. Although the results suggest a certain listing status effect, we find that investors view within-industry acquisitions of unlisted targets (that is, smaller companies in related businesses) as value orientated purchases.

5.1.5. Domestic vs. cross-border acquisition

The results in Panel E of Table 3 show that the listing status dominates as we find a significant positive reaction either for domestic or cross-border acquisitions

(25) Moreover, the small size of the subsample must be taken into account when interpreting this result.

of private companies. Nevertheless, the results suggest that benefits from domestic acquisitions are larger as we find lower wealth effects in cross-border deals.

Our evidence diverges from Fuller *et al.* (2002) but is similar to Faccio *et al.* (2006) and, from our point of view, supports Hansen and Lott's (1996) conjecture. Though Faccio *et al.* (2006) argue that abnormal returns for cross-border acquisitions of listed targets should be similar to those for unlisted targets under the hypothesis proposed by Hansen and Lott (1996), our evidence suggests that the shareholders of acquiring companies positively value the acquisition of companies that are very unlikely to be in their portfolios.

5.2. Acquirer's choice and announcement-period abnormal return determinants: the self-selection model

Table 4 exhibits the results from the Heckman (1979) two-step estimation procedure. In the probit model (choice equation) we analyse the determinants of the decision to buy an unlisted firm rather than a public one. The independent variables in the model come from Section 4.2, whereas the dependent variable *Target* is a binary variable that equals one for a private target and zero for a public target.

The results from this first stage partially support the managerial opportunism hypothesis (H1). As in Bae *et al.* (2013) and Feito-Ruiz *et al.* (2014), we find that the probability of acquiring an unlisted firm is lower the larger the acquiring firm. Additionally, we also find a lower probability of acquiring a private firm when the purchase is paid for with either stock or stock and cash (i.e. when it is a non *all-cash* payment). As stated in Section 4.2, this result is consistent with acquiring firm managers reducing the possibility of creating an outside blockholder after the bidding when the acquisition is paid for with shares as private firms are closely held. However, contrary to Bae *et al.* (2013) and Feito-Ruiz *et al.* (2014), we do not find cash flow and market-to-book ratio variables to be significant determinants of acquiring a public firm.

Regarding the information asymmetry as a determinant of private firm acquisition, our results support to some extent hypothesis H2a, as the prior stake variable is significant and has the expected sign. That is, the higher the prior stake held by the bidder, the lower the probability of acquiring a private firm. However, the relative size of the target firm seems not to be a determinant of the acquisition choice as it is not significant, though Bae *et al.* (2013) and Feito-Ruiz *et al.* (2014) find a negative and significant relationship between relative size and the probability of acquiring an unlisted firm.

Also, contrary to Capron and Shen (2007) and Feito-Ruiz *et al.* (2014), our results mainly reject hypothesis H2b, which poses that excessive information asymmetry promotes the acquisition of listed firms. Instead, we find both diversified acquisition and high-tech variables to be positive and significant. However, the cross-border acquisition variable is negative and significant (but only at the 90% level of significance). These results suggest that when Spanish listed firms face the decision of diversifying their business or investing in a highly uncertain business, they prefer to acquire unlisted firms which, being smaller, are easier to integrate, and fewer financial resources are needed in the transaction than would be required for similar listed firm targets. Interestingly, they only consider a cross-border acquisition to be a highly asymmetric information event, so they attempt to reduce the inherent risk by acquiring better-known firms, that is, foreign listed firms.

Table 4: DETERMINANTS OF THE ACQUISITION CHOICE BETWEEN LISTED AND UNLISTED TARGET FIRMS AND EFFECT OF TARGET LISTING STATUS ON ACQUIRER ABNORMAL RETURNS

Variables	Choice equation	Return equation
	Target	BHAR (-1,+1)
Managerial opportunism		
Acquiring firm size	-0.045 ^a	-0.001
Cash flow	2.707	-0.041
Acquiring MTB	-0.011	-0.003 ^a
Non all-cash payment	-1.572 ^a	-0.036
Information asymmetry		
Relative size	-0.168	-0.006
Prior stake	-1.545 ^b	-0.158
Diversified acquisition	1.078 ^a	0.011
Cross-border acquisition	-0.541 ^c	-0.001
High-tech	1.267 ^b	0.018
Control variables		
Leverage	0.913	0.023 ^c
GDP rate	4.468	0.355
Run-up	3.283 ^c	0.095
Intercept	-1.685 ^c	-0.013
Year control	Yes	Yes
Private target		-0.011
Lambda		0.021
Wald chi-square	53.79	
Prob>chi-square	0.000	
Pseudo R-square	0.31	
Observations	154	
F		1.55
Prob>F		0.097
R-square		0.09
Observations		154

^{a, b, c} Significantly different from zero at the 1%, 5% and 10% levels, respectively.

Note: The table exhibits the regression estimates from the Heckman (1979) two-step estimation procedure. The first step consists of the estimation of a probit regression (choice equation) where the dependent variable *Target* is a binary variable that equals one for private target and zero for public target. In the second step, the dependent variable in the return equation is the three-day announcement abnormal return employing a broad market index (IGBM) as a control [BHAR (-1,+1)]. The return equation is estimated by including the Lambda endogeneity bias control variable obtained from the previous stage. The remaining variables are defined in the Appendix. Heteroskedasticity has been corrected using White's methodology.

Source: Own elaboration.

Finally, we find that, among our control variables, only the run-up variable has a (positive) significant correlation with the choice of acquiring an unlisted firm. This result is consistent with the evidence from Table 2 and suggests the possible use of insider information prior to the acquisition announcement. Another plausible interpretation of this result is related to the weak competition in the market for private companies, thus bidding firms may not care about information leakages prior to the announcement date.

Turning to the return equation, the independent variables are the same as in the choice equation, but include the Lambda endogeneity bias control variable obtained from the previous stage and the private target variable, which is a binary variable that equals one for a private target and zero for a public target. The dependent variable is the three-day announcement BHAR computed employing a broad market index (IGBM) as a control. Table 4 shows that most of the variables are not significant except in two cases. On the one hand, acquiring firms tend to gain lower announcement-period BHARs when the market-to-book ratio of the acquiring firm is higher. As a higher market-to-book is a signal of overvaluation, we interpret this reaction as investors being afraid of overpayment. On the other hand, we find a positive and significant relation between announcement-period BHARs and leverage. This result is consistent with the notion of leverage as a corporate control mechanism and, thus, signalling a value orientated acquisition.

It is worth noting two important results from the return equation in Table 4. First, consistent with results from Table 2 and 3, acquirers of unlisted firms do not earn significantly more than acquirers of listed firms since the private target variable is not significant. Second, the Lambda variable representing the correction for endogeneity of target choice and unobserved differences between listed and unlisted firms is not significant. This result indicates that the choice equation is not misspecified (i.e. it does not suffer from the omitted variable problem) and there are no unobservable factors affecting the results because the explanatory variables in the choice model distinguish properly acquirers of listed firms from acquirers of unlisted firms. Therefore, the return model, in which the Lambda estimation is implemented, does not suffer from limited power to detect bias. As Akhtar (2015) claims if the Lambda had been significant, it would mean that after taking sample selection into account there were still some unaccounted for factors affecting the results. However, this is not a concern in this research as the Lambda is not significant.

6. MARKET CONDITION EFFECTS ON THE CHOICE AND RETURNS OF ACQUIRING AN UNLISTED VS. A LISTED FIRM: SUBSAMPLE ANALYSIS

Petmezas (2009) and Akhtar (2015) point out that market timing variation can have different outcomes in estimating abnormal returns, particularly in bull and bear markets. Specifically, Petmezas (2009) finds that acquiring firms show positive abnormal returns during high-valuation periods but insignificant returns during low-valuation periods. However, the sub-analysis by target listing status shows that the acquisition of public targets during low-valuation periods loses a significant abnormal return, while acquisitions undertaken during high-valuations periods generate an insignificant abnormal return. For unlisted target acquisitions, Petmezas (2009) finds positive abnormal returns during high- and low-valuation periods, with abnormal returns being significantly higher in the first case.

Therefore, we examine whether the previous results for the full sample period are consistent by splitting the sample into two periods: a strong bull regime from 2003 to 2007 (pre-Global Financial Crisis), in which the IGBM rose about 150% (annual average of 21%), and a strong bear regime from 2008 to 2011 (post-Global Financial Crisis), in which the IGBM declined about 50% (annual average of -12%). After splitting the sample period, our pre-Global Financial Crisis sample consists of 151 purchases, where 34 of the targets were listed firms and 117 were unlisted firms, whereas our post-Global Financial Crisis sample consists of 62 purchases, where 16 of the targets were listed firms and 46 were unlisted firms.

6.1. *Announcement-period abnormal returns to acquiring firms for pre- and post-Global Financial Crisis periods*

Table 5 replicates former Table 2 and exhibits the bidder's buy and hold abnormal returns (BHAR) and cumulative abnormal returns (CAR) estimated over different windows for the full sample of acquisitions and subsamples according to target firm listing status for the pre and post-crisis periods. P-values from t-tests of abnormal return differences between listed and unlisted target firms and between pre and post-crisis periods are also shown.

Several interesting issues arise from Table 5. First, evidence from Table 5 leads to conclude that results from Table 2 are market valuation conditioned. Thus, the significant positive abnormal returns on the acquisition announcement (three and five days around t_0) of unlisted firms found in Table 2 are only gained during the pre-crisis period (bull market). Besides, unlike Table 2 where bidders of listed targets do not gain significant abnormal returns around the acquisition announcement, Table 5 shows that they earn significant negative returns in the three-day window centred on the announcement date (t_0-1, t_0+1). All these results are robust to the model and the return computation employed. Note that, though our results for the full sample are similar to Petmezas (2009), when the sample is split into listed and unlisted target firms evidence from Table 5 substantially differs from his.

Second, the significant abnormal returns on the pre-announcement period for unlisted target firm acquirers' found in Table 2 disappear now during both the pre and post-crisis period. Instead, we find a similar behaviour but only for the subsample of bidding announcements of listed targets during the post-crisis period. This anticipation of the purchase that occurs only during the bear market may be due to acquirers leaking information in order to sign the strength of the firm²⁶.

Finally, Table 5 also exhibits that the difference between the abnormal returns around the acquisition announcement of firms bidding listed and unlisted targets are significant (mostly of them at the 1% significance level) but only during the pre-crisis period. Differences on the pre and post-announcement windows are not significant. When abnormal returns are compared between bull and bear market periods, it is interesting to highlight that significant differences only arise in the case of abnormal returns in the three-day window centred on the announcement date for bidders of listed targets regardless the model and the return computation employed.

(26) Kothari *et al.* (2009) show that firms manage information disclosure according to managers' incentives.

Table 6 replicates former Table 3 and exhibits the three-day window mean BHARs centred on the announcement date (t_0-1, t_0+1), estimated by employing the IGBM index as a control, for the full sample and bidder, target and transaction characteristics subsamples for the pre and post-crisis periods²⁷. Table 6 also exhibits p-values from t-tests of abnormal return differences between listed and unlisted target firms and between pre and post-crisis periods.

Similar to Table 3, acquirers of unlisted firms gain significant abnormal returns regardless of the bidder, target and transaction characteristics during the pre-crisis period (strong bull market period), except in the case of the largest acquirers. Nevertheless, contrary to previous evidence in Table 3, acquirers of listed firms experience negative and significant abnormal returns in some cases during the pre-crisis period. Specifically, and similar to Moeller *et al.* (2004), large acquiring firms have significant negative abnormal returns (the larger the acquirer the lower the abnormal return), which is consistent with the investor's view of biddings motivated by managerial opportunism and "hubris"²⁸. We also find significant negative abnormal returns when the relative size of the target is high, as in Fuller *et al.* (2002) and Draper and Paudyal (2006). Similar to the results of Petmezas (2009), non-diversifying acquisitions exhibit significant value destruction when the target firm is a listed one. Differences between abnormal returns of acquirers of listed and unlisted target firms are mostly statistically significant.

During the post-crisis period (strong bear market period) it is hard to find any significant abnormal return, even in the case of private targets. In fact, investors only observe acquisitions as a value creation transaction in three cases: (i) when the target is an unlisted firm and the relative size of the target is high; (ii) in the case of within-industry acquisitions of unlisted targets; and (iii) in the case of cross-border acquisitions of public companies. The results from cases (i) and (ii) are similar to Petmezas (2009). Unlike the pre-crisis period, we do not find significant differences in abnormal returns between the acquisition of listed and unlisted firms.

When we compare abnormal returns for the pre and the post-crisis period only acquisition announcements of listed firms show statistically significant differences. In most cases, abnormal returns go from being significant negative to non-significant. In any case, results from Table 6 must be taken with caution because of the small sample size.

6.2. Acquirer's choice and announcement-period abnormal return determinants for pre- and post-Global Financial Crisis periods

Table 7 reports the results for the Heckman (1979) two-step estimation procedure for both pre and post-Global Financial Crisis (that is, strong bull and strong bear markets)²⁹.

(27) For the sake of brevity we do not show abnormal returns estimated through the CAPM and the Fama-French three factor model as they do not alter the main conclusions.

(28) See Section 2.b.

(29) Note that some variables have been removed due to statistical issues. Specifically, high-tech and diversified acquisition variables show perfect correlation with the dependent variable in the respective choice equations, whereas the relative size variable reduces the sample size around 35% and impedes the convergence in the probit regression estimation for the post-crisis period. We also exclude the relative size variable from the return equation in order to preserve the sample size.

Table 5: ABNORMAL RETURNS AROUND THE ACQUISITION ANNOUNCEMENT DAY (T_0) FOR THE PRE AND POST-GLOBAL FINANCIAL CRISIS PERIODS

Interval relative to t_0	Pre-crisis period			Post-crisis period			Diff. test p value		
	Full sample	Listed targets (1)	Unlisted targets (2)	Diff. test p value (1) vs (2)	Full sample	Listed targets (3)	Unlisted targets (4)	Diff. test p value (3) vs (4)	Pre- vs. post-crisis period
Num. of cases	151	34	117		62	16	46		
Panel A: Mean BHARs									
(-1,+1)	0.78 ^a	-1.16 ^c	1.34 ^a	0.001	1.05 ^c	1.32	0.95	0.739	0.026
(-2,+2)	0.70 ^b	-1.06	1.21 ^a	0.012	0.58	-0.07	0.81	0.512	0.458
(-20,-3)	1.05	0.05	1.34	0.220	1.07	1.48 ^c	0.93	0.691	0.175
(+3,+20)	0.26	0.31	0.25	0.955	0.87	1.50	0.65	0.740	0.566
Panel B: BHARs estimated through the CAPM									
(-1,+1)	0.82 ^a	-1.22 ^c	1.39 ^a	0.001	1.07 ^c	1.11	1.01	0.921	0.035
(-2,+2)	0.71 ^b	-1.22	1.24 ^a	0.005	0.58	-0.12	0.86	0.150	0.432
(-20,-3)	0.86	0.02	1.11	0.288	0.94	1.55 ^c	0.72	0.528	0.139
(+3,+20)	0.35	0.37	0.29	0.940	0.43	1.22	0.16	0.664	0.674
Panel C: BHARs estimated through the Fama-French three-factor model									
(-1,+1)	0.82 ^a	-1.27 ^c	1.34 ^a	0.002	1.13 ^b	1.13	0.98	0.891	0.043
(-2,+2)	0.62 ^c	-1.56 ^c	1.15 ^a	0.002	0.65	0.15	0.76	0.687	0.267
(-20,-3)	0.70	0.01	0.94	0.357	1.33	1.82	0.94	0.583	0.163
(+3,+20)	0.29	0.70	0.18	0.634	2.23 ^c	1.54	2.59	0.685	0.707

^{a, b, c} Significantly different from zero at the 1%, 5% and 10% levels, respectively.

Note: Firm and risk factor returns are measured as Buy and Hold Returns (BHR) and Cumulative Returns (CR). Abnormal returns are estimated employing a broad market index (IGBM) as a control, the Capital Asset Pricing Model (CAPM) and the Fama-French three-factor model. Abnormal returns are calculated for different intervals relative to the acquisition announcement day (t_0). The table exhibits results for the full sample of acquisitions and acquisitions of listed and unlisted targets, respectively. Pre-Global Financial Crisis period extends from 2003 to 2007 whereas post-Global Financial Crisis period extends from 2008 to 2011. Heteroskedasticity has been corrected using White's methodology. Abnormal returns are expressed in percentage.

Source: Own elaboration.

Table 5: ABNORMAL RETURNS AROUND THE ACQUISITION ANNOUNCEMENT DAY (T_0) FOR THE PRE AND POST-GLOBAL FINANCIAL CRISIS PERIODS (continuation)

Interval relative to t_0	Pre-crisis period			Post-crisis period			Diff. test p value		
	Full sample	Listed targets (1)	Unlisted targets (2)	Full sample	Listed targets (3)	Unlisted targets (4)	Diff. test p value (3) vs (4)	Listed targets (1) vs (3)	Unlisted targets (2) vs (4)
Panel D: Mean CARs									
(-1,+1)	0.78 ^a	-1.16 ^c	1.34 ^a	1.04 ^c	1.36	0.93	0.695	0.024	0.584
(-2,+2)	0.70 ^b	-1.09	1.22 ^a	0.57	-0.08	0.79	0.522	0.447	0.634
(-20,-3)	0.95	0.09	1.20	1.05	1.58 ^c	0.86	0.621	0.176	0.811
(+3,+20)	0.28	0.35	0.26	0.67	1.55	0.37	0.654	0.562	0.957
Panel E: CARs estimated through the CAPM									
(-1,+1)	0.82 ^a	-1.22 ^c	1.39 ^a	1.07 ^b	1.16	1.00	0.875	0.033	0.583
(-2,+2)	0.71	-1.24	1.25 ^a	0.56	-0.20	0.83	0.469	0.449	0.641
(-20,-3)	0.76	0.06	0.97	0.95	1.70 ^c	0.73	0.477	0.126	0.857
(+3,+20)	0.35	0.40	0.29	0.24	1.29	-0.11	0.568	0.653	0.826
Panel F: CARs estimated through the Fama-French three-factor model									
(-1,+1)	0.82 ^a	-1.27 ^c	1.35 ^a	1.13 ^b	1.17	0.97	0.851	0.039	0.578
(-2,+2)	0.62 ^c	-1.57 ^b	1.16 ^a	0.64	0.03	0.74	0.637	0.686	0.615
(-20,-3)	0.61	0.04	0.81	1.39	1.89 ^c	0.98	0.686	0.365	0.904
(+3,+20)	0.31	0.72	0.20	2.11 ^c	1.38	2.58	0.660	0.782	0.182

^{a, b, c} Significantly different from zero at the 1%, 5% and 10% levels, respectively.

Note: Firm and risk factor returns are measured as Buy and Hold Returns (BHR) and Cumulative Returns (CR). Abnormal returns are estimated employing a broad market index (IGBM) as a control, the Capital Asset Pricing Model (CAPM) and the Fama-French three-factor model. Abnormal returns are calculated for different intervals relative to the acquisition announcement day (t_0). The table exhibits results for the full sample of acquisitions and acquisitions of listed and unlisted targets, respectively. Pre-Global Financial Crisis period extends from 2003 to 2007 whereas post-Global Financial Crisis period extends from 2008 to 2011. Heteroskedasticity has been corrected using White's methodology. Abnormal returns are expressed in percentage.

Source: Own elaboration.

Table 6: ACQUIRER'S THREE-DAY BUY AND HOLD ABNORMAL RETURNS (BHAR) BY CHARACTERISTICS OF ACQUIRER, DEAL, TARGET AND LISTING STATUS OF TARGET FOR THE PRE AND POST-GLOBAL FINANCIAL CRISIS PERIODS

	Pre-crisis period				Diff. test <i>p</i> value				Post-crisis period				Pre- vs. post-crisis period							
	Full sample	Diff. test Listed targets (1)	Unlisted targets (2)	Diff. test <i>p</i> value (1) vs (2)	Listed Full sample	Unlisted Listed targets (3)	Unlisted targets (4)	Diff. test <i>p</i> value (3) vs (4)	Full sample	Unlisted Listed targets (3)	Unlisted targets (4)	Diff. test <i>p</i> value (3) vs (4)	Full sample	Unlisted Listed targets (3)	Unlisted targets (4)	Diff. test <i>p</i> value (1) vs (3)	Full sample	Unlisted Listed targets (3)	Unlisted targets (4)	Diff. test <i>p</i> value (2) vs (4)
Panel A: By method of payment																				
Cash	0.83 ^a	-0.65	1.25 ^a	0.009	0.92	0.98	0.91	0.956	0.92	0.98	0.91	0.956	0.92	0.98	0.91	0.956	0.92	0.98	0.91	0.956
	133	29	104		54	10	44		54	10	44		54	10	44		54	10	44	
Stock	-0.26	-1.22	0.12	0.568	2.67	2.67	-	-	2.67	2.67	-	-	2.67	2.67	-	-	2.67	2.67	-	-
	7	2	5		4	4	0		4	4	0		4	4	0		4	4	0	
Mixed	0.77	-6.00	3.31 ^c	0.011	1.10	0.30	1.91	0.854	1.10	0.30	1.91	0.854	1.10	0.30	1.91	0.854	1.10	0.30	1.91	0.854
	11	3	8		4	2	2		4	2	2		4	2	2		4	2	2	
Stock+Mixed	0.37	-4.09 ^c	2.08	0.013	1.89	1.88	1.91	0.997	1.89	1.88	1.91	0.997	1.89	1.88	1.91	0.997	1.89	1.88	1.91	0.997
	18	5	13		8	6	2		8	6	2		8	6	2		8	6	2	
Panel B: By size of the acquirer																				
Biggest	-0.55	-2.02 ^b	0.36	0.009	1.37	0.87	1.88	0.559	1.37	0.87	1.88	0.559	1.37	0.87	1.88	0.559	1.37	0.87	1.88	0.559
	63	24	39		22	11	11		22	11	11		22	11	11		22	11	11	
Big	0.29	-1.58 ^b	1.14 ^a	0.000	1.03	0.98	1.06	0.953	1.03	0.98	1.06	0.953	1.03	0.98	1.06	0.953	1.03	0.98	1.06	0.953
	96	30	66		34	13	21		34	13	21		34	13	21		34	13	21	
Small	1.62 ^a	1.99	1.60 ^a	0.858	1.07	2.78	0.86	0.359	1.07	2.78	0.86	0.359	1.07	2.78	0.86	0.359	1.07	2.78	0.86	0.359
	55	4	51		28	3	25		28	3	25		28	3	25		28	3	25	

^{a, b, c} Significantly different from zero at the 1%, 5% and 10% levels, respectively.

Note: Table exhibits three-day window buy and hold abnormal returns (BHAR) means centred on the announcement date (t_0-1, t_0+1) and associate statistics. Pre-Global Financial Crisis period extends from 2003 to 2007 whereas post-Global Financial Crisis period extends from 2008 to 2011. Returns are risk-adjusted using the market index IGBM. The top number for each group is the acquirer's BHAR and the second number is the number of observations. Heteroskedasticity has been corrected with White's methodology. Abnormal returns are expressed in percentage.

Source: Own elaboration.

Table 6: ACQUIRER'S THREE-DAY BUY AND HOLD ABNORMAL RETURNS (BHAR) BY CHARACTERISTICS OF ACQUIRER, DEAL, TARGET AND LISTING STATUS OF TARGET FOR THE PRE AND POST-GLOBAL FINANCIAL CRISIS PERIODS (continuation)

	Pre-crisis period			Diff. test <i>p</i> value			Post-crisis period			Pre- vs. post-crisis period		
	Full sample	Diff. test Listed targets (1)	Unlisted targets (2)	Diff. test <i>p</i> value (1) vs (2)	Listed Full sample	Unlisted Listed targets (3)	Unlisted targets (4)	<i>p</i> value (3) vs (4)	targets (1) vs (3)	targets (2) vs (4)		
Panel C: By relative size of the acquisition												
High	0.64	-2.41 ^b	2.01 ^a	0.000	2.35 ^b	1.40	3.21 ^c	0.416	0.028	0.528		
	45	14	31		19	9	10					
Low	1.18 ^a	0.30	1.35 ^a	0.151	-0.28	1.54	-0.64	0.231	0.424	0.121		
	54	9	45		24	4	20					
Panel D: By related vs. unrelated industry acquisition												
Diversifying	0.63	-1.60	0.94 ^c	0.399	3.35 ^c	-	3.35 ^c	-	-	0.198		
	41	5	36		9	0	9					
Within-industry	0.83 ^a	-1.08 ^c	1.52 ^a	0.001	0.65	1.32	0.37	0.405	0.029	0.173		
	110	29	81		53	16	37					
Panel E: By domestic vs. cross-border acquisition												
Domestic	1.31 ^b	-3.52	1.77 ^a	0.073	0.56	1.27	0.42	0.859	0.349	0.360		
	58	5	53		19	3	16					
Cross-border	0.45	-0.75	1.00 ^a	0.019	1.26 ^b	1.33 ^c	1.23	0.926	0.036	0.784		
	93	29	64		43	13	30					

^{a, b, c} Significantly different from zero at the 1%, 5% and 10% levels, respectively.

Note: Table exhibits three-day window buy and hold abnormal returns (BHAR) means centred on the announcement date (t_{0-1} , t_{0+1}) and associate statistics. Pre-Global Financial Crisis period extends from 2003 to 2007 whereas post-Global Financial Crisis period extends from 2008 to 2011. Returns are risk-adjusted using the market index IGBM. The top number for each group is the acquirer's BHAR and the second number is the number of observations. Heteroskedasticity has been corrected with White's methodology. Abnormal returns are expressed in percentage.

Source: Own elaboration.

Table 7: DETERMINANTS OF THE ACQUISITION CHOICE BETWEEN LISTED AND UNLISTED TARGET FIRMS AND EFFECT OF TARGET LISTING STATUS ON ACQUIRER ABNORMAL RETURNS FOR THE PRE AND POST-GLOBAL FINANCIAL CRISIS

Variables	Pre-crisis period		Post-crisis period	
	Choice eq.	Return eq.	Choice eq.	Return eq.
	Target	BHAR (-1,+1)	Target	BHAR (-1,+1)
Managerial opportunism				
Acquiring firm size	-0.050 ^a	-0.000	-0.116 ^a	-0.001 ^c
Cash flow	-0.835	-0.062	-1.904 ^b	-0.116
Acquiring MTB	-0.005	-0.002 ^c	0.367 ^a	0.002
Non all-cash payment	-1.354 ^b	-0.018	-4.927 ^a	0.023
Information asymmetry				
Relative size	-0.145	-0.003	-	-
Prior stake	-1.923 ^c	0.021	-2.021	-0.051
Diversified acq.	0.832	-0.0132	-	0.015
Cross-border acq.	-1.183 ^a	-0.007	-1.260 ^b	0.021
High-tech	-	0.022 ^c	3.666 ^b	-0.035 ^b
Control variables				
Leverage	1.740	0.053 ^b	1.767	-0.035
GDP rate	-1.424	0.137	-2.196 ^a	-0.788
Run-up	2.514	0.114 ^c	-1.472	0.153 ^b
Intercept	1.024	-0.070	-3.799 ^a	-0.036
Year control	Yes		Yes	
Private target		0.020 ^c		-0.021
Lambda		0.006		-0.002
Wald chi-square	36.67		15.86	
Prob>chi-square	0.000		0.147	
Pseudo R-square	0.36		0.49	
Observations	92		55	
F		2.25		3.60
Prob>F		0.011		0.001
R-square		0.31		0.24
Observations		92		55

^{a, b, c} Significantly different from zero at the 1%, 5% and 10% levels, respectively.

Note: The table exhibits the regression estimates from the Heckman (1979) two-step estimation procedure splitting the sample horizon in two subperiods: from 2003 to 2007 (pre-crisis period) and from 2008 to 2011 (post-crisis period). The first step consists of the estimation of a probit regression (choice equation) where the dependent variable *Target* is a binary variable that equals one for private target and zero for public target. In the second step, the dependent variable in the return equation is the three-day announcement abnormal return employing a broad market index (IGBM) as a control [BHAR (-1,+1)]. The return equation is estimated by including the Lambda endogeneity bias control variable obtained from the previous stage. The remaining variables are defined in the Appendix. Heteroskedasticity has been corrected using White's methodology.

Source: Own elaboration.

The results from the choice equation for the pre-crisis period are quite similar to those from the whole horizon of study. As in Table 4, the results from Table 7 partially support the managerial opportunism hypothesis (H1) as the acquiring firm size and the non *all-cash* payment variables are significant and have the expected (negative) sign. Cash flow and market-to-book ratio variables are not statistically significant either.

Similarly, the results support to some extent hypothesis H2a, since the prior stake variable is significant and has the expected sign. Nevertheless, and contrary to Table 4, evidence from Table 7 seems to support hypothesis H2b, as we find that the cross-border acquisition variable is significant and has a negative sign, whereas the diversified acquisition variable now is not significant. Finally, none of our control variables are significant.

Regarding the return equation, the main result to highlight for the bull market prior to the financial crisis is that the private target variable is positive and significant (that is, acquirers of unlisted firms gain significantly more than acquirers of listed firms) even after controlling for sample selection, in opposition either to the whole horizon of study (Table 4) or to the post-crisis period results. This result, in combination with the results from Table 5 and Table 6 (univariate abnormal returns for the pre- and post-crisis periods), is consistent with the investors' view of unlisted firm acquisitions as a value creation transaction, whereas they consider that the probability of overpayment in a listed target firm acquisition is high, since it is likely triggered by management opportunism determinants when occurring in a context of market over-optimism.

The results from Table 7 also show that acquiring firms tend to gain lower abnormal returns when the market-to-book ratio of the acquiring firm is higher and greater abnormal returns as the leverage ratio of the acquiring firm increases. Moreover, and contrary to Table 4, we find a positive and significant relationship between announcement-period abnormal returns and the acquisition of high-tech firms and pre-announcement abnormal returns, which in turn is consistent with an overoptimistic stock market. Finally, note that the Lambda variable representing the correction for endogeneity of target choice and unobserved differences between listed and unlisted firms is not significant either.

Turning to the post-crisis period, our results seem to reinforce the importance of managerial opportunism in the decision to acquire a public firm since, in addition to the acquiring firm size and the non *all-cash* payment variables, we find the cash flow variable to be negative and significant. As we discuss in Section 4.2, all these characteristics of the bidding firm encourage managerial opportunism and, thus, the acquisition of listed firms. However, the MTB of the acquirer variable now becomes significant but with a positive (unexpected) sign so that the probability of acquiring a listed firm decreases the higher the acquiring firm's market-to-book ratio is.

Interestingly, in a strong bear market hypothesis H2a is not supported, as the prior stake variable is no longer significant. Regarding hypothesis H2b, we still find that the cross-border acquisition variable is significant and has a negative sign. As in Table 4 and in the pre-crisis period, Spanish listed firms consider a cross-border acquisition to be a highly informational asymmetric event, so they tend to bid for foreign listed firms. Nevertheless, the high-tech variable is still positive and significant, suggesting that acquirers prefer to reduce the amount of money to be paid and simplify the integration of this sort of firms.

Finally, among our control variables we find that only the GDP ratio variable is significant and shows a negative sign, meaning that the probability of acquiring an unlisted firm is higher the lower the GDP ratio. We interpret this result in terms that as the economy becomes depressed Spanish listed firms prefer to acquire private firms since they are smaller (reducing the amount of money to pay and, therefore, the financial effort to do) and because of they have a superior bargaining power over them.

Regarding the return equation related to the post-crisis period, Table 7 exhibits that, after controlling for sample selection, the private target variable is non-significant (i.e., acquirers of unlisted firms do not gain significantly more than acquirers of listed firms) as the evidence from univariate analysis (Tables 5 and 6) showed. Table 7 also shows a significant negative relation between acquirer's size and abnormal returns which is consistent with investors being afraid of acquisitions motivated by managerial opportunism and "hubris". Interestingly, and contrary to the pre-crisis period, we find a negative and significant relationship between announcement-period abnormal returns and the acquisition of high-tech firms. This result is consistent with reluctant investors to acquisitions in a highly uncertain business during a bear market even in the case that target firms were unlisted firms and, therefore, smaller (and easier to integrate) and cheaper. Finally, and consistent with Table 5, we find a positive and significant relationship between announcement-period abnormal returns and pre-announcement abnormal returns. Finally, note that the Lambda variable representing the correction for endogeneity of target choice and unobserved differences between listed and unlisted firms is not significant either.

7. CONCLUSION

This research makes several contributions to the existing literature on the acquisition of private versus public target firms. On the one hand, given the evidence from Feito-Ruiz *et al.* (2014) and Moschieri and Campa (2014) that M&As are still subject to country idiosyncrasies (so residual country factors continue to affect them), individual-country studies like this performed on Spain can be a good way to test the robustness of evidence from multi-country studies. As far as we know this is the first paper to explore the determinants of the Spanish listed firm's choice regarding the listing status of the target firm. We test two main hypotheses: (i) we propose that the managerial opportunism promotes the acquisition of listed firms, and (ii) information asymmetries may lead to the acquisition of unlisted firms. On the other hand, we extend previous evidence on bidder firm's shareholder value creation in response to announcements of acquisitions of unlisted vs. listed companies. We perform univariate and multivariate tests controlling for a variety of deal, bidder and target firm characteristics for a sample of 261 complete acquisition announcements of Spanish listed bidders during 1991-2011. Unlike most of the previous literature, we take into account endogeneity in our multivariate tests due to self-selection bias, since acquirer's choice is not a random event. Additionally, we relate all our results to market valuation conditions, thus we split our sample horizon into a strong bull market period (2003-2007) and a strong bear market period (2008-2011).

Consistent with the previous evidence regarding value creation around acquisition announcements, our univariate test results for the full sample show a listing

effect, since bidders of private firms gain irrespective of the characteristics of the deal, the bidder or the target firm. However, acquirers of public firms experience insignificant abnormal returns at the time of the acquisition announcement. Acquirers of private targets do not gain significantly more than acquirers of public targets both in univariate tests and in multivariate tests, even after controlling for self-selection. Moreover, investors seem to be afraid of overpayment when the bidder firm experiences a higher market-to-book ratio and see the leverage of bidder firms as a corporate control mechanism.

When we split the full sample horizon into strong bull and strong bear market periods, relevant differences arise either regarding the full sample or between sub-sample analyses. Thus, although we find again that private firm acquirers gain irrespective of the characteristics of the deal, the bidder or the target firm during the strong bull market, acquirers of public companies show more destruction of shareholders value the larger the bidder firm, the higher the relative size of the target firm and when the acquisition is a within-industry transaction. Under this market regime, acquirers of unlisted firms gain significantly more than acquirers of listed firms. Therefore, in a context of market over-optimism, investors discern between value creation transactions (the acquisition of a private firm) and value destruction triggered by the probability of overpayment when purchasing a public firm. Nevertheless, results for the strong bear market period suggest that investors do not see the acquisition of a firm, either public or private, as a value creation deal. Finally, we cannot assert that announcement abnormal returns are explained by acquiring firm private information in either of the sample horizons studied.

Regarding the determinants of Spanish listed firms when choosing the listing status of their targets, we find that, in general terms, the results support the hypothesis of managerial opportunism favouring the acquisition of public firms irrespective of the period and market condition analysed. We systematically find that the probability of acquiring a listed firm is higher the larger the acquiring firm and when the bid is paid with either stock or stock and cash (i.e. when it is a non *all-cash* payment). This result is consistent with the managers of acquiring firms reducing the possibility of creating an outside blockholder after the purchase when the acquisition is paid with shares, since private firms are closely held. This evidence is even reinforced during the bear market period as the cash flow variable turns significant then (the higher the cash flow generated by the bidder firm the higher the probability of a public target acquisition).

Nevertheless, we find mixed results regarding the asymmetry information hypothesis, not always in line with the previous evidence in other markets. Thus, for the whole period the results support the notion that under some informational asymmetries Spanish listed firms prefer to buy unlisted firms, but when the asymmetric information is considered to be excessive they do not turn to acquiring listed firms, as the theory and previous evidence have suggested. On the contrary, they are more likely to buy an unlisted firm when the deal involves an unrelated industry (diversifying) acquisition or a high-tech target firm. When we split our time horizon of study we find that Spanish listed firms still consider a cross-border acquisition to be a highly informational asymmetric event, so they tend to bid foreign listed firms both into a strong bull and a strong bear regime. However, they prefer the acquisition of

unlisted firms when the target industry is the high-tech even in a strong bear market regime. This is consistent with acquiring firms trying to reduce the amount of financial resources needed to carry out the transaction and simplify the integration of the acquired firm. Interestingly, market reaction changes in this case, as it turns to be positive in the bull market to negative in the bear market.

The above evidence is consistent with Moschieri and Campa’s (2014) conclusion that mergers and acquisitions are still subject to country idiosyncrasies despite the efforts to create a common institutional framework in Europe. Therefore, individual-country studies, like this one performed Spain, are a good way to test the robustness of multi-country studies.

Finally, given our results, further research about cross-border acquisition determinants on the listing status of the target firm and the investor sentiment effect on the long-run performance of acquirers is assured.

APPENDIX: VARIABLE DEFINITIONS AND EXPECTED EFFECT IN THE PROBABILITY OF ACQUIRING AN UNLISTED FIRM

This table describes the explanatory variables used in the probit model to estimate the likelihood of private firm acquisition. For each variable we also show the expected effect in the probability of acquiring an unlisted firm.

Variable	Definition	Expected effect
Managerial opportunism proxy variables		
Acquiring firm size	Market value of the acquirer’s common stock in the most recent December or June prior to the acquisition announcement date (in millions of euros) divided by the level of the IGBM market index at each point of time.	Negative
Cash flow ratio	EBITDA divided by the acquiring firm’s total assets at the end of the year prior to the acquisition announcement.	Negative
Market-to-book ratio	Market value of the acquirer’s common stock divided by the book value of the acquirer’s common stock at the end of the year prior to the acquisition announcement date.	Negative
Method of payment	Binary variable that takes the value of one in the case of a non <i>all-cash</i> bid, and zero otherwise.	Negative
Information asymmetry proxy variables		
Relative size of the target	Target’s total assets divided by the acquirer’s total assets in the most recent December prior to the acquisition announcement date.	Negative
Prior stake	Percentage of ownership that the acquiring firm holds in the target firm.	Negative
Diversified acquisition	Binary variable that takes the value of one when the target firm is not in the same industry as the acquirer and zero otherwise.	Negative

Variable	Definition	Expected effect
Cross-border acquisition	Binary variable that takes the value of one when the target firm is foreign (not Spanish) and zero otherwise.	Negative
High-tech	Binary variable equal to one if the target firm is a high-tech firm and zero otherwise.	Negative
Control variables		
Leverage	Acquiring firm's total debt to total assets at the end of the year prior to the acquisition's announcement date.	Positive
Run-up	Buy-and-hold abnormal return in the pre-announcement period (t_0-20 , t_0-3).	-
GDP rate	Gross Domestic Product annual growth rate of Spain. Source: Bank of Spain.	-

Source: Own elaboration.



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RESUMEN

En este trabajo analizamos los determinantes que conducen a la adquisición de una empresa cotizada versus no cotizada y extendemos la evidencia previa referida a la creación de valor consecuencia de esta elección controlando por endogeneidad. Asimismo, controlamos por las condiciones del mercado, encontrando que los resultados están condicionados por éstas. Cuando el mercado es alcista, éste observa la adquisición de empresas no cotizadas como transacciones generadoras de valor, mientras que encontramos destrucción de valor en la compra de empresas cotizadas. Por el contrario, cuando el mercado es bajista, no encontramos rendimientos anormales significativos en ningún caso. Por otro lado, los resultados sugieren que el oportunismo directivo es un determinante de la adquisición de empresas cotizadas tanto en un mercado alcista como bajista. Sin embargo, bajo asimetrías informativas, las empresas compradoras cambian sus preferencias en función de las condiciones del mercado.

Palabras clave: adquisición de empresas no cotizadas y cotizadas, oportunismo directivo, información asimétrica, mercado alcista y bajista.

Clasificación JEL: G14, G34, L33.