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Alberto Ippolito Ferreira

Master Thesis


# M&A TOEHOLDS IN EUROPE


Supervisor:
Professor Øyvind Norli

DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE DOUBLE DEGREE OF MSC IN BUSINESS ADMINISTRATION – MAJOR IN FINANCE, AT UNIVERSIDADE CATÓLICA PORTUGUESA WITH BI NORWEGIAN BUSINESS SCHOOL, SEPTEMBER 2012

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Dedicated to the Gods who are always watching and finished for Elena Bersanini.

# M&A Toeholds in Europe

**Alberto Ippolito Ferreira**

BI Norwegian Business School
Católica Lisbon – School of Business and Economics

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## Abstract

This work focuses on toehold bidding in the European market, providing a comparison base with American studies. I carried out event studies to quantify Cumulative Abnormal Returns (CARs) as a representative measure of shareholder's wealth in M&A transactions where a toehold is present. The headline statistically significant result of -1.28% in an [-2; +2] event window for core European countries falls short of what is expected when compared with American studies. This result is in line with the general idea of contradictory results often found in this field as stated in (Malatesta 1983). It agrees as well with the review of Haleblian et al. (2009) and with Franks and Harris (1989). It does not agree with Eckbo and Thorburn (2000), Carroll and Griffith (2010), Le and Schultz (2007) and Farinha and Miranda (2003). To control for other factors and characteristics of these events, I ran a cross sectional analysis while finding stock as method of payment and revenues of target as statistically significant moderators of shareholder's wealth effects.

**Keywords:** Mergers and Acquisitions (M&A), Toeholds, Event Study, Cumulative Abnormal Return, Moderators of Shareholder's Wealth.

This thesis is organized in five sections. In section 1 the economic problem is explained while in section 2 the research questions, their importance and significance for today's body of knowledge are presented. In section 3 follows the literature review and in section 4 the methodology is laid out. Section 5 embodies the results of the study while section 6 carries the main conclusions and limitations of this study accompanied with future possible roads of study.

## 1. Economic problem

M&A Toeholds are studied and defined in Asquith and Kieschnick (1999) as "The initial shareholding of a bidder in the target firm prior to bidding (Asquith and Kieschnick 1999, 1)"

Betton, Eckbo and Thorburn (2009) Established the motivations behind toehold bidding:

I. It reduces the number of shares necessary to acquire in the tender offer, at the full takeover premium;
II. In case of no approval, acquirers can sell those shares to the rival bidder for a gain (appropriating the takeover premium by selling at that price);
III. The expected toehold gain has a positive impact in the valuation of the target;
IV. As a result, there is a strong case in order to implement a more aggressive bidding strategy that naturally discourages rival bidders to enter the contest for the target;
V. As the value of the target increases, the acquirer with a toehold is the one with the highest valuation for the target (as it sees its share of the company increase in value as well), and therefore, will tend to bid more aggressively;
VI. Finally, it reduces the target free rider problem Grossman and Hart (1980) as there are less shares held by minority shareholders whose sole purpose is to receive the control premium paid by first bidders or rivals (to acquire control of the target).

The study of M&A toeholds has been linked primarily with its impact on shareholder's wealth effects, its moderators, takeover premiums and the probability of a successful bid. In this study I will focus on shareholder's wealth effects and its moderators.

Having defined and explained the reasons for the existence of toehold bidding as presented in the literature, I present in the next sections the two main research questions I answer in this study.

## 2. Research questions

The two questions I address in this study are:

I. Is this a value creating strategy?
II. Is there any other factor other than the presence of a toehold which influences the results of question I?

An event study is carried out in order to measure acquirer's shareholder wealth effects as measured by Cumulative Abnormal Returns (CARs) while a cross section analysis is implemented to measure the moderators of these gains, answering in this way questions I and II, respectively.

### 2.1. Why is this interesting?

Answering these questions is interesting in the first place due to the novelty of the geographical focus (European Union - EU[1] as a whole), providing a comparison base with American studies. Secondly, by identifying the wealth effects and its moderators in the EU, academic and finance professionals can use this study as a starting point to better provide advisory services in M&A deals while, at the same time, counselling investors and speculators who attempt to time the market.

[1] EU – 27 countries while limited to available data in Zephyr's database

## 3. Literature Review

This literature review is organized as follows. First, I present studies focused in M&A events, the reasons of its existance and its wealth effects. Secondly, the toehold literature is presented focusing on wealth effects, takeover premiums, toehold size and regulation. Thirdly, moderators of acquisition as advanced in today's literature are discussed. Finally, conclusions are drawn from the today's body of knowledge accompanied by Table I which presents the main results from different studies.

### 3.1. Mergers and Acquisitions (M&A)

To establish the proper language to be used throughout this work, it is important to clarify the difference between mergers and tender offers. According to Loughran and Anand (1997), mergers are normally friendly which means that they enjoy the cooperation of current management. In turn, tender offers are directed to the shareholders of the target company, which means that it circumvents current management, and may be a signal of higher confidence in the ability of the acquirer to realize gains from the acquisition. Nevertheless and for the purpose of this study, M&A events, acquisitions, and tender offers, are all considered to have interchangeable meanings, similar to the simplification made in Haleblian et al. (2009, 470).

M&A transactions are major events in the life of a company. Changes in the capital structure and composition of the equity have impacts in the overall business strategy as well as for its focus, priorities and presence in markets and business sectors.

M&A related subjects have been widely researched in the finance literature, as "Corporate acquisitions are important events... CRSP tapes shows that over half a trillion dollars worth of equity in publicly-traded firms was acquired by other publicly traded firms during 1970-1989 (Loughran and Anand 1997, 1765)"

There are different strategies aimed at delivering successful M&A deals, ranging from hiring the best valuation talent in the industry, to being extremely savvy in negotiating compensation packages to exploring and exploiting, to the acquirer's advantage, the bylaws of the target. All these strategies have in common the objective of maximizing stockholders wealth or, in a broader view, stakeholder's wealth.

A great effort in the corporate finance literature has been devoted to the study of this subject, especially for the American market and, to some extent, equally vast in the European market.

Next, after a brief overview of M&A literature in general by acknowledging its importance and the fact that significant literature has been produced for this subject, follows the reasons advanced for its existance.

### 3.1.1. Reasons for M&A activity

According to the review by Haleblian et al. (2009), journal articles that focused on M&A deals have conclusions defending a vast range of standpoints on the reasons justifying the existence of M&A events. They vary from value creation, characteristics of the transaction, and inter-relations with other motives (power seeking, efficiency gains, resource redeployment and market discipline) to managerial self-interests and specific firm characteristics.

More specifically Berkovitch and Narayanan (1993, 350-351) advance in their research a method of distinguishing among the synergy, agency and hubris motives. By looking at the correlation between target and total gains in 330 tender offers between 1963 and 1988, they conclude that synergy is the primary motive for takeovers while acknowledging the simultaneous existence of hubris. Furthermore, a relationship was found between agency motives and negative total gains, indicating a consonant conclusion to what is expected "... agency, and not hubris, seems to be the major reason for the existence of value-reducing acquisitions (Berkovitch and Narayanan 1993, 361)". Overall, they concluded, "... on average, takeovers yield positive total gains. This occurs in about 75 per cent of the takeovers in the sample (Berkovitch and Narayanan 1993, 361)".

The Synergy motive is based on the premise that bidders and targets negotiate takeovers when both parties gain from the process. As a result, the primary reason that motivate companies to negotiate an M&A transaction is the existence of a perception that the two companies complement each other's business operations and together can achieve more than they would alone.

The Agency motive is rooted in the idea that bidder's management benefit from a transfer of value from shareholders, by satisfying their personal objectives. By controlling more assets, increased powers are transferred and concentrated in current management, translating into increased dependence of shareholders on current management to navigate on an immense group or ambitious acquisition program, defended to the point of conveying the idea that it is solely achievable by them.

The Hubris motive is linked with acquirer's misconceptions about synergies or general advantages of a deal. As a result, "since target gains are merely a transfer of wealth from acquirers, there will be zero correlation between target and total gains (Berkovitch and Narayanan 1993, 348)".

In the review carried out by Haleblian et al. (2009), M&A transactions motives are classified in a different manner, namely[2]:

I. Value creation, including seekers of market power, efficiency gains, resource redeployment and market discipline;
II. Managerial self-interest, motivated by compensation, hubris and defence tactics;
III. Environmental factors, including environmental uncertainty, regulation, imitation, resource dependence and networks ties;
IV. Firm characteristics, related with acquisition experience, firm strategy and its market positioning.

[2] For more details refer to Haleblian, Jerayr, Cynthia E. Devers, Gerry McNamara, Mason A. Carpenter and Robert B. Davison. 2009. "Taking Stock of What We Know About Mergers and Acquisitions: A Review and Research Agenda." *Journal of Management,* 35 (3): 469-502. doi: 10.1177/0149206308330554.

To conclude, the main idea of this section is that M&A activity occurs primarily due to expectations of synergy gains, according to Berkovitch and Narayanan (1993), or its equivalent designation in the review of Haleblian et al. (2009), for value creation expectations.

### 3.1.2. M&A Wealth Effects

Three main patterns can be found in Loughran and Anand (1997) about shareholder's wealth effects studies:

I. Target shareholders earn significant positive abnormal returns from all acquisitions;
II. Acquiring shareholders receive low or none abnormal returns from tender offers;
III. Acquiring shareholders receive negative abnormal returns from mergers.

These three pillars of results exposed in Loughran and Anand (1997) form the main structure of results found by many researchers throughout years of studies of the subject. Nevertheless, a wide array of hard to compile results and evidence can be found, as Malatesta (1983) states "The literature on merger events contains conflicting evidence on returns to acquiring firms… (Malatesta 1983, 180)."

Some authors find reasons to believe that corporate takeovers are beneficial to both acquirers and targets "The proposition that a competitive market for corporate control effectively limits managerial divergence from shareholder wealth maximization implies that corporate takeovers are beneficial to shareholders of both firms involved in the transaction (Eckbo and Thorburn 2000, 1)." Research results are not all one sided, as divergence in the distribution of gains between acquirers and targets is found by several researchers, and justified in Agrawal (1992) with "methodological problems and conflicting results of prior studies (Agrawal 1992, 1618)" to justify divergence in returns.

One of many reasons found to explain these differences, besides methodological problems, are advanced and related with the speed and manner of

the incorporation of information in stock prices, as in Malatesta (1983) and Katherine Schipper (1983), "Merger benefits to acquiring firms are likely to be reflected in stock values around the time when an acquisition program is initiated (Malatesta 1983, 181)". Therefore, when the acquisition program is announced, information is incorporated in the stock price immediately and, as a result, before the acquisition itself. This carries the effect that studies around announcement date will not be able to quantify the gains as they were already priced in, transforming the announcement of the program into a source of noise in the sample, distorting results as in Malatesta (1983) "when an attempt occurs will be an attenuated measure of the attempt's net present value (Malatesta 1983, 181)". As a result, "This attenuation may explain why results regarding returns to acquiring firms tend to be weak and contradictory (Malatesta 1983, 181)".

Chronologically, initial research focused on studying wealth effects of M&A activity while simultaneously accompanied by major advances in event study methodology exemplified in the techniques of Brown and Warner (1980) and Brown and Warner (1985), according to Haleblian et al. (2009).

In these prior studies, a major focus was directed towards effects to acquirer's shareholders, while some also focused on returns to target firms. Historically, target shareholders fared well and "Perhaps not surprising, given that acquirers generally pay premiums to acquire targets, results showed that target shareholders generally fared well, often experiencing significant positive returns (Haleblian et al. 2009, 470)".

Floreani and Rigamonti (2001) Examined shareholder's wealth effects in European and American M&A events, focusing only on the insurance industry. In their sample of 56 deals between 1996 and 2000, they found value accretive results for acquirer's shareholders of 3.65% while identifying as a main positively correlated moderator of these gains to be the value of the deal. Not consonant with other studies "In sharply contrast with previous literature on financial mergers, we find that bidder shareholders increase their wealth (Floreani and Rigamonti (2001, 12)".

Some studies combined the outcomes of the acquirer and target simultaneously, while concluding that targets gains accounted for most of the increase in shareholder's wealth. Bradley (1988) Found that there are positive effects resulting from competition between bidding firms to targets while decreasing them to acquirer's "...competition among bidding firms increase the returns to targets and decreases the returns to acquirers (Bradley 1988, 3)". They tried to find moderators of these results, finding that "returns to target firms is positively related to the fraction of target shares purchased (Bradley 1988, 32)", for that they used a different methodology like the one already spoke based on CARs "using the revaluation of the combined wealth of the target-firm and acquiring-firm shareholders as basis (Bradley 1988, 4)". The headline result is that between 1963-1984 in 236 deals of both parties quoted in the NYSE or AMEX, there is a wealth gain for shareholders of about +7.4%.

Recent research of this topic is motivated by previous findings concluding on the difficulties for acquiring shareholders to benefit from positive wealth effects. Therefore, the focus is now for the antecedents of acquisitions in an effort to explain the reasons that lead firms to acquire, hoping to find the moderators of statistically significant gains in order to enhance future gains. As a result, today's research is directed to identify "… both potential moderators of acquisition performance and other acquisition-related outcomes (Bradley 1988, 470)". In this way, it is possible to identify situations where acquisitions benefit acquirer's shareholders.

Furthermore, generally it is acknowledged that acquisitions do not add value to acquirers' shareholders Haleblian et al. (2009, 470), although there are situations in which value added outcomes can be identified. "Although this work confirms that, on average, acquiring firms do not benefit from acquisitions, it importantly reveals conditions and situations under which acquisitions do benefit acquirers (Haleblian et al. 2009, 470)".

According to (Loughran and Anand 1997) there exists a relationship between the mode of acquisition and the expected wealth gains that may eventually result from synergies between the two operating units. They found:

I. Significant and positive abnormal returns for the bidders' stock in deals where the method of payment was cash, as well as in horizontal mergers, during the 1960's;
II. During the 1980's bidder's shareholders experienced negative average abnormal returns in all-stock mergers;
III. Abnormal returns have a tendency to be lower the higher the competition in the deal. Therefore, high interest manifested by many rival bidders is an indicator for succeeding bidders to have lower abnormal returns;
IV. Finally, declining acquirer's performance declines in the two to five year period after the merger announcement (Eckbo and Thorburn 2000).

To conclude, after presenting the three pillars of results, the reasons of result's divergence among different studies and the recent focus on wealth moderators, a relationship between M&A and regulation is exposed which may be relevant in a multi-country sample such as the one in this work. This is relevant in this study as toehold regulation of different countries can have an impact on results, if found to be significantly different.

### 3.1.3. M&A and regulation

The impact of regulation on the distribution dynamics was studied by (Bradley 1988, 31) "Acquiring firms realized a significant positive gain only during the unregulated period 1963-1968 and, in fact, suffered a significant loss during the most recent sub period, 1981-1984 (Bradley 1988, 31)".

What Bradley (1988) concludes is that as a result of regulation, specifically in the US with the Williams Act of 1968, there is a shift in power. Due to mandatory disclosures and other rules, the wealth effects resulting from M&A activity is seen to shift from acquirers to targets. These requirements are a form of antitakeover law, which won't apply in private companies as they can always simply choose not to sell to that bidder.

Fuller, Netter and Stegemoller (2002) Exemplifies with the requirements of the Williams Act in the US and outlines that this empirical observation only applies to public targets. A headline conclusion can be found in Bradley (1988)

"Thus, government regulations and other changes that have occurred in the tender offer environment have been a zero sum game: the increase in the gains to the target stockholders has come at the expense of the stockholders of acquiring firms Bradley (1988, 31)".

To conclude, the main idea is that regulations have shifted the balance of gains towards target's shareholders, at the expense of acquirer's, making the case for Toehold bidding even stronger while laying back on the papers of Eckbo and Thorburn (2000), Carroll and Griffith (2010), Le and Schultz (2007) and Farinha and Miranda (2003), which found toehold bidding as a value accretive strategy.

### 3.2. M&A Toeholds

A toehold consists on having a share or portion of another company, prior to making a bid to acquire control. This translates into owning less than 50% before the bid for control, assuming no modifications to bylaws or emission of different share classes (awarding discriminating voting rights).

The literature that studies all the nuances of toehold bidding is acceptably vast, although, primarily focused on the American market. Nevertheless, a major motivation for the study of this subject is the potential interest of management and finance professionals or professors to understand the drivers and sources of value of toehold bidding. In the words of (Bris 1998) "The observation of stock price dynamics before tender offer announcements indicates that potential acquirers should be interested in making prior open market purchases of the target shares (Bris 1998, 1)''

Bris (1998) Addresses in his paper why toehold bidding is not that much present as theoretically is hinted "Why is it then that only around 15% of bidders follow the optimal strategy ... (Bris 1998, 1)". In fact, "The bidder is likely able to acquire the toehold at a substantially lower price per share than necessary to acquire the remaining shares in a takeover (Asquith and Kieschnick 1999)".

Furthermore, according to Betton, Eckbo and Thorburn (2009), ''the substantial control premium typically observed in corporate takeovers makes a

compelling case for acquiring target shares (a toehold) in the market prior to launching a bid (Betton, Eckbo and Thorburn 2009, 158)''.

In this tone, there is a case for toehold bidding as it may guarantee higher returns as some shares are acquired cheaply, increasing returns. And, as stated in the title of Betton, Eckbo and Thorburn (2009), it is a puzzle as it is not as common as perception would lead to believe.

### 3.2.1. M&A Toeholds Wealth Effects

In Carroll and Griffith (2010), a return comparison between hostile bids with and without a toehold for the acquirer's shareholders are examined in a sample of 294 hostile tender offers for the period between 1985-2007. Interestingly enough, they find that unsolicited bids (hostile) increase incentives for target's management to seek other bidders, which in turn enhances the returns for the original bidder on the toehold already owned, which on average is of 13.81%. This translates into significant abnormal returns of 4.98% compared with 0.06% when there is no toehold. Additionally, it is probable that bidders with less than 35% of share capital or voting rights will simply use the toehold to appropriate some capital gains by enjoying the run up in price during the bidding contest and closing the position before the conclusion of the deal.

Despite these gains, Betton, Eckbo and Thorburn (2009) identified a "puzzle", as mentioned before, or contradiction in the American market as only 13% among more than 10'000 initial bids were toehold bidding was present between 1973-2002, with an average control premium of 45%. This shows that toehold bidding is extremely rare while theoretically it should be more frequent, given its advantages. Comparing this study with the one of Carroll and Griffith (2010) a different result in terms of the mean toehold can be found. In fact, the mean toehold in this study is of 20% vs 13% in the former, nevertheless, Carroll and Griffith (2010) focused more in hostile bids where "… toeholds are the norm in hostile bids (Betton, Eckbo and Thorburn 2009, 158)". A major conclusion of this study is that they identify two optimal strategies in toehold bidding, namely, to not do it at all, avoiding the costs associated with setting it up, or doing it in a

sufficient magnitude determined at 9% "… so that toehold benefits offset rejection costs (Betton and Eckbo 2000, 158)".

Le and Schultz (2007) Studied toeholds and their performance for the Australian market over 122 takeover announcements, between 1997 and 2004, for listed companies and found that acquirer's on average do not earn significant abnormal returns, nevertheless, comparing gains between two groups – one with toeholds and the other without, average abnormal returns of acquirers are in fact 2.3-2.5% higher than those without a toehold. They conclude "Taken altogether, these findings preliminarily suggest that the market views toeholds as beneficial for the bidders (Le and Schultz 2007, 333)".

Farinha and Miranda (2003) Study M&A events in Portugal for the period between 1989 and 2001. They conclude "toeholds in target firms significantly increases cumulative abnormal returns (CARs) for bidder's shareholders (Farinha and Miranda 2003, 2)". Although focusing on the effect of toeholds and run up in price, they found that the larger the size of the toehold, the larger the gains for them, finding 23% abnormal returns for the bidder in Portugal of deals for the event window (-40; +40), in their sample of 39 bidders and 52 tender offers, in Portugal.

Franks and Harris (1989) Studied wealth effects in the UK for 1.800 takeovers between 1955 and 1985, finding that gains associated with toehold bidding are approximately equally distributed between acquirer and target while, at the same time, targets around announcement date gain 25 to 30% and acquirer's earn close to zero. Furthermore, toehold bidding is indifferent, as it is found to not add statistically significant value over non-toehold bids.

To conclude, Carroll and Griffith (2010), Betton, Eckbo and Thorburn (2009), Farinha and Miranda (2003), Le and Schultz (2007). In turn, Franks and Harris (1989) finds no significant value in toehold bidding while Haleblian et al. (2009) conclude in their review that M&A in general is not value accretive.

**Table I: Short Summary Table of M&A Findings**

| | |
|---|---|
| Poulsen (1989) | Carried out a study on 450 M&A deals in the USA between 1963-1986<br>He focused on acquirer's shareholders returns<br>His findings depend on the event window used, but on average they settled on an average CAR of 1.4% |
| Malatesta (1983) | Carried out a study on 336 M&A deals in the USA between 1969-1974<br>He focused on both acquirer's and target's shareholders<br>In terms of acquirer's shareholders:<br>- For 5 months prior to the announcement date, he found a positive average gain of $ +19.67 millions<br>- For 61 months prior to the announcement date, he found a negative average loss of $ -9.42 millions |
| Agrawal (1992) | Carried out a study on 1'164 M&A deals in the USA between 1955-1987<br>He focused on acquirer's shareholders returns<br>Acquirer shareholders suffer a loss of 10% over the 5 years post-merger |
| Laderer and Martin (1992) | Carried out a study in the USA between 1966-1986<br>He found that holding the acquirer's shares 500 trading days after the completion of the merge<br>It would yield an equally weighted return of 21%<br>This compares with the market return of 36%<br>Therefore, the market return is almost more than 50% higher |

**Table I: Short Summary Table of M&A Findings**

| | |
|---|---|
| Stulz (2003) | Carried out a study in the USA between 1980-2001<br>He focused on acquirer's shareholder returns<br>Gains after 1997 for small firms amount to $+8bn while for big firms, losses of $ -226bn are found |
| Malatesta (1983) | "The literature on merger events contain conflicting evidence on returns to acquirer's (page 180) |
| Halleblian et al. (2009) | Review of M&A literature<br>Addresses the reasons of M&A events<br>Value Creation, Managerial Self Interest, Environmental Factors and Firm Characteristics<br>"Although this work confirms that, on average, acquiring firms do not benefit from acquisitions, it importantly reveals conditions and situations under which acquisitions do benefit acquirers (Haleblian et al. 2009, 470) |
| Berkovitch and Narayanan (1993) | 330 Tender offers between 1963-1988. Synergy is the main motive of M&A activity.<br>Overall takeovers yield positive gains and occur in about 75% of the sample. |
| Loughran and Anand (1997) | Proposes three main pillars of results in M&A literature:<br>(I) Target shareholders earn significant positive abnormal returns from all acquisitions<br>(II) Acquiring shareholders receive low or non abnormal returns from tender offers<br>(III) Acquiring shareholders receive negative abnormal returns from mergers<br>Relationship between the mode of acquisition and expected wealth gains is found |

**Table I: Short Summary Table of M&A Findings**

| | |
|---|---|
| Eckbo and Thorburn (2000) | Conducted a study in 1'353 tender offers between 1971-1990<br>Studied probability of takeover success while concluding that corporate takeovers do generate value<br>As the size of the toehold increases, the lower the probability of rival bidders accompanied by lower target resistance |
| Floreani and Rigamonti (2001) | Shareholder's wealth effects in Europe and US<br>Sample of 56 deals between 1996 and 2000 in the insurance industry<br>Wealth effects are positive to acquirers at +3.65% |
| Bradley (1998) | Positive effects from competition between bidding firms to targets while decreasing them for acquirers<br>The more shares in target held, the higher the returns for the target<br>Study between 1963-1984 for 236 deals, for listed firms quoted in NYSE and AMEX<br>Headline result presented as positive wealth effects of +7.4% for acquirers<br>Also made some inroads on the impact of regulation - As a result, he finds that most acquirers made money between 1963-68 (before Williams Act) and lost significantly between 1981-84 |
| Betton Eckbo (2009) | Control premium is a good reason to acquire toeholds<br>Toehold puzzle as only 13% of deals in their sample use it, despite aparent advantages<br>Sample of 10'000 bids between 1973-2002 with an average control premium of 45%<br>Identify two optimal strategies - no toehold at all or a toehold size of 9% in their sample in order to compensate rejection costs |
| Carroll and Griffith (2010) | Deals where a toehold is present has positive abnormal returns of 4.98% compared with 0.06% (w/o toehold)<br>Their sample consists of 294 hostile tender offers between 1985-2007 |

**Table I: Short Summary Table of M&A Findings**

| | |
|---|---|
| | The average toehold size in their sample is found to be 13.81% |
| Bris (1998) | Do not verify as much toehold bidding as should be given its theoretical advantages<br>Toehold's benefits hold even in adverse regulatory environment as with disclosure rules<br>Finds that toeholds are in fact very rare, amounting to only 15% of deals in his sample |
| Le & Schultz (2007) | Toeholds in the Australian market for 122 takeovers between 1997 and 2004<br>Findings suggest that they do not earn significant abnormal returns for acquirers<br>Nevertheless, there is a difference in returns of around 2.5% vs no toehold bidding |
| Farinha and Miranda (2003) | 23% of abnormal return for [-40; +40] event window, for 39 bidders and 52 tender offers |
| Frank and Harris (1989) | Studied 1'800 takeovers between 1955-85 finding abnormal returns of 25-30% |
| Asquith (1999) | Found negative correlation between toeholds and takeover premiums<br>Argues that the difference in price of toehold shares and the ones acquired at takeover premium is significant |
| Walkling (1985) | Bid premium in outcome of tender offers for a sample between 1972 and 77 for 108 tender offers |

### 3.2.2. Takeover premium

In the review carried out by B. Espen (2009), it is evident another strand of literature focusing on the takeover premium and its relationship with bidding strategies. For instance, one of the conclusions of their review is that average initial offer premiums are approximately of 50%, on average, in their sample. Specifically on toehold bidding, they are consonant with Betton, Eckbo and Thorburn (2009) as they also find that toehold bidding has decreased substantially since 1980's. He also explains the dynamics of toehold and subsequent negotiations. The advantages of toehold bidding were presented already; nevertheless, there are a couple of intricacies to understand:

I. As already explained in Betton, Eckbo and Thorburn (2009), toeholds are rare and large when they occur, as well as they are present mostly in hostile bids;
II. Toeholds need to be large, as on average it compensates for termination costs;
III. These termination costs are not examining the accounts of the target if there is no negotiation phase while abdicating of eventual termination agreements.

In Asquith and Kieschnick (1999) carried out a study in 827 tender offers between 1980-1986. A negative correlation between initial bidder toeholds and premium is found, being consistent with previous research. Their main contribution is that they find signals that lead them to believe that target firm size significantly influences these results.

### 3.2.3. Relationship between takeover premium and probability of success

Walkling (1985) Had the concern to study bid premiums in the outcome of tender offers "The results confirm the importance of bid premiums ... (Walkling 1985, 476)". They studied between 1972 and 1977, estimation sample of 108 offers. In fact, goes as far as to say that "The results suggest that the anomalous findings regarding the bid premium in previous probability models are due to specification errors (Walkling 1985, 469)".

### 3.2.4. Relationship between toehold size and bid premium

Betton and Eckbo (2000) Study the probability of takeover success through a contest of different outcomes during the negotiation process, in a sample of 1'353 tender offers over the period 1971-1990. They found that as the size of the toehold increases, the lower the probability of rival bidders entering the contest accompanied by a lower probability of target resistance. Furthermore, the larger the toehold size, the lower the bid premium.

At this point, relationships between wealth effects, bid premiums, probability of success and relative size are studied. Next, I present the relationship between M&A Toeholds and regulation.

### 3.2.5. M&A Toeholds and regulation

The works and intricacies of the regulatory processes vary according to each country's laws and regulations, nevertheless the arguments for toehold bidding hold. In fact, in some countries it is not necessary to disclose the size of the toehold owned (as happens in Italy, de facto (Bris 1998)).

In Ravid and Spiegel (1999) a relationship between toeholds, takeover laws and rival bidders is established. The main conclusions are:

I. Where no competing bidders are to be expected, the acquisition of a toehold is not necessary;
II. Larger toeholds do no necessarily discourage rival bidders, as a result, that is why many toeholds are small;
III. The logic of acquiring a toehold, among others, permits the first bidder to profit from it even if he loses.

It is generally acknowledged that regulation does have an impact on the way the market for corporate control functions, as if influences the behaviour and constitution of the toehold by instituting as mandatory the disclosure of a toehold to the market when it is acquired.

Malatesta (1993) Studied the effects of the Williams Act (1968) in the US and its impact on acquisitions, concluding that it reduces the expected gross present value of acquisition attempts.

As a result of regulation one can jump to the conclusion that the optimal bidding strategy to acquire the amount of shares that will result in a participation that is less than what is required by regulators to be disclosed.

Therefore, acquiring the maximum amount of shares without triggering the disclosure requirements would be the optimal position, followed by the launch of the bid immediately after. This in turn is argued to yield the benefits of acquiring a toehold without letting other potential rival bidders to know about this fact.

In the sample subject to this study, some similarities and differences can be found when facing each country in terms of its regulatory specifics, as follows in the following table.

In the case of the American Market, phase one phase one, according to (Ravid and Spiegel 1999) is to obtain a toehold in the target as an open market operation. In the US, there are the Section 13 (d) and 14 (d) of the Securities and Exchange Act. Under 13 (d), whomever acquire more than 5% of the stock of a firm, it has 10 days to disclose its intentions, while having the ability during those 10 days to continue to acquire stock.

“A complete acquisition must offer compensation both for those who voluntarily relinquish their position, and for those who are forced out against their will (Ravid and Spiegel 1999, 1222)” As a result, they argue, “a tender offer is divided into two parts, the second of which “cleans up” any shares not obtained in the first part (Ravid and Spiegel 1999, 1222)”. As a result, there seems to be a two-tiered bid, and the second bid has the function of ’’clean up’’, according to the paper Ravid and Spiegel (1999).

Regarding the first tier bid, there are a series of requirements:

I. The bid must remain open for 20 days at least;

II. The tenders must be taken up on a pro rata basis, which in turn leads to a non discrimination among target shareholders.

The second tier of the deal comes into play in case in the first round there is no sufficient number of shares held by the bidder in order to force a merger. "It is at this point that the legal framework becomes critical. Imagine that the bidder has acquired fifty per cent of the target company and that there is no legal protection for the minority shareholders (Ravid and Spiegel 1999, 1223)''.

To conclude, the regulatory environment in the European countries of this study is somewhat similar; therefore, I do not expect this to be a factor to explain differences in results.

### 3.3. Moderators of acquisitions

The main moderators of the acquisition-performance relationship identified in Haleblian et al. (2009) provide an introduction on what factors I am to include in the cross section analysis of the final section.

I. Deal characteristics; payment type and deal type;
II. Managerial effects: ownership and compensation, managerial experience;
III. Firm characteristics; historical performance and firm size;
IV. Environmental factors; waves and regulations.

It has been advanced that the payment method has an impact on shareholder's wealth. Specifically, payment type has an impact on wealth effects with the literature generally agreeing that cash acquisitions tend to create value for acquirer's shareholders. In fact, "… managers with informational advantages that enable them to acquire undervalued targets with high future growth prospects choose to finance such acquisitions with cash to ensure that, upon the revelation of the acquisition's true market value, all of the associated gains accrue to the acquiring firm's existing shareholders (Saxton 2004, 568)". Cash acquisitions tend to have higher expected acquisition payoffs. The deal type subset refers to the empirical regularity that tender offers create more value than mergers as acknowledged in Bradley (1988) and Agrawal (1992).

**Table II: Overview of relevant Takeover Laws per country of study[3]**

| | |
|---|---|
| **Belgium** | |
| Mandatory offer threshold and price | Threshold: More than 30% of voting rights (direct or indirect holding)<br>Price: highest of (i) highest price paid by the bidder during prior 12 mo. to announcement date<br>(ii) average trading price over 30 calendar days |
| Mandatory bid consideration | Cash, shares or a combination of both. Cash is required if:<br>(i) shares offered are not listed in a regulated market in the EU<br>(ii) bidder acquired shares in target for cash during previous 12 mo. to announcement |
| Disclosure obligations arising from a stake-building exercise | Yes. Disclosure is required if 5% of voting rights is reached, and has to be made as soon as possible, and no later than the 4th listing day after the threshold is crossed |
| **France** | |
| Mandatory offer threshold and price | More than 33.3% or when increasing stakes by 2% of share capital or voting rights, within 12 mo. |
| Mandatory bid consideration | Cash, shares or a combination of both. Cash is required if:<br>(i) if bidder has 5% or more of shares in target for cash during 12 mo. prior to announcement date<br>(ii) shares offered are not listed in a regulated market in the EU |
| Disclosure obligations arising from a stake-building exercise | Yes. Regulatory thresholds: 5,10, 15, 20, 25, 33.3, 50, 66.7, 90 and 95 per cent, disclose in 4 days<br>The authorities can request a statement even based on rumours of acquisition |
| **Germany** | |
| Mandatory offer threshold and price | Threshold: More than 30% of voting rights (direct or indirect holding)<br>Price: highest of (i) highest price paid by the bidder during prior 6 mo. to announcement date |

[3] Source: Linklaters Advisors

| | |
|---|---|
| | (ii) the average volume weighted market price over 3 months prior to the offer being announced |

**Table II: Overview of relevant Takeover Laws per country of study**

| | |
|---|---|
| Mandatory bid consideration | Cash, liquid shares in a regulated EU market, or a combination of both. Cash is required if:<br>(i) if bidder has 5% or more of shares in target for cash during 6 mo. prior to announcement date<br>(ii) the bidder acquired an interest in the target off-market |
| Disclosure obligations arising from a stake-building exercise | Yes. Reaching, exceeding and falling below 3, 5, 10, 15, 20, 25, 30, 50 and 75 per cent, disclose in 4 days<br>Financial instruments are included in this provision |
| **Italy** | |
| Mandatory offer threshold and price | Threshold: More than 30% of voting rights (direct or indirect holding)<br>More than 5% 12 mo. prior between 30-50 per cent<br>Price: at least equal to the highest price paid 12 mo. prior to the offer |
| Mandatory bid consideration | Cash, liquid shares in a regulated EU market, or a combination of both. Cash is required if:<br>(i) if bidder has 5% or more of shares in target for cash during 12 mo. prior to announcement date<br>(ii) shares offered are not listed in a regulated market in the EU |
| Disclosure obligations arising from a stake-building exercise | Yes. Reaching 2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 66.7, 75, 90 and 95 per cent, disclose in 5 days |
| **Italy** | |
| Mandatory offer threshold and price | Threshold: More than 30% of voting rights (direct or indirect holding)<br>Price: highest of (i) highest price paid by the bidder during prior 12 mo. to announcement date<br>(ii) average trading price over 12 mo. |
| Mandatory bid consideration | Cash, liquid shares in a regulated EU market, or a combination of both. Cash is required if: |
| Disclosure obligations arising from | Yes. Reaching 5, 10, 15, 20, 25, 30, 40, 50, 60, 75 and 95 per cent |

**Table II: Overview of relevant Takeover Laws per country of study**

| | |
|---|---|
| **Belgium** | |
| Mandatory offer threshold and price | Threshold: More than 33.3% or 50% of voting rights (direct or indirect holding)<br>Price: highest of (i) highest price paid by the bidder during prior 6 mo. to announcement date<br>(ii) average trading price in a regulated market over the same period |
| Mandatory bid consideration | Cash, liquid shares in a regulated EU market, or a combination of both |
| Disclosure obligations arising from a stake-building exercise | Yes. Reaching 2, 5, 10, 15, 20, 25, 33.3, 50, 66.7 or 90 per cent, disclose in 4 days |
| **Spain** | |
| Mandatory offer threshold and price | Threshold: More than 30% of voting rights (direct or indirect holding)<br>(i) if stake increses by 5% in one or more acts within 12 mo.<br>(ii) reaches 50% or more<br>Price: highest of (i) highest price paid by the bidder during prior 12 mo. to announcement date |
| Mandatory bid consideration | Cash, liquid shares or a combination of both. Cash alternative always required |
| Disclosure obligations arising from a stake-building exercise | Yes. Reaching 3, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75,80 and 90 per cent, disclose in 4 days |
| **Sweden** | |
| Mandatory offer threshold and price | Threshold: More than 30% of voting rights (direct or indirect holding)<br>Price: highest of (i) highest price paid by the bidder during prior 6 mo. to announcement date<br>(ii) highest price paid during acceptance period<br>(iii) Highest price paid 6 mo. of the start of the settlement |

**Table II: Overview of relevant Takeover Laws per country of study**

| | |
|---|---|
| Mandatory bid consideration | Cash, liquid shares or a combination of both. Cash alternative always required |
| Disclosure obligations arising from a stake-building exercise | Yes. Reaching 5, 10, 20, 25, 30, 50, 66.7 or 90 per cent |

Loughran and Anand (1997) Cites Majluf (1984) as firms will issue stock only when it is overvalued. As a result, it is straightforward to understand that firms prefer to pay cash if their stock is undervalued. Empirically, stock is used more in mergers versus cash in tender offers.

Historical performance is studied in Lie (2002) showing that post acquisition performance is related with operating performance before and after the acquisition, or, equivalently, when high market to book companies acquire low book to market ones. Firm size is considered as well, this time in Healy, Palepu and Ruback (1992) where he found that large mergers have positive post acquisition accounting performance.

Ownership and compensation is related with agency perspectives, as there is a relationship between managerial ownership and abnormal returns for the acquirer Haleblian et al. (2009) and Palia (1995).

Waves are related with specific and temporal events that influence the market and its assessment of acquisitions. Banerjee (1998) Found that the early movers in a wave of M&A activity results value accretive for both bidders and targets. In terms of regulations, researchers found impacts caused by, and in the US, of the Tax Reform Act of 1986 and the Williams Act in 1968, in studies of the like of Mullins (1983) and Malatesta (1993).

Petitt and Dumontier (2002) Studied 101 tender offers between 1980 and 2000 found relationships with the deal type and studied wealth effects for two types of M&A deals in the French market, namely, control oriented and parent-subsidiary bids. The aim is to explain, by finding determinants of the variation in results, an explanation to the difference in abnormal returns. The results they present are that tender offers are more profitable for target shareholders. Moderators they used are characteristics of the acquirer and characteristics of the offers.

## 3.4. Conclusions of the Literature Review

I. The primary reason for M&A activity is agency, not hubris Berkovitch and Narayanan (1993);

II. Deal value Floreani and Rigamonti (2001), Toehold size Le and Schultz (2007), and Firm size Healy, Palepu and Ruback (1992) are moderators of wealth effects. The deal type subset refers to the empirical regularity that tender offers create more value than mergers as acknowledged in Bradley (1988) and Agrawal (1992), cash acquisitions tend to create value for acquirer's shareholders. In fact, "… managers with informational advantages that enable them to acquire undervalued targets with high future growth prospects choose to finance such acquisitions with cash to ensure that, upon the revelation of the acquisition's true market value, all of the associated gains accrue to the acquiring firm's existing shareholders (Saxton 2004, 568)";

III. "Results regarding returns to acquiring firms tend to be weak and contradictory (Malatesta 1983, 181)";

IV. Although theoretically toehold bidding should happen frequently, is not that common (Betton, Eckbo and Thorburn (2009));

V. Loughran and Anand (1997) That summarizes the relationships between returns, mode of acquisition and form of payment;

VI. "Thus, government regulations and other changes that have occurred in the tender offer environment have been a zero sum game... (Bradley 1988, 31)";

VII. In general, toeholds benefits bidders, lowers the bid premium, and increases the probability of takeover success Le and Schultz (2007);

VIII. The regulatory environment in the European countries of this study is somewhat similar; therefore, I do not expect this to be a factor to explain differences in results.

# 4. Methodology[4]

## 4.1. Economic problem

Assuming that markets are able to incorporate all relevant information at announcement date of the merger or acquisition (therefore assuming markets are efficient) enables me to focus on stock returns as a measure of shareholder's wealth effects. As in Haleblian et al. (2009) "Under the assumption of an efficient market, many scholars consider abnormal returns as the most effective technique to measure acquisition performance, ... (Haleblian et al. 2009, 493)"

In order to achieve this goal, and "given rationality… the effects of an event study will be reflected immediately in security prices (MacKinlay 1997, 13)", by measuring returns in a relatively short period of time, I am able to assess the impact of the bid on a shareholder perspective.

## 4.2. Data collection, sources and screening process

The data used in this study is formed by a screening process or filter where:

I. Only deals where the acquirer and target are public;
II. Only deals where the bidder is in the European Union;
III. Only deals that prior to acquiring control of the target company, the acquirer has an initial shareholding of less than 50%.

The sources of information were Thomson Reuters and Bloomberg for stock prices and other market information. For other relevant information, Zephyr M&A database were used.

[4] All event studies and regressions where performed using Stata 12 – Statistics Software

### 4.3. Descriptive Statistics

The sample consists of 64 deals from EU 27 countries gathered through the Zephyr database where both acquirers and targets are public companies. Furthermore, a search strategy was performed in order to identify toehold-bidding deals. My overall sample consists of 64 deals, meeting all the stated criteria, as presented in Table I. In table II follows the descriptive statistics of the data used in this work. Finally, all incomplete data was complemented with manual information gathered from Bloomberg and Thomson Reuters.

### 4.4. Research methodology

In order to carry out the event study, several steps must be fulfilled, namely:

I. Define the event window – which normally and according to (MacKinlay 1997, 14), "is greater than the specific period of interest". In this study, and given 'normal' leakage of information it is of interest to assess both days before and after the announcement date.
II. As a second step, the definition of the 'selection criteria' for adding a deal in the study.
    a. Then follows a summary of the sample characteristics (like market capitalization, industry representation, distribution of events through time)
    b. Identify biases
III. Following this is the actual calculation of the Abnormal Returns
IV. Formulation of the null hypothesis
V. Finally, several techniques for aggregating individual firm returns is necessary.

About event windows, as in (Haleblian et al. 2009, 493) "A primary advantage of event studies using short-window CARs is that changes in stock price can be attributed to the acquisition announcement with relative confidence by minimizing "noise" from other potentially confounding variables".

**Table III: Criteria of observation exclusion**

This table presents the procedings taken in order to exclude observations beyond the scope of this study. The first column summarize the reasons, while second column presents the number of observations excluded while the third column

| Exclusion criteria | Observations excluded | Remaining observations |
|---|---|---|
| Listed Acquiror and Target | | 58.259 |
| If acquiror increased its stake | 14.956 | 43.303 |
| Current deal status: | 18.236 | 25.067 |
| EU 27 | 24.782 | 285 |
| Initial stake less than 50% | 221 | 64 |

**Table IV: Descriptive Statistics**

This table presents descriptive statistics of the sample data retrieved from Zephyr, Bloomberg and DataStream. Only deals where both the acquirer and the bidder were considered, making the sample somewhat small but more reliable.

| **Panel I** Number of Observations | | **Panel II** Country of Bidder | | **Panel III** Bid Premium (BP) | |
|---|---|---|---|---|---|
| Year | No. | Country | No. | BP Interval | % of Total |
| 1999 | 3 | Austria | 2 | [0, 0.10] | 48% |
| 2000 | 2 | Belgium | 1 | ].10; .20] | 21% |
| 2001 | 3 | Bulgaria | 1 | [.20; .30] | 11% |
| 2002 | 4 | Cyprus | 3 | [.30; .40] | 5% |
| 2003 | 5 | France | 2 | ].40; .50] | 5% |
| 2004 | 3 | Greece | 6 | ].50; .60] | 3% |
| 2005 | 6 | Germany | 11 | ].60; .70] | 0% |
| 2006 | 5 | Italy | 15 | ].70; .80] | 0% |
| 2007 | 13 | UK | 1 | ].80; 1.0] | 5% |
| 2008 | 6 | Netherland: | 2 | [1.0; ∞[ | 2% |
| 2009 | 5 | Portugal | 4 | | |
| 2010 | 4 | Spain | 14 | | |
| 2011 | 3 | Sweden | 2 | | |
| 2012 | 2 | | | | |
| **Total** | **64** | **Total** | **64** | **Average** | **10%** |

**Average Toehold Size or Initial Shareholding** **33%**

Of course there are arguments against using CARs "... markets are not omniscient (Haleblian et al. 2009, 493)" ... "As a result, markets incorporate the expected value accretion or dilution but not the (or less likely) the changes in value during the implementation of the acquisition (Haleblian et al. 2009, 493)".

As a result, there is a need to study long term buy and hold returns as in Loughran and Anand (1997). Nevertheless, they "... exhibit potential confounding effects of firm performance (Haleblian et al. 2009, 493)".

Different models have been proposed to carry out event studies. Specifically, there are two main categories, namely, statistical and economic. The former is based on statistical assumptions of the behaviour of asset returns MacKinlay (1997). The latter is based on assumptions of investor's behaviour. A main assumption according to MacKinlay (1997) is that asset returns are jointly multivariate normal and independently and identically distributed through time, in statistical models, assumption followed as well in this work.

Next, I present a brief description of the different availables models and the justification of choosing the Market Model.

## 4.5. Model Analysis

### 4.5.1. Constant Mean Return Model

MacKinlay (1997) Justifies the use of these models based on the idea that they achieve similar results when compared with more sophisticated models. Specifically, what appears to determine these similar results is a "lack of sensitivity to the model can be attributed to the fact that the variance of the abnormal return is frequently not reduced much by choosing a more sophisticated model (MacKinlay 1997, 17)''. So the addition of more factors or another form of the same one does not reduce the variance of results.

### 4.5.2. Market Model

This model, according to MacKinlay (1997) establishes a statistical relationship between returns of any given security with respect to the return of the market portfolio. As central assumptions we have a joint normality of asset returns, as mentioned before, assumed as well in this work.

According to MacKinlay (1997), this model is an improvement over the constant mean return model because it "removes the portion of the return that is related to variation in the market's return MacKinlay (1997, 18)''. This gain can be quantified through the R-squared. In fact, the greater it is, the higher the variance reduction of the abnormal returns and larger the gain in explanatory power.

### 4.5.3. Other statistical models

Generally, and according MacKinlay (1997) "gains from employing multi-factor models for event studies are limited (MacKinlay 1997, 18)'' which in turn is found to be because the "marginal explanatory powers of additional factors is small, and hence, there is little reduction in the variance of the abnormal returns (MacKinlay 1997, 18)''. Therefore, as the sample does not belong to the same industry or other common characteristics, there is little advantage in a multi-factor model.

### 4.5.4. Economic Models

According to MacKinlay (1997), Economic Models provide an opportunity to constrain normal return models, having, as the most known ones the CAPM – Capital Asset Pricing Model and the APT – Arbitrage Pricing Theory.

The CAPM is applied in Sharpe (1964) while the APT used by Ross (1976). The former constitutes an equilibrium theory where the expected return of a security is determined by its covariance with the market. The latter is an asset

pricing theory where the expected return of an asset is a linear combination of multiple risk factors.

As referred in MacKinlay (1997), one can use the market model in order to avoid, with little effort, the sensitivity of the results with restrictions in models like APT and CAPM assumed.

In terms of multifactor models inspired in the APT framework, in general, researchers found that the market factor is the most important while further explanatory variables brings limited added value.

After this analysis, I am choosing the market model with the argument advanced by MacKinlay (1997), where with limited effort, the sensitivity of results is avoided while at the same time establishing a statistical link between the return of any given security with respect to the return of the market portfolio.

## 4.6. Measuring and Analysing Abnormal Returns

### 4.6.1. Estimation

Using OLS – Ordinary Least Squares is regarded as a consistent estimation procedure for the market model parameters. Moreover, asset returns are jointly multivariate normal and independently identically distributed through time resulting in efficient estimators as well.

"The abnormal return is the disturbance term of the market model calculated on an out of sample basis'' and "The abnormal returns will be jointly normally distributed with a zero conditional mean MacKinlay (1997, 21)''

I will implement an event study introduced in Brown and Warner (1980) and Brown and Warner (1985), in a multi-country setting. As in Campa and Hernando (2004), I will implement an event study where the benchmark portfolio

is constructed using the market model for a benchmark portfolio as represented by a world market index that is retrieved from Bloomberg historical data set[5].

The abnormal returns are calculated compared to the expected returns as given by the Market Model using an ordinary least squares (OLS) method. As in MacKinlay (1997, 20), the parameters of the model are given by:

$$\hat{\alpha}_i = \hat{\mu}_i - \hat{\beta}_i \hat{\mu}_m$$

The beta over the estimation window is given by:

$$\hat{\beta}_i = \frac{\sum_{\tau=T_0+1}^{T_1} (R_{i\tau} - \hat{\mu}_i)(R_{m\tau} - \hat{\mu}_m)}{\sum_{\tau=T_0+1}^{T_1} (R_{m\tau} - \hat{\mu}_m)^2} = \frac{cov(R_{i\tau}, R_{m\tau})}{var(R_{m\tau})}$$

The variance over the estimation window is given by:

$$\sigma^2_{\varepsilon_i} = \frac{1}{L_1} \sum_{\tau=T_0+1}^{T_1} \left(R_{i\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m\tau}\right)^2$$

$$\hat{\mu}_i = \frac{1}{L_1} \sum_{\tau=T_0+1}^{T_1} R_{i\tau}$$

And

$$\hat{\mu}_m = \frac{1}{L_1} \sum_{\tau=T_0+1}^{T_1} R_{m\tau}$$

Where $R_{i\tau}$ and $R_{m\tau}$ are the return in event period $\tau$ for security $i$ and the market respectively.

The sample abnormal returns are given by:

$$AR_{i\tau} = R_{i\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m\tau}$$

[5] Event studies using each country's benchmark was run with no significant changes in results

$AR_{it}$ Abnormal return

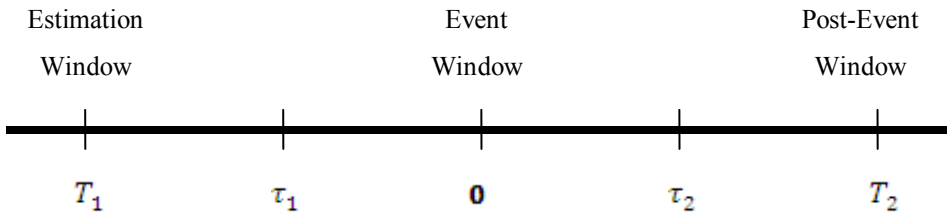
$R_{i\tau}$ Return in event period $\tau$ for security i

$R_{m\tau}$ Return in event period $\tau$ for the market

Where its conditional variance would be:

$$\sigma^2(AR_{i\tau}) = \sigma^2{}_{\varepsilon_i} + \frac{1}{L_1}\left[1 + \frac{(R_{m\tau} - \hat{\mu}_m)^2}{\hat{\sigma}^2{}_{\varepsilon_i}}\right]$$

According to MacKinlay (1997), the first component of the variance, given by $\sigma^2{}_{\varepsilon_i}$, is the disturbance variance. While the second component is the additional variance as a result of sampling error in $\alpha_i$ and $\beta_i$ . As he argues, I am assuming that an estimation period of 120 days is large enough in order to consider the second term of the variance as null[6]. The result of this assumption is that the common sampling error for all event window observations stops leading to serial correlation of the abnormal returns.




Next, the Aggregation of Abnormal Returns is carried out in two dimensions, namely through time and across deals.

#### 4.6.1.1. Aggregation through time for an individual security

The CAR formula is given by, with $T_1 < \tau_1 \leq \tau_2 \leq T_2$ :

$$AR_{i\tau} = R_{i\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m\tau}$$

[6] I tested several estimation windows, specifically 90, 120 and 180 days, while not changing my conclusions significantly.

$$CAR_i(\tau_1,\tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{i\tau}$$

As $L_1$ (length of estimation window) increases, the variance of $CAR_i$ is reduced to:

$$\sigma^2{}_i(\tau_1,\tau_2) = (\tau_2 - \tau_1 + 1)\sigma^2{}_{\varepsilon_i}$$

Therefore, assuming 120 days of estimation window simplifies the calculation of the variance.

The distribution of the cumulative abnormal return under $H_0$ is:

$$CAR_i(\tau_1,\tau_2) \sim N\left(0,\sigma^2{}_i(\tau_1,\tau_2)\right)$$

Having made the case for the aggregation of Abnormal Returns for a particular security, further I advance the discussion by introducing the Aggregation of Abnormal Returns for many deals, as tests with one event observation are not likely to be useful so it is necessary to aggregate.

In fact, another assumption is made MacKinlay (1997, 24). I am assuming that there is no overlap in terms of the timing of the different deals. In fact, this is a fair assumption to make given the time span, geographic diversity and number of deals.

#### 4.6.1.2. Aggregation across deals

The individual securities' abnormal returns can be aggregated using, in order to be able to draw conclusions as, is not possible to draw conclusions from one deal only.

Therefore, I am aggregating in each point in time, the abnormal returns of all deals.

$$\overline{AR_t} = \frac{1}{N}\sum_{i=1}^{N} AR_{it}$$

Having a variance of, for large $L_1$:

$$var(\overline{AR_t}) = \frac{1}{N^2}\sum_{i=1}^{N} \sigma^2{}_{\varepsilon_i}$$

With

$$\sigma^2{}_{\varepsilon_i} = \frac{1}{L_1 - 2}\sum_{\tau=T_0+1}^{T_1} \left(R_{i\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m\tau}\right)^2$$

"Using these estimates, the abnormal returns for any event period can be analysed MacKinlay (1997, 24)''.

The next step is to calculate the aggregated average abnormal returns over the event window, across different deals, using the same approach as that used to calculate the cumulative abnormal return for each security.

$$CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} \overline{\mathrm{AR}_\tau}$$

With its variance equal to:

$$var\left(\overline{CAR}(\tau_1, \tau_2)\right) = \sum_{\tau=\tau_1}^{\tau_2} \mathrm{var}(\overline{\mathrm{AR}_\tau})$$

$$var(\overline{AR_\tau}) = \frac{1}{N^2}\sum_{i=1}^{N} \sigma^2{}_{\varepsilon_i}$$

$$\sigma^2{}_{\varepsilon_i} = \frac{1}{L_1 - 2}\sum_{\tau=T_0+1}^{T_1} \left(R_{i\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m\tau}\right)^2$$

Then, for any interval in the vent window - In the absence of abnormal returns, average CAR should be zero.

"For the variance estimators the assumption that the event windows of the N securities do no overlap is used to set the covariance terms to zero (MacKinlay 1997, 24)".

Then, the distribution is characterized by:

$$\overline{CAR}(\tau_1, \tau_2) \sim N[0, var(\overline{CAR}(\tau_1, \tau_2))]$$

In order to test for the statistical significance of the results, I will use as guideline the work of MacKinlay (1997), where the hypothesis formulation would be:

$H_{0:}$ There are no abnormal returns

$H_{1:}$ There are abnormal returns

Where $H_{0:}$ can be tested using:

$$\theta_1 = \frac{\overline{CAR}(\tau_1, \tau_2)}{var\left(\overline{CAR}(\tau_1, \tau_2)\right)^{1/2}} \sim N(0,1)$$

Next, the cross section regression and framework used is presented.

## 4.7. Cross Section Regression

In consonance with previous studies in M&A toeholds, I will perform a regression analysis on the statistically significant cumulative abnormal returns I find in order to identify other factors that may explain those returns other than the toehold in it. As a result, I can refine the analysis and be sure if the toehold is the main cause for those returns or there are other factors influencing that result at the same time.

As a result, I will use regressions to estimate the unknown effect of changing one variable over another one (Watson 2003, Ch. 4). Two assumptions I am making when I run a regression:

I. There is a linear relationship between the variables;
II. The relationship is additive.

Other than that, I am assuming that the variances of the residuals are homoscedastic or constant "The error term (e) is homoscedastic if the variance of the conditional distribution of ($e_i$) given $X_i$ [var ($e_i|X_i$)], is constant for i=1…n; and in particular does not depend on x; otherwise, the error term is homoscedastic Watson (2003, 126).

For the sake of completeness, I will perform a test to see whether I am including all the variables that I need to explain the cumulative abnormal returns. This is important because it is related to the assumption that the error term and independent variables in the model are not correlated (E(e|X) = 0)[7].

Missing variables are very important to acknowledge because if we do not include them and "are correlated with the included regressor" and "the omitted variable is a determinant of the dependent variable (Watson 2003, 144)", the conclusion would be that our regression coefficients are inconsistent.

In this case I will be running a multiple regression model, therefore I am assuming that the independent variables are not perfectly multicolinear, meaning, one regressor should not be a linear function of another.

At this point, I will present the guidelines I use to build a regression model (Gelman 2007, 69):

I. Make sure all relevant predictors are included, based on the theory and knowledge of the topic,
II. Strategy to keep or drop variables:
    a. Predictor not significant and has the expected sign – Keep it

[7] Based on the Princeton Stata Regression Guide

b. Predictor not significant and does not have the expected sign – Drop it
c. Predictor is significant and has the expected sign – Keep it
d. Predictor is significant but does not have the expected sign – Review, because I may need more variables or it may be interacting with other variables.

## 5. Results

### 5.1. Measuring and analysing Abnormal Returns

The main results of the event study are presented in Table V where I combined different event windows and reported each Cumulative Abnormal Return - CAR. In addition, I decomposed the results per region, in order to identify regions where toehold bidding generates more value, based on general perception of traders and media of Core European countries (France and Germany), the intrinic PIGS definition and non Core European countries called Periphery, based throught this divicion on the EU with 27 members.

**Table V: Market reactions to toehold bidding over the estimation window**
In this table average Cumulative Abnormal Returns - CAR are presented over the event window. The symbols *, ** and *** relate with statistical significance at the 10, 5 and 1 per cent, repectively.

| | **M&A Toehold Bidding (N=64)** | |
|---|---|---|
| Event Window Length | CAR | t-stat |
| **[-2,+2]** | 6% | 0,08 |
| **[-15,+15]** | -2% | -1,17 |
| **[-45,+45]** | -4% | -1,37 |
| **[-60,+60]** | -6% | -1,60 |
| **[-90,+90]** | 0% | -1,02 |

Interestingly, in this sample, the only statistically significant result can be verified in the Core region while at the same time, and even more surprisingly, it is negative. Therefore, the main conclusion of Table V is that toehold bidding in Europe does not add statistically significant value.

In order to assess whether there might still be regions that present results in accordance with previous literature in the US market, a different event study was carried out, this time dividing the sample in different regions.

Table VI shows average CAR for each event window per different regions. In general, M&A toeholds are value dilutive, although in most of these results, not in a statistically significant manner. The only exception is for Core European countries where for an event window of [-2; +2] this strategy is value dilutive.

**Table VI: Event Study results for different regions**

In this table average Cumulative Abnormal Returns - CAR are presented over the event window. The symbols *, ** and *** relate with statistical significance at the 10, 5 and 1 per cent, repectively.

Panel 1

| M&A Toehold Bidding (N=64) - Periphery | | |
|---|---|---|
| Event Window Length | CAR | t-stat |
| **[-2,+2]** | 0,40% | 0,46 |
| **[-15,+15]** | -1,99% | -0,85 |
| **[-45,+45]** | -4,22% | -1,14 |
| **[-60,+60]** | -6,32% | -1,36 |
| **[-90,+90]** | -6,14% | -1,05 |

Panel 2

| M&A Toehold Bidding (N=64) - Core | | |
|---|---|---|
| Event Window Length | CAR | t-stat |
| **[-2,+2]** | -1,28% | -2.14** |
| **[-15,+15]** | -3,76% | -1,01 |
| **[-45,+45]** | -4,03% | -1,03 |
| **[-60,+60]** | -5,84% | -0,95 |
| **[-90,+90]** | -1,58% | -0,15 |

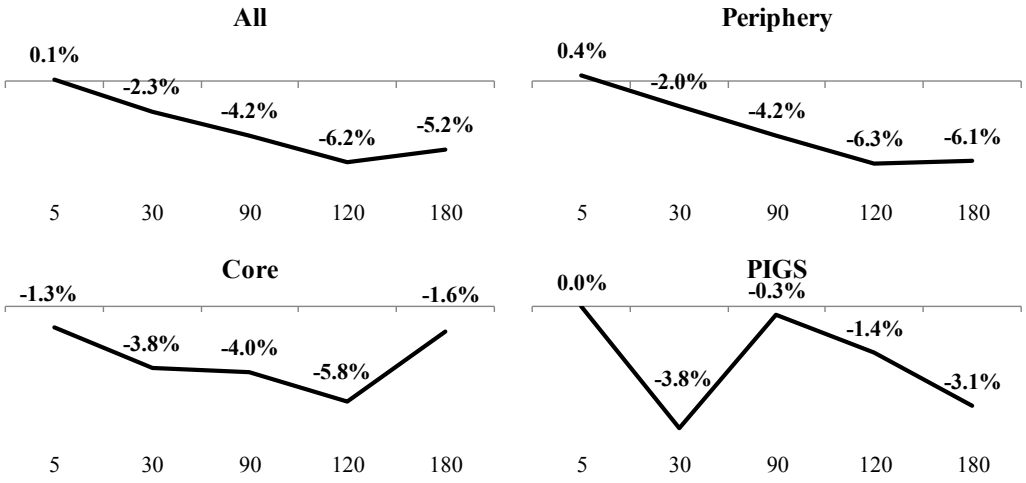
Panel 3

| M&A Toehold Bidding (N=64) - PIGS | | |
|---|---|---|
| Event Window Length | CAR | t-stat |
| **[-2,+2]** | -0,03% | -0,03 |
| **[-15,+15]** | -3,76% | -1,01 |
| **[-45,+45]** | -0,27% | -0,08 |
| **[-60,+60]** | -1,42% | -0,34 |
| **[-90,+90]** | -3,07% | -0,51 |

By analysing Table VI, it is striking the difference with previous studies, as there is only evidence of statistically significant value dilution in the very short-term event window and only for core European countries.

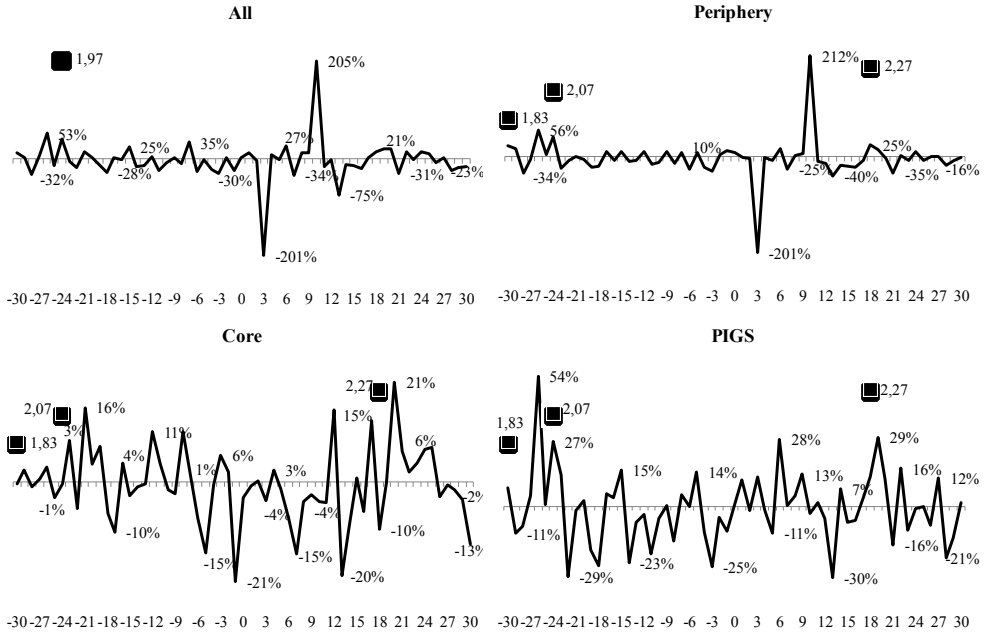
Graph I illustrates the same results, being evident that as the event window grows larger, other factors come in play, influencing results towards making them increasingly negative.

**Graph I: Returns per region and per event window**




**Graph II: Aggregating CARs accross deals.**

Statistically significant results are signaled above the CAR's curve with its t-test




Graph II aggregates across all deals the CARs and plots for each event window day the aggregated CAR for all the deals. As can be seen, the behaviour is very irregular, fact that may be explained by the reduced size of the sample.

Another observation is that statistically significant CARs across deals occur in event dates of more than 20 days before and more than 15 days after the announcement date.

To conclude, these results are not in consonance with the main results of American studies such as in Carroll and Griffith (2010), Betton, Eckbo and Thorburn (2009), Farinha and Miranda (2003), Le and Schultz (2007) and Franks and Harris (1989), although agreeing with (Malatesta 1983), Haleblian et al. (2009) and with Franks and Harris (1989).

## 5.2. Correlations and factors

### 5.2.1. Deal characteristics

By analysing the correlation between the different characteristics of the deals, I can:

I. Exclude those factors that are highly correlated between each other in a regression in order to do the cross sectional analysis;
II. I can spot relationships that may be useful in determining which factors to include in the regression.

After analysing correlations in Table VII, it is worthy to note:

I. High negative correlation between event date and CARs;
II. High correlation between percentage bought and CARs;
III. High negative correlation between revenues of the Target Company and CARs.

After analysing Table VII against the CAR per deal, the main conclusions are that potentially event dates, percentage bought and revenues might be important moderators of results, despite being relatively low in correlation magnitude (around 20%). The explanatory power of the different factors can be determined using an $R^2$ measure, which follows in Table VIII, which turns out to be very weak accross the different moderators. This is found to be good as the different factors tend not to correlate too much with each other but, at the same time, they are not too correlated with the dependent variable, the CARs.

### 5.2.2. Cross section study

As mentioned before, a cross section analysis is presented while having the objective of, based on previous study's findings, try to explain statistically significant results found. Next, I present a table with regressions performed and an explanation to justify theoretically the inclusion of those potential moderators in the regression. Justifications for the inclusion of each variable:

I. Pay – Method of payment is recognized in (Loughran and Anand 1997) as being a statistically significant moderator of wealth effects. The expected signs are positive for cash and negative for stocks;
II. Date – Date of the deal can incorporate information on financial markets cycles, as the waves aspect explained before, citing Banerjee (1998). The expected signal would be negative, as the deals coincide with the beginning of an upturn in M&A activity after 2001;
III. Value – Deal value is found by (Floreani and Rigamonti 2001) to be a statistically significant moderator of results. The expected sign is positive;
IV. Stake – Initial shareholdings (toehold size) is recognized in Betton and Eckbo (2000) as being a statistically significant moderator of results. Here, the higher the size of the toehold, the lower the bid premium, therefore the higher the gains from holding the toehold. As a result, the expected sign is positive;
V. Bought – As explained while citing (Bradley 1988, 32), with an expect positive sign;
VI. Bid premium – Bid premium is recognized in Walkling (1985), (Asquith and Kieschnick 1999) and B. Espen (2009) as being a statistically significant moderator of results. In this case, the lower the bid premium, the better, so a negative sign is expected;
VII. Market – Relative size is recognized in Asquith and Kieschnick (1999) as being a statistically significant moderator of results. The expected sign is positive;
VIII. Revenue – is a measure of fundamentals of the target company and would represent an accounting measure of the size of the target. The expected sign is the same as the Deal Value and Market (or relative size), therefore positive.

**Table VII: Correlation coefficients accross explanatory variables**

| | pay | country | date | val | stake | bought | bp | mkt | revn | car |
|---|---|---|---|---|---|---|---|---|---|---|
| pay | 1.00 | 0.22 | (0.36) | (0.08) | (0.08) | 0.41 | 0.03 | (0.14) | (0.11) | 0.09 |
| country | | 1.00 | (0.15) | (0.15) | 0.11 | 0.23 | 0.11 | (0.08) | 0.01 | (0.08) |
| date | | | 1.00 | 0.13 | (0.07) | (0.43) | (0.09) | (0.09) | 0.15 | (0.22) |
| val | | | | 1.00 | 0.09 | (0.27) | (0.07) | (0.08) | 0.03 | 0.03 |
| stake | | | | | 1.00 | (0.49) | 0.03 | 0.00 | (0.05) | (0.06) |
| bought | | | | | | 1.00 | 0.17 | (0.11) | 0.07 | 0.18 |
| bp | | | | | | | 1.00 | (0.07) | (0.08) | (0.06) |
| mkt | | | | | | | | 1.00 | (0.03) | (0.02) |
| revn | | | | | | | | | 1.00 | (0.16) |
| car | | | | | | | | | | 1.00 |

**Table VIII: $R^2$ measure for different potential explanatory variables**

| | pay | country | date | val | stake | bought | bp | mkt | revn | car |
|---|---|---|---|---|---|---|---|---|---|---|
| pay | 100% | 15% | 18% | 1% | 1% | 18% | 0% | 3% | 2% | 1% |
| country | | 100% | 2% | 2% | 2% | 8% | 3% | 0% | 0% | 2% |
| date | | | 100% | 2% | 0% | 21% | 1% | 2% | 3% | 5% |
| val | | | | 100% | 1% | 8% | 1% | 1% | 0% | 0% |
| stake | | | | | 100% | 26% | 0% | 0% | 0% | 1% |
| bought | | | | | | 100% | 3% | 1% | 1% | 3% |
| bp | | | | | | | 100% | 1% | 1% | 0% |
| mkt | | | | | | | | 100% | 0% | 0% |
| revn | | | | | | | | | 100% | 3% |
| car | | | | | | | | | | 100% |

**Table IX: Regression summary**

In this table a series of regression is performed to apply (Gelman 2007, 69) framework and find a good regression fit. Results for cross-sectional regression of CARs with identified moderators. The dependent variable is CAR [-30; +30]. The symbols *, ** and *** stand for statistical significance at the 10%, 5% and 1%, respectively.

| Model | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 10 |
|---|---|---|---|---|---|---|---|---|
| **_Ipay_2** | **0.149*** ** | **0.128*** ** | **0.128*** ** | **0.133*** ** | **0.129*** ** | **0.131*** ** | **0.131*** ** | **0.130*** ** |
| | -0.0107 | -0.0172 | -0.0171 | -0.0317 | -0.0314 | -0.0328 | -0.034 | -0.0341 |
| **_Ipay_3** | **0.019*** | **0.032** | **0.032** | **0.037** | **0.03** | **0.028** | **0.028** | **0.022** |
| | -0.0209 | -0.0237 | -0.0244 | -0.0364 | -0.0366 | -0.0372 | -0.0375 | -0.0381 |
| **_Ipay_4** | **-0.007** | **-0.012** | **-0.012** | **-0.012** | **-0.016** | **-0.013** | **-0.013** | **-0.014** |
| | -0.0233 | -0.0218 | -0.0214 | -0.022 | -0.0205 | -0.0211 | -0.0213 | -0.0196 |
| **_Ipay_5** | **0.006** | **-0.002** | **-0.002** | **-0.003** | **-0.009** | **-0.012** | **-0.012** | **-0.017** |
| | -0.0184 | -0.0186 | -0.0185 | -0.0188 | -0.0194 | -0.0223 | -0.0218 | -0.0224 |
| **_Ipay_6** | **-0.046** | **-0.046** | **-0.045*** | **-0.046*** | **-0.038** | **-0.031** | **-0.031** | **-0.028** |
| | -0.0107 | -0.0108 | -0.0112 | -0.0133 | -0.0288 | -0.0372 | -0.0392 | -0.0396 |
| **date** | | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **val** | | | **0** | **0** | **0** | **0** | **0** | **0** |
| | | | | 0 | 0 | 0 | 0 | 0 |
| **stake** | | | | **0.019** | **0.047** | **0.056** | **0.056** | **0.068** |
| | | | | -0.109 | -0.135 | -0.145 | -0.15 | -0.15 |
| **bought** | | | | | **0.033** | **0.042** | **0.042** | **0.061** |
| | | | | | -0.0776 | -0.0883 | -0.0938 | -0.0949 |
| **bp** | | | | | | **-0.017** | **-0.017** | **-0.022** |
| | | | | | | -0.0279 | -0.0277 | -0.028 |
| **mkt** | | | | | | | **0** | **0** |
| | | | | | | | -1.00E-04 | -1.00E-04 |
| **revn** | | | | | | | | **-.000159*** ** |
| | | | | | | | | -4.00E-05 |
| **_cons** | **-0.002** | **0.123** | **0.128** | **0.115** | **0.063** | **0.056** | **0.057** | **0.014** |
| | -0.0107 | 0.0877 | -0.0894 | -0.109 | -0.159 | -0.167 | -0.186 | -0.186 |
| **$R^2$** | **0.12** | **0.13** | **0.13** | **0.14** | **0.14** | **0.15** | **0.15** | **0.17** |
| **Adj. $R^2$** | **0.04** | **0.04** | **0.03** | **0.01** | **0** | **-0.02** | **-0.04** | **-0.02** |
| **RMSE** | **0.06** | **0.06** | **0.06** | **0.06** | **0.06** | **0.06** | **0.07** | **0.06** |

As can be seen in Table IX, method of payment and revenues of target seem to have some explanatory power of the CARs found. By applying (Gelman 2007, 69) framework, two more regression were performed, as presented in Table X.

**Table X: Regression Summary**

Results for cross-sectional regression of CARs with identified moderators. The dependent variable is CAR [-30; +30]. The symbols *, ** and *** stand for statistical significance at the 10%, 5% and 1%, respectively.

| **Model** | **1** | **2** |
|---|---|---|
| | car | car |
| **_Ipay_2** | **0.140*** ** | |
| | -0.0259 | |
| **_Ipay_3** | **0.0281** | |
| | -0.0345 | |
| **_Ipay_4** | **-0.0109** | |
| | -0.0212 | |
| **_Ipay_5** | **-0.0143** | |
| | -0.0227 | |
| **_Ipay_6** | **-0.0306** | |
| | -0.0326 | |
| **stake** | **0.0779** | **0.0262** |
| | -0.129 | -0.106 |
| **bought** | **0.0588** | **0.068** |
| | -0.0728 | -0.0568 |
| **bp** | **-0.0222** | **-0.0228** |
| | -0.0272 | -0.0206 |
| **revn** | **-0.000162*** ** | **-0.000172*** ** |
| | -0.0000433 | -0.0000426 |
| **_cons** | **-0.0449** | **-0.0321** |
| | -0.0697 | -0.0582 |
| **N** | **64** | **64** |
| **$R^2$** | **0.16** | **0.07** |
| **Adj. $R^2$** | **0.02** | **0.01** |
| **RMSE** | **0.0632** | **0.0635** |
| * p<0.05, **p<0.01, ***p<0.001 | | |

Explanatory power is filtered by factors in Models 1 and 2 of Table X, which were found to be adequate thanks to the (Gelman 2007, 69). Nevertheless, $R^2$ remains stable at 16% and 7%, respectively, for models 1 and 2.

To conclude, I do not find in this factors a satisfactory explanatory power of the behavior of CARs in this sample, as a result, some other factors should be added in future research, which would have to be justified in a novel manner as these were in consonance with present literature.

### 5.3. Why divergence in results from previous studies?

By carrying out the cross section study, I found that no previously found regressor is a statistically significant moderator of variations in results. Different factors can explain this, such as the small sample used, the specific geography and other intrinsic characteristics. Nevertheless, in order not to fall in data mining while being as well limited in the availability of data, it is for future research on the subject in Europe to both enlarge the sample by other manual means and to advance new factors that can potentially explain results.

## 6. Conclusion

To conclude, it is surprisingly rare the number of deals where a toehold is present. In this sample, only a total of 64 deals out of a universe of 15'241 (EU 27, completed and with listed acquirer and target) have a toehold, which translates into a portion of 0.42%.

The statistically significant headline result of -1.28% in a [-2; +2] event window for core European countries is in consonance with the idea of contradictory results often found in this field as stated in (Malatesta 1983). It agrees as well with the review of Haleblian et al. (2009) and with Franks and Harris (1989). It does not agree with Eckbo and Thorburn (2000), Carroll and Griffith (2010), Le and Schultz (2007) and Farinha and Miranda (2003).

From the cross section study, I find that method of payment and revenues of the target are statistically significant moderators that explain the pattern in CARs. Nevertheless, the explanatory power as measured by the $R^2$ is not satisfactory and future research should be directed to both enlarge the sample and to add new moderators of shareholder's wealth effects.

Three ideas can provide leeway for future research. One is that these results might be related with corporate governance issues in Europe as it is acknowledged to be less protective for minority shareholders. As a result, small toehold holders might be in disadvantage versus its American counterparts.

Another possible explanation might be that these acquisitions have agency issues related to them. As acknowledged in Berkovitch and Narayanan (1993, 350-351), this leads to value dilutive acquisitions in the US, which might be the case as for Europe as well.

Finally, and as exposed in Malatesta (1983), the methodology in itself might not be adequate. The acquisition of a toehold might signal a too strong signal that a future acquisition will happen, therefore all the gains at the event date were already priced in at the time of the acquisition of the toehold. As a result, and as a potential solution, an event study would need to be carried out at the time of the acquisition of the thohold.

## 7. References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BI Norwegian Business School

Preliminary Thesis Report

# M&A, Toeholds and PIIGS - An analysis of shareholders' wealth effects

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Professor Øyvind Norli

Programme:
Master of Science in Business and Economics – Major in Finance

# TABLE OF CONTENTS

# 8. Economic Problem

The market for corporate control is characterized by numerous strategies of delivering successful acquisitions and mergers. These strategies are implemented in order to have positive shareholder wealth effects with an important amount of articles focusing on this aspect.

The motivation that has led the emergence of M&A activity has been subject to study by academics through history. Berkovitch and Narayanan (1993) In their research they advance a method to distinguish among the principal motives that are put forward by the literature. These three main motives that keep alive the contest for corporate control are the synergy, agency and hubris motives (Berkovitch and Narayanan 1993, 350-351).

The synergy motive is based on the premise that bidders and targets negotiate takeovers when both parties gain from the process, therefore, the primary reason that lead the companies involved to negotiate a merger or acquisition is the existence of a perception that the two companies complement each other and together they can achieve more than they would alone.

Another reason is acknowledge as the agency motive; entrenched in the idea that bidder's management benefit from a transfer of value from shareholders to themselves due to an increase in managements' well being as they control more assets or by the possibility that shareholders may become more dependent on current management as they engage in these takeover activities.

Finally, they identify in the literature the Hubris hypothesis, where takeover rational lay on pure misconceptions by the bidders' management and that there is no synergy gains.

In Berkovitch and Narayanan (1993), they cite some studies that try to clarify which of the previous motives is the dominant one in the market for corporate control. Nevertheless, no conclusive result is available. That is why in their study they divide a new method and hypothesis that are implemented in order to clarify this issue, being therefore the primary contribution of their study.

After studying the relationship between target and total gains in M&A activity, they were able to advance hypothesis in order to test which of the motives is the most important one using data of 330 tender offers during 1963-1988 (Berkovitch and Narayanan 1993, 349). They conclude that the synergy is the strongest reason for takeovers, although there can be identified some deals where other reasons were relevant, namely agency and hubris.

In other papers, such as the review by Haleblian et al. (2009), another classification that determine the reasons for M&A are classified in four main ideas[8]:

I. Value creation, as a subset, which incorporates market power seeking, efficiency gains, resource redeployment and market discipline.
II. Managerial self-interest, as a subset, which incorporates compensation, hubris and target defence tactics.
III. Environmental factors, as a subset, which incorporates environmental uncertainty, regulation, imitation, resource dependence and networks ties.
IV. Firm characteristics, as a subset, which incorporates acquisition experience and firm strategy and position.

Having introduced the motives for the existence of the market for corporate control, it follows a narrowing down to the strategies used to carry them on, focusing on the toehold bidding strategy.

A toehold is defined by Asquith and Kieschnick (1999, 1) as "The initial shareholding of a bidder in the target firm prior to bidding". The rational of toehold bidding is very strong within the finance theory and its study has been associated with its relationship with takeover premiums, the probability of success and impact on shareholders' wealth.

In Betton, Eckbo and Thorburn (2009), they state that the rationale of acquiring a toehold before making a bid for the firm is based on the idea that it creates value

[8] For more details refer to Haleblian, Jerayr, Cynthia E. Devers, Gerry McNamara, Mason A. Carpenter and Robert B. Davison. 2009. "Taking Stock of What We Know About Mergers and Acquisitions: A Review and Research Agenda." *Journal of Management,* 35 (3): 469-502. doi: 10.1177/0149206308330554.

by reducing the amount of shares to be purchased in the tender offer for all remaining shares at the offered. This offer price as it includes the control premium and valued synergies, it could prove higher than the price at which the initial stake in the company was purchased, being a source of gains in the case when rival bidders appear in the contest for the firm and offer higher prices for the company, having a positive impact on the initial holdings of the toehold owner.

This rational for toehold bidding has also been subject of study in a sizeable amount of articles. In the study conducted in Carroll and Griffith (2010), they found that even when hostile takeovers are not successful, these bidders gain significant abnormal returns compared to those without a toehold. In fact, they found that abnormal returns average 4.98% for those hostile bids with a toehold compared to 0.06% to those hostile bids with no toehold.

In the review carried out by B. Espen (2009), it is evident another strand of literature focusing on the takeover premium and its relationship with bidding strategies in takeovers. For instance, in Asquith and Kieschnick (1999), they found a negative correlation between the size of the toehold and the takeover premium, while also achieving greater understanding on the dynamics of the factors in play as they acknowledge a relationship, that needs further study, with these results and the size of the target firm.

Studies such as the one of Walkling (1985) focuses primarily on the relevance of the bid premium in the outcome of the takeover, where they conclude that in fact the bid premium is a statistically significant determinant of the probability of success in the takeover process.

Betton and Eckbo (2000) Study the probability of takeover success through a tree of different outcomes during the negotiation process. They found that the greater the size of the toehold, the lower the probability of rival bidders entering the contest and also the lower the probability of target resistance. Finally, they are able to find a negative relationship between the size of the toehold and bid premiums and run-ups (appreciation of the stock of the target prior to the tender offer).

Betton, Eckbo and Thorburn (2009) Show that greater toeholds lower offer premiums while increasing the probability that the first bidder wins.

On the other hand, other articles focus on the wealth effect of toehold bidding. Driven by this line of thought, I present the case for this thesis. For that, I present the motivation and implications of this study. Following, a literature review on this line of thought is presented.

## 9. Motivation and Implications

This thesis aims to answer the central question of whether there is a case for 'Toehold Bidding' in the market comprised by the PIIGS countries – Portugal, Italy, Ireland, Greece and Spain. The implications would be to assess the wealth effect on shareholders, as measured by the bidders abnormal returns, prior and after the completion of the acquisition process. For that, a comparison with deals where toeholds are not present would yield interesting results and finally, a cross-sectional study is carried out in order to assess whether the identified abnormal returns are in fact statistically affected only or mostly by the existence of a toehold as it could be the case that other bid characteristics may have an impact.

In Carroll and Griffith (2010), an study comparing hostile bids with and without toehold performance for the bidders' shareholders is examine. Interestingly enough, they find that unsolicited bids (hostile) increase incentives for targets' management and to seek other bidders, which in turn enhances the returns for the original bidder on the toehold. For their sample, hostile bidders with a toehold earn a significant abnormal return of 4.98% compared to 0.06% when no toehold is present. Furthermore, they conclude that for bidders with a toehold of less than 35%, it is probable that the bidder will withdraw anyway, making the case that hostile bidders with toeholds implemented this strategy in order to attract rival bidders and to profit from their toehold on the target firm. This study is a main source of inspiration for this thesis, although I won't be differentiating between hostile or friendly bids.

The implications are related to whether there is a puzzle or not in these markets, as there is in the US, according to Betton, Eckbo and Thorburn (2009), where a the number of toehold related bids has been decreasing contrary to the theoretical

advantages of toehold bidding. In fact, in their sample, there were 13% among more than 10'000 initial bids were toehold bidding was present.

In the literature, one can find arrays of studies where the suggestion that acquisitions do not enhance shareholders' value is present, neither in the short nor in the long term. Specifically, in Eckbo and Thorburn (2000), they found that US bidders of Canadian firms earn statistically insignificant abnormal returns. In Healy, Palepu and Ruback (1992), they performed an event study at announcement of the merger and found that returns are not significantly different from zero (Healy, Palepu and Ruback 1992, 157).

Although other studies can be found, it is a motivation to see whether toehold bidding in the markets of interest for this thesis, it can be found statistically significant abnormal returns that rend valuable corporate takeovers when toeholds are present, as in Carroll and Griffith (2010).

## 10. Literature Review

In Carroll and Griffith (2010), an comparative analysis on takeover contests in the presence of toehold bidding and in hostile bids, was conducted. They conclude that, on average, bidders earn significant abnormal returns of 4.98% while those without toeholds gain 0.06% return.

Fuller, Netter and Stegemoller (2002) Focus on shareholder returns in public firms that successfully completed five or more public, private, or subsidiary targets. They found that, if they include in their analysis bidders' characteristics, they could study the variations resulting from these characteristics.

Loughran and Anand (1997) Directed their study towards considering the shareholder wealth effect of the bidder after the acquisition has been carried out (post acquisition returns) finding correlations with the form of payment during five years after the acquisition of the company. In their case, an interesting fact is that they adjusted for size (as market value of equity) and book-to-market as the appropriate benchmark for abnormal returns. They conclude that (1) bidder returns are higher when cash is used as payment method for a tender offer; (2) bidder returns are lower when the payment method is stocks in a merger offer.

Elgers and Clark (1980) Studied stock returns after an acquisition of a company using a Sharpe-Lintner capital asset pricing model. The results are consistent with previous research at the time where significant gains are present for the buyer and greater gains are present for the seller.

Eckbo and Thorburn (2000) Studied shareholders wealth effects on acquisitions at the announcement date in Canada by domestic and US firms. They found that domestic bidders (Canadian) present significant abnormal returns while US firms do not present abnormal returns at announcement. This is a study relevant for this thesis in order than it represents the kind of study I set out to do, although focusing on the ones where toehold bidding exists and involving different countries.

Campa and Hernando (2004) Studied European M&As by calculating abnormal returns of each deal relative to the local value weighted equity index. And then studied the determinants of those returns.

Floreani and Rigamonti (2001) Paper examined shareholders wealth effects in European, American and Australian M&A in the insurance industry. This article is of particular interest for this thesis since it performs the kind of study (event study) to determine the wealth effects that I will develop in this thesis except for the fact that they focused on M&A in general and not only on toehold bidding M&A in particular and its somewhat narrow in their objective as they restricted their study to the insurance industry. It is an interesting paper since they focus on different countries to study wealth effects, which in this thesis will be carried out.

Finally, it is noteworthy that contrary to the study of Campa and Hernando (2004), they created an index for the sample in the insurance industry worldwide. In this thesis however, I will perform the analysis using each countrys' market index and only then average the results, being consistent with Campa and Hernando (2004).

In Haleblian et al. (2009), a review of what is known about M&A activity in general is presented. Taking into consideration that as bidders pay a premium for

control, is natural for target shareholders to gain significant abnormal returns (Haleblian et al. 2009, 470). Therefore, I will focus primarily in my thesis on abnormal returns for bidder shareholders.

Furthermore, generally is known that acquisitions do not add value to acquirers' shareholders (Haleblian et al. 2009, 470), there are situations in which value added outcomes can be identified. Therefore, this thesis will assess whether toehold bidding in the PIIGS market is value adding.

Le and Schultz (2007) Studied toeholds and its performance in the Australian market acknowledging that the literature finds significant positive abnormal returns for the target firm but results for the bidding firms are not conclusive. In their case, they found that there is a positive relationship between toeholds size and abnormal returns of bidders' shareholders.

Farinha and Miranda (2003) Study M&A events in Portugal for the period between 1989 and 2001. In their article, they focus more on the run up period to the acquisition but also find a positive relationship between the presence of toeholds with the magnitude of the run up effect and abnormal returns. Despite this fact, the thesis would expand on this research on the particular case of Portugal as it would consider a more recent sample and compare it to results in Ireland, Italy, Greece and Spain. This, in fact is one of the guidance they provide to further expand their research.

Petitt and Dumontier (2002) Study wealth effects for two types of M&A deals in the French market, namely, control oriented and parent-subsidiary bids. The aim is to explain, by finding determinants of the variation in results, an explanation to the difference in abnormal returns.

Franks and Harris (1989) Study wealth effects in the UK between 1955 and 1985. The interesting result is that they find for the UK market that gains between the target and bidder, when a toehold was present; the total gains are approximately equally distributed between target and bidders. Also, they found that there are approximately the same wealth effects for bidders with and without a toehold,

concluding on this issue that it is indifferent in their sample to engage in toehold bidding.

## 11. Methodology

In order to answer that question, I will implement an event study introduced in Brown and Warner (1980) and Brown and Warner (1985), in a multi-country setting. As in Campa and Hernando (2004), I will implement an event study where the benchmark portfolio is constructed using the market model for a benchmark portfolio as represented by a world market index that will be retrieved from Datastream.

The abnormal returns are calculated compared to the expected returns as given by the Market Model using an ordinary least squares (OLS) method. As in MacKinlay (1997, 20), the parameters of the model are given by:

$$\hat{\beta}_i = \frac{\sum_{\tau=T_0+1}^{T_1} (R_{i\tau} - \hat{\mu}_i)(R_{m\tau} - \hat{\mu}_m)}{\sum_{\tau=T_0+1}^{T_1} (R_{m\tau} - \hat{\mu}_m)^2}$$

$$\hat{\alpha}_i = \hat{\mu}_i - \hat{\beta}_i \hat{\mu}_m$$

Where,

$$\hat{\mu}_i = \frac{1}{L_1} \sum_{\tau=T_0+1}^{T_1} R_{i\tau}$$

And

$$\hat{\mu}_i = \frac{1}{L_1} \sum_{\tau=T_0+1}^{T_1} R_{m\tau}$$

The sample abnormal returns are given by:

$$AR_{i\tau} = R_{i\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m\tau}$$

$AR_{it}$ Abnormal return

$R_{i\tau}$ Return in event period $\tau$ for security *i*

$R_{m\tau}$ Return in event period $\tau$ for the market

Where its conditional variance would be:

$$\sigma^2(AR_{i\tau}) = \sigma^2{}_{\varepsilon_i} + \frac{1}{L_1}\left[1 + \frac{(R_{m\tau} - \hat{\mu}_m)^2}{\hat{\sigma}^2{}_{\varepsilon_i}}\right]$$

The cumulative abnormal return formula is given by:

$$CAR_i(\tau_1,\tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{i\tau}$$

As $L_1$ (length of estimation window) increases, the variance of $CAR_i$ is:

$$\sigma^2{}_i(\tau_1,\tau_2) = (\tau_2 - \tau_1 + 1)\sigma^2{}_{\varepsilon_i}$$

In the absence of abnormal returns, average CAR should be zero:

$$\overline{CAR}(\tau_1,\tau_2) = \sum_{\tau=\tau_1}^{\tau_2} \overline{AR}_\tau$$

In order to test for the statistical significance of the results, I will use as guideline the work of MacKinlay (1997), where the hypothesis formulation would be:

$H_0$: There are no abnormal returns

$H_1$: There are abnormal returns

Where $H_0$ can be tested using:

$$\theta_1 = \frac{\overline{CAR}(\tau_1,\tau_2)}{var\left(\overline{CAR}(\tau_1,\tau_2)\right)^{1/2}} \sim N(0,1)$$

Where,

$$var\left(\overline{CAR}(\tau_1, \tau_2)\right) = \sum_{\tau=\tau_1}^{\tau_2} var(\overline{AR}_\tau)$$

An application of this methodology would be present both for toehold bids and for non toehold bids in order to compare the results as in Carroll and Griffith (2010).

Finally, in order to implement a cross sectional study, I would use a logistic regression where a number of dummy variables representing the deals' characteristics would be included in the model to assess whether other factors are or not influencing the results of the event study.

## 12. Data

The sample ranges from 1999 until 2010 of deals taken from Zephyr that fulfilled the criteria of being:

I. Deals within Portugal, Italy, Ireland, Greece and Spain
II. Only completed deals
III. Only when a toehold as defined of being the bidder holding less than 50% of shares before bidding for a sufficient amount of shares to acquire control (as defined as holding more than 50% of targets' shares)
IV. Where both the target and bidder are public firms.

For each bidder I will collect stock market prices from Datastream. In this preliminary report, the sample of deals with toehold bids is characterized by a total value of €83bn for 45 deals, while the mean value is of €1.3bn represented by an average toehold size of 33.50%.

Following, I present a preliminary table where the number of deals with toehold bidding, in the regions studied, is presented.

An interesting fact is that at this point and relying on Zephyr Database, there are no deals with toehold bids in Ireland since 1999 until 2011.

TABLE I

Number of M&A deals n the PIIGS region in the sample from 1999-2011

| Year of Completion | | Portugal | Italy | Ireland | Greece | Spain |
|---|---|---|---|---|---|---|
| 1999 | 1 | | 1 | | | |
| 2000 | 2 | 1 | 1 | | | |
| 2001 | 0 | | | | | |
| 2002 | 3 | | 1 | | 1 | 1 |
| 2003 | 11 | 1 | 3 | | 4 | 2 |
| 2004 | 6 | 2 | | | 3 | 1 |
| 2005 | 3 | | 1 | | 2 | |
| 2006 | 3 | | 1 | | 1 | 1 |
| 2007 | 6 | | 1 | | 2 | 3 |
| 2008 | 3 | | 2 | | 2 | |
| 2009 | 5 | | 3 | | 1 | 1 |
| 2010 | 1 | | 1 | | | |
| 2011 | 1 | | | | | 1 |
| Total | 45 | 4 | 15 | 0 | 16 | 10 |

Data compiled from Zephyr Database for Completed Deals, where both bidder and target are public firms, where a toehold is defined by a pre-bid holding of less than 50%, regardless of being a domestic or cross border M&A.

## 13. Further Progress Outline

In order to carry out this study, further deepening on data collection proves necessary. Namely:

I. Gathering announcement dates for tender offers in the deals with toehold and no toehold bidding.
II. Collecting through Zephyr Database deals where no-toehold bids are present, for the geographical areas of interest.
III. Retrieve data from Datastream of a relevant world market index in order for it to function as my benchmark portfolio in which to carry out the event study.
IV. Organize and retrieve necessary data in order to form the variables that characterize the deals in order to carry out the cross-sectional study.

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