
Success Acquisition Factors in the Food Industry

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Abstract

The purpose of this dissertation is to study the impact of the acquisitions on the operating performance of food industry companies, during the period 2008 until 2017, and try to identify the factors that may influence that performance. The factors examined include the method of payment, the relative size of the target, the geographic dimensions, and the cultural differences, measured by the Hofstede index, between acquiring and target companies' countries.

In order to do so, the operating performance on European companies before and after the acquisition was analyzed, using some of the most relevant measures referred in literature, namely the ROA, the Assets Turnover and Sales per employees. Results suggest that acquisitions in the food industry are unable to increase operating performance, and that most of the analyzed factors, with exception of culture dimensions, are powerless to explain the change of the operating performance after the acquisition.

This dissertation contributes to the already existent literature on mergers and acquisitions (M&A) by limiting the study to the food industry, and by potentially create awareness of the factors that may determine the success of a deal. The food industry is highly competitive and mature, and acquisitions are motivated mainly by the desire of synergy creation, growth opportunities, and rise in market share.

Key Words: Food industry, Operating performance, Acquisitions
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Sumário

O objetivo desta dissertação é estudar o impacto das aquisições na performance operacional das empresas da indústria alimentar, num período compreendido entre 2008 e 2017. Ainda, é também pretendido estudar os fatores que podem influenciar essa variação na performance. Os fatores estudados incluem o método de pagamento, o tamanho relativo do target, as dimensões geográficas e as diferenças culturais, medidos com o auxílio do índice de Hofstede, entre o país da empresa adquirida e adquirente.

Dessa forma, a performance operacional das empresas europeias antes e depois da aquisição ter acontecido foi analisada, usando algumas das medidas mais relevantes segundo a literatura, neste caso o Retorno dos Ativos (RDA), Turnover dos ativos e as vendas por empregado. O impacto de cada uma das características da aquisição foi testada em cada uma destas medidas de performance operacional.

Contudo, os resultados sugerem que as aquisições na indústria alimentar não são capazes de aumentar a performance operacional, e que a maioria dos fatores analisados, com exceção das dimensões culturais, são incapazes de explicar a variação da performance operacional depois da aquisição.

Esta dissertação contribui para a já existente literatura de fusões e aquisições (F&A), através da limitação do estudo apenas para a indústria alimentar, e por criar uma potencial consciência dos fatores que podem determinar o sucesso da aquisição. A indústria alimentar é muito competitiva e madura, e as aquisições são maioritariamente motivada pelo desejo da criação de sinergias, oportunidades de crescimento e crescimento da quota de mercado. O aumento do número de aquisições na indústria representa uma razão potencial para a relevância e pertinência deste estudo.

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1. Introduction

In recent years, mergers and acquisitions have gathered enormous attention, with a considerable amount of deal-making activity and the emergence of several mega-deals among numerous industries. The total amount of M&A deals in 2017 was 3.7 trillion dollars worldwide¹, and the number of M&A deals in the food industry is growing at a fast pace, with news already define it as a transformer of the industry. Still about 2017, the number of M&A accounted for 713.3 billion for non-cyclical goods, that includes the food industry, as well as tobacco and beverages². As a result, mergers and acquisitions have played an essential role in consolidating the food industries.

If we compare the food industry today with what it was 50 years ago, it may seem unrecognizable. One of the main drivers is the consumers' awareness of their preferences and higher expectations, vastly influenced by social media. The boom on a better nutritional and healthier product is related, being already a segment of the market growing fast, in contrast to that of most large packaged food companies. Another vital force of change is the retail landscape, with the empowerment of other retail formats, as convenience stores, which are expected to command 10 percent of the market by 2025 (*PWC, 2015*). Another driver of M&A activity is the food companies' desire for start-ups since the scale is losing value because small brands can compete effectively already (*FT, 2016*).

Despite the importance of the topic, to our best knowledge, there is no empirical study that analyzed the factors of a successful acquisition process in the food industry sector, and this study will try to fill that gap. Adams, Love, and Capps (1997) determined that anti-trust activity, profitability, and real gross domestic product significantly influenced mergers and acquisitions activity in the food industry. Another study of Adelaja and Nayga Jr (1999) tested the predictability of M&A in the food industry and concluded that, compared to hostile bids, friendly M&A were more likely to go complete.

Moreover, the objective of this dissertation is to answer the question: "What differentiates well-performing acquisition from those that did not perform well or failed in the food industry?". The aim is to help future M&A deals inside the food industry sectors and to create awareness of the factors that may determine the success of a deal.

¹<https://imaa-institute.org/>

²<https://www.statista.com/statistics/245949/value-of-global-m-and-a-in-h1-2012-by-industry/>

The structure of this work organized as follows: A literature review is presented in Section 2, after the introduction and followed by Section 3, where the methodology and sample description illustrated. Section 4 provides the conclusions of the univariate analysis, and Section 5 and Section 6 present the detailed results of our tests and multivariate analysis. Finally, Section 7 provides a summary of the main conclusions and limitations.

2. Literature Review

2.1. Definition, classification, and motives behind M&A

According to Robert (2003), a merger or an acquisition (thereafter M&A) can be defined as the combination of two or more companies into one new company.

However, Nakamura (2005) defines M&A as a very broad concept, what can lead to misunderstandings, since it includes a wide range of transaction types, and so, during his literature, he uses a narrow definition in order to define them separately. On the one hand, a merger can be defined as the combination of two corporations in which only one company endures, and the merged corporation ceases to exist.

Therefore, the acquiring company assumes the assets and liabilities of the merged company (Connor & Geithman, 1988). Adelaja and Nayga Jr (1999) recognize three types of mergers, namely: horizontal, vertical, and conglomerate mergers. Whereas in horizontal mergers, companies combine with related companies in order to achieve economies of scale, in vertical mergers, companies of unrelated businesses combine to create economies of scope (Cheng, 2012). Moreover, in conglomerates, the consolidation happens among two completely unrelated firms, firms in different geographic markets or firms with no competing products, most of the times with a strategic vision (Klein & Lien, 2009).

Alternatively, an acquisition results from the combination of two companies with different qualities, not necessarily by mutual agreement (Jagersma, 2005). In this case, both a majority or a minority of the shares can be acquired, but the aim is to achieve managerial influence.

Furthermore, the definition of acquisition leads us to the distinction between a friendly and a hostile acquisition. In a friendly acquisition, the board of the target firm agrees with the transaction. In contrast, a hostile M&A is undertaken against the wishes of the target firm, and the board of the target firm rejects the offer (Chen & Findlay, 2003). Nevertheless, Martynova and Renneboog (2008) state that hostile takeovers are more frequent when the target firm performs poorly, and it is internal corporate governance mechanisms fail to discipline managers.

According to Hillier, Ross, Westerfield, Jaffe, and Jordan (2013), an acquisition of stock, also called tender offer, happens when the acquirer buys the target firm's voting shares in exchange for cash, stock or other securities. In accordance, Halpern (1983) defines tender

offer as an offer to purchase a portion of the outstanding shares of the target firm under specific terms on, or before a given date. Regarding the acquisition of assets, the acquiring firm offers cash, stock, or a mixed payment (a combination of cash and stock) to acquire a significant part of all the target firm's assets.

Another critical topic is the definition of a cross-border transaction, when the assets and operations of two firms, belonging to two different economies, are combined to establish a new legal entity. Therefore, cross-border M&As can take place between two firms located in different economies (Chen & Findlay, 2003).

Although mergers and acquisitions are a prevalent issue, they are related to financial failures and undesirable consequences for the companies involved, like bankruptcy. Most of the times, behind those failures, is a wrong price paid, the wrong target choice, or the wrong timing (Marks & Mirvis, 2011).

To understand what drives acquisitions is very relevant to realize the reasons behind their occurrence. The economic theory demonstrates that more than one motive is behind the event of M&A: take advantage of diversification, market discipline, try to create market power by forming monopolies or oligopolies, efficiency-related reasons as synergies and self-serving motivations from the management (Andrade, Mitchell, & Stafford, 2001). Additionally, studies commonly suggest that two or more motives in are simultaneously behind M&A.

2.2. Post-Acquisition Performance

The reason behind the M&A activity is based on the belief that the combined company will have a greater value than the two stand-alone companies, which is defined as synergy (Mirvis & Marks, 1992). To assess the value creation, the essential financials are return on equity (ROE), return on assets (ROA), return on sales (ROS), sales growth, total assets growth, leverage growth, employment growth, market share, cash flows, and others. (Martynova & Renneboog, 2008).

However, based on previous literature review, the conclusions are somewhat contradictory. Some reveal an improvement in operating performance and a post-acquisition cash flow increase, as the very notable study from Healy, Palepu, and Ruback (1992), although criticized since it analyses only large mergers. These authors found that the cash flows projected to shareholders were realized. On the other hand, others reveal no significant

change in the operating performance: Dickerson, Gibson, and Tsakalotos (1997) observed UK acquiring firms between 1948 and 1971 and compared their performance with non-acquirers firms for the same period and location. Based on their conclusions, there is no evidence that acquisitions have a valuable effect on company performance. Likewise, on 155 European mergers and acquisitions completed between 1997 and 2001, Martynova, Oosting, and Renneboog (2006) also found no significant differences from the performance of the aggregated companies, emphasizing that the operating performance neither increases nor decreases. Similarly, those conclusions are supported by Sharma and Ho (2002), as they present insignificant post-acquisition operating performance in a sample made of Australian deals during the 4th wave (Ghosh, 2001; Sharma & Ho, 2002).

Regarding the decline in post-acquisition operating performance, based on a sample of 38 takeovers between 1981 and 1988, Clark and Ofek (1994) find a negative post-merger performance for bidders, using five different measures. Some years later, Kruse, Park, Park, and Suzuki (2002) examined the long-term operating performance on manufacturing firms listed on the Tokyo Stock Exchange (TSE). The authors concluded that, on average, acquisitions are value-destroying for the acquirer shareholders, but tend to create gains for the acquired companies.

Moreover, Martynova et al. (2006) reinforced the importance of the deal characteristics (hostile versus friendly, domestic versus cross-border transactions, method of payment, and tender offers versus negotiated deals) on the post-acquisition performance. In order to understand the key drivers behind any changes in operating returns, it is essential to study the impact of each determinant.

2.2.1. Method of payment

Several studies suggest that the value of the merging firms is related to the method of payment. Based on previous literature, it is expected a higher post-acquisition performance with cash offers than with other forms of payment, as concluded from Linn and Switzer (2001), who based their study on a sample of 413 combinations, with only 3 methods of payment: cash, stock or a combination of cash and stock. Conversely, Healy et al. (1992), found no relation between performance and mean of payment, but these findings could come from the use of a small sample. Moreover, acquirers with excess cash resources suffered from free cash flow problems (cash flow in excess when compared to their peers)

and claimed as more willing to take poor acquisitions, which can lead to poor acquisition performances. Besides, management would rather make acquisitions than increase payouts to shareholders, what in turn can increase agency costs (Jensen, 1986).

2.2.2. Hostile vs. friendly bids

Additionally, hostile bids may be correlated with higher operating performance. Servaes (1991), argues that when takeovers are hostile target firms gain 10% more compared to friendly bids. As a reason for that, Burkart and Panunzi (2006) state that, since hostile bids are more expensive for the acquirers, only the ones with high synergy prospective are likely to succeed. Conversely, Martynova et al. (2006), found hostility to be associated with lower post-merger profitability, but the effect is not statistically significant, what is consistent with the previous literature from Healy et al. (1992) and Ghosh (2001), who could find enough support to prove the impact of hostility on profitability. Another very interest conclusion is retrieved from Rossi and Volpin (2004), who concludes that the frequency of hostile takeovers is expected to decrease with cross-border regulations, although the bids are expected to be hostile because of the cultural differences.

2.2.3. Type of deal

Switzer (1996) also found, from a sample of 324 combinations, more substantial post-acquisition cash flows for both negotiated merger and tender offer, indicating that the results are insensitive to the acquisition method. In their study, Connor and Geithman (1988) suggested that the least prosperous type were pure conglomerate mergers, but on average, "mergers of equals" exhibited value-added post-merger performance.

2.2.4. Relative Size

Another possible relation with post-acquisition gains is the relative size between the acquirer and the target, measured as the target market deal value divided by acquirers' market capitalization (Fuller, Netter, & Stegemoller, 2002). The conclusion that post-merger returns are higher for acquirers firms buying large targets was retrieved by Franks, Harris, and Titman (1991), and further supported by Linn and Switzer (2001). Nonetheless, Martynova et al. (2007) showed that managing a huge firm may be more difficult, due to acquiring managers'

difficulties in integrating the target firm and hence leading to a fading of performance. In conclusion, the findings on this characteristic is somehow controversy, with the majority of results still finding no statistical significance between operating performance and the relative size ((Healy et al., 1992); (Heron & Lie, 2002); (Kruse et al., 2002; Moeller, Schlingemann, & Stulz, 2004; Sharma & Ho, 2002);).

2.2.5. Domestic vs. Cross-border deals

An additional aspect that may affect synergy realization is whether both countries are on the same geography. In fact, complications regarding the cultural and regulatory differences between bidder and target may affect cross border deals. Therefore, the wealth effect is more significant for domestic mergers and acquisitions than cross border deals (Goergen & Renneboog, 2004). This conclusion was supported by Martynova et al. (2006), stating that in European firms, domestic M&A reveal positive profitability, while cross-border M&A reveal a negative. However, cross border deals can enhance opportunities that were not available domestically. Eun, Kolodny, and Scheraga (1996) found that cross border transactions maximize target and acquirers wealth, and that acquirers benefit from target R&D capabilities, while (Faccio, McConnell, & Stolin, 2006) estimate that cross border acquisition is better than domestic ones when the targets are listed.

2.2.6. Culture

Regarding cross-border deals, the different cultural values between target and acquiring countries create a new challenge to M&A success. According to Hofstede (2011), “Culture is the collective programming of the mind that distinguishes the members of one group or category of people from others”. As a matter of fact, measuring the cultural impact on an M&A process is not easy, and as argued by Teerikangas and Very (2006), there is a very relevant link between culture and M&A processes. Following that, remarkable literature about the topic highlights that unfitting negotiation and integration process can lead to inferior acquisition outcomes. So, a lack of a robust cultural integration plan is one of the potential reasons mergers and acquisitions do not deliver longer-term value (Knilians, 2009). Oloko and Ogutu (2017) added that big cultural differences lead to intra-organizational conflicts and poor management practices.

However, the relationship between culture and their impact on performance is not consensual within the researchers., with results varying from negative, complex, and positive (Cartwright & Schoenberg, 2006). Piero, Scott, and Harbir (1998) concluded that the combined firm's performance over time potentially increases in more distant countries since differences in national cultures can create synergies and sales growth. Although in some studies is argued that negative impact of cultural differences is more prevalent in cross border deals because of the called national cultural distance (Conn, Cosh, Guest, & Hughes, 2005), Teerikangas and Very (2006) they highlight that organizational cultures can have a higher impact than differences in national cultures³.

Hofstede (2001) developed a model of six dimensions of cultural analysis, attributing a score (from 0 pp to 100 pp) on each dimension, to each country (Appendix 1). The six dimensions are the following:

- a) **Power Distance (PDI)**, the degree to which the less powerful members of a society accept and expect that power is distributed unequally. As higher this index, as higher should the acceptance of a hierarchy.
- b) **Uncertainty Avoidance (UAI)**, the tolerance for accepting an unknown future and ambiguity. A high UAI indicates the need for predictability, and in low UAI societies, uncertainty is considered natural.
- c) **Individualism/Collectivism (IDV)**, a high IND index bring a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves, and their immediate families, whereas a low IND indicates *a strong sense of "we."*
- d) **Masculinity/Femininity (MAS)**, distribution of values between the gender, where high a high index (masculinity) is associated with achievement, heroism, assertiveness and material rewards for success and a low index (femininity) is about cooperation, modesty and caring for the weak.
- e) **Long/Short Term Orientation (LTO)**, the extent to which people show a pragmatic or future-oriented perspective (high LTO) rather than a normative or short-term point of view (low LTO).

³ Kogut and Singh (1988) defined national cultural distance as the degree to which the cultural patterns in one country differ from another.

- f) **Indulgence/ Restraint (IND)**, the extent to which people try to control their desires and impulses. Relatively weak control is called "Indulgence" and relatively strong control is called "Restraint".

In 2004, House, Hanges, Javidan, Dorfman, and Gupta (2004) expanded the six Hofstede dimension to nine, denominated the globe project, to refine societal, cultural dimensions and specify organizational culture dimensions. Since the Hofstede study was one of the first cultural differences' studies and is still of the most accurate, it is the one that will be used on this dissertation. Thus, the objective is to conclude whether or not cultural distance is a fundamental factor in the performance of the acquisition of this industry. Each dimension will be analyzed individually for more in-depth research on the topic.

That contradiction of results brings attention to the real motivations behind M&A activity: hubris, empire building, personal financial gains, and other manager's self-interest motives be on the front of strategic motives (Marks & Mirvis, 2011)? In this regard, Roll (1986) says that managers overpay targets because they are overconfident, the so-called hubris effect. A few years later Malmendier and Tate (2008) studied the market reaction to the CEO overconfidence, concluding that overconfident CEOs are more likely to make lower-quality acquisitions when their firms have a large number of resources.

2.3 The food industry

Since the primordial until nowadays, the food industry has been suffering an intense development. Although this growth has been fast, if one compares the industry with what it was 50 years ago, it seems unrecognizable. The first significant movement was the rise of the food processing industry derived from economic growth, urbanization, increasing labor force participation of women and changes in lifestyles (Muehlfeld, van Witteloostuijn, & Weitzel, 2011). Currently, there are consumers with higher expectations and increased awareness as it concerns their preferences (KPMG, 2018). In that sense, food companies face daily challenges in order to keep themselves competitive. However, that task started many years ago, with the technology emergence, which enabled farmers and food processors to target specific consumer niches more precisely than ever before. Not only the types of food brought to the market were changing, but the market itself, due to the alteration in food consumption (Barkema, Drabenstott, & Welch, 1991).

A significant trigger is the retail landscape, "since faster-growing retail formats, like dollar stores, convenience stores, and drug stores are all getting in on the action." The internet represents a reliable way of selling, and therefore, 10% of the market is expected to be controlled by online suppliers by 2025 (FT, 2016).

There is also evidence regarding how the interest in nutrition and the boom of more nutritional and healthier products has stimulated consumers to evaluate their diet and lifestyle. The emergence of younger consumers, especially millennials generation is changing the market, particularly the healthier segment, that has been growing fast, in contrast to that of most large packaged food companies (FT, 2016).

In resume, the food culture is going towards organic and healthier, with the original culture of each country being a crucial factor in the food choice. However, there are still many differences in food varieties and options among members of the same population, derived by culture, historical, ecological and religious factors (Rodríguez-Arauz, Ramírez-Esparza, & Smith-Castro, 2016). Also, Lappalainen, Kearney, and Gibney (1998) realized an EU survey of consumer attitudes and concluded that there were sizable differences in the importance of price, taste, health, convenience, habit, and content of additives between the countries.

Besides, gender has also proven to affect food consumption: most of the studies found that females are more concerned about food, health, and fat than man. In fact, the latter are more concerned about the eating experience than on the consequences. However, Rozin, Kurzer, and Cohen (2002) concluded that gender effects on food choices are smaller than culture and generation effects.

Scale is losing value, because small brands are able to compete effectively (with large food companies already, as they offer personalized solutions to consider each customer favorites and outsource the function to be competitive. Startups are also very appreciable for large food companies (KPMG, 2018; PWC, 2015). As an result of these trends, a research from A.T. Kearney and The Hartman Group in 2016, determined that, "the top 25 US food manufacturers' share of US food and beverage retail sales has declined from 66 percent in 2012 to 63 percent in 2015, while medium and small companies have driven market growth with 11 to 15 percent CAGR from 2012 to 2015 and \$14 billion of added revenue, catching up with the big food companies that grew their total revenue by \$16 billion over the same period" (ATKearney, 2016).

2.3.1. Characteristics of the food sector

According to Adams et al. (1997), the entire food industry is "highly leveraged, labor-intensive and highly profitable". In addition, the industry is subject to particular regulatory inspection, not only in terms of competition policy but also concerning food quality and safety regulations.

A wide range of studies defined the food industry as very concentrated. However, a lot of issues come from those definitions, as if the welfare of consumers and competition may be conditionate, because of the increase in market power in a few players. That increase in market power gives the ability of the firm to raise the price of its products above the level that would obtain if its market were more competitive (Parker & Connor, 1979). Consequently, mergers that increase market power increase profits and reduce sales (Mueller, 1980). Those concerns were also raised because of recent trends in mergers and acquisition in the U.S. food sector, where extensive activity is defined as a consequence of the conglomerate structure, the higher market consolidation and the vertical integration (Padberg, Sporleder, and Davis (1989); (Reed & Clark, 2000)).

With the aim to analyze the implications of the rapid consolidation in food processing and distribution, Sexton (2000) investigated the U.S. food sector. In his study, it has been concluded that "the top twenty food manufacturers accounted over 50% of food-processing value added in 1995, more than double the corresponded share in 1954. The top six supermarket retailers now (2000) control 50% of supermarket sales, versus 32% in 1992". Those conclusions are a preoccupation for regulators, since, in extremely concentrated industries, a positive (negative) correlation between concentration and selling (purchasing) price exists.

To prevent the possible reduction on competition and the creation of a monopoly, antitrust regulations were designed in many countries, as the UK and US (Muehlfeld et al., 2011). In the previous study of Adams et al. (1997) the author concluded that the impact of antitrust regulations is "positive and significant across all three sectors"(Processing, Retailing and Food Service Sector), and reinforced that antitrust execution is so influent that if it increased, the merger activity should decrease in the business.

3. Methodology and data collection

As previously stated, the aim of this dissertation is to analyze the factors that influence the operating performance of acquisitions in the food industry. Therefore, the methodology will be divided into three different parts: first, we will analyze the impact of the acquisition on the operating performance measures and respective variables. Then, using a model developed by Healy et al. (1992), we will look to the change in the accounting performance measures before and after the deal in the acquiring firm. The model was afterward applied by Martynova et al. (2006) with the aim of comparing the post-merger performance of the acquiring firm with its pre-merger performance using univariate analysis. Then, in order to study the factors that may explain the success of those acquisitions, we will first study the impact of each of them individually on the dependent variables, and finally we will apply a multivariate analysis, where all of those deal characteristics are tested to see which may have explanatory power on the success of those acquisitions.

In order to eliminate the effects of general business conditions and industrial differences, the changes in the performance of acquiring firms are compared with those of matched non-acquiring similar firms (Odagiri & Hase, 1989).

All the data was gathered from Zephyr and Amadeus databases, since both include not only financial information but also detailed information about M&A from all over the world.

For an M&A transaction to be included in the sample, some requirements were defined: (1) Both acquirer and target are part of the food industry; (2) Both acquirer and target are from Europe; (3) The transaction was completed between 2008 and 2016; (4) The percentage of acquisition stake is 100%; (5) The acquisition of assets, buybacks and recapitalizations were excluded. After applying all those criteria, a sample composed of 2,716 transactions was assembled. However, if we exclude the beverage and tobacco sub-industries, the sample is reduced to 1,586. The date when the deal was complete, deal value and the method of payment were retrieved from Zephyr. Financial information, such as, the total sales, EBIT and number of employees, was retrieved from Amadeus database. Lastly, to maximize the accuracy of the information provided and with the additional objective of finding data unavailable on Amadeus, Eikon Thomson Reuters' database was used.

The time period selection was proved to have a significant impact on the results, and, if on the one hand, some scholars prefer more extended time periods, as they claim to let

sufficient time for synergy realizations to become material (Kaplan & Weisbach, 1992), others favor briefer time periods because they are less influenced by postponed events (Mitchell & Stafford, 2000). As results are not meant to be influenced by posterior acquisitions made by the same acquirer, the data was selected for the year before the transaction (n-1), and three years immediately after it (n+3).

Since some of the required information, such as the completion date, was not available for most of the deals, the final sample was reduced to 75 deals⁴. Table 1 shows the specific characteristics of the final sample.

Table 1: Description of the sample characteristics

This table displays the total number of acquisitions by partitions of the sample into: a) domestic and cross border deals; b) their method of payment) the relative size of the target in relation to the acquirer, and d) the influence of the cultural aspects.

Cross Border:	Number of deals
Yes	38
No	26
Payment Method	
Cash	20
Stock	7
Mixed	5
Relative Size	
More than 50%	7
Less than 50%	55
Cultural Difference ⁵	
High	14
Low	50

Source: Own elaboration

From the 75 acquisitions studied, 59% of the deals are cross border transactions, whereas only 40% are domestic. Regarding the mean of payment, a significant fraction (63%) used cash to finance the acquisition, as in Faccio et al. (2006), where the relevance of this means of payment was also verified. Concerning relative size, was observed 89% of the

⁴ Although the number of deals on the final sample is very small, it is in line with the very remarkable study from Healy et al. (1992), which comprises only 50 European acquisitions.

⁵ Using Hofstede Cultural Dimensions.

targets are less than 50% of the size of the acquirers. Last, we observe a low cultural distance in that sample.

3.1. Control Group

In order to determine whether a merger has increased profits or not, we must predict what the operating performance of the acquiring firm would be in the absence of the merger. In fact, even if profits after mergers increase by 20%, it does not mean success because profits could have increased by 40% in the absence of a merger (Mueller, 1980).

As suggested by Barber and Lyon (1996), the sample of acquiring firms will be matched by industry, asset size and a performance method (market-to-book ratio, ROA, or EBIT). The main objective of all those limitations is to guarantee the group of companies is as similar as possible to the acquirer group.

Nonetheless, the purpose of a control group method is to select a group of companies that are similar to the acquiring companies but were not involved in an M&A deal. In order to do so, we retrieved the information of all the companies in the food sector which were not involved in any deal, again excluding the beverages and tobacco companies. After that, every acquiring company was matched with a company of similar size, measured by total assets of the year before the acquisition, that must be between 80 and 120% of those of the acquiring company. From those companies, the company with the closest ROA in the year before the acquisition of our acquiring company was chosen as the control company.

3.2. Does Operating performance improve following acquisitions?

Based on the previous literature review, performance measures rely on market-based and accounting-based measures (Groß, 2007). Although market-based measures have remarkable advantages as the possibility to examine both private and small firms, an accounting-based measure will be put in place, since it enables to focus on real observed operating effects rather than on expectations over the announcement period. However, according to McWilliams and Siegel (1997), accounting returns are more manipulated by managers than stock prices, which constitutes a disadvantage.

The objective is thus to analyze the impact of the acquisition on the operational performance of the acquire, where the well (bad) performing acquisitions allowed the acquirer to improve (decline) the operational performance after the acquisition. Therefore,

our methodology uses accounting performance measures as a benchmark for the success/failure of the acquisition.

On this method, the variables most used to measure performance are net income, return on assets (ROA), return on equity (ROE) and sales (Martynova & Renneboog, 2008). Therefore, in accordance with the available data, ROA and asset turnover will be used as a proxy for acquiring company performance, and since the means are subject to the influence of outliers, medians will be used. In addition, we will use the sales per employee ratio as a proxy for the operating performance, as it represents a good proxy for the efficiency of the company. Since, for example, labor-intensive companies tend to have lower ratios than companies that require a smaller amount of labor, this ratio is just relevant when comparing the performance of companies within an industry, as it is the case.

$$ROA = \frac{EBIT}{Assets} \quad (1)$$

$$Asset\ Turnover = \frac{Sales}{Assets} \quad (2)$$

$$Sales\ per\ employee\ (S/E) = \frac{Sales}{Number\ of\ employees} \quad (3)$$

The most basic method to access differences in operating performance requires the assessment of the differences in the acquirer's pre-acquisition ROA and Sales per employee and the post-acquisition ROA and Sales per employee, i.e., the raw operating performance returns:

$$\Delta\ Raw\ ROA = ROA_{post\ acquisition} - ROA_{pre\ acquisition} \quad (4)$$

$$\Delta\ Raw\ Sales\ per\ employee = S/E_{post\ acquisition} - S/E_{pre\ acquisition} \quad (5)$$

However, the raw change presents significant limitations since it is not controlling for any external effects, as economic and industry trends and developments. So, in order to adjust for industry characteristics, for each of the Raw variations, we subtracted the same variation for the control group.

$$\Delta \text{Control ROA} = \text{Control ROA}_{\text{post acquisition}} - \text{Control ROA}_{\text{pre acquisition}} \quad (6)$$

$$\Delta \text{Control S/E} = \text{Control S/E}_{\text{post acquisition}} - \text{Control S/E}_{\text{pre acquisition}} \quad (7)$$

$$\text{Industry Adj ROA} = \Delta \text{Raw ROA}_t - \Delta \text{Control ROA}_t \quad (8)$$

$$\text{Industry Adj S/E} = \Delta \text{Raw S/E}_t - \Delta \text{Control S/E}_t \quad (9)$$

Thus, for each variable we will compare the three years before being acquired to the three years after. In order to access the changes in the profitability of the combined firm caused by the acquisition, two models will be applied. First, we will apply a change model, followed by the implementation of a cross-sectorial regression-based approach (also called *intercept model*) used by Healy et al. (1992), where for each year and firm median adjusted Return on assets (Median adj ROA_i) are calculated by subtracting the Return on assets of the control company from the operating performance measure of each acquisition company.

$$\text{Median adj ROA}_i(\text{Post M\&A}) = \alpha + \beta \cdot \text{Median adj ROA}_i(\text{Pre M\&A}) + \varepsilon_i \quad (10)$$

Thus, in equation (10), the $\text{Median adj ROA}_i(\text{Post M\&A})$ represents the difference between the median ROA of the acquiring firms and median ROA of the control firm, in the three years after the acquisition, whereas $\text{Median adj ROA}_i(\text{Pre M\&A})$ represents the same difference in the three years before the acquisition takes place. The β regression coefficient can be interpreted as the slope, thereafter capturing any correlation in ROA between the pre- and post-acquisition performance, so that $\beta \cdot \text{Median ROA}_i + \varepsilon_i$ measures the effect of the premerger performance on post-merger returns, and so α , the intercept, captures changes in the profitability due to the merger or acquisition.

Furthermore, a t-test was applied in order to test the significance of the intercept (α), as well as a Wilcoxon signed-rank test in order to infer if the median post-M&A adj ROA is significantly different from the median pre-M&A adj ROA (Martynova & Renneboog, 2008).

3.3. The determinants of the post-acquisition operating performance

This model seeks to analyze the standalone and the combined effect of the determinants of the operating performance, primarily aiming at explaining which characteristics are responsible for that. As previously mentioned on the literature review, several factors may be correlated with post operating performance, and so, the objective of this section is to infer whether these variables can determine the changes in post-M&A operating performance.

Hence, we get the following model that will be estimated using the OLS technique:

$$\begin{aligned} \text{Operating Performance Measure} = & \alpha + \beta_1 (\text{PaymentDummy}) + \\ & \beta_2 (\text{Relative Size}) + \beta_3 (\text{GeographyDummy}) + \beta_4 (\text{Hofstede Distance}) + \\ & \beta_5 (\text{Log(Assets)}) + \varepsilon_i \end{aligned} \quad (11)$$

The dependent variable (Operating Performance Measure) will be the difference of the operating performance measures (*ROA* and *Sales per employee (S/E)*), in the years after and prior the acquisition, adjusted for the industry.

The independent variables are *PaymentDummy*, which is a dummy variable that assumes the value of 1 when the deal is paid in cash, and 0 otherwise; *RelativeSize*, measured by the ratio between the size of the target and the size of the acquirer, with size measured by total assets; *GeographyDummy*, a dummy variable that equals 1 if the bidder and the target are from the same country, and 0 otherwise and *Hofstede Distance*, using an index detailed below.

The model was estimated with the controlling variable *log* (Total assets) to increase the strength of the conclusions.

Following Linn and Switzer (2001), cash financing deals the to higher posts operating performance and so we expected that:

H1: *The method of payment affects the performance of acquisitions in the food industry.*

We also analyzed relative asset size, in order to conclude about how the size of the target impacts the acquisition, as proved by Linn and Switzer (2001) and Martynova and Renneboog (2008).

H2: *The greater the relative size of target to bidder, the greater the operational performance.*

As shown by literature, as in Eun et al. (1996), cross-border transactions may provide additional benefits that can affect positively post-operating performance, despite being more complex and riskier, and so, we anticipated that:

H3: *Geographically diversified acquisitions outperform geographically focusing acquisitions.*

In order to do a proxy for the cultural distance between the bidder and target countries, the cultural distance index of Hofstede was used, and the scores of individual dimensions retrieved from Hofstede website⁶. Since the value is 0 for a deal in what acquirers and targets are based on the same country, only cross border acquisitions will be analyzed. According to Chakrabarti, Gupta-Mukherjee, and Jayaraman (2009), the index is calculated as follows:

$$Cultural\ Distance = \frac{1}{6} \sqrt{\sum_{i=1}^6 (S_{A,i} - S_{T,i})^2} \quad (12)$$

Where:

$S_{A,i}$ represents the acquirer score on cultural dimension i: Individualism, Masculinity, Power Distance, Uncertainty Avoidance, Long/Short Term Orientation and Indulgence versus Restraint;

$S_{T,i}$ represents the target score on the same cultural dimensions.

Thus, as the literature defends the existence of a relationship between culture and the performance as in Teerikangas and Very (2006) the aim is to achieve a conclusion regarding how the mismatch and lack of cultural integration can affect operating performance.

H4: *Culture differences impacts the success of an acquisition in the food industry.*

⁶ www.geerthofstede.nl

4. Descriptive analysis

4.1 Before the deal

This chapter presents a descriptive analysis for both the acquiring companies and their respective matching companies, the control group. Table 2 displays the differences for the operational variables - Assets, Sales, EBIT, and Number of employees - between the acquiring companies and the control group in the year before the acquisition. It has been tested if the differences between the sample and control group were significant, and results show that none of these differences are statistically significant, leading us to the conclusion that the companies from both groups were similar before the deal.

Table 2: Descriptive statistics before the deal

This table reports the summary statistics for the sample of 75 acquiring companies plus 75 firms for the control group. The sample begins in January 2008 and ends on December 2017. The variables Assets, Sales, EBIT and Number of employees are referred to the year before the acquisition and all values are presented in millions euros, with exception of number of employees, presented in thousands. The line “N” represents the number of companies from our samples with data available. The classification ***, **, * denotes 1%, 5% and 10% significance level, respectively for the t-Student test.

	Variables	Acquiring Group	Control Group	Difference
Panel A: Assets	N	75	75	75
	Mean (million euros)	1,456.57	1,627.73	-171.16
	Median (million euros)	373.04	428.39	-55.35
Panel B: Sales	N	68	72	68
	Mean (million euros)	1,590.87	2,104.40	-513.53
	Median (million euros)	619.57	492.07	127.51
Panel C: EBIT	N	75	75	75
	Mean (million euros)	105.26	102.97	2.29
	Median (million euros)	27.67	24.43	3.25
Panel D: Number of Employees	N	70	70	70
	Mean (Unit)	5.38	11.32	-5.93
	Median (Unit)	1.63	2.05	-4.15

Source: Own elaboration

4.2 Operating Performance Before the deal

Table 3 displays the differences in the operating performance between the acquiring companies and the control group in the year before the acquisition. After performing the t-test and Wilcoxon Rank sign test was proved that the mean and median differences were not statistically significant, and so we can withhold that similarity was achieved between both samples. Those results contradict the findings of prior studies from Ghosh (2001) and Martynova et al. (2006), which found that acquiring firms outperform their industry peers before the acquisition, what may suggest that companies undertake acquisitions in periods when they are doing better than their peers do.

Table 3: Operating performance before de deal

This table reports the summary statistics for the sample of 75 acquiring companies plus 75 firms for the control group. The sample begins in January 2008 and ends on December 2017. The variables ROA and assets turnover are referred to the year before the acquisition and all values are presented in millions euros. The line “N” represents the number of companies from our samples with data available. ***, **, * denotes 1%, 5%, and 10% significance level, respectively for the t-Student test.

	Variables	Acquiring Group	Control Group	Difference
ROA	N	75	75	75
	Mean (%)	6.01%	5.70%	0.30%
	Median (%)	6.84%	6.39%	0.45%
Assets Turnover	N	68	72	68
	Mean (x)	1.36	4.66	-3.29
	Median (x)	1.24	2.16	-0.9
Sales/Employee (S/E)	N	62	47	41
	Mean	632.84	1147.67	-700.29
	Median	249.41	350.97	-100.93

Source: Own elaboration

5. Does operating performance improve following the acquisition?

In this chapter, the focus of the analysis will be mainly on the median, as its robustness, when compared to the mean, is higher as it is not affected by outliers. The *raw* and *adjusted* changes will be calculated from the year before the acquisition takes place until three years after, in order to analyze any long-term effect on the results.

5.1 Main Variables Change

By observing Table 4, it is possible to verify that, in the *RAW* change's column, all four variables reveal significant increases, especially on the total assets and the number of employees as expected, given that, when a firm acquires another one, it also acquires some of their assets. Conversely, the same conclusion cannot be withdrawn on the industry adjusted column.

However, due to the statistical insignificance of the results, we can conclude that the acquisition had no effect on the values of the variables.

Table 4: Variables change

This table reports the outcomes of the median variation of the four variables analyzed in this study (Assets, Sales, EBIT and Number of employees) between the periods -1 to +3 for the total sample of 75 acquiring companies plus 75 firms for the control group. The sample period begins in 2008 and ends in 2017, and all values are presented in millions euros. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure, whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5%, and 10% significance level, respectively for the T-student test. Between parenthesis, is presented the percentage change of the variable in the period indicated.

	<i>RAW</i> Changes				<i>Adjusted</i> Changes			
	Assets	Sales	EBIT	Nº of employees	Assets	Sales	EBIT	Nº of employees
From -1 to +1	34.90 (191%)	41.68 (15%)	3.69 (36%)	0.137 (193%)	0.00 (-7%)	-35.77 (-7%)	0.00 (-10%)	0.00 (-4%)
From -1 to +2	44.505 (86%)	46.53 (155%)	3.13 (77%)	0.03 (219%)	-8.03 (-12%)	-10.24 (-11%)	0.00 (-25%)	-0.05 (-6%)
From -1 to +3	48.54 (118%)	55.11 (159%)	5.32 (49%)	0.026 (253%)	-8.27 (-18%)	-36.73 (-15%)	-1.48 (-29%)	-0.109 (-12%)

Source: Own elaboration

5.2 Ratios Change

The observation of “raw” performance (without adjusting for the industry) on Table 5, reveals that the acquisition ROA declines, which is in line with the findings of Clark and Ofek (1994) and Kruse et al. (2002), that find negative post-merger performance, and that acquisitions are value destroying for the bidders. On the other hand, the results are opposite to Healy et al. (1992), who found that acquisitions lead to an improvement in operating performance and a post-acquisition cash flow increase. Nonetheless, the results differ when applied to Sales per employee's formulas, as in all the analyzed years the ratio increases for the acquirers. Given that the ratio helps to determine how productively a company utilizes its employees and contribute to its business growth, the results may indicate that after the acquisition is completed, the efficiency of employees increases. However, none of this change is statistically significant.

Table 5: Operating performance change

This table reports the outcomes of the variation of operating performance between the period-1 to +3 for the total sample of 75 acquiring companies plus 75 firms for the control group. The sample period begins in 2008 and ends in 2017 and all values are presented in millions. Return on assets (ROA) and Sales per employee (S/E) are indicators of operating performance and the dependent variables. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure, whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5%, and 10% significance level, respectively, for Wilcoxon Signed Rank Test in the median results.

	ROA				S/E			
	<i>Raw</i>		<i>Adjusted</i>		<i>Raw</i>		<i>Adjusted</i>	
	Median (p.p)	N	Median (p.p)	N	Median	N	Median	N
From -1 to +1	-0.38	75	-0.21	73	0.94	58	-23.66	37
From -1 to +2	-0.29	63	-0.21	60	17.70	49	0.00	25
From -1 to +3	-0.87	53	-0.36	51	23.3	41	-8.63	23

Source: Own elaboration

As a robustness check, the consistency of the results provided by the intercept were analyzed (Table 6). Hence, whereas Panel A refers to the intercept using ROA as a measure of performance, Panel B uses Sales per employees.

As exposed in Panel A of Table 6, a negative intercept (α) indicates a reduction on the adjusted operating performance in the post-acquisition period, whereas β suggests a positive correlation between the pre-acquisition operating performance and post-acquisition operating performance. Nevertheless, results are not significant for both variables, in all periods presented.

Regarding Panel B, relevant significance was found on the correlation between the pre-acquisition operating performance and post-acquisition operating performance.

Table 6: Intercept model

This table reports the outcomes of the intercept model between the periods -1 to +3 for the total sample of 75 acquiring companies plus 75 firms for the control group. The sample period begins in 2008 and ends in 2017 and all values are presented in millions. The classification ***, **, * denotes for 1%, 5% and 10% significance level. Standard deviation is presented between parenthesis.

Panel A	ROA 1	ROA 2	ROA 3
α	-0.006 (0.011)	0.010 (0.015)	-0.017 (0.017)
β	0.404 (0.298)	0.378 (0.420)	0.450 (0.450)
F-statistic	1.842	0.812	2.420
R^2	0.025	0.014	0.047
N	73	60	51
Panel B	S/E 1	S/E 2	S/E 3
α	-67.308 (79.701)	208.739 (308.170)	-16.152 (74.451)
β	0.875*** (0.049)	0.895*** (0.188)	0.995*** (0.995)
F-statistic	309.84	22.630	397.477
R^2	0.988	0.496	0.949
N	37	25	23

Source: Own elaboration

6. The determinants of post-acquisition operating performance

6.1 Univariate Analysis of explanatory variables

6.1.1. Method of payment: cash vs stock

Overall, results in Table 7 show that different methods of payment in acquisitions do not statistically influence the operating performance of the acquirer, which is in line with the studies of Healy et al. (1992) and Sharma and Ho (2002). However, significant results are shown in the period between -1 to +3, indicating that, when compared to stock payment, either cash offers or mixed payments are related with a higher post-acquisition performance, which is consistent with Linn and Switzer (2001). According to Ghosh and Jain (2000), a possible explanation may be the managerial discipline to meet the debt repayment payments since cash payments are regularly financed by debt. On Linn and Switzer (2001) study, another possible explanation is mentioned: when bidders have private information on potential synergies, they tend to use cash to frighten competing bids. So, the larger is the potential synergy, the larger the likelihood of a cash bid. Also, it may decrease the free cash flow problems exposed by Jensen and Meckling (1976), as the availability of funds is limited. The fact that this conclusion can only be withdrawn in the last period of analysis, for both the sample and the adjusted group, raises the questions of whether acquisition is only felt in the long run.

Table 7: The effect of the method of payment on the operating performance: ROA

This table displays the impact of the method of payment on the operating performance of the acquirer represented by ROA between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5%, and 10% significance level, respectively for the t-Student test and the standard deviation is presented between parenthesis.

	<i>Raw</i> ROA			<i>Adjusted</i> ROA		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Constant	-0.0228 (0.0166)	-0.0335 (0.0203)	-0.0665*** (0.0197)	0.0187 (0.0468)	0.0122 (0.0552)	-0.0437* (0.0212)
Cash & Mixed	0.0187 (0.0188)	0.0265 (0.0237)	0.0601** (0.0229)	-0.0392 (0.0532)	-0.0135 (0.0656)	0.0454* (0.0248)
Adjusted R^2	0.0321	0.0495	0.2478	0.0184	0.0019	1434
N	32	26	23	31	24	22

Source: Own elaboration

Table 8 presents the results when the dependent variable is sales per employee. The results suggest that the acquisition of another company from the food industry does not change the productivity of the acquiring company, since the results are not statistically significant.

Table 8 The effect of the method of payment on the operational performance: Sales per employee

This table displays the impact of the method of payment on the operating performance of the acquirer represented by the ratio Sales per number of employees (SPE) between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5%, and 10% significance level, respectively for the t-Student test and the standard deviation is presented between parenthesis.

	<i>Raw</i> S/E			<i>Industry</i> S/E		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Constant	-0.970 (53.30)	41.477 (63.084)	23.440 (55.027)	0.000 (357.797)	-0.000 (264.619)	-0.000 (216.799)
Cash & Mixed	12.007 (57.35)	-13.739 (69.105)	-2.346 (61.522)	-85.345 (370.355)	-120.345 (285.811)	-57.288 (234.170)
Adjusted R^2	0.001	0.003	0.000	0.004	0.034	0.012
N	22	18	15	15	7	7

Source: Own elaboration

6.1.2. Relative Size

The literature presents contradictory conclusions about whether or not the size of a deal matters in post-acquisition profitability. As it can be seen in Table 9, our results show a negative relationship between the relative size of the transaction and the ratio sales per employee is negative in the period -1 to +1, suggesting that the higher the difference of size between the target and the acquirer, the lower is the efficiency of the acquisition. However, the remaining results are not statistically significant. Those conclusions contradict the findings of Franks et al. (1991) and Linn and Switzer (2001), who suggest that post-merger returns are higher for acquiring firms buying large targets and so, the lower the difference between target and respective acquirers, the higher should be the increase in operating performance, which represents the opposite of the previous conclusions.

Aiming to find robustness for the results, the sample was divided into two sub-samples, as it has been previously done by Martynova et al. (2006). The first sub-sample is composed of transactions involving target companies with at least 20% of the sales of the acquirers, while the remaining deals compose the second sub-sample. In order to evaluate the impact of that variable on the dependent variables, those samples were exposed in a regression as a dummy variable, which takes the value of 1 if the relative size is higher than 1, and 0 otherwise. The outcomes are exposed in Table 10.

The regression was also performed for the periods -1 to +2 and -1 to +3, however as those results are not significant, only the first period of the analysis is presented in Table 9. Nevertheless, the remaining outcomes are presented in Appendix 2.

Table 9: The effect of the relative size in the operational performance

This table displays the impact of the relative size between target and acquirer on the operating performance of the acquirer represented by ROA and by the ratio Sales per number of employees (S/E) between the periods -1 to +1 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5% and 10% significance level, respectively for the t-Student test. The standard deviation is presented between parenthesis.

	<i>Raw</i> ROA	<i>Raw</i> S/E	<i>Adjusted</i> ROA	<i>Adjusted</i> S/E
	-1 to +1	-1 to +1	-1 to +1	-1 to +1
Constant	-0.0002 (0.0069)	13.251 (11.839)	0.0044 (0.0095)	92.556 (83.06)
Relative Size	0.0004 (0.0006)	-0.371*** (0.086)	-0.0007 0.0008	-1.108 (0.58)
Adjusted R^2	0.0002	0.0086	0.0003	0.0041
N	62	49	61	39

Source: Own elaboration

Table 10: The effect of the relative size on the operational performance: dummy variable
This table displays the impact of the dummy variable “High Relative Size”, which includes transactions that involve target companies with at least 20% of the sales of the acquirers, and another subsample that composes the rest. The dependent variable is ROA and by the ratio Sales per number of employees (S/E) in the periods -1 to +1 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer’s post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5% and 10% significance level, respectively for the t-Student test. The standard deviation is presented between parentheses.

	<i>Raw</i> ROA	<i>Raw</i> S/E	<i>Adjusted</i> ROA	<i>Adjusted</i> S/E
	-1 to +1	-1 to +1	-1 to +1	-1 to +1
Constant	0.008 (0.009)	19.805 (14.205)	0.006 (0.010)	186.193 (119.889)
High Relative Size	-0.025 (0.018)	-22.894 (30.969)	-0.017 (0.019)	-317.917 (234.729)
Adjusted R^2	0.044	0.015	0.018	0.080
N	48	38	48	23

Source: Own elaboration

6.1.3. Geographical scope

Tables 11 assess whether the post-acquisition performance evaluates differently following domestic vs. cross border acquisitions. Following the analysis of the results, it can be concluded that the geographical scope does not lead to statistically significant differences in performance, in any of the periods observed for both dependent variables: ROA and S/E, as in Martynova et al. (2006). Nevertheless, regarding the sign of the variable, acquisitions do not seem to be associated with more prominent wealth effects, as found by Goergen & Renneboog (2004).

Table 11: The effect of the geographical scope on the operational performance

This table displays the impact of the geography on the operating performance of the acquirer represented by ROA and by the ratio Sales per number of employees (SPE) between the periods -1 to +1 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5% and 10% significance level, respectively for the t-Student test. The standard deviation is presented between parentheses.

	<i>Raw</i> ROA	<i>Raw</i> S/E	<i>Adjusted</i> ROA	<i>Adjusted</i> S/E
	-1 to +1	-1 to +1	-1 to +1	-1 to +1
Constant	0.0074 (0.0071)	1.161 (16.179)	0.0024 (0.0098)	41.063 (141.646)
Geographical scope	-0.0133 (0.0110)	30.709 (22.498)	-0.0163 (0.0279)	12.406 (156.960)
Adjusted R^2	0.0224	0.030	0.0070	0.000
N	64	49	51	30

Source: Own elaboration

6.1.4. Culture Distance

As previously referred there is no consensus regarding the effect of cultural distance on performance, with some researchers affirming that changes in culture can create synergies (Piero et al., 1998) and others defending the opposite ((Knilians, 2009).

According to literature, the more significant cultural differences are, the lower the performance of M&As will be. Hence, a negative relationship between M&A performance and cultural distance is expected (Ahern, Daminelli, & Fracassi, 2015).

However, as shown in table 12, once again, our results are not statistically significant⁷, for the periods -1 to +1.

⁷ The same regression was also performed for the period -1 to +2 and -1 to +3, but because the small number of observations the outcomes are presented in Appendix 2.

Table 12: The effect of the cultural distance on the operational performance

This table displays the effect of the cultural distance on the operating performance of the acquirer represented by Return on Assets (ROA) and by the ratio Sales per number of employees (S/E) between the periods -1 to +1 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5%, and 10% significance level, respectively for the t-Student test and the values between parenthesis represent the standard deviation.

	<i>Raw</i> ROA	<i>Raw</i> S/E	<i>Adjusted</i> ROA	<i>Adjusted</i> S/E
	-1 to +1	-1 to +1	-1 to +1	-1 to +1
Constant	-0.006 (0.007)	4.34 (14.81)	-0.014 (0.014)	70.50 (90.52)
Cultural Distance	0.000 (0.000)	0.64 (1.36)	0.001 (0.001)	-7.53 (9.27)
Adjusted R^2	0.002	0.00	0.0070	0.01
N	75	58	51	37

Source: Own elaboration

Since it cannot be proved that culture influences in an aggregated way, the variable culture was segmented into six cultural dimensions, intending to specify individually their respective effect (in case there is any).

As it can be observed in Table 13, when the variable is ROA, the Power Distance Index (PDI) and Individualism (IND) are the cultural variables that most influence acquired companies. Regarding PDI, the change in operating performance between the year before the acquisition and one year after it seems to affect the performance positively, at 5% significant level. The same effect is also verified in periods 2 and 3, with 5% and 10% of significance level, respectively. This means that acquiring countries where members accept and expect power to be hierarchical and distributed unequally provide higher post-acquisition performance.

The influence of this variable was also verified by Oloko and Ogutu (2017), who concluded that success or failure of multinationals is determined by power distance. However, this result contradicts previous studies, since most of them emphasize that in high power distance societies, the necessary negotiations that an M&A involve are more difficult, which should result in frictions (Ahern, Daminelli, & Fracassi, 2015). In fact, successful M&A involves negotiation and delegation (Cartwright & Cooper, 1993). As a possible explanation for the result found, that a higher power distance leads to better operating

performance, may be that in low PDI there is a lack of a dominant part, that may turn to be essential in several negotiations.

Concerning Individualism, the variable is expected to be directly related with operating performance, indicating that the higher the individualism index (the degree of interdependence a society cultivates among its population) between the acquirer and the target, the higher the expected outcomes of the acquisition. Ahern et al. (2010) found solid evidence, that Individualism affects M&As concerning their volume, synergy gains and deal structures. This result may derive by the fact that more collective cultures may find it challenging to do business with other cultural societies, since they are more used to do negotiations within the group than outside that (Wade-Benzoni et al., 2002).

The coefficient associated to the variable Uncertainty Avoidance (UAI) is also statistically significant in the period -1 to +3. This variable conveys the degree to which the members of a society feel uncomfortable with uncertainty. That characteristic in societies is very important, since countries with big UAI maintain rigid beliefs and behaviors, presenting some resistance to unconventional behaviors. Results in the ROA variable show that the higher the index between the acquirer and the target, the higher should the operating performance be. The same result can be found when applying the variable S/E, in the adjusted regression, which may mean that UAI has a positive relationship with operating performance, even when adjusted for industry effects. High uncertainty avoidance societies will plan over long time periods and prefer certainty over ambiguity. Lubatkin, Calori, Very, and Veiga (1998) found, that managers of French (a society with a high UAI) acquirers tend to exercise higher formal control during post-merger integration than countries with low UAI. This preference for short term feedback and a higher degree of control can have a beneficial impact on M&A performance.

Regarding Indulgence, ROA also seems to be positively influenced by this index in the periods after the acquisition, which means that cultures that tend to focus more on individual happiness and well-being are related with higher operating performance than more restraint ones.

Table 13: The effect of the cultural distance on the operational performance: ROA

This table displays the effect of each of the cultural distance variables on the operating performance of the acquirer represented by Return on Assets (ROA) between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***,**,* denotes for 1%, 5%, and 10% significance level respectively for the t-Student test and the values between parenthesis represent the standard deviation.

	Raw ROA																	
	-1 to +1						-1 to +2						-1 to +3					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.0130* (0.0067)	- 0.0138** (0.0063)	-0.0028 (0.0061)	-0.0117* (0.0065)	-0.0075 (0.0069)	-0.0125* (0.0066)	-0.0096 (0.0122)	-0.0133 (0.0125)	-0.0019 (0.0123)	-0.0075 (0.0124)	-0.0019 (0.0133)	-0.0062 (0.0012)	-0.0246* (0.0137)	-0.0235* (0.0139)	-0.0159 (0.0138)	-0.0226 (0.0139)	-0.0173 (0.0151)	-0.0223* (0.0130)
PDI	0.0012* (0.0012)		-				0.0013* (0.0008)						0.0017** (0.0008)					
IDV		0.0014** (0.0006)						0.0022** (0.0010)						0.0022* (0.0012)				
MAS			0.0001 (0.0004)						0.0002 (0.0005)						0.0006 (0.0005)			
UAI				0.0006 (0.0004)						0.0007 (0.0006)						0.001* (0.0006)		
LTO					0.0003 (0.0003)						0.0002 (0.0005)						0.0007 (0.0007)	
IND						0.0014** (0.0007)						0.0012 (0.0011)						0.0020* (0.0011)
R ²	0.0782	0.0686	0.0018	0.0426	0.0072	0.0704	0.0456	0.0689	0.0025	0.0261	0.0021	0.022	0.0856	0.0672	0.0159	0.0617	0.0184	0.0735
N	74	74	74	74	74	74	62	62	62	62	62	62	52	52	52	52	52	52

Source: Own elaboration

Table 14: The effect of the cultural distance on the operational performance: ROA

This table displays the effect of each of the cultural distance variables on the operating performance of the acquirer represented by Return on Assets (ROA) between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5%, and 10% significance level respectively for the t-Student test and the values between parenthesis represent the standard deviation.

	Adj ROA																	
							-1 to +2						-1 to +3					
		(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Constant	-0.0164 (0.0141)	-0.0152 (0.0011)	-0.0106 (0.0146)	-0.0155 (0.0147)	-0.0128 (0.0152)	-0.0164 (0.0142)	0.0038 (0.0204)	-0.0023 (0.011)	0.0027 (0.0206)	-0.0029 (0.0207)	0.0103 (0.0219)	0.0036 (0.0199)	5.8751 (3.6196)	5.3307 (3.8394)	6.4101* (3.7004)	6.295* (3.7251)	6.3955 (3.9502)	5.5892 (3.5042)
PDI	0.0011 (0.0009)		-				0.0005 (0.0009)						0.0553 (0.1439)					
IDV		0.0014 **						0.0016 (0.0016)						0.0115 (0.2278)				
MAS			0.0001 (0.0005)						0.0004 (0.0007)						-0.0845 (0.0994)			
UAI				0.0006 (0.0006)						0.0004 (0.0007)						-0.0739 (0.1069)		
LTO					0.0004 (0.0006)						-0.0003 (0.0008)						-0.0830 (0.1212)	
IND						0.0014 (0.0011)						0.0006 (0.0012)						-0.0290 (0.1647)
R ²	0.0199	0.0117	0.0013	0.0128	0.0046	0.0207	0.0039	0.015	0.0040	0.0040	0.0011	0.0030	0.0017	0.0000	0.0072	0.0053	0.0057	0.0003
N	72	72	72	72	72	72	59	59	59	59	59	59	48	48	48	48	48	48

Source: Own elaboration

Table 15: The effect of the cultural distance on the operational performance: S/E

This table displays the effect of each of the cultural distance variables on the operating performance of the acquirer represented by Return on Assets (ROA) between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5%, and 10% significance level respectively for the t-Student test and the values between parenthesis represent the standard deviation.

Raw S/E																		
							-1 to +2						-1 to +3					
		(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Constant	(7.81) (14.13)	8.90 (15.31)	4.23 (15.26)	14.22 (15.70)	5.41 (15.74)	15.50 (14.26)	-473.18 (490.90)	-564.85 (504.96)	-407.11 (495.26)	-417.87 (526.24)	-480.11 (530.31)	-371.41 (470.17)	-703.78 (724.08)	-676.79 (721.18)	-681.91 (699.97)	-721.66 (760.47)	-730.40 (768.72)	-614.47 (659.69)
PDI	0.04 (0.85)						29.94 (22.51)						23.29 (24.30)					
IDV		-0.09 (1.42)						58.40 (41.12)						31.24 (36.29)				
MAS			0.26 (0.58)						16.83 (13.41)						17.21 (17.93)			
UAI				-0.41 (0.64)						16.08 (14.92)						17.25 (19.32)		
LTO					0.21 (0.71)						23.81 (18.56)						20.67 (22.98)	
IND						-1.06 (1.19)						27.03 (24.97)						25.51 (29.08)
R ²	0.00	0.00	0.00	0.00	0.00	0.02	0.03	0.05	0.02	0.015	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.00
N	73	57	53	57	57	57	48	48	48	48	48	48	40	40	40	40	40	40

Source: Own elaboration

Table 16: The effect of the cultural distance on the operational performance: S/E

This table displays the effect of each of the cultural distance variables on the operating performance of the acquirer represented by Return on Assets (ROA) between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5% and 10% significance level respectively for the t-Student test and the values between parenthesis represent the standard deviation.

	<i>Adjusted</i> S/E																	
							-1 to +2						-1 to +3					
		(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Constant	104.53* (58.50)	-87.77 (57.07)	98.15 (99.31)	-155.03** (73.34)	9.69 (75.01)	-90.75 (66.40)	-131.37 (93.09)	-201.69 (108.58)	169.96 (172.23)	-23.30 (131.23)	71.09 (122.81)	59.51 (148.64)	-86.65 (59.72)	-84.72 (75.32)	3.78 (70.87)	-72.89 (62.11)	22.79 (58.69)	-45.39 (49.66)
PDI	17.05* (8.76)						58.43 (35.47)						9.92 (4.54)					
IDV		14.21 (12.10)						72.30 (40.91)						9.96 (6.17)				
MAS			-4.54 (3.76)						15.08 (18.99)						-1.44 (0.01)			
UAI				13.93* (7.06)						30.60* (16.46)						5.86 (4.24)		
LTO					1.56 (2.38)						21.29 (20.94)						-2.98 (3.32)	
IND						16.92 (12.95)						29.99 (19.07)						4.44 (8.70)
R ²	0.20	0.11	0.03	0.25	0.00	0.17	0.32	0.36	0.03	0.16	0.06	0.081	0.15	0.12	0.01	0.08	0.02	0.03
N	36	36	36	36	36	36	24	24	24	24	24	24	22	22	22	22	22	22

Source: Own elaboration

7. Conclusion

Despite the intense development on the food industry and the rise on the number of deals associated with the same, the empirical evidence regarding the effect of M&A in the food industry is scarce, and the existent is more related with more older studies. Because of that, was decided to limit our investigation to the period between 2008 and 2017, since lately the industry has been challenged by the technology emergence (with the online shopping segment), the increase of retail and convenience stores, and the organic and healthier products.

In the end, was obtained a sample composed by 75 deals, and for those selected 75 companies who made acquisitions in the selected period, selected an extra 75 companies who were not involved in any acquisition in the same period in order to control for other effects not related with the acquisition itself.

Although, on average, the results suggest that the acquisition of other companies of the food sectors does not impact the operational performance (neither the ROA or the total sales over the number of employees) of the acquiring company, the results show that the relative size seems to influence the performance after the acquisition, as it shows that the lower the difference of sizes between target and respective acquirers, the higher is the increase in operating performance.

More importantly, our results show that different cultural dimensions between the target and acquiring countries do have significant influence on the operating performance change after the acquisition. Our results show that operating performance (measured by the ROA and sales over the number of employees) of acquiring companies was found to be strongly influenced by the power distance, individualism (only ROA) and uncertainty avoidance that most influences acquired companies.

This dissertation, however, has strong limitations that should be taken into consideration when interpreting the results. First of all, the sample is composed of a very small number of acquisitions, due to the limitations in the availability of data.

Finally, as a possible suggestion, this dissertation can be extended for future research, especially by increasing the scope of it to global, instead of only European. Another suggestion is related to the cultural variables, since not enough attention was given to the topic of M&A on previous literature, but it reveals to be an important part of the performance.

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Appendix 1 – Hofstede’s Cultural Index (European Countries)

Country	PDI	IDV	MAS	UAI	LTO	IND
Albania	90	20	80	70	61	15
Austria	11	55	79	70	60	63
Belgium	65	75	54	94	82	57
Bulgaria	70	30	40	85	69	16
Croatia	73	33	40	80	58	33
Czech Republic	57	58	57	74	70	29
Denmark	18	74	16	23	35	70
Estonia	40	60	30	60	82	16
Finland	33	63	26	59	38	57
France	68	71	43	86	63	48
Germany	35	67	66	65	83	40
Greece	60	35	57	100	45	50
Hungary	46	80	88	82	58	31
Iceland	30	60	10	50	28	67
Ireland	28	70	68	35	24	65
Italy	50	76	70	75	61	30
Latvia	44	70	9	63	69	13
Lithuania	42	60	19	65	82	16
Luxembourg	40	60	50	70	64	56
Malta	56	59	47	96	47	66

Netherlands	38	80	14	53	67	68
Norway	31	69	8	50	35	55
Poland	68	60	64	93	38	29
Portugal	63	27	31	99	28	33
Romania	90	30	42	90	52	20
Russia	93	39	36	95	81	20
Serbia	86	25	43	92	52	28
Slovakia	100	52	100	51	77	28
Slovenia	71	27	19	88	49	48
Spain	57	51	42	86	48	44
Sweden	31	71	5	29	53	78
Switzerland	34	68	70	58	74	66
Turkey	66	37	45	85	46	49
Ukraine	92	25	27	95	55	18
United Kingdom	35	89	66	35	51	69

PDI – Power Distance Index

IDV – Individualism Index

MAS – Masculinity Index

UAI – Uncertainty Avoidance Index

LTO – Long Term Orientation Index

IND – Indulgence Index

Appendix 2 – The effect of the relative size in the operational performance: ROA

This table display the impact of the relative size between target and acquirer on the operating performance of the acquirer represented by ROA between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5% and 10% significance level, respectively for the T-students test. The standard deviation is presented between parenthesis.

	<i>Raw</i> ROA			<i>Adjusted</i> ROA		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Constant	-0.0002 (0.0069)	0.0043 (0.0120)	-0.0060 (0.0129)	0.0044 (0.0095)	0.0150 (0.0181)	5.9899 (3.0163)
Relative Size	0.0004 (0.0006)	-0.0002 (0.0001)	-0.0001 (0.0000)	-0.0007 0.0008	-0.0002 (0.0002)	-0.0193 (0.0260)
Adjusted R^2	0.0002	0.0020	0.0008	0.0003	0.0011	0.0005
N	62	53	45	61	51	43

Source: Own elaboration

Appendix 3 - The effect of the relative size on the operational performance: Sales/Employees

This table displays the impact of the relative size between target and acquirer on the operating performance of the acquirer represented by Sales per number of employees (S/E) between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5% and 10% significance level, respectively for the t-Student test. The standard deviation is presented between parentheses.

	<i>Raw</i> S/E			<i>Adjusted</i> S/E		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Constant	13.251 (11.839)	-272.064 (494.134)	-597.751 (619.37)	92.556 (83.06)	422.275 (355.81)	20.468 (75.81)
Relative Size	-0.371*** (0.086)	234.410 (448.384)	473.696 (473.70)	-1.108 (0.58)	-351.192 (307.65)	-149.844 (123.70)
Adjusted R^2	0.0086	0.0013	0.0046	0.0041	0.0161	0.054
N	49	42	36	39	22	20

Source: Own elaboration

Appendix 4 - The effect of the relative size on the operational performance: ROA

This table displays the impact of the dummy variable “High Relative Size,” which includes transactions that involve target companies with at least 20% of the sales of the acquirers, and another subsample that composes the rest. The dependent variable is ROA in the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer’s post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5% and 10% significance level, respectively for the t-Student test. The standard deviation is presented between parenthesis.

	<i>Raw</i> ROA			<i>Adjusted</i> ROA		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Constant	0.008 (0.009)	0.008 (0.016)	-0.011 (0.018)	0.006 (0.010)	0.012 (0.021)	-0.012 (0.019)
High Relative Size	-0.025 (0.018)	-0.029 (0.029)	-0.022 (0.029)	-0.017 (0.019)	-0.030 (0.038)	-0.037 (0.031)
Adjusted R^2	0.044	0.025	0.017	0.018	0.016	0.042
N	48	42	35	48	41	34

Source: Own elaboration

Appendix 5 - The effect of the relative size on the operational performance: Sales/Employees

This table displays the impact of the dummy variable “High Relative Size”, which includes transactions that involve target companies with at least 20% of the sales of the acquirers, and another subsample that composes the rest. The dependent variable is Sales per employee (S/E) in the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer’s post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5% and 10% significance level, respectively for the t-Student test. The standard deviation is presented between parenthesis.

	<i>Raw</i> S/E			<i>Adjusted</i> S/E		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Constant	19.805 (14.205)	247.279 (216.127)	-19.059 (31.201)	186.193 (119.889)	691.940 (520.636)	21.997 (104.827)
High Relative Size	-22.894 (30.969)	-253.395 (462.099)	3.606 (68.401)	-317.917 (234.729)	-870.226 (1008.207)	-470.946 (218.214)
Adjusted R^2	0.015	0.001	0.000	0.080	0.054	0.297
N	38	32	28	23	15	13

Source: Own elaboration

Appendix 6 - The effect of the geographical scope on the operational performance: ROA

This table displays the impact of the geography on the operating performance of the acquirer represented by ROA between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5% and 10% significance level, respectively for the t-Student test. The standard deviation is presented between parentheses.

	<i>Raw</i> ROA			<i>Adjusted</i> ROA		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Constant	0.0074 (0.0071)	-0.0001 (0.0127)	-0.0046 (0.0179)	0.0024 (0.0098)	0.0011 (0.0176)	8.6382 (5.1365)
Domestic	-0.0133 (0.0110)	-0.0144 (0.0201)	-0.0039 (0.0213)	-0.0163 (0.0279)	0.0349 (0.0353)	-6.6353 (5.1576)
Adjusted R^2	0.0224	0.0098	0.0007	0.0070	0.0217	0.0283
N	64	54	44	51	51	40

Source: Own elaboration

Appendix 7 - The effect of the geographical scope on the operational performance: Sales per number of employees

This table displays the impact of the geography on the operating performance of the acquirer represented by Sales per employee (S/E) between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5% and 10% significance level, respectively for the t-Student test. The standard deviation is presented between parentheses.

	<i>Raw</i> S/E			<i>Adjusted</i> S/E		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Constant	1.161 (16.179)	220.392 (234.299)	-20.087 (35.425)	41.063 (141.646)	727.347 (659.938)	15.765 (154.916)
Domestic	30.709 (22.498)	-174.89 (235.339)	47.174 (51.143)	12.406 (156.960)	-740.378 (666.671)	-105.933 (178.667)
Adjusted R^2	0.030	0.008	0.025	0.000	0.058	0.021
N	49	41	33	30	18	16

Source: Own elaboration

Appendix 8 - The effect of the cultural distance on the operational performance: ROA

This table displays the effect of the cultural distance on the operating performance of the acquirer represented by Return on Assets (ROA) between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5%, and 10% significance level, respectively for the t-Student test and the values between parenthesis represent the standard deviation.

	<i>Raw</i> ROA			<i>Adjusted</i> ROA		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Constant	-0.006 (0.007)	-0.000 (0.012)	-0.014 (0.014)	-0.014 (0.014)	0.0059 (0.0198)	6.4159 (3.5072)
Cultural Distance	0.000 (0.000)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)	0.0002 (0.0013)	-0.2171 (0.1967)
Adjusted R^2	0.002	0.001	0.009	0.0070	0.0217	0.0283
N	75	63	73	51	51	40

Source: Own elaboration

Appendix 9 - The effect of the cultural distance on the operational performance: Sales per number of employees

This table displays the effect of the cultural distance on the operating performance of the acquirer represented by Sales per employee (S/E) between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. The classification ***, **, * denotes for 1%, 5%, and 10% significance level, respectively for the t-Student test and the values between parenthesis represent the standard deviation.

	<i>Raw</i> S/E			<i>Adjusted</i> S/E		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Constant	4.34 (14.81)	-350.88 (487.30)	-659.02 (682.09)	70.50 (90.52)	225.32 (209.82)	41.23 (57.84)
Cultural Distance	0.64 (1.36)	29.61 (27.76)	35.70 (38.04)	-7.53 (9.27)	15.99 (25.79)	-11.39 (7.90)
Adjusted R^2	0.00	0.00	0.01	0.01	0.01	0.06
N	58	49	41	37	25	23

Source: Own elaboration

Appendix 10 – Multivariate Analysis

This table displays the aggregated effect of the deal characteristics: method of payment, relative size, the geography effect and the culture on the operating performance of the acquirer represented by Sales per employee (S/E) between the periods -1 to +3 for both *Raw* and *Adjusted* samples. The *Raw* performance column is the difference between the acquirer's post-acquisition measure and the pre-acquisition measure whereas the *adjusted* column represents the same variation adjusted for industry characteristics. In addition, a variable of control (log(Total assets)) was included. The classification ***, **, * denotes for 1%, 5%, and 10% significance level, respectively for the Wilcoxon Signed Rank Test and the t-Student test and the values between parenthesis represent the standard deviation.

	<i>Raw</i> ROA			<i>Adjusted</i> ROA		
	-1 to +1	-1 to +2	-1 to +3	-1 to +1	-1 to +2	-1 to +3
Intercept	0.356 (0.213)	0.500 (0.421)	0.015 (0.114)	-1898.39 (2116.57)	*	*
Deal Characteristics						
Cash Dummy	-0.059 (0.059)	0.099 (0.106)	-0.004 (0.017)	261.10 (334.34)	*	*
Relative size	-0.000 (0.000)	-0.000 (0.000)	0.000 (0.000)	1.20 (2.41)	*	*
Domestic Dummy	0.016 (0.037)	0.079 (0.067)	-0.003 (0.017)	9.30 (319.48)	*	*
Cultural distance	0.007 (0.006)	0.012 (0.010)	0.002 (0.002)	-21.04 (31.92)	*	*
Log(Total Assets)	-0.024 (0.014)	-0.036 (0.029)	-0.001 (0.009)	131.53 (134.21)	*	*
R^2	0.252	0.308	0.318	0.271	*	
N	23	18	17	11	*	* ⁸

Source: Own elaboration

⁸Results are not available in the last two periods for the adjusted ROA due to the lack of observations.