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**THE IMPACT OF THE PRELIMINARY ANNOUNCEMENT
ON THE ABNORMAL RETURNS OF THE COMPANIES INVOLVED
IN TAKEOVER BIDS IN THE PORTUGUESE STOCK MARKET
ETWEEN 2000 AND 2014**

Keywords: Takeover Bid, Abnormal Returns, Hostile takeover, Price Reaction, Bid Premium.

J E L Classification: G10, G14, G30, G34.

Abstract: The comprehension of terms such as Takeover Bids is essential to understand the functioning of business combinations. This paper aims to analyze the impact of the preliminary announcement on the abnormal returns of the companies involved in takeover bids in the Portuguese stock market. This study used the methodologies of Ball and Brown (1968) and Beaver (1968). 100 Operations were identified between

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2000 and 2014. The results of the 12 analyzed bids confirm that the target companies show positive abnormal returns, whilst the acquiring companies show negative abnormal returns and inferior in amplitude. They also confirm that, globally, the companies react strongly to the announcement and that they acquire higher abnormal earnings in the periods closest to the preliminary announcement.

■■■ INTRODUCTION

The international scientific community has given relevant importance to the business combinations occurred in the globalized market. Mergers and Acquisitions (M&A) are more and more a path to external growth used by the companies to satisfy their strategic objectives. In this context, takeover bids are identified as a frequent instrument which was used several times in the last two decades, but isn't usually studied in Portugal. Frequently several significant changes are identified on the stock prices of the companies involved in takeover bids that, in most cases, last several weeks. This subject is studied in the area of event studies.

The main objective of this paper focuses on the analysis of the impact of preliminary announcements of the takeover bids on the stock prices of the companies involved (acquiring and target) in the Portuguese Stock Market. More precisely, the objective is to identify who gains and loses with the bid's announcement, through the calculation of the abnormal returns, using the methodologies of Ball and Brown (1968) and Beaver (1968).

During the empirical research, 12 takeover bids, registered on Comissão do Mercado de Valores Mobiliários (CMVM), were considered during the years between 2000 and 2014. The final objective requires a quantitative approach using the deductive method.

The paper is divided into five different chapters. On the second chapter, a literature review is presented about the various forms involving takeover bids and over the arguments connected to each type of takeover bid. Additionally, themes that involve these operations, such as corporate governance – explained by the agency theory – and Bid Premium. The next chapter, a literature review about event studies is presented, focusing more on the subject at hand and taking into account the adopted methodologies. The fourth chapter presents the empirical research, using hypothesis considering the final objective of this study, specifying the models of Ball & Brown and Beaver, the final results and statistical tests, as well as its discussion. In the last chapter, the conclusions are specified.

THE RESEARCH METHODOLOGY AND THE COURSE OF THE RESEARCH PROCESS

During the research the following analyzes are used: analytical, graphical, statistical and empirical research method. The theoretical and methodological basis for this research comes from specialized scientific literature, textbooks, regulations, published annual reports and quotation bulletins of supervisory authorities and mass communication media.

LITERATURE REVIEW ON BUSINESS ACQUISITIONS

M&A represent a substantial part of the business operations performed by companies acting in evolved capital markets, transforming big corporations or major companies that are important to the world development. One of the ways so that the companies may grow is via decision-making regarding the merger or control, merging and acquiring other companies. *"In acquisitions, the total capital of a smaller company becomes propriety, totally or partially, of a bigger company in size"*¹.

A vertical acquisition occurs when a company gains the propriety over another company working in the same industry, but in different production stages (Weston, Mitchell & Mulherin 2004). This type of acquisition is done in order to obtain the total control of the production chain, strengthening the position of the company in the market.

The horizontal acquisition occurs when both companies work, produce and compete in the same industry. The merger of both companies may result in a new company more capable to face the market (Weston *et al.* 2004; Gaughan 2005). With this operation the business capacity of the acquiring company increases, but its business structure and *modus operandi* remains the same.

The table² below shows some advantages / disadvantages of both horizontal and vertical integrations as a vehicle to business growth. Some disadvantages of the vertical integration occur with new company's inefficiencies (after

¹ "Manual de Fusões e Aquisições de Empresas no Sector das TIC", <http://www.anetie.pt/userfiles/9/file/documentos/Coopera%C3%A7%C3%A3o%20Competitiva/Manual%20de%20Fus%C3%B5es%20e%20Aq%20%20de%20Empresas%20no%20Sector%20das%20TIC%281%29.pdf>, Anetie, p.6.

² "Strategic Management Insight, "Horizontal Integration & Vertical Integration", <http://www.strategicmanagementinsight.com/topics/horizontal-integration.html> and <http://www.strategicmanagementinsight.com/topics/vertical-integration.html>.

acquisition). On the other hand, the number of advantages and disadvantages are less in the horizontal integration, because it reduces competition and the complexity of the company's "logistics" after the operation.

Table 1. Horizontal Integration vs Vertical Integration

	Horizontal Integration	Vertical Integration
Advantages	<ul style="list-style-type: none"> - Lower costs - Greater differentiation - Greater market share - Reduced competition - Access to new markets 	<ul style="list-style-type: none"> - Lower costs - Better supply, + resources - Better coordination - Better distribution - Greater market share - More skills - Easier investment opportunities
Disadvantages	<ul style="list-style-type: none"> - Destroyed value - Legal consequences - Reduced flexibility 	<ul style="list-style-type: none"> - More costs, if inefficient - Smaller competition, less quality - Reduced competition - Legal problems (monopoly) - Competitive disadvantage

Source: elaboration of the author.

The conglomerated acquisition occurs when a company acquires another one, which operates and is in a completely different industry, providing conditions to diversify the risk and market exposure, as well as to build entirely independent business groups from one another (Herger & McCorriston 2013).

HOSTILE TAKEOVER

This operation occurs when the decision of the acquiring company goes against the will and desire of the target company's management (Johansson & Torstensson 2008). It can also be considered as hostile when the bid is disclosed without report to the board of directors of the target company and is directly disclosed to the shareholders. Usually, the hostile bids want to gain the shareholder power of the target company and, most of the times, a friendly bid may become hostile (Zarin & Yang 2007). It can also occur the opposite situation, taking into account the negotiation process, in which a hostile bid may become a friendly one (Schwert 2000)

Usually, a friendly bid is preferred by the acquiring company, because it results in a much inferior cost, globally. Moreover, the acquiring company will also face a weaker opposition in the negotiation process, but also a weaker opposition by the market, facing also less legal problems.

Considering that hostile takeovers are, sometimes, true dilemmas for the companies, because they can have positive and negative effects, the impact of these business operations become quite difficult to calculate. Zarin and Yang (2007) point that an undervalued company, due to management inefficiencies or low stock value, may be the target of hostile takeovers. These bids usually involve the management’s substitution and the implementation of strategies that may value the company, benefiting the company’s shareholders. On the other hand, the use of a defense strategy against that bid may provoke damaging effects to the target company and its shareholders, reflecting that action on the company’s stock value.

Table 2. Arguments For and Against Hostile Takeovers

Authors	Arguments	For	Against
Steinbächer (2007)	<ul style="list-style-type: none"> – Synergies effect – Undervalued target company – Market share 		<ul style="list-style-type: none"> – Bid’s impact on the target company’s management – Possibility of occurring a Management Entrenchment* situation.
Demidova (2007)	<ul style="list-style-type: none"> – Market development via companies control 		
Carvalho (2012)			<ul style="list-style-type: none"> – Creation of negative externalities – Deterioration of the other interests of stakeholders – Loss of welfare.
Jensen e Ruback (1983)	<ul style="list-style-type: none"> – Reduction of Agency costs – Creation of economies of scale – Greater efficiency 		
Martynova and Renneboog (2006)	<ul style="list-style-type: none"> – Cost-reduction – Exploitation of new markets 		
DePamphilis (2010, 2011)	<ul style="list-style-type: none"> – Surprise-effect 		<ul style="list-style-type: none"> – Increase of acquisition costs – Creation of an “auction” environment – Board of directors’ structure – Integration process
Gaspar and Matos (2005)	<ul style="list-style-type: none"> – Low degree of compromise by an investor 		

* The protection of the manager’s own interest is the most evident characteristic of this theory. This situation might occur when the management of the target company tries to turn its own company into a less attractive acquisition for the acquiring company, by the use of a poison pill, for example, or by preventing the bid to be disclosed to the stockholders by simply rejecting that same bid (Smadja 2008). On the other hand, Shareholder Interest theory has the objective of increasing the stockholders’ wealth during the acquisition process, something possible by the retraction on defense’ costs and by reaffirming that the management won’t disable any of the defense strategies used, while the bid doesn’t comply with the shareholder interest (Gaughan 2007).

S o u r c e : elaboration of the author.

CORPORATE GOVERNANCE AND AGENCY THEORY

A relevant theme in the acquisition business operation is the definition of corporate governance. But before exploiting that definition, there is a necessity to explain what it is Agency theory, two very connected themes that have been studied by the academic community.

It is essential to comprehend the relationships between shareholders and managers in order to understand the group of laws, regulations, structures and corporate bodies that incorporate the notion of corporate governance (Neves 2006). Gaughan (2007) states corporate governance to be a complex notion which has been ostracized due to a group of “corporate misconducts” that have lead companies to change their regulations and business structures. In this domain, the Sarbanes-Oxley law defined several significant reductions on the creation of opportunities for the occurrence of conflicting interests and allowed for a significant reduction of agency problems.

An agency relationship might be defined as a contract in which one or more persons (principal) undertake a third-party (agent) to execute some authority task, in this context the task is to manage a company. Taking into consideration that both – principal and agent – want to maximize utility, it is possible to assume that the agent not always works in favor of the principal, creating agency problems (Jensen & Meckling 1976; Eisenhardt 1989). Agency theory tries to solve two problems, known as agency problem and risk-sharing problem. The agency problem is related to the conflict of interests between agent and principal, as well as to the difficulty that the principal has in monitoring the agent. The risk-sharing problem appears when the agent and principal have different attitudes toward risk (Eisenhardt 1989).

Bid premium

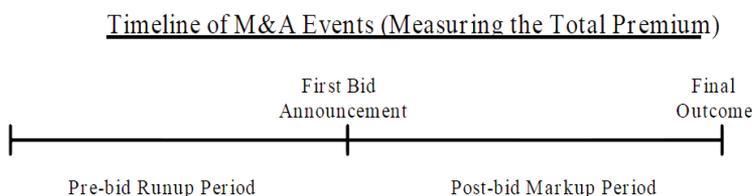
Bid Premium corresponds to the difference between the value offered by the acquiring company for the acquisition of the target company and the real value of the target company in the market. Usually, premiums are quite high because the acquiring company wants to obtain a positive answer from the target company for its acquisition (Schoenberg 2003).

The notion of premium is often related with the decision assuring the shareholder interest, considering that empirical evidence has shown that a positive correlation between an increase in shareholders’ wealth and an increase on

the premium of the acquiring company exists (Schoenberg & Thornton 2006; Johansson & Torstensson 2008).

Schwert (1996) concluded that competition increases the bid premium, significantly, confirming the papers written by Bradley, Desai and Kim (1988), by Comment and Schwert (1995) and by Sacchetto and Dimopoulos (2008). The figure below shows the four phases of the acquisition process identified by Schwert (1996).

Figure 1. Phases of the Acquisition Process



Source: G. William Schwert (1996, p.3), "Markup Pricing in Mergers and Acquisitions". National Bureau Of Economic Research.

A tough negotiation at the target company's end may motivate a bid premium increase, but it may also determine a reduction on the success probability of the acquisition. Thus, it becomes necessary to investigate if the net effects of the defense strategies have repercussions on the shareholders' wealth. Another way to increase the bid premium is described by Schwert (2000) and it consists in initiate a process of "auction", with several bidders (multiple-bidder auction). Franks and Mayer (1996) also studied this matter and they have concluded that the bid premium is higher in a hostile bid than in a friendly bid.

As mentioned above, competition represents an argument against a hostile takeover, due to the increase on costs it provokes to the acquiring company. That was also concluded by Sacchetto and Dimopoulos (2008) in a study about the impact of competition on the bid premium. Both authors studied bids on the American market between 1988 and 2006. Against that conclusion, Fishman (1985) stated that the bid premium initially offered by the first acquiring company (preemptive bid) reflects the necessary value to avert a second acquiring company. The studies of Eckbo (2008) and Aktas et al. (2009) are consistent with the conclusions presented by Fishman (1985), showing that the bid premium may be used to avert competition. Complementary, Chen and Cornu

(2002) affirm that the processes of hostile bids promote even more competition between acquiring companies and consequent higher premiums paid to the target companies.

EMPIRICAL RESEARCH ON EVENT STUDIES

As mentioned above, the objective of this paper is to analyze the behavior of the stock prices of the companies involved in takeover bids, considering the preliminary announcement of each bid. The study of the abnormal returns has been studied on the course of Finance in the subject of event studies.

Beaver (1968) studied the impact of information over the volume and companies' stock prices. That information may refer to the disclosure of a preliminary announcement of a takeover bid. Beaver (1968) defines information as a change on the expectations over the result of an event, in a way that the information has an impact on investors, if it provokes a change on the investors' expectations and their behaviors. Still, he concludes that investors accept information as a significant variable, reason enough to justify that information has a strong impact on the changes of volume and stock prices. He identified a change on stock prices during the week's announcement 67% higher than the average of stock prices in the period when the announcement didn't occur. Moreover, that abnormal activity lasted until the periods after the announcement with replicas, obtaining a 10% to 15% change, in the two weeks after the announcement.

Ball and Brown (1968) used the linear regression model and the Naive model, predicting that earnings per share of the current year won't be different from the earnings per share of the previous year, in order to identify good or bad announcements in terms of earnings per share. They divided the sample into two parts: moments in which residual earnings were positive (the observed earnings were higher than the predicted ones) and in instants in which residual earnings were negative (the predicted earnings were higher than the observed ones). The results showed that, although the larger part of the price changes occurred before the announcement, 10% to 15% of the price changes occurred on the month's announcement. Bradley *et al.* (1988) showed evidence on the earnings of target companies involved in takeover bids. In a study on 236 bids occurred in the United States over a 21 year-period, they verified that the share value of these companies increased 35%, in average. A short time later, Eckbo & Langhor (1989) studied 90 takeover bids in France and also concluded

that the share value of the target companies increased 16.5%, in average. Even in those cases when the bid failed, the stock prices tend to maintain a high value, due to the possibility of occurrence of a new bid, of occurring changes in the management policies and the chance of the bid to be indicative of information³ (Bradley et al. 1988).

Jensen and Ruback (1983) show that the target companies earn positive abnormal returns on the month's bid announcement both in successful bids and unsuccessful bids. In the case of unsuccessful bids, companies which haven't received additional bids, in the two years following, lost the returns previously earned; companies which have received additional bids earned even higher returns than the ones earned before. Dodd and Ruback (1977) and Affleck-Graves et al. (1988) concluded the same. The target companies earned positive and significant abnormal returns, mainly on the month of the bid. Moreover, the target company's returns occur independently of the success of the bid (Dodd & Ruback 1977).

Regarding the takeover bids' impact over the returns of the acquiring companies, the empirical evidence isn't unanimous. Affleck-Graves et al. (1988) didn't find positive abnormal returns for these companies. Jensen and Ruback (1983) found evidence that the acquiring companies don't lose. Dodd and Ruback (1977) concluded that, in the twelve months before the bid, the shareholders of the acquiring companies earned positive and significant abnormal returns. Asquith and Kim (1982) affirm that the acquiring companies earned negative and insignificant abnormal returns during the announcement period, in conglomerated bids.

Agrawal et al. (1992) analyzed the abnormal performance of the stocks, mainly in mergers. They concluded that the acquiring companies had an underperformance after the merger, losing almost 10% of the wealth, in the bid's subsequent five years.

OBJECTIVES AND HYPOTHESIS

The purpose of the empirical research is to understand and prove the impact of the preliminary announcement on the abnormal returns of the companies'

³ The takeover bids are indicative of information when there is asymmetry of information between the management of target companies and its shareholders, leading to an undervaluation of these companies. The acquiring company, with more information, tries to benefit with bid (Bradley et al. 1988).

stocks involved in takeover bids, in the Portuguese stock market between 2000 and 2014. There is the intent to analyze the price reaction to the disclosure of intent to buy and the behavior of abnormal returns in the period after the bid, in order to identify those companies which gain and those which lose with this strategy of growth.

To develop the empirical research, taking into account the final objective of this paper, a number of working hypothesis were included. The five working hypotheses are:

- H₁:** the preliminary announcement of the takeover bid has a negative impact on the average abnormal returns of the acquiring companies
- H₂:** the preliminary announcement of the takeover bid has a positive impact on the average abnormal returns of the target companies
- H₃:** the positive impact of the preliminary announcement of the takeover bid on the average abnormal returns of the target companies is higher, in amplitude, than the negative impact on the average abnormal returns of the acquiring companies
- H₄:** the average abnormal returns of the companies involved (acquiring and target) react strongly to the disclosure of the preliminary announcement of the takeover bid
- H₅:** the reaction of the average abnormal returns of the target companies to the disclosure of the preliminary announcement of the takeover bid is higher than the reaction of the average abnormal returns of the acquiring companies

SAMPLE AND DATA

The survey of takeover bids was conducted from the information available in the annual reports and quotation bulletins of CMVM, as well as in other mass communication media, such as newspapers. The sample initially identified for the empirical research was constituted by 100 takeover bids occurred⁴ in Portugal between 2000 and 2014. However, the quantitative analysis can only contemplate the bids of both (acquiring and target) companies, when both companies share prices are available. There were some limitations regarding these

⁴ The list of both (acquiring and target) companies involved in takeover bids between 2000 and 2014 may be disclosed by the authors upon request.

100 takeover bids: 16 bids were offered by international groups, 16 bids were offered by a bidder holding more than half of the capital of the target company, 53 bids hadn't the share price information of both companies, and 3 had one individual as a bidder. Taking into account these limitations, only 12 bids were studied and only those were included in the empirical research.

The data were studied using the stock prices of the companies involved and of the Portuguese Stock Exchange (PSI-20 index), calculating the first Napier's logarithmic difference of the prices, with the perspective to rectify the occurrence of "shocks" or abnormal phenomena that, most of the times, characterize time series. In practical terms, the nominal returns of stock were calculated, continuously compounded, in which and express the closing price of stock in consecutive weeks and expresses the dividends of stock in the week:

$$R_{i,t} = \ln \left(\frac{P_{i,t} + D_{i,t}}{P_{i,t-1}} \right) \tag{1}$$

and the nominal returns of index, continuously compounded, in which and express the closing values of the index in consecutive weeks:

$$R_{m,t} = \ln \left(\frac{I_{m,t}}{I_{m,t-1}} \right) \tag{2}$$

The date of preliminary announcement of the takeover bid corresponds to the week 0. Around the date of announcement, the study considers a period of 38 weeks with observations of Thursday's closing prices, since the week -19 until week +18. During some time series, dividends were distributed or there were social capital increases that had consequences in terms of the anticipated discount of stock prices. These circumstances were purged from the object of the empirical research, which has the intent to analyze the impact of other events, through the correction of the respective stock prices.

Models

After calculated the logarithmic returns of each company stock price involved in takeover bid, we determine the emerging abnormal returns of the preliminary announcement of the bid. At a first stage we used the model determined

by Sharpe-Lintner (Sharpe 1964; Lintner 1965) in Capital Asset Pricing Model context:

$$E(\tilde{R}_{it}) = R_{ft} + \beta_i [E(\tilde{R}_{mt}) - R_{ft}] \quad [3]$$

R_{ft} is the return of an asset with no risk in the t period, R_{mt} is the return of the market index in the t period and β_i is the sensitivity of the stock return i in relation to the return of the market index m , which may be estimated through the implementation of the Ordinary Least Squares – OLS method. By substituting the expected returns by the observed returns in the equation [3], it results:

$$\tilde{R}_{it} = R_{ft} + \hat{\beta}_i(\tilde{R}_{mt} - R_{ft}) + \hat{U}_{it} \quad [4]$$

where \hat{U}_{it} is the estimate of the residual term for each stock i in the t period, which reflects the abnormal effect of the disclosure of the announcement on the stock's return.

Model #1 – Ball & Brown:

Reformulating the equation [4], it can be obtained another equivalent equation:

$$\tilde{R}_{it} - R_{ft} = \hat{\beta}_i(\tilde{R}_{mt} - R_{ft}) + \hat{U}_{it} \quad [5]$$

Considering β_i estimated from the OLS method with the regression's independent term, Ball and Brown (1968) deduce the abnormal return for each stock and in each period:

$$\hat{U}_{it} = (R_{it} - R_{ft}) - \hat{\beta}_i(R_{mt} - R_{ft}) \quad [6]$$

$$AR_{it} = \hat{U}_{it} \quad [7]$$

Finally, the average abnormal return (AAR) and cumulative average abnormal return (CAAR) are determined by the following:

$$AAR_t = \frac{1}{N} \sum_{t=1}^{N_t} \hat{U}_{it} \quad [8]$$

$$CAAR_{t_1}^{t_2} = \sum_{t=t_1}^{t_2} AAR_t \quad [9]$$

where AAR_t represents the average abnormal return in relation to all stocks in t period, N is the number of companies in analysis, N_t is the number of weeks in relation to the period studied and $CAAR_{t_1}^{t_2}$ represents the cumulative average abnormal return between week t_1 and week t_2 .

Model #2 – Beaver:

Besides the calculation of the abnormal return, it was also determined the price reaction of stock in relation to relevant information, as it happens with the preliminary announcement of the takeover bid. Beaver (1968) examines the estimate volatility of the residual term \hat{U}_{it} constituent of a market model regression:

$$R = \frac{\hat{U}_{it}^2}{Var(\hat{U}_{it})} \quad [10]$$

where R represents the price reaction of stock and $Var(\hat{U}_{it})$ represents the variance of the residual term in the period furthest to the preliminary announcement (between week -18 and week -6).

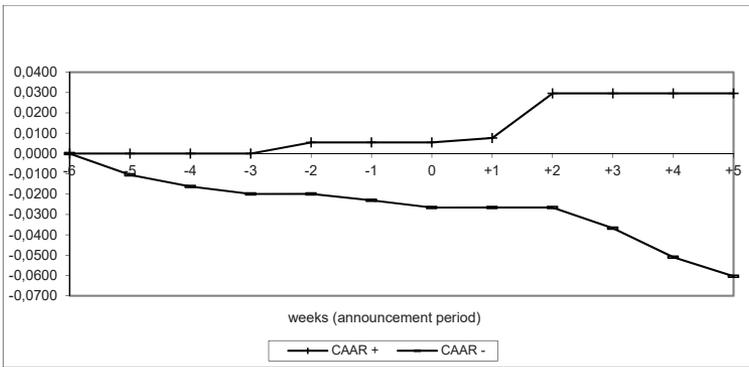
The usage of these methodologies assume the assumption of the prerequisites of the financial assets valuation models, such as the Capital Asset Pricing Model (CAPM), namely the random walk hypothesis with i.i.d. increments of the stock returns, which is the basis of the Efficient Market Hypothesis (EMH), in its weak form. Regarding the advantages of the methodologies studied, it's emphasized the possibility to analyze the phenomenon of the impact of takeover bids on the abnormal returns of the involved companies. Regarding the disadvantages, we emphasize the small scope of the time period closer to the preliminary announcement date and further to the preliminary announcement date, which may cause problems on the estimation of the value of beta by the Ordinary Least-Squares method (OLS).

THE OUTCOME OF THE RESEARCH PROCESS

Model #1 – Ball & Brown:

Taking into consideration the Ball and Brown (1968) model, Graph 1 represents the CAAR's close to the date of the preliminary announcement of the takeover bid for acquiring companies:

Graph 1. Cumulative Average (Log) Abnormal Returns (Ball & Brown) – Acquiring Companies



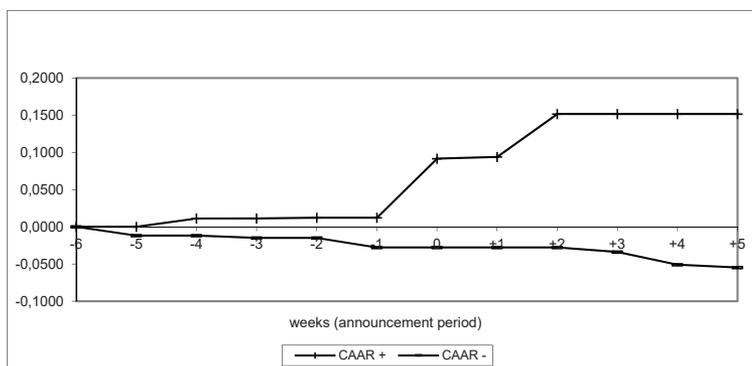
Source: elaboration of the author.

The graph shows that acquiring companies cumulate negative average abnormal returns close to the date of the preliminary announcement (between weeks -5 e +5), especially from week +2 onwards. The abnormal losses in this group of companies occurred earlier (week -5) than the abnormal earnings (week -2). Moreover, the positive CAAR's stagnate at 2.96% from week +2, while the negative CAAR's increase until -6.03% at the week's end (week +5).

The data behavior of Graph 1 confirms the working hypotheses H_1 mentioned before. It is confirmed that in the period close to the preliminary announcement of the takeover bid the acquiring companies have a negative average abnormal return, which isn't compensated by the reduced cumulative abnormal earnings, in the same period.

Continuing with the Ball and Brown (1968) model, Graph 2 represents the CAAR's close to the date of the preliminary announcement of the takeover bid for target companies:

Graph 2. Cumulative Average (Log) Abnormal Returns (Ball & Brown) – Target Companies



Source : elaboration of the author.

The graph shows that target companies cumulate positive average abnormal returns close to the date of the preliminary announcement (between weeks -5 e +5), especially from week 0 and reinforced in week +2. The positive CAAR's stagnate at 15.16% from week +2, while the negative CAAR's increase until -5.47% at the week's end +5.

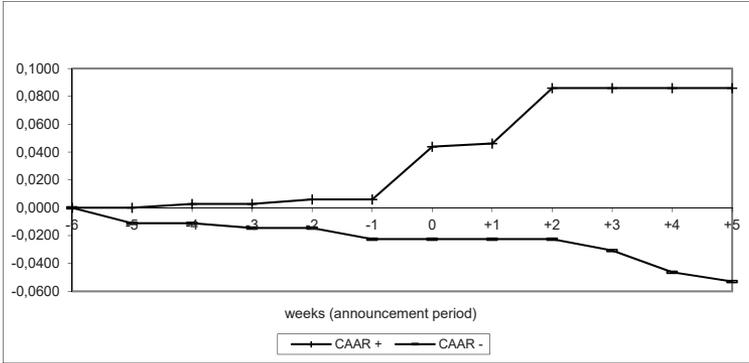
The data behavior of Graph 2 confirms the working hypotheses H_2 mentioned before. It is confirmed that in the period close to the preliminary announcement of the takeover bid target companies have a positive average abnormal return, much higher than the cumulative abnormal losses, in the same period.

Additionally, it is still noticeable that the impact of the preliminary announcement of the takeover bid is much higher in the target companies than in the acquiring companies, confirming the working hypothesis H_3 mentioned before.

The relevant effect of the disclosure of the preliminary announcement on the stock prices of the companies involved in takeover bids, mainly on the target companies, occurs corroborating the results presented by Ball and Brown (1968) and is owed, mainly, to the target companies' performance such as PTMultimédia.com, Companhia de Seguros Império, Banco Mello and Banco BPI.

Graphs 3 and 4 represent the calculated CAAR's using the Ball and Brown (1968) model, for companies involved in the takeover bid during the period close to the preliminary announcement and during a larger period, respectively:

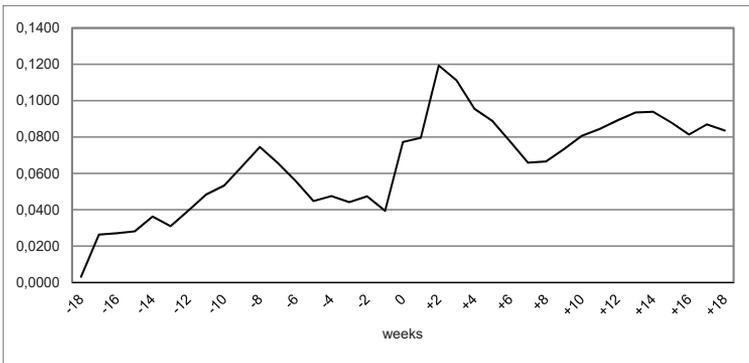
Graph 3. Cumulated Average (Log) Abnormal Returns (Ball & Brown) – Companies Involved



Source: elaboration of the author.

Graph 3 shows the consolidated effect of the previously shown Graphs 1 and 2, denoting a strong influence of the companies involved and greater amplitude of the target companies' obtained earnings. In relation to the 12 bids studied, the AAR's cumulated earnings of +8.60% and losses of -5.29% close to the period of the preliminary announcement.

Graph 4. Cumulated Average (Log) Abnormal Returns (Ball & Brown) – Companies Involved



Source: elaboration of the author.

Graph 4 confirms the strong behavior changes of the stock prices of the companies involved in takeover bids. In the previous phase of the preliminary

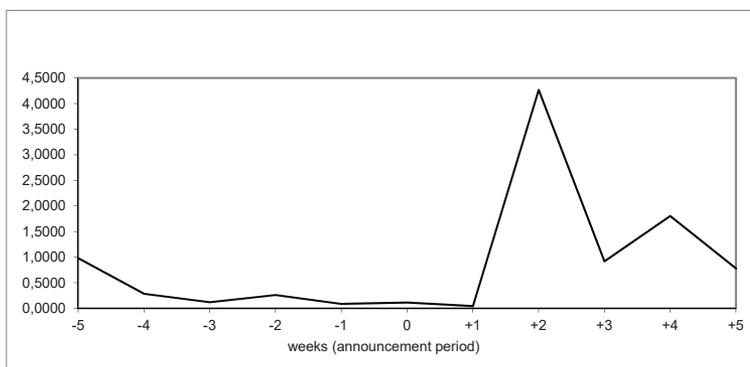
announcement, the tendency is to grow until the first “peak” (week -8), from that point on until the preliminary announcement (week 0) the tendency is to diminish. At that moment, the AAR’s invert substantially the tendency, growing until the week +2, cumulating abnormal earnings of 11.93%. After this, they diminish until week +7, oscillating in value from +6.59% to +9.39%.

This performance also verifies that the preliminary announcement of the takeover bid has a great impact on the stock prices of the companies involved and corroborates the conclusions of Ball and Brown (1968).

Model #2 – Beaver:

Using the Beaver (1968) model, Graph 5 shows the reaction of the average abnormal returns in the period close to the preliminary announcement of the takeover bid for acquiring companies:

Graph 5. Reaction of the Average Abnormal (Log) Returns (Beaver) – Acquiring Companies



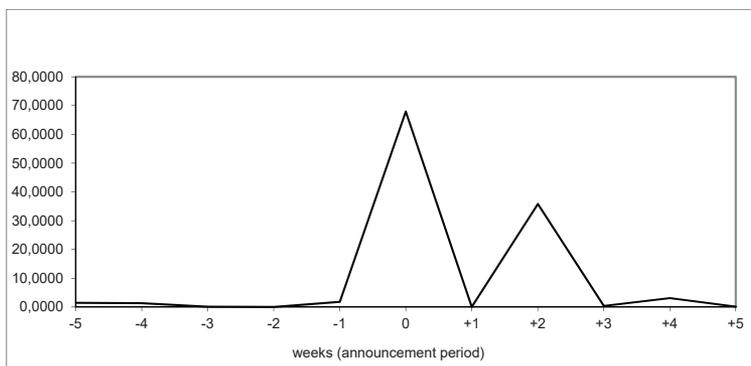
Source: elaboration of the author.

The graph shows the reaction of the average abnormal returns of the acquiring companies, characterized by an isolated “peak” in week +2 after the disclosure of the takeover bid. This evidence shows an existence of abnormal activity in the period close to the preliminary announcement date and confirms the working hypothesis **H₄** mentioned before.

The behavior is due to the performance of companies such as Cofina SGPS, SA, Banco BCP, PTMultimédia SGPS, SA, Sonaecom SGPS, SA and Sonae SGPS, SA. Later, in week +2 there was a new replica, but of inferior intensity.

Continuing with the Beaver (1968) model, Graph 6 represents the reaction of average abnormal returns in the period close to the preliminary announcement for target companies:

Graph 6. Reaction of the Average Abnormal (Log) Returns (Beaver) – Target Companies



Source: elaboration of the author.

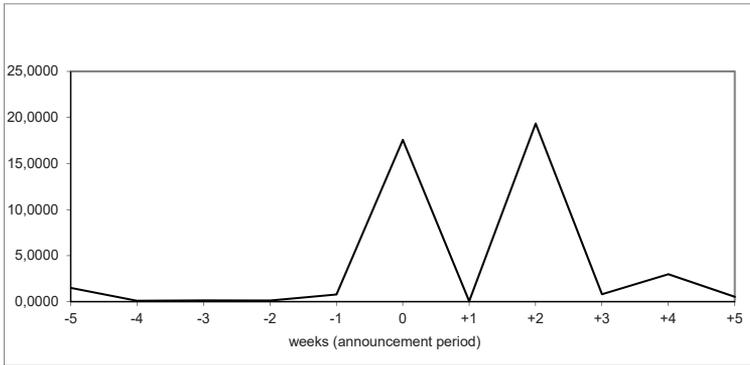
The graph shows a strong reaction of the average abnormal returns of the target companies, characterized by an isolated high “peak” in the preliminary announcement date (week 0). The behavior of the data of Graph 6 also confirms the working hypothesis H_4 mentioned before.

Additionally, it can also be concluded that the reaction of the abnormal returns to the preliminary announcement of the takeover bid is much higher in target companies than in acquiring companies, confirming the working hypothesis H_5 mentioned before. Later, in week +2 there was a new replica, but of inferior intensity.

The relevant effect of the disclosure of the preliminary announcement on the stock prices of the companies involved in takeover bids, mainly on target companies, corroborates the results shown by Beaver (1968).

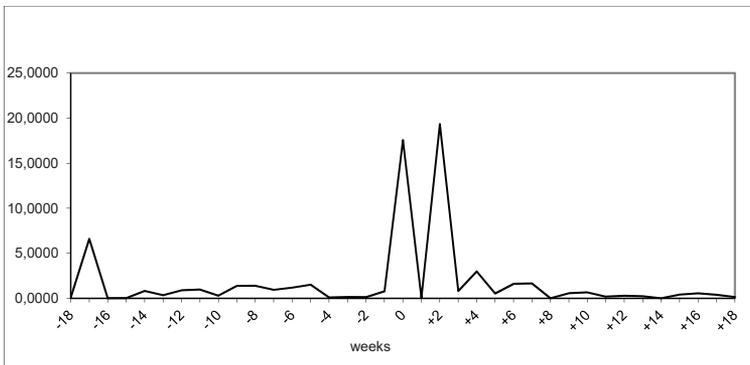
Graphs 7 and 8 represent the reaction of the average abnormal returns, calculated with the Beaver (1968) model, for the companies involved in takeover bids during the period close to the preliminary announcement date and during a larger period, respectively:

Graph 7. Reaction of the Average Abnormal (Log) Returns (Beaver) – Companies Involved



Source: elaboration of the author.

Graph 8. Reaction of the Average Abnormal (Log) Returns (Beaver) – Companies Involved



Source: elaboration of the author.

Graphs 7 and 8 show the consolidated effect of the graphs presented before, such as graphs 5 and 6, confirming the strong impact of the announcement. Facts such as “peaks” in the weeks 0 and +2, integrated in a larger period, further to the preliminary announcement date, considering the entire period in study (between weeks -18 and +18).

The results for acquiring and target companies confirm the working hypothesis H_4 mentioned before.

Descriptive Statistic Analysis:

The following tables show some descriptive statistics to analyze the behavior of the stock returns of companies involved in takeover bids and of the returns of the market index (PSI-20), both in the period further to the preliminary announcement date (weeks -18 to -6 and weeks +6 to +18), as well as in the period close to the preliminary announcement date (weeks -5 to +5). The returns are calculated in logarithmic measures (LOG) and compared with returns calculated in classical measures (CLSS).

Table 3 shows the statistics of mean, standard deviation, skewness, kurtosis and the returns normality test (Jarque-Bera) for acquiring and target companies, as well as for the market index, in the period further to the preliminary announcement date:

Table 3. Statistics of the Returns of the Companies Involved and of the Market Index

Period further to the preliminary announcement (weeks -18 to -6 and weeks +6 to +18)					
ACQUIRING		TARGET		MARKET INDEX	
CLSS	LOG	CLSS	LOG	CLSS	LOG
Y(1)	Y(1)	Y(1)	Y(1)	Y(1)	Y(1)
-0,0014	-0,0023	0,0035	0,0029	-0,0001	-0,0004
Y(2)	Y(2)	Y(2)	Y(2)	Y(2)	Y(2)
0,0135	0,0132	0,0103	0,0100	0,0080	0,0081
Y(3)	Y(3)	Y(3)	Y(3)	Y(3)	Y(3)
0,3197	0,1407	0,8593	0,7493	-0,4504	-0,4973
Asymmetric Dist to the Right	Asymmetric Dist to the Right	Asymmetric Dist to the Right	Asymmetric Dist to the Right	Asymmetric Dist to the Left	Asymmetric Dist to the Left
Y(4)	Y(4)	Y(4)	Y(4)	Y(4)	Y(4)
-0,2532	-0,5868	0,2345	0,0687	-0,1620	-0,1074
Platykurtic Dist.	Platykurtic Dist.	Leptokurtic Dist.	Leptokurtic Dist.	Platykurtic Dist.	Platykurtic Dist.
Returns Normality Test (Jarque-Bera) (Chi-square test)					
11,9078	14,0232	11,4851	11,7414	11,7100	11,5320

Source: elaboration of the author.

The results show the homogeneity between the calculated returns via the logarithmic and classical measures, since the empirical research used the first procedure as it happens with most of the investigative works in the area of Finance.

As expected for a time series with a small dimension (26 observations), the means and variances of the returns are reduced for acquiring companies, for target companies and for the market index. Moreover, the skewness and kurtosis coefficients aren't null, revealing that the data don't have a normal distribution during the period further to the preliminary announcement date (weeks -18 to -6 and weeks +6 to +18). Complementary, the null hypothesis of the returns normal distribution is rejected by the Jarque-Bera test at a significance level of 5% (with 2 degrees of freedom) with the critical value from the Chi-square distribution equal to 5,991.

Table 4 presents the statistic of the average of the simple returns of the companies involved in takeover bids and of the market index, in relation to the period close to the preliminary announcement:

Table 4. Average Returns of the Companies Involved and of the Market Index

Period close to the preliminary announcement (weeks -5 to +5)					
ACQUIRING		TARGET		MARKET INDEX	
CLSS	LOG	CLSS	LOG	CLSS	LOG
Y(1)	Y(1)	Y(1)	Y(1)	Y(1)	Y(1)
0,0013	0,0006	0,0137	0,0110	0,0044	0,0041

Source: elaboration of the author.

The results show that, despite the small dimension of the time series (12 observations), the average return of the target companies' stock is higher than the average return of the acquiring companies' stock, both in the period further to the preliminary announcement and close to the preliminary announcement.

Tables 5 and 6 present the statistic of the average abnormal returns, calculated with the Ball and Brown (1968) model, for companies involved in takeover bids, in relation to the period further to the preliminary announcement and close to the preliminary announcement, respectively:

Table 5. Average Abnormal Returns (Ball & Brown) – Companies Involved

Period further to the preliminary announcement (weeks -18 to -6 and weeks +6 to +18)			
ACQUIRING		TARGET	
CLSS	LOG	CLSS	LOG
Y(1)	Y(1)	Y(1)	Y(1)
-0,0003	-0,0010	0,0048	0,0049

Source: elaboration of the author.

Table 6. Average Abnormal Returns (Ball & Brown) – Companies Involved

Period close to the preliminary announcement (weeks -5 to +5)			
ACQUIRING		TARGET	
CLSS	LOG	CLSS	LOG
Y(1)	Y(1)	Y(1)	Y(1)
-0,0023	-0,0028	0,0111	0,0088

Source: elaboration of the author.

The results shown in tables 5 and 6 clarify that, in average, the acquiring companies obtained negative average abnormal returns and that target companies obtained positive average abnormal returns, in the both periods of time.

The result comparison also suggests that the average abnormal returns of the acquiring companies diminish (from -0.10% to -0.28%), in the period close to the preliminary announcement, while the average abnormal returns of the target companies increase (from 0.49% to 0.88%). This performance corroborates with the evidence reported by Ball and Brown (1968) and also confirms the working hypothesis H_1 , H_2 and H_3 mentioned before.

Table 7 shows the statistic of the hypothesis test to the statistical irrelevance of the difference of the average abnormal returns of the companies involved in takeover bids, comparing both periods of time:

Table 7. Hypothesis Test to the Statistical Irrelevance of the Difference of the Average Abnormal Returns

Period further to the preliminary announcement (weeks -18 to -6 and weeks +6 to +18)			
<i>versus</i>			
Period close to the preliminary announcement (weeks -5 to +5)			
ACQUIRING		TARGET	
CLSS	LOG	CLSS	LOG
(T-Student test)			
0,5065	0,4989	-0,6196	-0,4158

Source: elaboration of the author.

The results show that the null hypothesis of the statistical irrelevance of the difference of the average abnormal returns, in both periods of time, isn't rejected by the bilateral test, with a 5% significance level with no critical value (the degrees of freedom tend to the infinite, where 1,96 is our reference value, considering the 5% significance level). That means that the change of the average abnormal returns, in the period close to the preliminary announcement, both in acquiring and target companies, isn't statistically significant. Despite the existence of a small number of observations, these results don't confirm any of the hypotheses mentioned above.

FINAL REMARKS AND CONCLUSIONS

This paper accounts for the business combinations resulting from M&A processes and has as main focus takeover bids. Business combinations constitute strategies frequently followed by companies in order to grow and self-internationalization. The fact that the number of takeover bids performed in Portugal isn't too high, comparatively to other countries, justifies the necessity to deepen the knowledge of the effects on the companies involved. That was this paper's motivation.

The paper's main objective is to study the impact of the preliminary announcement of the takeover bids on the stock prices of the companies involved, in order to identify the gainers and losers in this operation. The empirical research was focused on the event studies, using the calculation of the cumulative average abnormal returns – based on Ball and Brown (1968) methodology – and calculation of price reaction – based on Beaver (1968) methodology. The

survey of the number of takeover bids was conducted taking into consideration the information available in annual reports and quotation bulletins of CMVM, resulting in a sample of 12 bids performed in Portugal between 2000 and 2014.

The results confirm the hypotheses formulated. In the period close to the preliminary announcement of the takeover bids (weeks -5 to +5) seems to exist a wealth transfer from the shareholders of the acquiring companies, which cumulate average abnormal losses (-6.03%) superior to the average abnormal earnings (2.96%), to the shareholders of target companies, which cumulate average abnormal earnings (-15.16%) superior to the average abnormal losses (-5.47%). Taking into account the companies, globally, the impact of the preliminary announcement determined an accumulation of average abnormal earnings of 8.60% and average abnormal losses of -5.29%. For this performance, it contributed basically the reaction that stock prices had immediately after the disclosure of the preliminary announcement of the takeover bids. The acquiring companies had a “peak” of 4,27 at week +2, while target companies had a “peak” of 67,96 at week 0 and a replica of 35,83 at week +2. Despite the obvious visual information available, the null hypothesis of the irrelevance of the difference of the average abnormal returns of the companies involved in takeover bids, in the period further to the preliminary announcement (weeks -18 to -6 and weeks +6 to +18) and in the period close to the preliminary announcement (weeks -5 to 5) wasn't rejected, due to the small number of observations.

This paper had two fundamental limitations. The first one, due to the necessity in excluding the great number of companies which didn't have their stocks quoted in the Portuguese Stock Exchange (PSI-20) during the period in study, although they were involved in takeover bids. The second one was due to the lack of information existing regarding the year before 2000 consequence of the changes implemented by the regulatory entity in relation to referentiation and to the content of annual reports.

In terms of future proposals, we recommend a larger period of study, the use of alternative methodologies for the calculation of abnormal returns, the creation of a repository of information between universities and companies and the widening of the scope of study to the Iberian market, in order to compare these results.

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