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TESI DI LAUREA

**Post-acquisition performance in the Italian *food & beverage* sector:
do the characteristics of the acquirer matter?**

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Benedetta Fasolo

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EXECUTIVE SUMMARY

651 deals performed, 29 countries involved, and a 13% CAGR between years 2010 and 2022. These are just some numbers about the M&A market of targets operating in the Italian food & beverage industry. Interest for targets active in the *agro-industrial* sector increased particularly since 2016 when deals showed a 76,7% improvement in terms of volume compared to the previous year. In the panoramic of investors, in recent years, Italian buyers have been sided by foreign acquirers, coming both from EU nation and extra-EU countries. In addition, if up to some years ago main acquiror was the strategic one (i.e., operating in the same sector or similar), since 2016 the percentage of financial investors is increasing showing an interest for the sector by financial funds.

Principal aim of this thesis is to analyze the impact of acquisitions on Italian acquired firms operating in the food & beverage sector trying to identify which kind of acquirer is most suitable for the target company on the base of the post-transaction performance. To do that, using Eikon and Orbis (BvD), we constructed a database which includes all the acquisitions occurred in the Italian food & beverage sector with Italian targets only between the years 2010 and 2022. Analysis's features required us to focus the study only on those acquisitions performed from January 2015 to December 2018. These amounted to 233 performed by both Italian and foreign, strategic and financial investors. Being our focus the impact of different acquirers, we divide samples as follows: companies acquired, companies acquired by domestic investors, companies acquired by foreign investors, companies acquired by strategic investors, and companies acquired by financial investors. We consider a three-years pre- and post-acquisition average for our variables of interest (i.e., ROA, EBITDA margin, and revenues) and on the base of pre-transaction values we matched each of the target with a similar company not subject to acquisition. To do that we constructed a second database which includes all the Italian operating companies in the food & beverage sector which have not been subject to any acquisition over the last 10 years. We applied *propensity score matching* in STATA to the two databases and got the results.

What we have just presented, is the focus of this work and it is described and analyzed in the fourth and last chapter. So, before getting to that, the thesis develops across practical and theoretical themes useful for the understanding of the empirical study. In the first chapter we present the Italian food & beverage sector showing its main features and highlighting its limitations. Being one of the most fragmented sectors, as of 2019, it counts 54.328 operating firms of which the 85,3% has less than 10 employees. According to ISTAT statistics the food & beverage is a healthy sector that presents growth in revenues, production value, and

investments. Specific features of the food & beverage sector such as the particular link with the Italian tradition, and the concomitant necessity to innovate because of the new trends (i.e., digitalization) make the industry in the position of needing integration to face those challenges, but at the same time of maintaining some autonomy to continue operating remaining loyal to tradition. Among the industry strengths we highlight the leadership for products with particular denomination (i.e., DOP, IGP) and the positive reputation of Italian food and wine outside the country, both attractive features for potential investors. On the other side, limitations for what concerns international distribution channel availability, low exports quota, and industry fragmentation should be overcome.

In the second chapter we describe potential investors dividing them first by activity sector (strategic and financial) and then by country of origin (domestic and foreign). Operating companies are presented focusing on the concept of synergies, financial funds, on the other hand, focusing on the concept of growth: typical aim of financial investors. A comparison between the acquisition processes of the two follows. For what concerns domestic and foreign buyers, we present both of them using statistics about their evolution over the last years highlighting pros and cons of both the investors. When presenting strategic vs financial and domestic vs foreign we also show the picture of acquirers active in the Italian food & beverage M&A market. Over the last years, majority of the acquirers has been strategic and Italian, but last trends evidence increasing presence of financial and foreign acquirers.

Third chapter covers past literature about the impact of acquisitions on targets' performance. In a first place we present papers which dealt with the effects of acquisition *versus* non-acquisition. Second, we present papers which subject was the impact of foreign acquisitions on acquired companies and starting from the study by Campagnolo and Vincenti (2022), we show results of prevalent literature about the topic. Lastly, we present articles on the impact of financial investors to discover that not much literature has been written about it. The second part of the chapter deals with the presentation of our treated groups (i.e., companies acquired) and ends with hypotheses construction.

As we said, fourth chapter covers the empirical analysis starting from the control group description, moving through the statistical methodology, and ending with the results presentation. In this part we try to answer to our starting question "*do the characteristics of the acquirer matter?*" by regressing our variables of interest in all our matched samples (acquisitions whatever the acquirer, domestic, foreign, strategic, and financial acquisitions). What we found is a *statistically* significant negative impact of acquisitions, in general, of foreign acquirers, and of strategic investors, in particular, on targets' profitability (ROA)

together with negative and mixed effect (not significant) on margins (EBITDA margin) and growth (revenues) respectively, for all the samples of analysis. These results do not exclude a positive impact of acquisitions in the Italian food & beverage sectors. That's why we complemented our analysis also studying the effects on post-transaction performance trying to answer an additional question: "*do the characteristics of the target matter?*". We divided targets according to their characteristics: *top performer* versus *normal*, and *SME* versus *large*. Even here we found a *statistically* significant negative impact of acquisition on *large* firms' profitability, together with a *statistically* significant positive effect on *SME*s size and mixed effect (not significant) for all the other variables and type of target considered.

From a managerial perspective, on the base of our outcomes, we advise sellers to be aware of which the aim of the sale is. If they want to only improve profitability, given our results, acquisition is not a good option, but if the aims are different ones, we do not exclude positive effect of M&As on post-acquisition performance of the target. Indeed, we remind that consolidation could be the solution to typical problems of the food & beverage sector like fragmentation. From the perspective of the acquirers, we advise to invest in targets operating in the food & beverage sector given the positive trend in terms of growth the sector is showing, and because of its perspectives, but paying attention to intrinsic target's characteristics (i.e., growth in revenues before acquisition). And then, for what concerns policymakers we believe they should safeguard food & beverage targets from acquisition given what we obtained in terms of negative results on profitability. Anyway, the not significant results do not allow us to advise policymakers to disincentivize M&As. Keeping in mind limitations of this analysis, such as the *survivorship bias* and short-term horizon, we end the study leaving the floor open to future research that can deepen the theme.

CHAPTER 1 – The Italian *food & beverage* sector

Italian *luxury* refers to the three Fs: food, fashion, and furniture. Made in Italy is not just an etiquette, it is a *status symbol*. Over the last ten years, Italian food exports has grown by over 60%[1], proof of the foreign appreciation for our *agro-industrial* business. That said, further increase in the interest for the Italian food industry has been shown by the investors who decided to acquire Italian companies active in the food & beverage business. In the last ten years, the number of foreign acquirers became 4 times bigger, from 5 deals in 2010 to 20 in 2021. Reports show positive trend for Italian targets, and according to PWC, the food sector is one of the most important for Italy and it seems to be a main one also for the year 2022 (PWC, 2022[2]).

According to the export manager of Garofalo (corporation active in the pasta production), made in Italy in the food sector has an extra gear[3] related to its quality, which is recognized and appreciated by foreign clients and investors. Together with the challenges the sector faces, these are among the main reasons why people continue showing interest for our *agro-industrial* products.

All this stated, starting from the evidence that from 2010 to 2021, the yearly deals in the food & beverage sector increased by 285% from 20 transactions to 77, we will try to answer the following question: "*what is continuing attracting investors*?". To do that, in this first chapter, we present the specifics of the food & beverage sector in Italy, its evolution over the years, and its attractiveness. To conclude, together with data from the M&A market, a perspective of future trends is also added, coherently with the recent data regarding the exports, the Covid-19 crisis, and the geo-political situation.

1.1 Sector features & dimensions

The main feature of this sector is its wideness. With the words food & beverage we refer to an industry which comprises multiple businesses such as agricultural companies, beverage producer enterprises and food retail companies. The whole food & beverage value chain is included in the sector: starting from the producers, moving to the manufacturers, ending up with the retailers. The production chain is divided into six branches: agriculture, animals' rearing, first transformation, food, beverage, and distribution (Cerved Market Intelligence, 2022). Starting from the most recent data available, as of June 2021, the Italian food & beverage sector

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[1] Denis Pantini, 13 December 2021, "*La forza e le potenzialità del food Made in Italy nel mondo*", Gambero Rosso, La forza e le potenzialità del food Made in Italy nel mondo - Gambero Rosso, 29 June 2022
[2] PWC, 2022, "*Consumer Markets M&A Trends 2021 & hotspots 2022*", PWC website, https://www.pwc.com/it/it/services/deals/trends/ma-consumer-markets.html, 29 June 2022
[3] Chiara Bertoletti, 21 March 2022, "Le carte vincenti del food Made in Italy all'estero", Mark Up, Le carte vincenti del food Made in Italy all'estero (mark-up.it), 1 July 2022

is worth 208 billion euros (revenues for the year 2020) with 64 billion euros added value (Torriani, 2021).

Figure 1 allows us to have a picture of the size of the industry including corporations active in the food, beverage, and tobacco (ATECO codes 10, 11, 12). As of 2019, which is the last year available, the operating companies are 54.328 of which the 85,3% (46.364) has less than 10 employees.
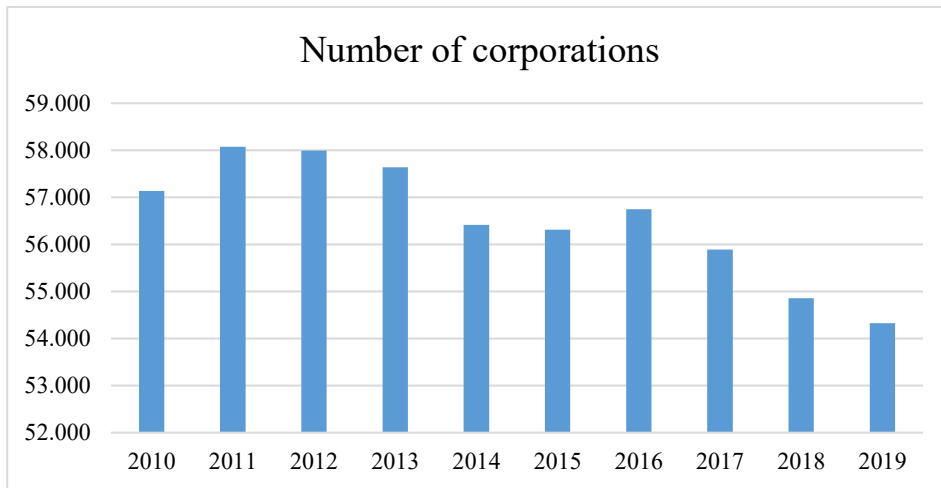
Figure 1, Number of firms active in the food & beverage sector, Data: ISTAT, Author Elaboration

As we can see the number of active firms decreased over the years, mainly driven by a reduction in the number of the so-called *micro* enterprises (which count less than 10 employees). On the other hand, the number of bigger corporations increased in the last 10 years, as Figure 2 shows. By the way the increase was lower compared to the decrease due to the micro enterprises that closed, so the number of total active firms in 2019 was 4,9% lower compared to 2010.
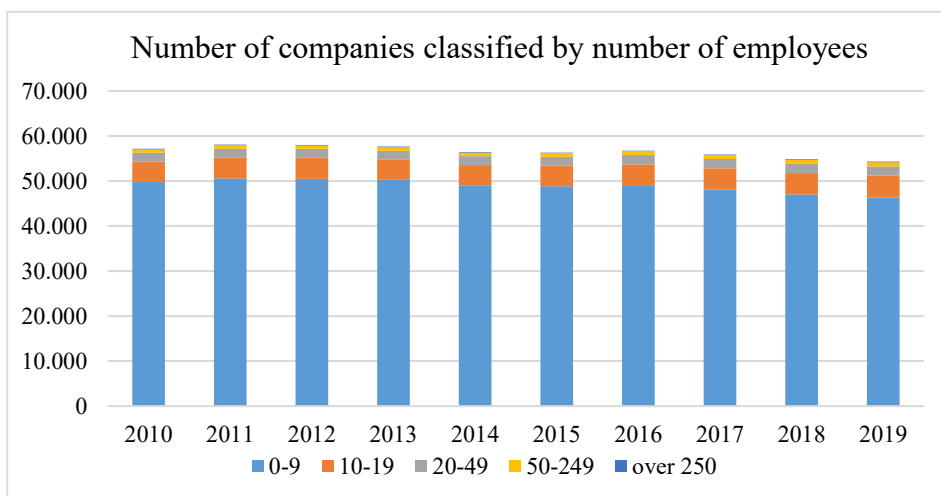
Figure 2, Number of corporations according to number of employees, Data: ISTAT, Author Elaboration

Thanks to a study conducted by ISMEA (Istituto di Servizi per il Mercato Agricolo Alimentare) for a sample of companies operating in the food & beverage sector during the years 2014-2018 which is stated to represent "an important share of the Italian *agro-industrial* sector on its whole" (ISMEA, 2020), we can get insights on firms' distribution on the territory. As shown in Figure 3, most of corporations (67%) is active in the Center-North of the country, on the other side, the 33% operates in the South. To link this with companies' dimensions, we have that micro and small enterprises characterized South reality (21 employees on average); on the other hand, medium and big firms characterized the Center-North one (43 employees on average).
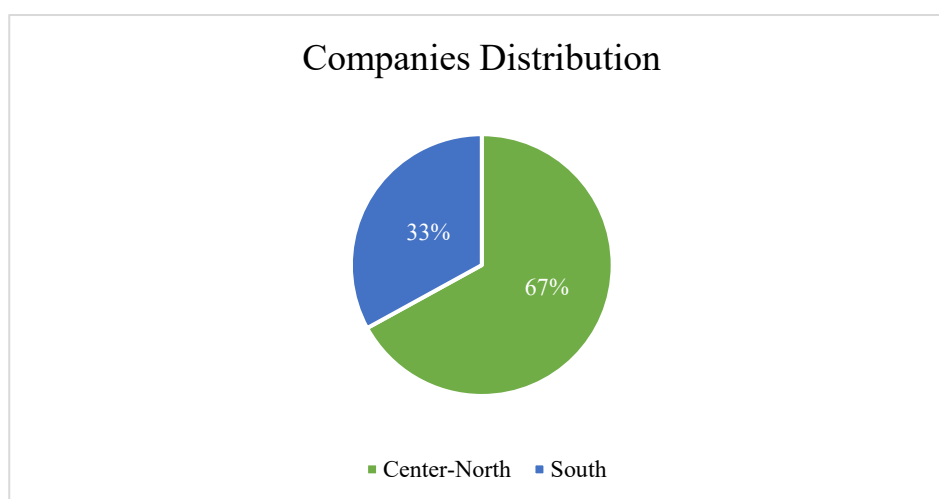
Figure 3, Companies' distribution on the Italian territory, Data: ISMEA, Author Elaboration

When we talk about the *food & beverage* sector, the primary sector, and the *agro-industrial* business (food, beverage, and tobacco) are involved. In 2020, the whole supply chain, amounted to 15% of the PIL, testifying its importance for the country (Redazione ANSA, 2021). In addition, as we will see after, this industry can be considered one of the principal driving forces for the foreign economy. In fact, food made in Italy is brought all over the world as shown by the 40 billion euros of export in 2020 (Istat-Ice, 2022).

1.2 Sector performance

Results performed by companies operating in the food & beverage sector, are investigated through the Istat-Ice database. Between 2010 and 2019 revenues for the sector increased by 25,1% with 2,5% CAGR. The same path holds for the production value which showed a 25,5% increase and a 2,6% CAGR (Figure 4).

Periods of major growth, for both the measures, has been 2011 and 2017 with revenues yearly growth of 7,2% and 4,4% respectively (Figure 5). Further insights concerning 2019 and 2020

are given by the Food Industry Monitor (FIM)[4] which highlights the best performance of some of the branches. Among the ones who experienced a higher growth compared to the other companies in the sector there were dairy products, coffee, pasta, and wine. This evidence presents the food & beverage sector as an attractive one, given the positive trend that affected it in the last years. ISMEA confirms these data with the results of its sample of analysis, where also profitability is checked. In fact, both ROI and ROE showed improvements in the years analyzed.
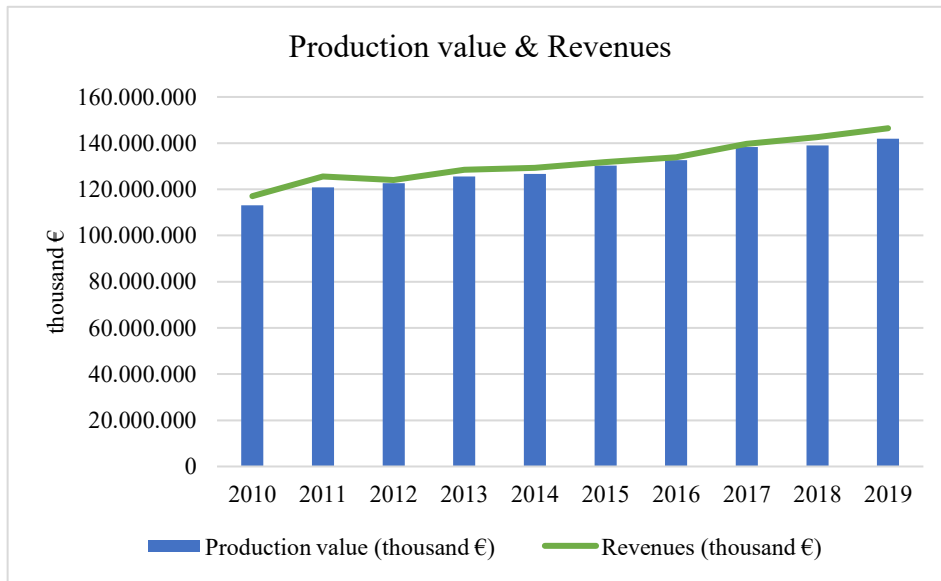
Figure 4, Production value and revenues for the period 2010-2019, Data: ISTAT, Author Elaboration
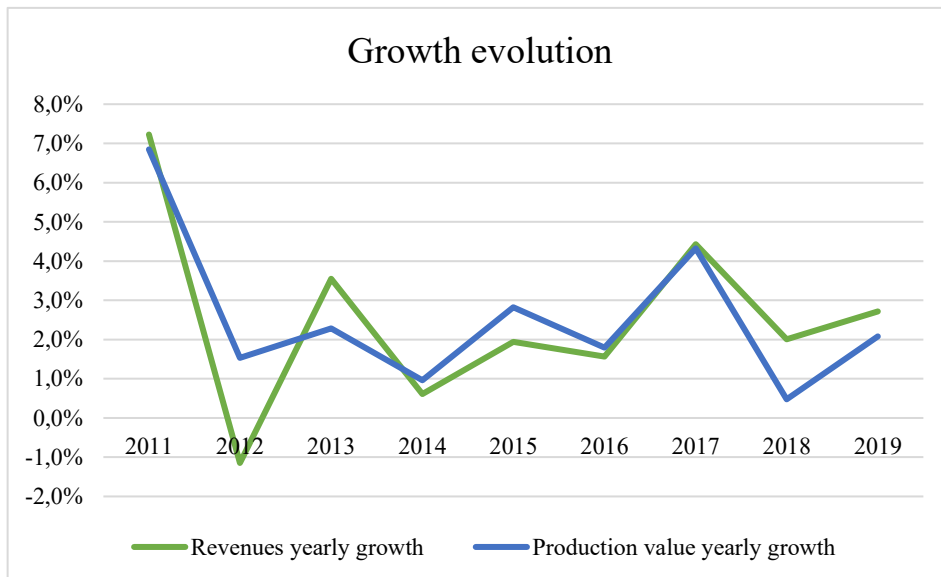
Figure 5, Growth evolution for revenues and production value 2010-2019, Data: ISTAT, Author Elaboration

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[4] Food Industry Monitor, 23 June 2022, "*Report*", https://www.foodindustrymonitor.com/report/, 10 July 2022

According to data provided by ISTAT, during the five years period going from 2014 to 2018, food & beverage added value has increased by 18,7% in real terms, compared to the 5% of the Pil. The increase has been gradual, over the last three years, where the *agro-industrial* sector exceeded both the overall economy and the manufacturing sector (ISMEA, 2020).

Year 2020 has been influenced by the Covid-19 pandemic that had consequences on the sector performance. Post-pandemic analysis highlights that in its complexity the sector suffered a small loss (-1,8%) during the crisis compared to the one of the economy as a whole (-8,7%) and ended the 2020 with 208 billion euros revenues (including Ho.Re.Ca. and GDO corporations). Exports did not show a decrease, in fact, even in the pandemic year this branch presented a positive trend of +3,2% growth, touching a value of 40 billion euros. Even the happening of the Covid-19 crisis, the food & beverage sector behaved countercyclically, not showing significant decreases during the pandemic year.

1.2.1 Social and environmental sustainability performance

Of particular interest could be the analysis of the performance from the social and environmental sustainability perspective. Before reading the results, it is necessary to define what is a sustainable company according to the FIM: "a company which operates respecting the environment, the local communities, and the society on its entirety." The Food Industry Monitor analyzed 726 companies for which captured 13 variables measuring the following aspects:

- Use of sustainable raw materials during the production process,
- Actions to reduce CO_2 emissions,
- Use of renewable energy sources,
- Support to local community development.

The whole sample, that can be representative of the food & beverage sector, is using entirely or partially sustainable raw materials (98%). Particular attention deserves the packaging that is where the companies are focusing to reduce their impact. Most of the enterprises (88%) are using packaging made with compostable materials or made starting by recycled materials. More than a half of the companies inside the sample has obtained at least one certification of sustainability and almost 218 companies publish the sustainability report.

According to the *Sustainability score* created and assigned by the Food Industry Monitor, it resulted that the most sustainable branches are the pasta and the preserves ones followed by the sweets, flours, and dairy industries. The lowest scores belong to the coffee and cold cuts branches.

The increasing importance of sustainability themes for the consumer (71% of customers gives more importance to sustainability) (Casse, 2021) and the need for companies to innovate accordingly, put firms in the condition of further invest to sustain new market and environmental challenges.

1.3 Sector perspectives

As we have said, revenues, production value, and added value has shown positive trends across the years, and the perspectives seem to follow the same path according to the searches conducted by different entities.

At first, we look at the results of the Cerved Market Intelligence[5] research on the food & beverage sector which present it as a strong industry defined as "one of the pillars" for the made in Italy. As stated by the information provider, it showed high resiliency during the pandemic years and helped the Italian economy in exiting a difficult situation by supporting the restart. Cerved believed the 2022 will be a good year for the sector that will reveal growth towed, mainly, by companies in the first transformation phase. It is easy imaginable how the crisis reshaped both communication and distribution tools. The pace of the digital era accelerated and the main channels between producers and end consumers became the *online* ones. According to the research, for what concerns distribution channels, the GDO is perceived to maintain and consolidate its domain (+4,7% on 2019) followed by a proper explosion of the e-commerce (it will triple its revenues).

Second research is the one conducted by the University of Gastronomic Science of Pollenzo and Ceresio Investors: The Food Industry Monitor[6]. The focus is both on the sector's performance and perspectives and its main features. The Food Industry Monitor is at its eight edition and consists in analyzing the performance of 852 companies. According to the study, the growth experienced in 2021 will be present also in 2022 and 2023, with expected growth rate at 4%. Some of the best branches are dairy, coffee, milling, pasta, and wine. Also, the exports are expected to show increases, mainly in the dairy, wine, soft drinks, and mineral waters branches. In here, the predominance of family-owned business highlights generational

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[5] Redazione Beverfood.com, 24 February 2022, *"Food&Beverage, nel 2022 per Cerved prevista una crescita doppia del settore rispetto alla media"*, Beverfood.com, https://www.beverfood.com/food-beverage-2022-prevista-crescita-doppia-resto-economia-wd/, 14 July 2022
[6] Emiliano Sgambato, 23 June 2022, *"Unisg Pollenzo e Ceresio Investors: «Il food crescerà più del Pil nonostante l'allarme costi»"*, Il Sole 24 Ore, https://www.ilsole24ore.com/art/unisg-pollenzo-e-ceresio-investors-il-food-crescera-piu-pil-nonostante-l-allarme-costi-AE65s4fB, 14 July 2022

problems which naturally follow. Companies' aggregation is suggested as solution to guarantee business continuity and growth.

This is the point of contact between the two searches, both stress the need for this industry of additional investments to stay competitive and face the new challenges the environment is presenting. Sustainable production processes, the increase in raw material prices, the digital transformation is only some of the challenges that put companies in the need for money. Up to today, investments in the food & beverage sector increased as shown in Figure 6. Between 2015 and 2019, investments level showed a 57% improvement.
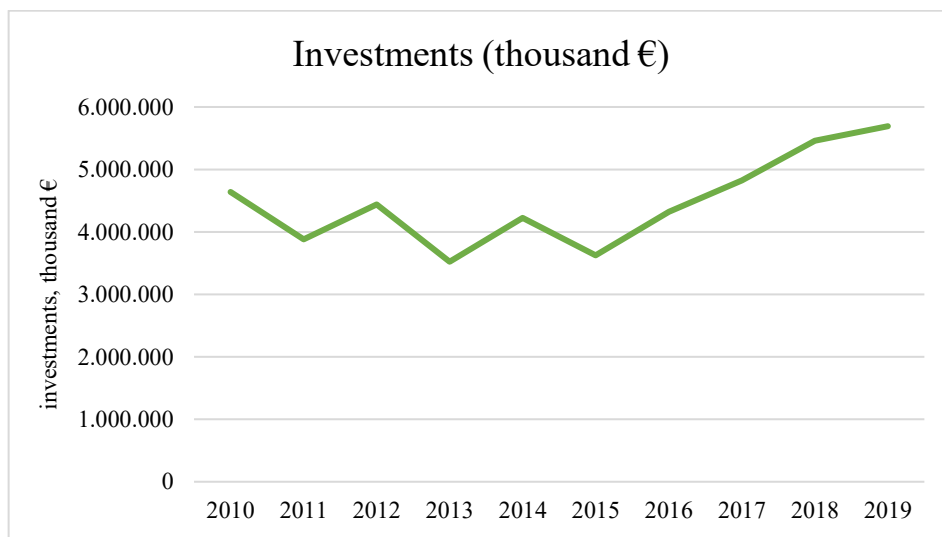
Figure 6, Investments' level in the food & beverage sector 2010-2019, Data: ISTAT, Author Elaboration

If we consider the food & beverage business in comparison with other sectors in the manufacturing industry, it results in being the one with the highest value in terms of investments and among the top three in terms of their growth and CAGR over the period 2010-2019 (Figure 7).
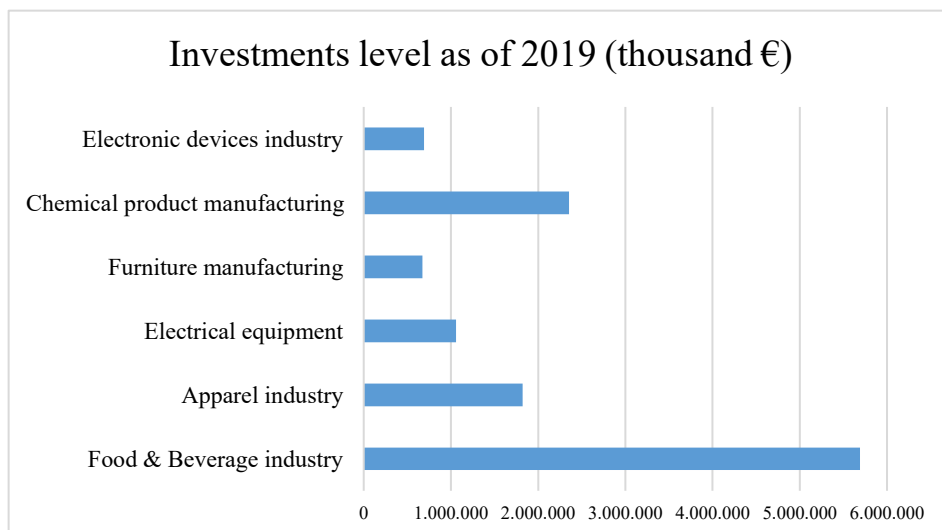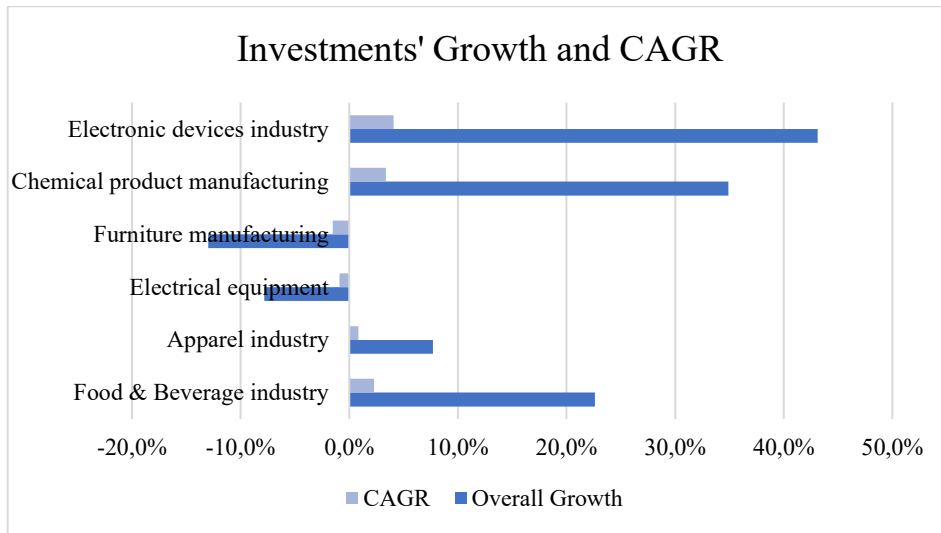
Figure 7, Investments level in the manufacturing industry, Data: ISTAT, Author Elaboration

Given the searches' results, the investments evolution path seems to remain aligned with the one of the last years implying a need for additional financial resources. An immediate way to receive funds and be able to proceed to the required investments are acquisitions. Cerved believes almost 400 small and medium food & beverage companies, which are mostly family-owned, are perfect candidates for potential investors. Main reason why many food & beverage companies can be bought relates to the industry, and particularly, sector fragmentation. In 2019, among the 54.328 active companies, the 85,3% (46.364) is a *micro* enterprise that counts from 0 to 9 employees, compared to an average of 81,4% for the entire manufacturing industry (ISTAT). The number become more significant if we compare, as we did before, the food & beverage sector with others in the manufacturing industry (Figure 8).
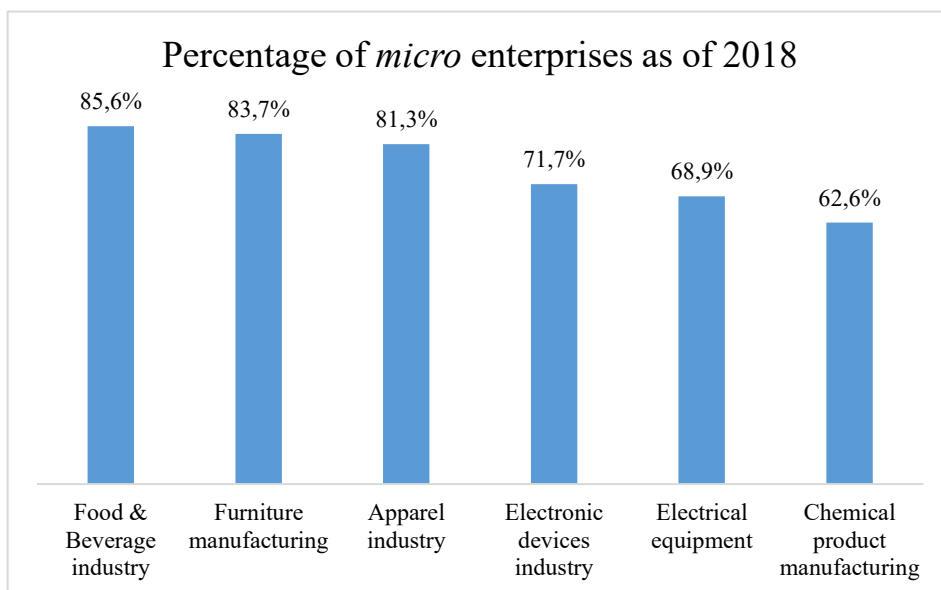
Figure 8, Fragmentation of some sectors of the manufacturing industry, Data: ISTAT, Author Elaboration

As we can see, the food & beverage sector is the one with the highest percentage of *micro* enterprises. In addition, among the most fragmented, it is the only one who experienced an overall growth (2010-2019) higher than 20% and a CAGR higher than 2% (Figure 7). It is easy understandable this is a big opportunity both for domestic and foreign investors who are interested in entering one of the most important and, according to the estimates, promising business of our economy.

1.4 Sector attractiveness

The attractiveness of the Italian food & beverage sector relates directly to its reputation. According to a study conducted by YouGov (Massara, 2019), which tests over 25 thousand people in 24 countries, the Italian food and cuisine are the most popular and appreciated. The fact that just a piece of the supply chain, meaning the food one, is so strong, is enough to consider the whole production process of some interest?

In some sense, the answer is yes. Since the popularity comes from the final product, it means the whole process to deliver it, is as important as the product is. Being part of the supply chain could be important for people directly interested in the development of the industry. Staying focus on the food & beverage retail and distribution, it is one of the few businesses which remained strong during the pandemic period. Retail food store continued to grow together with food delivery, meaning the two are not substitutes, but better, complementarians[7].

Moving from the specificity of the retail and distribution to the broader spectrum of the entire food & beverage sector, the attractiveness of the industry relates to the numbers of the last decade. Compared to the entirety of the manufacturing industry which experienced a 14,4% improvement, total revenues between the years 2010 and 2019 improved by 25,1 percentage points for the *agro-industrial* sector. The same considerations hold for what concerns the added value. Statistics for the entire industry showed a 21,7% improvement, compared to the 24,7 percentage points for the sector of our interest.

Having a look to most recent data available, we see the picture of a healthy sector that shows positive trends concerning the most important variables in the industry. In fact, the last 5 years analyzed (Table 1) presented improvements in terms of revenues, added value, gross operating margin, investments, and exports outperforming on average the manufacturing industry (ISTAT-Ice).

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[7] Paolo Dezza, 18 October 2021, "Il food occupa oltre il 30% degli spazi in molte vie centrali", Il Sole 24 Ore, https://www.ilsole24ore.com/art/il-food-occupa-oltre-30percento-spazi-molte-vie-centrali-AEtOPMm, 14 July 2022

*billion €	2015	2016	2017	2018	2019[8]
Corporations	56.321	56.757	55.896	54.866	54.337
Employees	429.274	443.263	457.067	461.979	470.680
Turnover*	131,8 (+1,9%)	133,8 (+1,6%)	139,8 (+4,4%)	142,6 (+2,0%)	146,4 (+2,7%)
Added value*	24,3 (+4,5%)	25,7 (+5,8%)	26,6 (+3,4%)	27,6 (+3,8%)	28,6 (+3,8%)
Gross operating margin*	11,1 (+8,6%)	11,9 (+7,1%)	11,9 (+0,3%)	12,4 (+4,3%)	12,7 (+2,2%)
Investments*	3,6 (-14,2%)	4,3 (+19,2%)	4,8 (+11,6%)	5,5 (+13,2%)	5,7 (+4,2%)
Exports*	30,3 (+6,3%)	31,6 (+4,3%)	34,2 (+8,2%)	35,5 (+3,8%)	38,4 (+8,2%)
Imports*	29,1 (+0,6%)	29,2 (+0,3%)	30,7 (+4,9%)	30,3 (-1,1%)	30,6 (+0,9%)

Table 1, Food & beverage statistics, Data: ISTAT - Ice, Author Elaboration

The food & beverage sector, in addition to being important for the objective reasons we have just mentioned, is fundamental for its nature. People had needed, need, and will always need food to survive, making the sector the perfect candidate to analyze human behaviors evolution and characteristics. The *agro-industrial* business would be one of the few businesses that cannot die because of its essentiality. This does not mean corporations in the sector will not die or underperform, but the reality is that there will be always need for firms operating in this business to keep pace with new trends and challenges. This makes an operating company a possible target for investors who seek new opportunities in a fundamental sector, as the food & beverage one is. For these reasons, being able to analyze more in deep the trends of this sector and its M&As evolution would be of particular interest and usefulness to understand the past and future dynamics of the Italian economy.

1.4.1 Sector trends

According to Cerved Market Intelligence (2022), as of today, this industry is characterized by six trends: increase of raw materials prices and consequent price improvements, additional pressure on foreign markets, channels rebalancing, made in Italy appreciation, move toward sustainability, and the increase in the extraordinary operations (i.e., M&A).

First, concerning the increase of prices, the current geopolitical situation brought to extremely high level of inflation that, in terms of raw materials, reflected mainly into flour, wheat, and energy prices. The inflation inevitably had an impact also on the final prices. The increase in prices seems to continue for the year 2022.

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[8] Data provided by ISTAT for number of companies, employees, turnover, added value, gross operating margin, and investments are available up to 2019.

Second, the pressure on foreign markets relates mainly to the level of exports that showed positive trends during these last periods. The globalization brought the need for companies to be able to internationalize and this required further investments. The beverage branch is the one presenting the higher level of exports (alcoholic drinks and wine).

Third, the pandemic and the digital transformation require a rebalancing of the different channels. In a first place, the need to push the e-commerce channel that presented an increase of over the 114% between 2019 and 2021. Then, there is the need to recover the food service (i.e., restaurants) that suffered the effect of the pandemic. In the end, the consolidation of the GDO, that is showing positive trend.

Fourth, Made in Italy is synonym of quality in the heads of customers, about this, Cerved sustains the appreciation of the "made in" pushing four actions: health, wealth, and interest for Italian goods centrality; quality research and production process control; attention to the value for money; and preference for packaged product. The importance of products' quality highlights the necessity to preserve the entire supply chain.

Fifth, the move toward sustainability is mainly linked to the new EU regulation and the latest extremely events due to climate change (i.e., unconventional high temperature). Cerved believes almost the 20% of the companies in the food & beverage sector are at high risk of transition (compared to the 8,4% of the Italian companies in general). This puts additional attention to the need for funds to finance investments related, also, to sustainable innovation policies.

Sixth, concerning the last trend, meaning the extraordinary operations, the sector showed increasing level of M&A across the years and in the near future, consolidation is expected to be at the center because of the high level of sector fragmentation.

Cerved forecasts a 6,3% growth for the food & beverage sector driven by those six trends, compared to a 3,7% growth for the Italian economy over the period 2019/2022. This last point puts additional attention to the reality of the mergers and acquisitions operations in the sector, revealing, once more the possibility for the companies operating in the industry to be possible target for future investors.

1.4.2 Distribution channel limitations

Distribution channel network can represent a limitation for the food & beverage sector. Compared to other countries, both European and non-European, Italy presents inferior numbers in terms of retailing, with just four names among the 250 global powers of retailing (Deloitte,

2022). As of today, according to Federdistribuzione (2021), the most important distribution channel in Italy is the supermarket which maintained a constant quota over the years 2016-2020 (Figure 9).
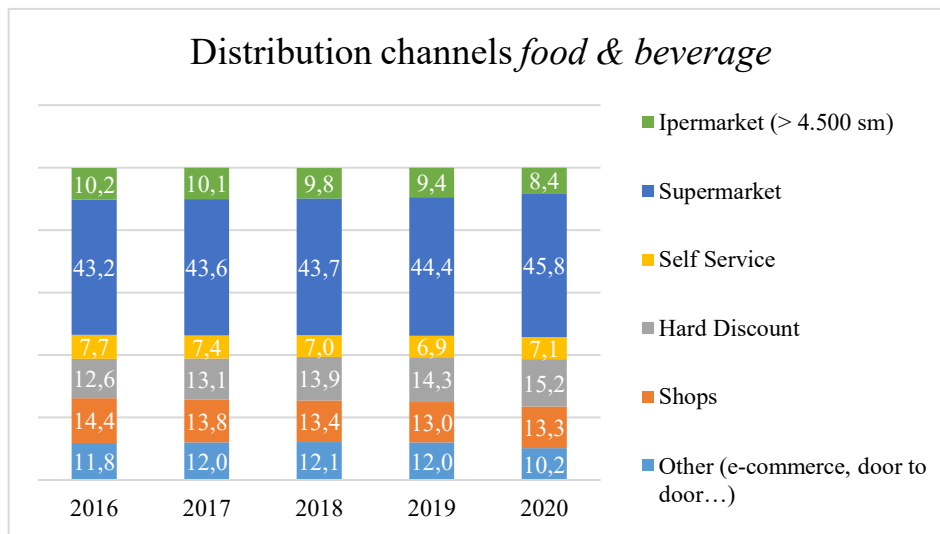
Figure 9, Distribution channels in Italy – food & beverage, Source: Federdistribuzione (2021)

This stated, very few Italian supermarkets have an international distribution network. Looking at Deloitte Global Powers of Retailing (2022), major names come from United States, with 5 distributors among the top 10 global powers. Walmart is the biggest global retailer with presence in 26 countries and retail revenues in the order of 559 billion for the year 2020. Costco follows, with 167 billion retail revenues and activities in 12 countries. First Italian name that we find is Conad, which occupies the 61st position, with 18 billion retail revenues and activity in just 5 countries. Coop Italia, Esselunga and Eurospin are the others in the ranking with only Eurospin operating also abroad (3 countries).

It is easy to understand that this doesn't help Italian affirmation abroad. Having quality products, being appreciated by foreign people should be incentives to increase Italian food & beverage companies' presence in other countries. But as we have just seen, this is difficult given the lack of international companies active in the global retail. Again, one solution to this problem could be the consolidation of the industry.

1.4.3 The potential of Exports

The evolution path of foreign transactions in the food & beverage sector presents positive evidence. If, from imports side the volume goes up and down across the years analyzed, the same does not hold for exports. As we can see in Figure 10 exports value continued to grow even during the pandemic year being the exception to the bad performances that characterized the Italian economy in 2020.
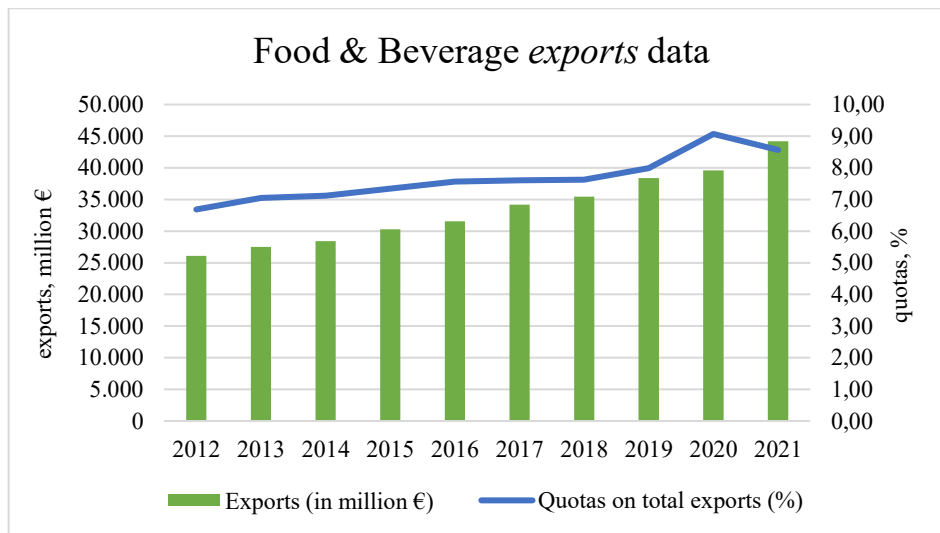
Figure 10, Food & beverage exports evolution and quotas on the total exports, Data: ISTAT – Ice, Author Elaboration

In addition, the food & beverage sector is among the top five sectors of the manufacturing industry in terms of quotas of both, import and exports (Figure 11). This highlights the strategic importance of the international side of this business for the sector performance.
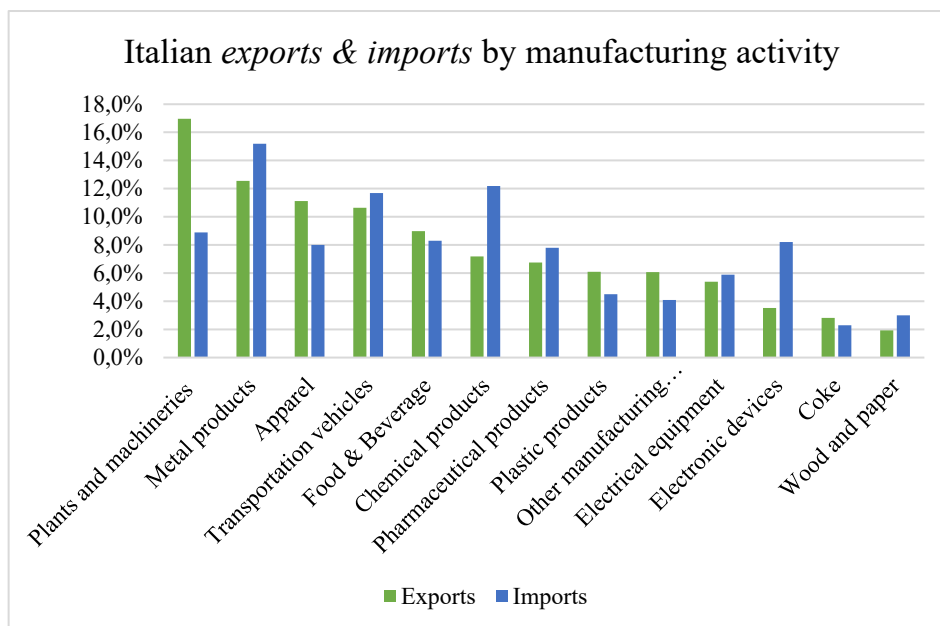
Figure 11, Imports and Exports by sector in manufacturing industry, Data: ISTAT – Ice, Author Elaboration

The three major exports destinations continue to remain Germany, United States, and France as shown in Figure 12. Coldiretti (2022) first trimester analysis presents an increase of 21,5% in food & beverage exports compared to last year. As of this last analysis the first acquirer continued to be Germany, followed by United States and France. A good performance is observed also in the United Kingdom, despite the Brexit. On the other side, in contrast to what happened in 2021, China and Russia see their position reduced due to the actual geo-political situation (i.e., war in Ukraine).

Major *exports* destinations in 2021

	Germany	United States	France	UK	Japan	Spain	Nether.	Swiss	Canada	Austria	Poland	Sweden	China	Russia	Australia
Quotas (%)	18,1%	15,4%	13,1%	9,3%	6,3%	4,3%	4,1%	4,1%	2,9%	2,8%	2,8%	2,0%	1,8%	1,8%	1,8%
Variation wrt 2020 (%)	8,5%	14,9%	7,9%	-0,1%	13,3%	20,0%	17,0%	8,7%	11,4%	3,3%	30,4%	10,5%	27,2%	15,6%	2,3%

■ Quotas (%) ■ Variation wrt 2020 (%)
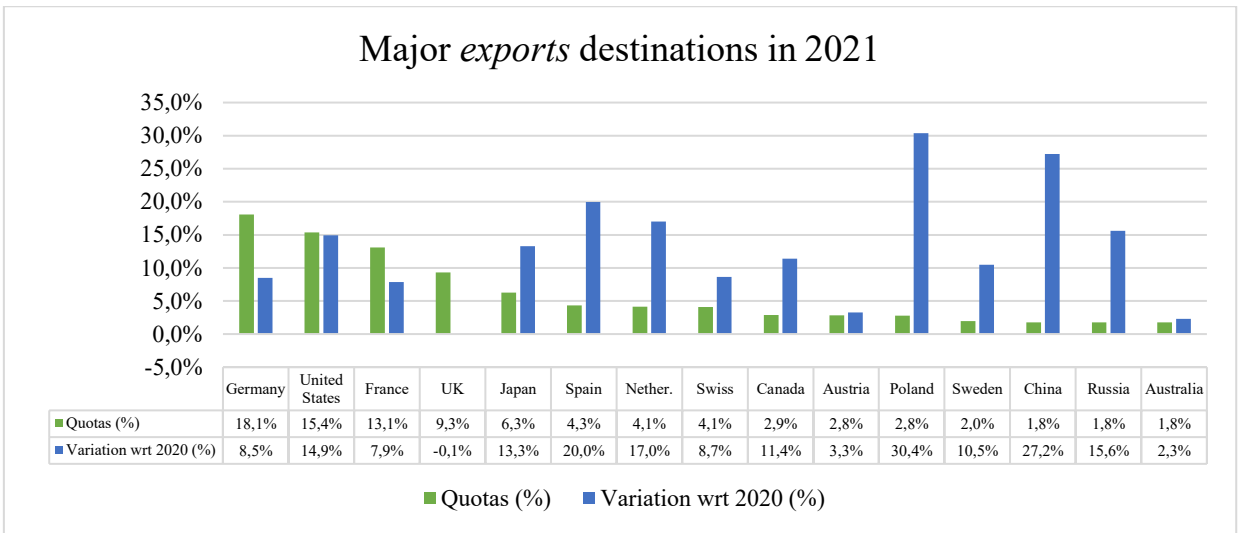
Figure 12, Exports destinations in 2021, Data: ISTAT - Ice, Author Elaboration

According to ISTAT database, the most exported product, and so the most appreciated by foreign countries is wine. It counts for the 16,1% of total exports in the sector in 2021, increased compared to 2020. To that follow as most exported products dairy products, chocolate plus various confectionery, and pasta. Among the products that showed extraordinary growth rate (>20% in values) between 2020 and 2021 we underline ice creams and pasta. According to SACE, this positive trend in exports seems to persist also during the year 2022.

Even if, up to now, everything seems fine with the international aspects of the food & beverage sector, there is an aspect that needs to be highlighted. This concerns the quotas of Italian exports in the *agro-industrial* sector compared to the top performer worldwide (Figure 13).

Countries *exports* quotas

Country	2012	2019
United States	10,00%	8,90%
Germany	5,80%	5,40%
France	5,20%	4,50%
Spain	3,10%	3,60%
Italy	2,80%	3,10%

■ 2012 ■ 2019
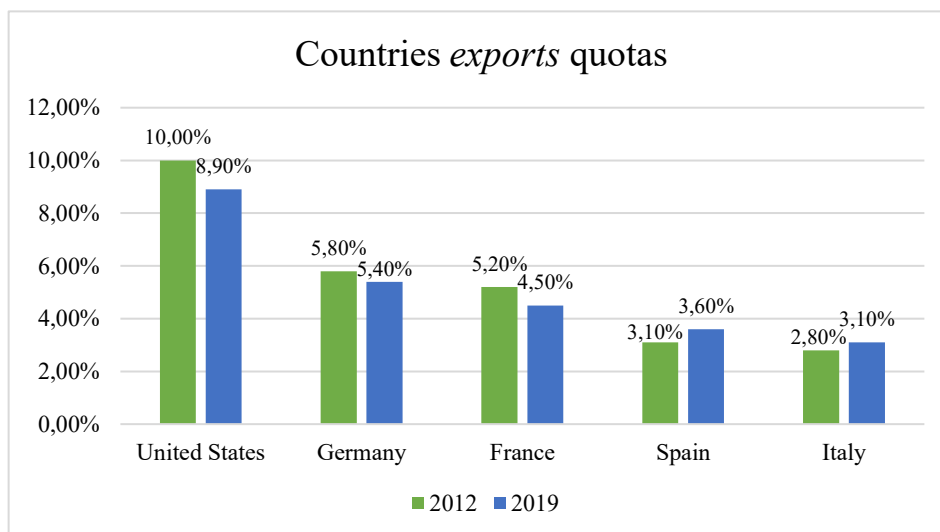
Figure 13, Quotas on world exports in food & beverage sector, Data: ISMEA, Author Elaboration

Even if we are among the top 10 and our quota improved compared to 2012, it remains the smallest compared to our direct competitors (i.e., 3,1% vs 5,4% for Germany). This recall the

attention on the need to further invest for being able to strengthen Italian position in the market. Additional insights can be given if we have a look to the type of products Italy exports compared to what main competitors export. United States are major exporters of raw materials and agricultural products such as soybeans, corn, and beef. Same holds for Spain, that exports mainly fruit, meat, and vegetables. Germany and France, on the other side, export not only raw materials but processed goods also. Germany, in particular, is one of the major exporters for confectionery, cheese, and pork. France exports both raw materials such as cereals and processed food and beverage like wine. For what concerns Italy, most exported products are processed foods and not agricultural goods. According to Intesa Sanpaolo, wine, chocolate, pasta, and preserves (together with the others we mentioned before). This testifies the importance of Italian food & beverage companies as product transformers making them more interesting and appealing to investors.

1.5 Strengths and Weaknesses of the food & beverage industry

What we have said up to now can be synthetize in what we call strengths and weaknesses of the sector. Strengths contribute to sector success and should be enhanced, weaknesses, on the other side, are source of limitation for the industry and should be addressed.

According to Federalimentare (Boscaini, 2021), among the strengths we should consider the high-quality wide product selection, and its relationship with the Italian territory. To this we add the leadership in terms of products that receives particular denomination (i.e., DOP, IGP). In Europe we are the one with the highest number of products (841), both wine and food, with DOP, IGP, and STG denomination (Figure 14).
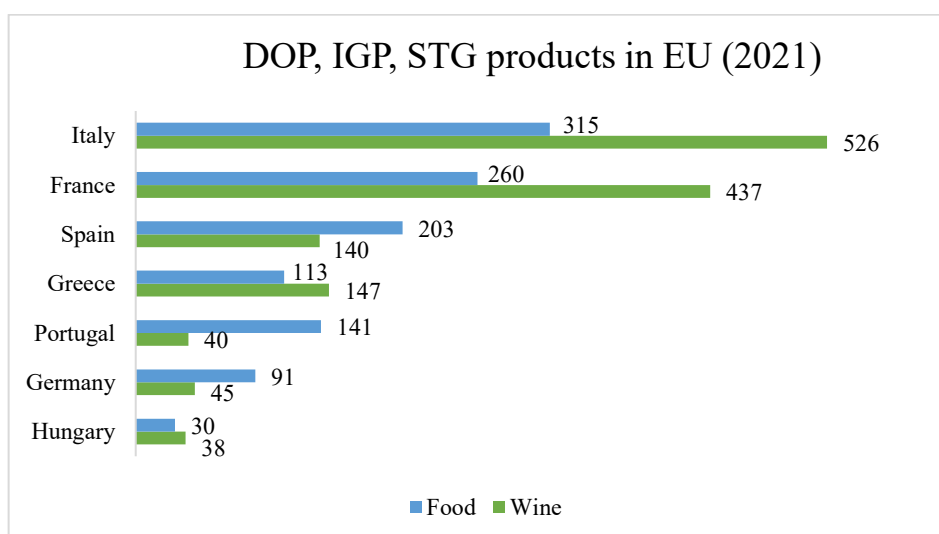
Figure 14, Origin of DOP, IGP, and STG products in 2021, Source: ISMEA (2021)

Two other strengths relate to the reputation of Italian food outside our country and to the anticyclical behavior of the sector (i.e., less impacted by Covid-19 pandemic). To end up, the sector is a healthy one, which showed positive performance trends over the last years.

On the other hand, weaknesses relate to the fragmentation of the industry and the consequent limitations in terms of investments. In addition, we have seen that the trade position (exports) is not a strong one with regards to our main competitors. As of today, additional problems come from the changed consumer necessities, communication, and distribution channels. Together with the digitalization that is becoming part of the daily lives of enterprises, these are all phenomenon that require for additional investments. Last but not least, a weakness is surely represented by the so-called *Italian Sounding*. This is the practice, common abroad, that consist of imitating Italian food products by using names, drawings, and colors that remind of Italy (Montagnoli, 2021). The dimensions of the Italian Sounding are in the order of 100 billion euros, more than doubling the exports, impacting inevitably the sector.

As suggested by Cerved and the Food Industry Monitor, one way to overcome these limitations for Italian food & beverage enterprises, is to enter in bigger groups to exploit bigger resources both in financial and economic (i.e., distribution channels, consumers addressed) terms. But is there an interest for the food & beverage industry?

1.6 Is investing in the food & beverage sector popular?

The M&A activity, broadly speaking, experienced in Italy an acceleration in terms of numbers during the last five years (EY, 2022). A record performance was the 2021 one. Total transactions reached a value of 85,5 billion euros which more than doubled the 2020 total value (+122,1%).

The reason behind the explosion of the deals during the last year relates to four reasons mainly:

1. The changing in companies' business models due to Covid-19 pandemic and new regulatory requirements,
2. The availability of capital together with the expansive monetary policy allowed the investment of funds,
3. The increase in the number of the so called "Megadeals" (>1 billion euro) in strategic sectors such as the finance, and technological one,
4. And the increase in the transactions performed by public entity (i.e., Ministero dell'Economia e delle Finanze).

The same positive trend holds for the mid-market which deals for the year 2021 amounted to 24,6 billion euros, showing a 55,4% improve with regards to 2020. This is where we can place the food & beverage sector deals. The whole universe of acquisition in the first transformation, food, and beverage is included in a broader category which is the Consumer one. Total value of deals in this sector was 7.916 million (9,3% of total transactions value) and the number of transactions amounted to 132. To this numbers, we need to add the transactions with target operating in the agricultural business, which amounted to 95 million in 2021 for a total of 3 deals. (EY, 2022). According to the database we constructed with Eikon data, the number of acquisitions in the food & beverage sector was 77, which corresponds to the 57% of deals in the consumer and agricultural sector.

Both from a broader perspective (the entirety of M&A transactions) and from a narrower one (the food & beverage sector), the interest for Italian firms is growing within years. In 2021 total deals amounted to 1.272 (PWC, 2022) with a 5% improvement compared to 2020. Looking at the food & beverage sector, where in 2020 the transactions have been 72, the improvement has been of 6,9 percentage points. As of May 2022, the already completed acquisition for the current year count 34. At the same date in 2021 and 2020 were, respectively, 32 and 28. This testifies an ongoing and increasing interest for food & beverage companies.

Pulling the lens into the sector, from January 2010 to December 2021 a total of 617 transactions have been implemented. The sample was created using the Eikon database and includes companies in the *agro-industrial* business, from the agriculture to the retail firms. Just to name a few, some of the activities performed by the target companies are fishing and farming, vegetable farming, food processing, bread and bakery product manufacturing, and wine production.

Acquirers come both from the same sector of the target and from other sectors, including the Private Equity (*financial acquirer*) and include both domestic and foreign companies. We are going to discuss in deep this topic in the following chapter, for now we focus our attention on the number of deals over the years and other database specificities.

A total number of 651 deals have been performed between January 2010 and May 2022, with a peak of 83 transaction in the year before the pandemic.
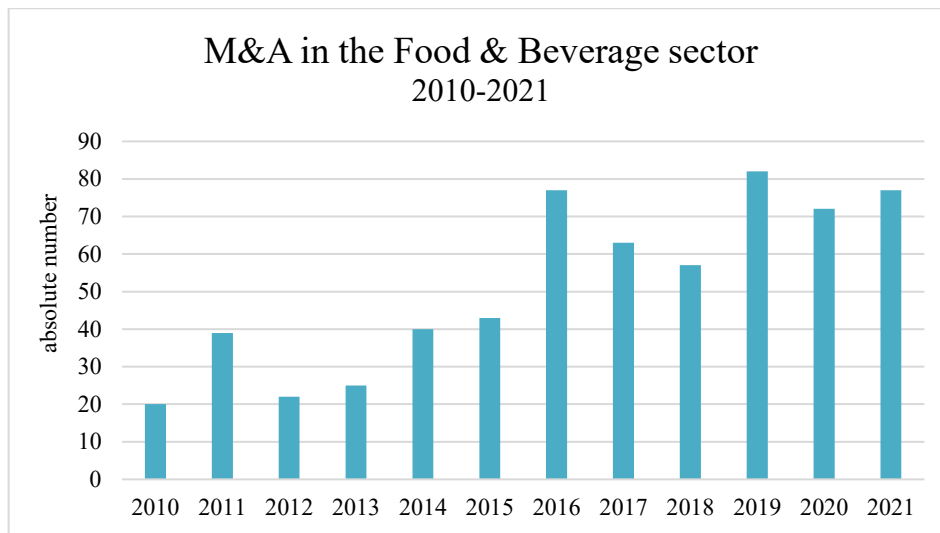
Figure 15, Total transactions between 2010 and 2021, Data: Eikon database, Author Elaboration

As we can see in the graph (Figure 15), the number of transactions varied over the years, highlighting a major change between the years before and after 2016. In 2015 the number of transactions performed was 43, in 2016 it amounted to 76 signing a 76,7% improvement. Transactions (in absolute numbers) increased of 285% from 2010 to 2021, defining a positive attitude toward food & beverage target companies.

As stated before, the database includes multiple target activities (31 micro categories), but we can group them into four major activities:

1. *Agriculture & Farming* which include agricultural consultancy services, agricultural support services, fish & farming, flour milling, grain production, and vegetable, fruit & nut farming,

2. *First transformation* which includes bread & bakery product manufacturing, cigars & cigarettes manufacturing, cookie, cracker & pasta manufacturing, food ingredients, food processing, frozen food manufacturing, fruit & vegetable processing, meat processing, pet food manufacturing, and seafood product preparation & packaging,

3. *Food* which includes animal feed, baby food, chocolate & confectionery, commercial nurseries, dairy products, ready-made meals, sugar & artificial sweeteners, snack food and non-chocolate confectionery, and tobacco,

4. *Beverage* which includes bottled water & ice, brewers, carbonated soft drinks, coffee & tea, distilleries & wineries, and wineries.

Assembling all the activities in macro groups allows us to identify in which of them happens the major number of transactions. As we can see in Figure 16, in a period of almost 12 years (January 2010 - May 2022) most deals concerned target companies operating in the first

transformation phase, confirming the investors' interest for product transformer companies. First transformation weighs for the 48,2% of total transactions followed by both the food and the beverage activities which together amounted to 38,4%. Only the 13,4% of deals were performed in the agricultural and farming business.
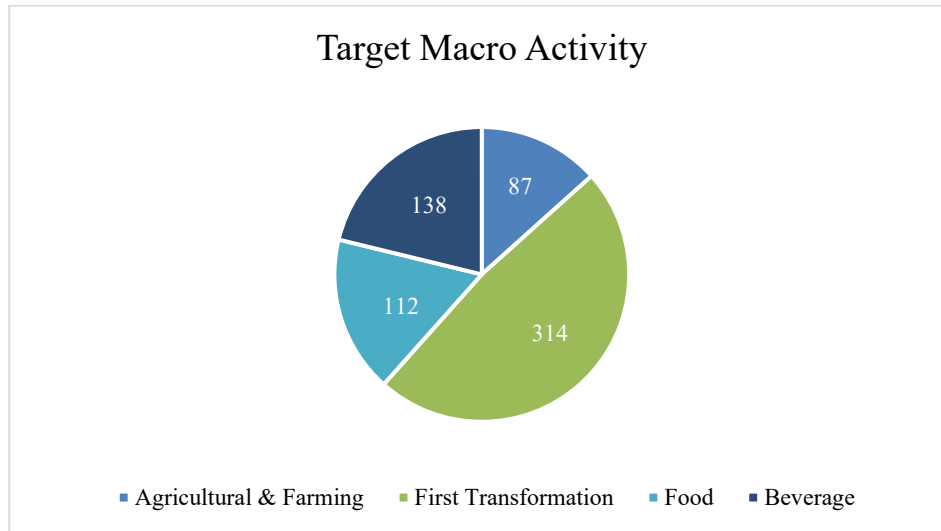
Figure 16, Target Macro Activity between 2010 and 2022, Data: Eikon database, Author Elaboration

Being able to classify the different acquisitions over a 10-years long period of time was useful to identify the main features that characterized the M&A market in the food & beverage sector. Just to sum up:

- Number of transactions increased over the years, with a total of 70,7% of deals performed in the last 5 years and a half (January 2016 – May 2022),
- The activity of main interest in the eyes of investor has been the first transformation one,
- As of 2022 transactions already completed, the interest in the food & beverage sector seems to persist.

1.6.1 Future trends in M&A Italian market

With these premises we give a little insight about the outlook for the current year. According to PWC, the M&A market in its entirety is going to perform even better in the near future. The pandemic recalled the attention to the urgency of filling gaps in terms of production processes, competencies, product, and markets. The period of crisis we have faced, and we are still facing, required corporations to reimagine their businesses and to catch up with the challenges this new situation brought in (i.e., speed up of digitalization processes).

These reasons, besides having a strategic consequence, revealed the need for companies to further invest, meaning the further need for money. KPMG confirmed in its M&A report that the pipeline of announced transactions in 2022 reached 40 billion in value.

Focusing on the food & beverage sector, we have already highlighted that, up to May 2022, 34 deals have been announced. PWC believes there is room for further consolidation in some segments which are still very fragmented such as food ingredients and flour milling. As Price stated these could be interesting opportunities both for financial acquirers (i.e., Private Equity funds) and for strategic investors (i.e., companies operating in the same industry).

1.7 Conclusions

In this chapter we analyzed the characteristics of the food & beverage sector in Italy. By being a broad industry, it is a fundamental part of the Italian economy and oversees spreading made in Italy all around the world. As we have seen, to remain competitive Italian companies operating in this sector need to be able to internationalize, and the bigger they are, the easier the process. This is one of the reasons why we are experiencing consolidation in the food & beverage industry. Problems related to the *micro* dimensions of much of the firms, together with the ones related to the nature of the firms (i.e., family-owned businesses) such as the generational change, could be additional reasons behind a possible sale.

Moving from company-specific to sector-specific motivations, we have seen that according to Cerved, there are six trends which are characterizing and will characterize the industry. Among them globalization and road to sustainability together with the digital transformation, required companies to implement changing actions. Italian food is worldwide appreciated, and as we underlined, we rank first in terms of products with special denomination, marking their quality. Despite this, we observed that, compared to their major competitors, Italian companies in food & beverage sector capture a small quota of worldwide exports, reducing their international power. We also highlighted the lack of international distribution channels that further reduce the competitivity of Italian firms compared to other countries. One of the possible solutions to reach a strong international position and to overcome the new challenges, is the consolidation of the industry.

In addition, we have seen that the food & beverage sector suffered less compared to other sectors during the period of the Covid-19 crisis allowing us to identify in it a possible object of study for the Italian economy. In fact, by being the provider of commodities it is going to be an

always existent sector that will allow to study the economic effects of human evolution across years.

All this together with the interest in the food & beverage companies showed by investors in the last 10 years, makes of particular interest the study of the M&A market features, of the acquirers interested in the sector, and of the performance of the acquired companies before and after the acquisition occurred. And this is what we are going to do in the following chapters of this thesis.

CHAPTER 2 – The Italian *food & beverage* market: which kind of acquirers?

When we talk about extraordinary operations, as mergers and acquisitions are, we imply the existence of multiple players. Among them we find target companies, bidders, advisors, and investment banks.

Focus of this second chapter is the food & beverage sector in Italy and its investors. Starting from the database we constructed using Eikon, which includes all the deals performed in the sector between 2010 and 2022, we present which kind of acquirer is interested most in investing in Italian food & beverage companies. To do that, we first present different bidders (future potential acquirers) of an M&A deal. In the beginning, we are going to talk about different buyers according to their businesses: strategic (i.e., operating companies) or financial (i.e., Private Equity funds). In a second place, we are going to analyze different buyers according to their country of origin: domestic (same country of origin of the target) or foreign (established in another country).

The aim of this chapter is to introduce the panoramic of the investors active in the Italian *agro-industrial* sector to have a clear picture before analyzing specific M&A deals' features in the last part of the thesis.

2.1. The Strategic acquirer

Potential buyers identified as *strategic* are operating companies that can be customers, suppliers, or direct competitors of the target company. In fact, any company in the target value chain, but also a firm coming from an unrelated business, could be a potential strategic investor.

Primary aim of strategic buyers is the creation of synergies (Liberto, 2021), that's why they look for long term investments in companies whose businesses can synergistically integrate with their own. They search realities with complementary resources, technologies, skills, or systems that can provide benefits to their own corporation (DePamphilis, 2022, p. 5). The strategic acquirer believes that the two companies, once combined, will be of higher value compared to the two remaining independent (i.e., 1+1=3). According to the Corporate Finance Institute (2021) a strategic buyer is "interested in how the acquired firm aligns with his long-term business plans"[9]. Chiarella and Ostinelli (2020) affirm that strategic buyers can decide to

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[9] Corporate Finance Institute, 8 September 2021, *"What is Strategic vs. Financial Buyer?"*, *https://corporatefinanceinstitute.com/resources/knowledge/deals/strategic-buyer-vs-financial-buyer/,* 4 August 2022

invest in order to expand their business vertically or horizontally, to eliminate the competition, or to enhance their capabilities (i.e., R&D).

Given what we have just said, strategic investors evaluate the potential target in combination with their company and to decide how much to pay for it, a firm valuation is needed. Starting by the current operating value of the corporation, to reach the maximum potential value of the target a buyer should investigate the following:

1. Stand-alone operating improvements, which concern the exploitation of the resources already owned by the target thanks to a better management,
2. Synergies, which relate to the ability to integrate the two businesses (i.e., expanded distribution, potential for economies of scale),
3. Financial deal structure, which mainly refers to how the deal is financed (i.e., leverage).

To the analysis of these features, the identification of the right price follows. How much to offer goes from a minimum equal to the current operating value to a maximum which is given by the sum of the current value together with the three, just mentioned, elements (the maximum potential value).
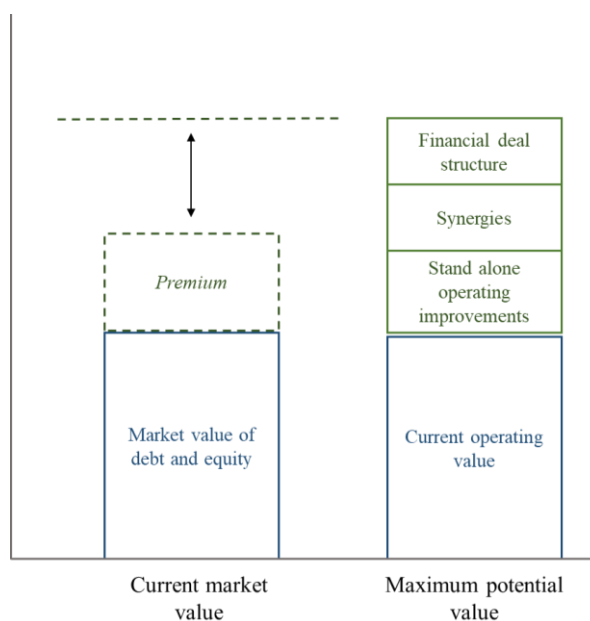
Figure 17, M&A Value Creation Opportunities, Author Elaboration

Once the transaction is closed and the integration process started, the value creation opportunity for the buyer is given by the difference between the purchase price and the post-integration value of the target. As we will see in the next paragraph, financial investors cannot rely on the synergies to create value, since their aim is a different one. This means, that thanks to the opportunities linked to the synergies, which lead to a higher company valuation, the strategic

investor is willing to pay a bigger premium for the target compared to the financial investor, meaning a higher final price (Thompson and O'Brien, 2005 *in* Vild and Zeisberger, 2014).

Among the aims of strategic investors there is the businesses full integration, so the post-acquisition period includes the target's restructuring process to combine its structure, processes, and systems with the ones of the buyer. By achieving economies of scale or by eliminating duplicate functions, acquirers aim to realize the previously identified synergies (Chiarella and Ostinelli, 2020). For this reason, we could hypothesize that is more likely for strategic acquirers, compared to financial ones, to substitute the target top management with their own to ease the process. This means that together with the operations' merger of the two corporations, we expect to see a change in the target's leadership (i.e., CEO substitution) when we are in front of an acquisition completed by a strategic acquirer. An additional note regards the time horizon for the strategic acquirer. By having the necessity of integrate, with strategic investors we could need longer period of time to see the acquisition effects on the target performance depending on companies' features (i.e., degree of compatibility).

2.2 The Financial acquirer

The *financial* investors category includes venture capitalists (VC), private equity funds, private investors (i.e., ultra-high net worth individuals), investment funds, and any other reality that is in the business of investing in corporations aiming for a financial return. To fund the acquisitions, financial buyers go to big institutions (i.e., pension funds) and borrow additional cash. Specific feature of these investors is that they already planned an exit strategy (i.e., IPO, sale) at the time of making the initial investment. Compared to the strategic buyers, they are not concerned in how the two companies will fit together, and their attention is focused on the growth (and on the time spent to generate it) (Final Ascent, 2022).

This kind of buyer has a clear investment focus in terms of sector, business, and size of target corporations. Contrary to strategic buyer, financial ones do not look only to corporations that fits with their existing businesses but are open to companies operating in different industries (Corporate Finance Institute, 2021). That's why this kind of buyer cannot rely on the generation of synergies when valuing a business: there will not be creation of additional value coming from the combination of the two because the aim is the financial return and not the two businesses' integration. Once financial investors have identified a company with promising growth opportunities and a well-established competitive advantage, during the investment period they work on the financial optimization of the acquired firm. Each type of financial investor implements different strategies when pursuing an acquisition. Private equity funds

have a long-term investment horizon, aim to already established companies (i.e., restructuring, mature companies) and finance transactions especially through leverage. Venture capitalists, on the other hand, invest in start-ups taking money from institutional investors (DePamphilis, 2022, p. 352).

As shown in Figure 18, of relevance is the ongoing increase in the statistics of deals performed by financial investors. Looking at global M&A numbers, during 2021 they have finalized more than 21.300 operations for a total value of almost 1.900 billion USD (KPMG, 2022).

Figure 18, Global Financial Investors deals, Data: KPMG report M&A 2021, Author Elaboration

As we can see in Figure 19, with exception for what concerns the pandemic year, the same path holds for the Italian market. During 2021 financial investors increased their activity in the country completing 200 acquisitions (17% of the entire market) for a total value of 12,1 billion euros.

Figure 19, Financial Investors deals in Italy, Data: KPMG report M&A 2021, Author Elaboration

The 2021 has been the best year ever for financial investors in Italy signing a 367% improvement in value compared to 2020. According to KPMG, Private Equity and Venture Capital can represent a completion to traditional capital markets as supporter for companies in their innovation, restructuring, and internationalization processes. In addition, being source of additional cash, financial investors can help accelerate the consolidation process in the most fragmented sectors of our economy (KPMG, 2022).

2.2.1 Private Equity (PE)

Among the financial investors, we highlight the importance of private equity funds. Over the last four years, globally speaking, PE funds completed the 39% of the total M&A transactions in terms of volume and the 45% in terms of value (PWC, 2022).

The *limited partnership* structure is the most common form for private equity funds. In presence of this structure, we find two categories of partners: general partners (GP) and limited partners (LP). GP are also called managing partners since they oversee the management of the fund. They deal with the day-to-day operations such as raising funds, connecting with investors, and constructing strategies (DePamphilis, 2022, p. 353). On the other hand, LP are the ones "putting the money" inside the fund. They are not involved in the daily operations and their activities are reduced to provide funds and pay the management fee to the GP. In fact, general partners are remunerated through the management fee (2% per annum) and the incentive fee (20% of the profits made by the fund), and limited partners receive their share of profits (*carried interest*) (Iannotta, 2010).

General partners also invest in the fund. In this way both the interests of the LP and the GP are aligned, and the objective is the common one of gaining a financial return from the company acquired. For this reason, we expect increased performance and return from companies acquired by funds at the time of exit.

2.3 Different approach in acquisitions

Being that dissimilar, these two kinds of acquirer present alternative approaches for the acquisition process implying different outcomes. They differ in five aspects[10]:

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[10] Objective Capital Markets, 1 June 2018, "*The Difference Between Strategic and Financial Acquirers*", Objective Investment Banking & Valuation, https://objectivecp.com/the-difference-between-strategic-financial-acquirers/, 6 August 2022

1. Business valuation: as we already said, in business valuation, strategic investors will look for synergies and will be interested in how the potential target's business will tie in with their own. On the other hand, financial acquirers will look for financial return, in terms both of earnings' growth and cash generation,

2. Industry attractiveness: since the strategic acquirer is an operating company its knowledge of the industry is deep and most likely it will not spend time in analyzing the industry merits. Being the financial acquirer external to the business, it will arrange an extensive study of the industry to understand if investing in it will worth it,

3. Back-office infrastructure: the strategic investor most likely will not primarily focus on the efficiency of the existing operating structure (i.e., IT, HR) because it can be replaced by its own. On the other side, financial investor will prioritize the analysis of the supporting office since it will be in place even after the acquisition,

4. Investment horizon: strategic buyers acquire a business to hold it indefinitely, financial acquirers invest in a company knowing already when and at what conditions to exit.

5. Transaction efficiencies: strategic investors are not used to pursue investing strategies, meaning they could not have a proper M&A team, this results in a more time-consuming process compared to financial investors who are in the business of making investments and can complete the transaction in good time.

Together with these differences, primarily related to the process, Chiarella and Ostinelli (2020) identify differences also for what concern financing constraints and the choice of payment method. In particular, financial buyer are considered riskier and have only *cash* as possible payment method. For these reasons, are considered less flexible compared to strategic investors who can access lower interest rates and can decide whether to buy the target with cash or through shares swap.

All these together can have an impact on the post-acquisition performance of target corporations, and we are going to analyze this in the last chapter. Having a shorter time horizon, a clear objective, and a dedicated M&A team, we can assume that companies acquired by financial investors will experience good performance shortly after the transaction compared to the ones acquired by strategic buyers who need time to integrate the businesses and are not used to M&As' activities.

2.4 Trend in the Italian food & beverage sector: strategic and financial

The food & beverage sector is part of the broader *Retail & Consumer Markets* category (KPMG, 2022). Last year has been a good one for the entire class that has been subject to 405 deals for

a total value of 19,6 billion euros. In 2021 the food & beverage segment, which is one of the most fragmented together with the apparel one, experienced a high number of acquisitions with an increased presence of private equity investors.

In a database that includes all the transactions completed in Italy with Italian targets from January 2010 to May 2022 and constructed started by the information provided by Eikon, it is possible to analyze the features of the investors in the *agro-industrial* sector of our economy.

In Figure 20 is shown the evolution of the acquirers for the food & beverage industry over the years 2010-2021 considering strategic and financial investors.
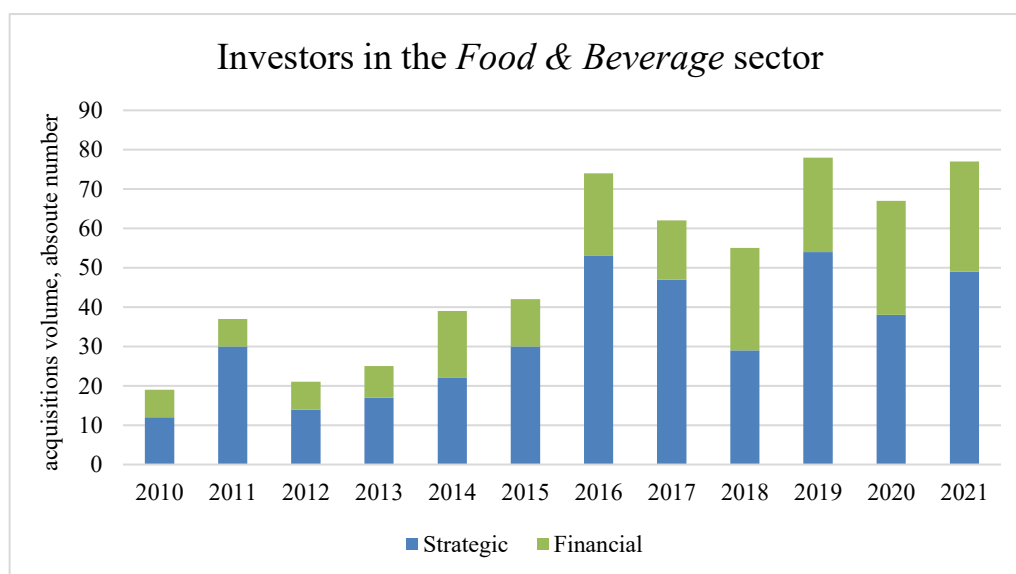
Figure 20, Investors (in absolute number) in the food & beverage sector years 2010-2021, Data: Eikon database, Author Elaboration

The numbers are presented in absolute values, and as the graph shows, strategic acquirers maintain the leadership all over the period. By the way, the number of financial acquirers has increased over the period analyzed, presenting a CAGR of 13,4%. They have been present since the beginning maintaining an almost constant percentage (in terms of yearly total deals). With a peak of 45,6% of total acquisitions performed by financial investors in 2018, the average of transactions completed by funds over the period 2010-2021 is 32,5%, as shown in Figure 21[11]. As of May 2022, among the 34 already completed transactions, we find that the 64,7% (22) of targets has been acquired by operating companies and the remaining 35,3% by funds, perfectly matching the average of the analyzed period.

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[11] Here we need to point out that the 3,4% of M&A deals presents not still completed acquisition process.
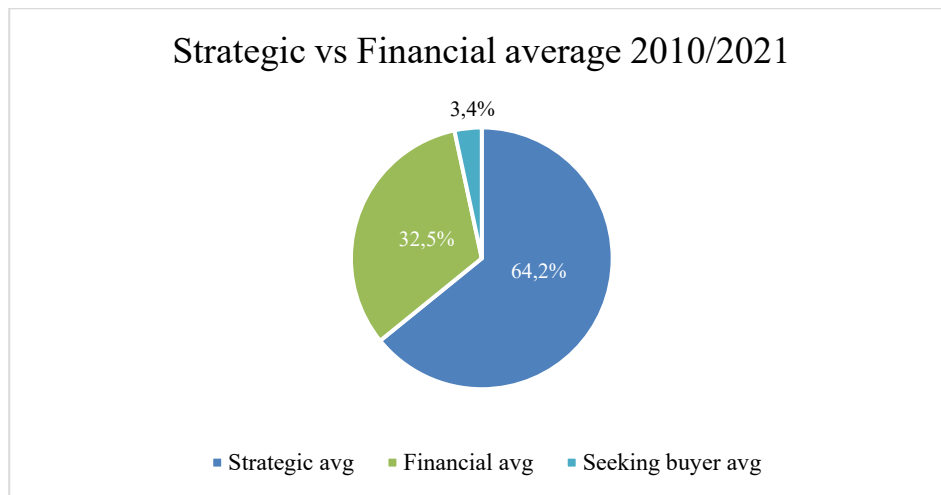
Figure 21, Average acquisitions performed by strategic and financial acquirers, Data: Eikon database, Author Elaboration

Globally speaking and analyzing the entirety of economic sectors, 39% of the overall M&A transactions are completed by financial funds (PWC, 2022). In addition, as we have seen, according to KPMG, in Italy only the 17% (200 out of 1.214) of total M&A transactions has been performed by financial acquirers in 2021. On the other hand, in the food & beverage sector, the same year, the 36,4% (28 out of 77) of total acquisitions in the industry presents financial entities as buyers. This means that in the industry we are analyzing, the funds investing in the sector outperformed the funds investing in the Italian economy, confirming the attractiveness of the sector for financial acquirers with percentage of acquisition performed closer to the global presence of funds.

Focusing on each kind of investor, we analyze the evolution of the two over the period analyzed (2010 to 2021). Most of the deals shows operating companies in the role of bidders during the years, and the category of strategic buyers is composed by companies specialized in different macro activities: consumer product and services, consumer staples, energy and power, healthcare, high technology, industrials, materials, media and entertainment, real estate, and retail. Analyzing the last four years, as shown in Figure 22, almost the totality of the operating buyers operates in the *consumer staples* industry. Since this category includes essential products for consumers, such as food, and beverages, we have that, on average, the 84,7% of the targets is acquired by a company operating in the same business. This implies a deep knowledge of the characteristics of the industry from the side of the bidder. By this we can assume that the integration process will be easier for these buyers because of the high affinity between the two companies and their relative businesses.
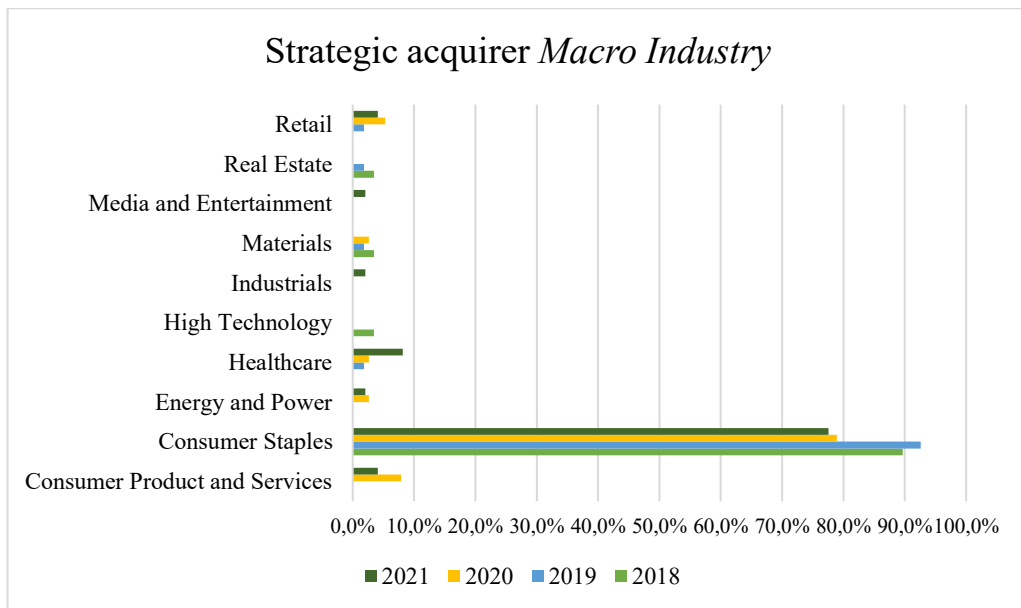
Figure 22, Strategic acquirer Macro Industry over the last 4 years, Data: Eikon database, Author Elaboration

Concerning the financial acquirer, since we have already said most, we limit the analysis to the evolution path of this category of investors. From 2010 to 2021, on a total amount of 617 completed M&A deals the 32,6% (201) has been performed by funds.
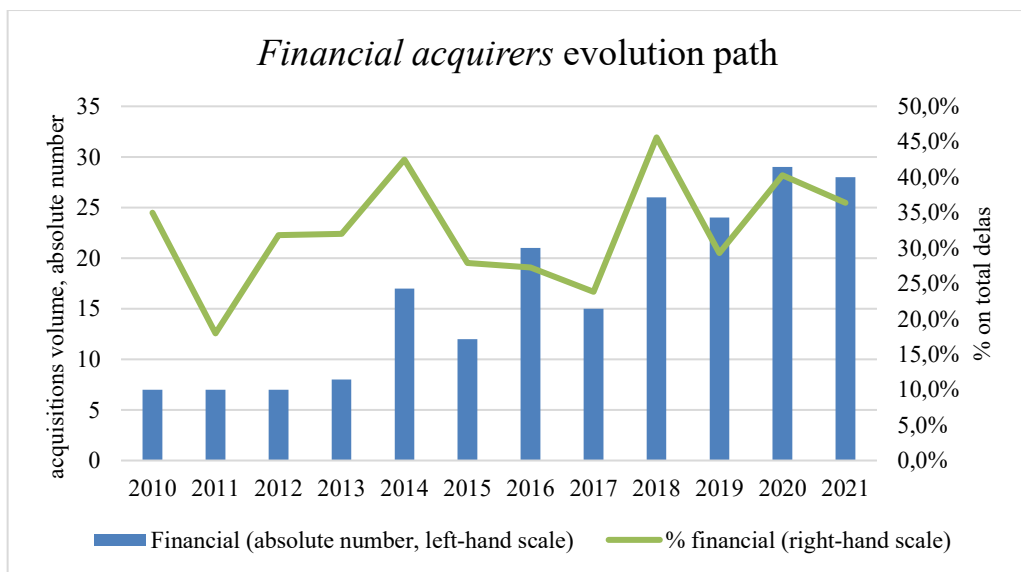
Figure 23, Financial acquirers evolution path 2010-2021, Data: Eikon database, Author Elaboration

Is interesting to see how the evolution of the number of deals performed by financial investors, that increased in the last years, fits with the percentage. As is shown in Figure 23, it varied during the years with highest values in 2014 and 2018, 42,5% and 45,6% respectively. This confirms the constant presence, and importance, of funds in the reality of the food & beverage sector.

2.5 Domestic vs Foreign acquirer

New communications technologies and Internet fast development contributed to facilitate countries' interconnections and information flow across the world, allowing for more companies to become global (Hitt et al., 2006). Being part of an ever-growing global world, *internationalization* has become a priority for firms which want to remain competitive in the market, to easier face challenges such as the digital transformation, and to be more resilient (Murtas, 2022). Such considerations also hold for Italian corporations that want to enter new markets to reach new class of customers beating the barriers related to their limitations (i.e., small dimensions). This said, we have that a target can be bought by a company established in the same country (*domestic*) or by a company with headquarter in another country that decide to implement a cross-border acquisition strategy (*foreign*).

2.5.1 The Domestic acquirer

Even if cross-border mergers and acquisitions are becoming more common, domestic operations maintain the leadership, both in terms of volume and value (KPMG, 2022). Globally speaking, in 2021, domestic acquisitions showed a 36% increase in value and a 27% increase in volume (Figure 24).
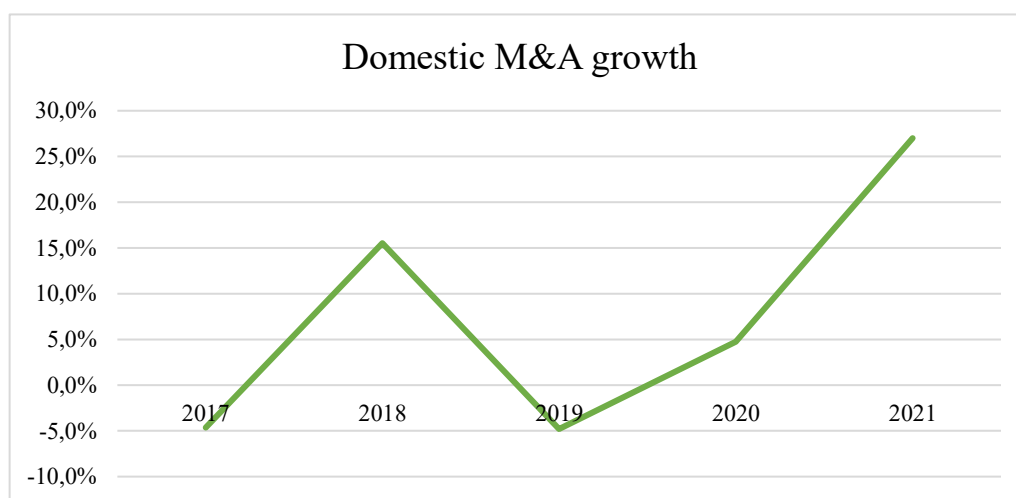
Figure 24, Global domestic M&A growth, Data: KPMG reports, Author Elaboration

As we can see in Figure 25, Americas lead in terms of volume of domestic transactions completed. By the way, over the last years, growth is especially towed by domestic acquisitions implemented in Africa and Middle East, which showed a 1.114% (from 7 to 85) between 2016 and 2020. For the same period, also European domestic acquisitions improved by 19 percentage points.
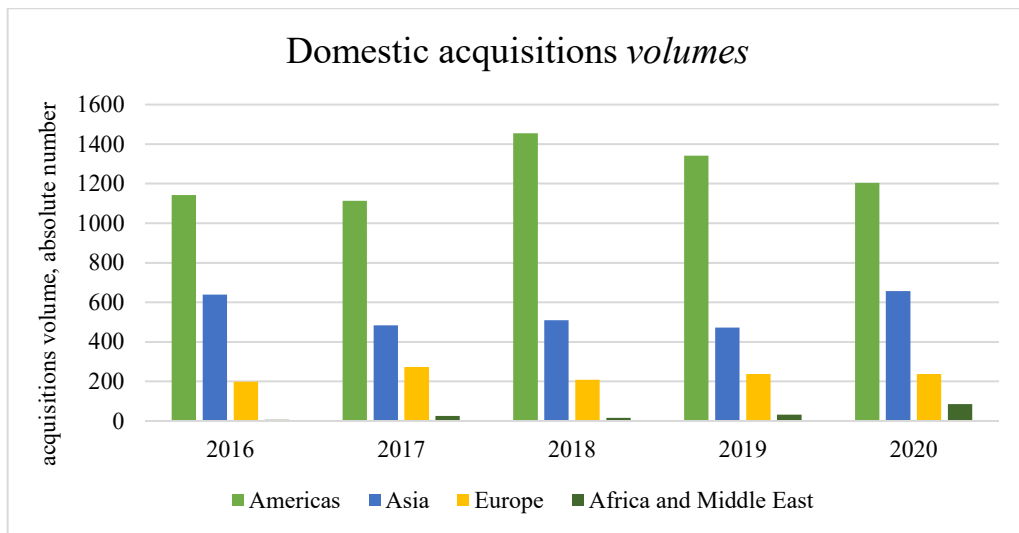
Figure 25, Global domestic acquisitions volume, Data: KPMG reports, Author Elaboration

Italian market follows the Global path. Domestic operations counted for the 52,2% (634 out of 1.214 deals) in year 2021 and following the increase in total number of M&A deals, they showed a 61,7% growth from 2017 to 2021. Figure 26 shows the evolution in numbers of transactions performed and the respective growth path in terms of values. In 2021, domestic transactions were worth 25,9 billion euros, coming back to 2016 values.
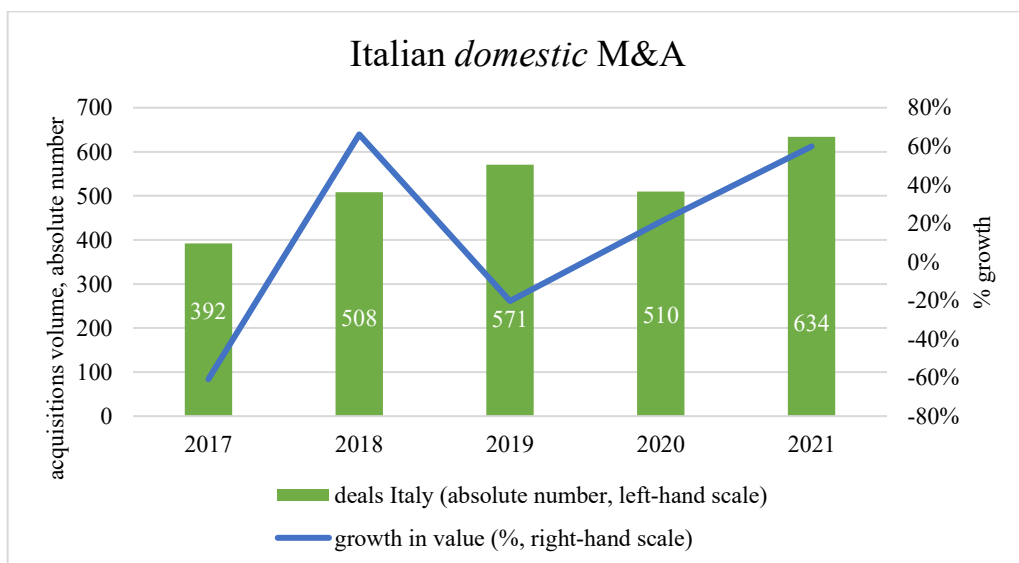
Figure 26, Italian domestic M&A evolution, Data: KPMG reports, Author Elaboration

From a buyer's perspective, being it strategic or financial, investing in a corporation established in the same country can provide some advantages. In a first place the geographical distance has an impact on the time to completion of the deal. In case of small targets, the biggest the distance from the buyer, the longest the time to completion (Bick et al., 2017). Being the two in the same country, there is no geographical distance, so this variable will not affect the outcome.

A second one relates to the theme of cultural distance between two countries presented by Hofstede (1980), and then redesigned as a formula by Kogut and Singh (1988). According to the formula, the highest the value of cultural distance, the difficult the integration. It is easily understandable that, if the corporations are established in the same nation, the problem of cultural distance simply does not exist.

Together with the dimensions explored by Bick (2017) and Hofstede (1980), additional considerations can be made about domestic acquirer's potential advantages. For example, in a domestic transaction, additional problems such as the difference in language, in companies' organization, and in legislation are not present.

First, being able to dialogue in native language allows both the acquirer and the seller to communicate and reduces the likely of misunderstandings due to different way of thinking, different terminology, and different ways of interacting. Indeed, according to Kedia and Reddy (2016) *linguistic distance* have an impact on the post-acquisition performance of companies involved, partially moderated by the acquiring firm capabilities in performing M&As (i.e., prior experience). In a second place, same country corporations share organizational structure and habits, and this allows for faster integration. And finally, being part of the same legislation, there are no problems related to the understanding of rules dealing with corporate issues. In fact, the acquirer is knowledgeable about legislative matter, both for its own and for the seller. Coming from the same country, the domestic acquirer does not need to learn how to deal with "new economic, legal, administrative, and cultural environments" (Bertrand and Betschinger, 2012).

These considerations suggest that the integration process of corporations belonging to the same country should be easier and faster. That said we can hypothesize an immediately positive post-acquisitions performance for those companies bought by domestic investors compared to the ones bought by foreign acquirers who need to integrate more *distant* (geographically and culturally) companies.

2.5.2 The Foreign acquirer

Going back to what we said some pages before about the globalized world, it is the premise to understand why in the last decade cross-border investments became more and more frequent. Despite this, globally speaking, these last years were not so positive in terms of foreign activity, mainly due to pandemic restrictions. As we can see in Figure 27, in terms of volume the number of cross-border transactions decreased and as stated by KPMG, the same holds for values. The two-year period of 2019 and 2020 was the worst one, with a degrowth of 22% and 15%

respectively. Conversely, actually the trend seems to reverse. In 2021, despite the still in vigor pandemic restrictions and the actual geo-political situation, the cross-border activity showed an 80% improvement in terms of values and a 47 percentage points increase in terms of volumes (KPMG, 2022).
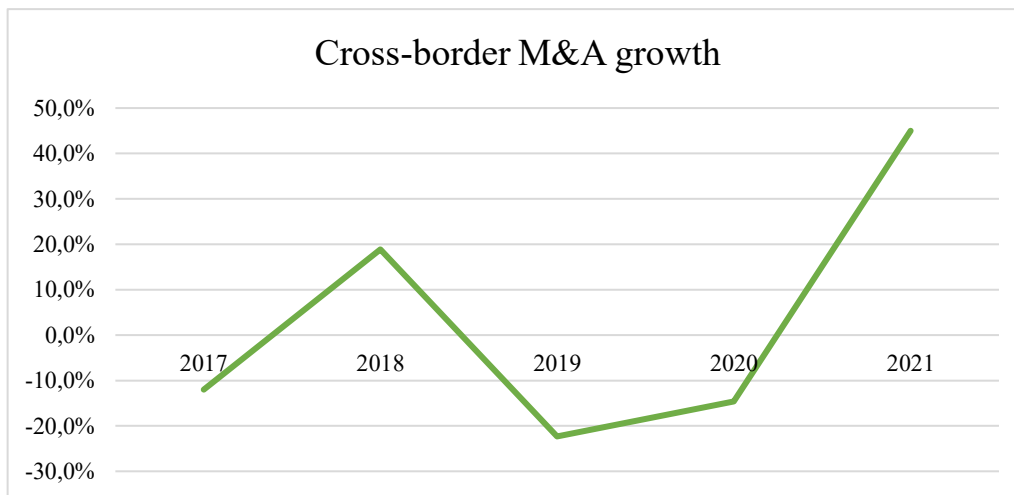
Figure 27, Global cross-border M&A growth, Data: KPMG reports, Author Elaboration

As we can see in Figure 28, this last year the percentage of foreign investments compared to domestic one increased, in terms of value, from 39% of total deals in 2020 to 46%.
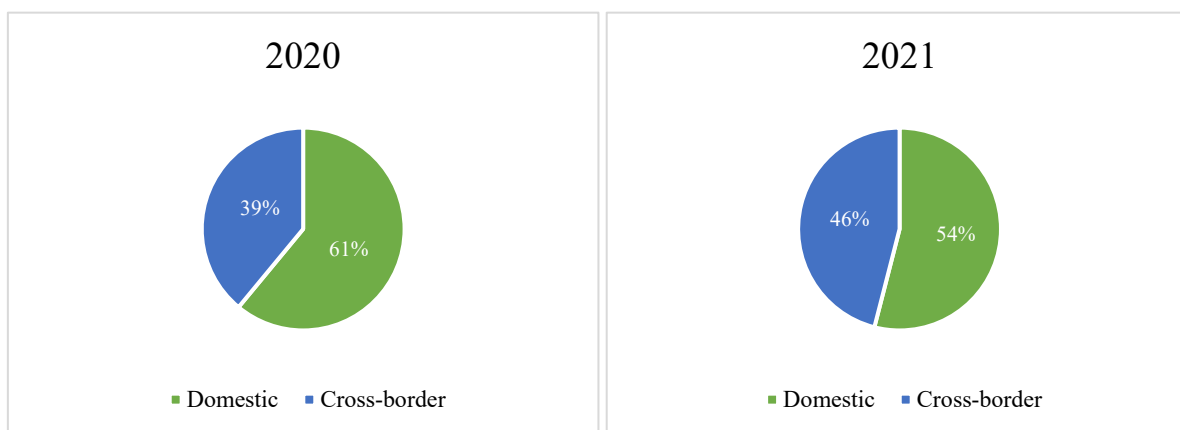
Figure 28, Cross-border and domestic investments contribution to total deals (values), Data: KPMG reports, Author Elaboration

Italian market matched global trends. After two years of "stop", cross-border operations, both -IN and -OUT, started to improve again reaching 74,5 billion euros in values, a 169% improvement compared to the 27,7 billion euros of 2020 (KPMG, 2022). Figure 29 highlights the ongoing interest for Italian firms confirmed by the increased volume of cross-border IN operations, which present a 38% improvement between 2017 and 2021, compared to a 34% improvement for the same period for the cross-border OUT.
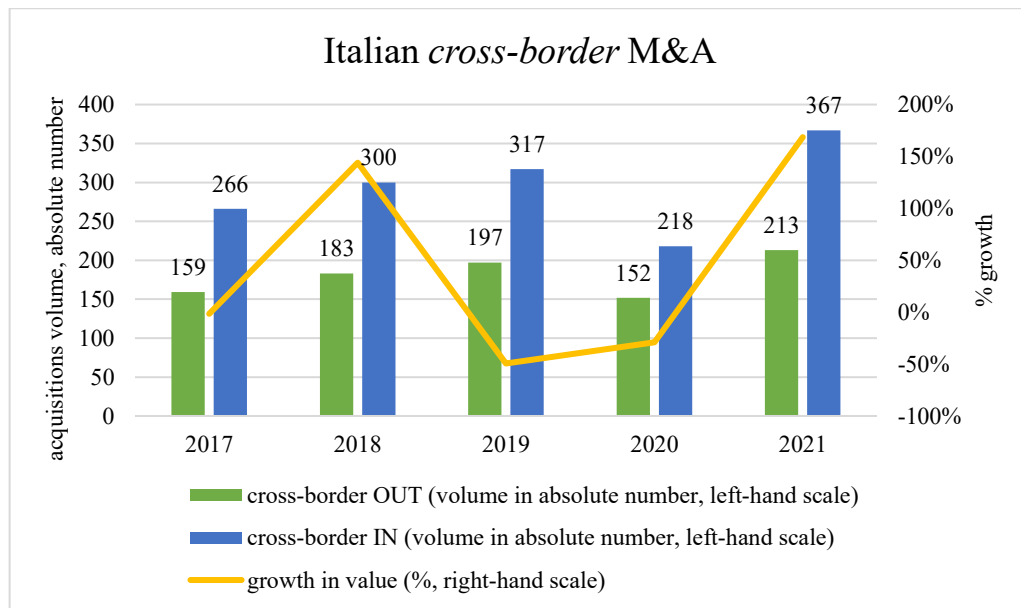
Figure 29, Italian cross-border M&A evolution, Data: KPMG reports, Author Elaboration

The advantages we have identified for domestic acquisitions, can be seen as the limitations for the cross-border ones. But this seems not to be always true. As most of the time, the operation's success depends on different contingencies. Johanson and Vahlne (1977) argued that entering first culturally closer countries will strengthen internationalization strategy and ease the following acquisitions in *more distant* nations. Being knowledgeable increases the probability of a positive outcome for firms going global (Hitt et al., 2006). In addition, Stahl and Voigt (2008) discovered that the effects of cultural distance on the acquisition outcome could be positive or negative according to different variables such as the degree of relatedness of the companies and the values of the different cultural distance dimensions.

By the way it remains true that the largest the geographic distance, the slower the integration process (Bick et al., 2017). Since the literature is giving different outcomes, it is difficult to hypothesize how a foreign acquired corporation will behave after the transactions. We are going to analyze in the last chapter of this thesis together with the other considerations we have already made.

2.6 Trend in the Italian food & beverage sector: domestic and foreign

As we said, during the year 2021 Italy has seen more acquisitions from domestic investors rather than foreign ones, and this is true also for the *Retail & Consumer Market* category, of which the food & beverage sector is part. In 2021, foreign transactions completed were 119 for a total value of 3,9 billion, increased compared to 2020 levels both in terms of numbers and values. Domestic ones were 222 and their total value amounted to almost 6 billion (KPMG,

2022). The food & beverage industry experienced the same trends, total number of transactions performed increased with respect to 2020, and also both domestic and foreign investors did.

Considering our database from Eikon[12] for the period 2010-2021, this time we analyze the acquirers' characteristics from a geographical origin perspective. Figure 30 represents the evolution of investors in the food & beverage industry according to where they have the headquarter.
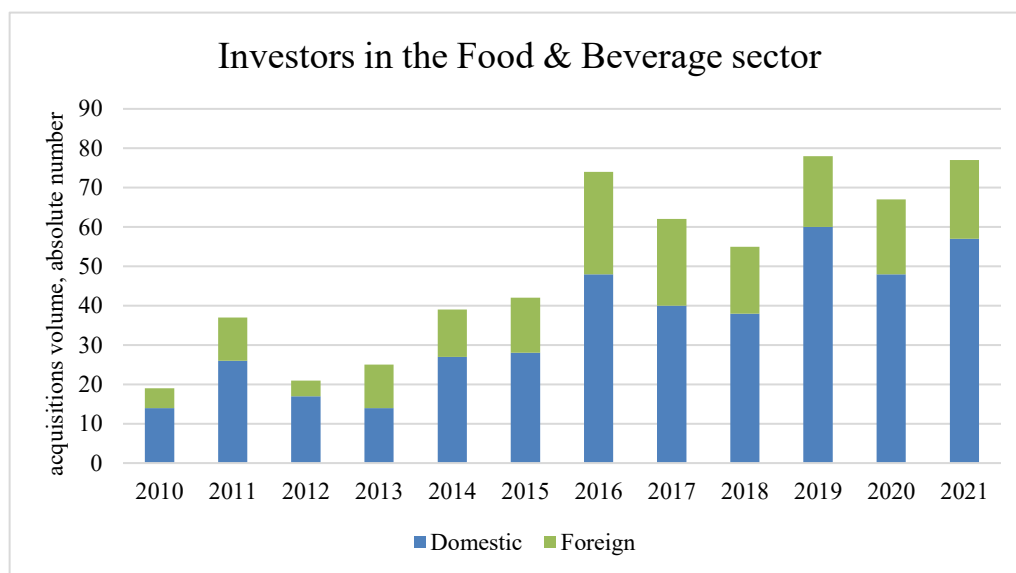
Figure 30, Investors (in absolute number) according to their origin 2010-2021, Data: Eikon database, Author Elaboration

As for the entirety of the Italian market, also for the food & beverage sector is true that domestic acquirers are the vast majority. Across the period that goes from January 2010 to December 2021, the average percentage of acquisitions completed by Italian acquirers was the 67,4% compared to the 29,2% of foreign ones (Figure 31). Also here, we highlight that there is a small percentage, equal to 3,4 (average value) of M&A deals for which the acquisition process is not still completed, that's why the Italian and foreign percentages do not sum to 100.

Despite what we have just said, the improvement in the number of foreign investors outperformed the one in the number of domestic ones. In the last 10 years (2012-2021), transactions performed by buyers coming from abroad increased by 400% compared to the 235% increase in the Italian deals.

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[12] We remind that the database includes transactions occurred in the Italian food & beverage sector between the years 2010 and 2021. We find transactions performed by different type of acquirers: strategic and financial together with domestic and foreign.
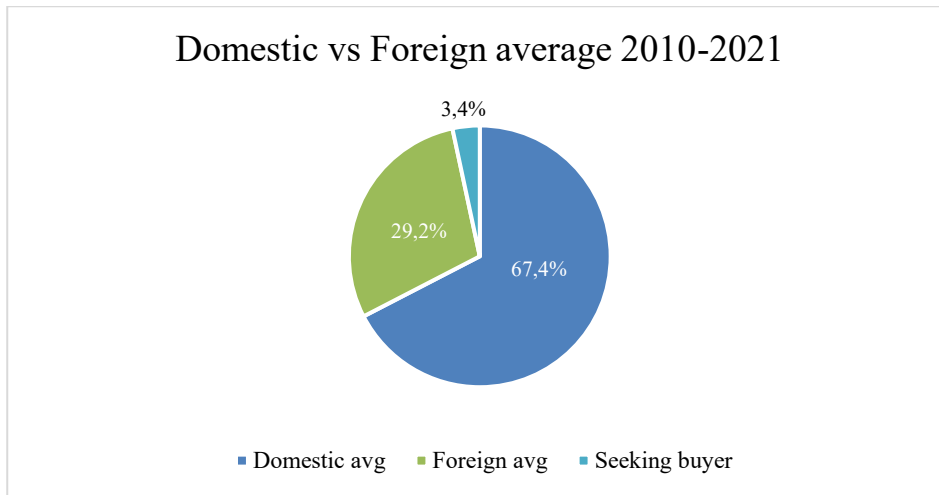
Figure 31, Average acquisitions performed by domestic and foreign investors 2010-2021, Data: Eikon database, Author Elaboration

Having a look at foreign acquirers, as we can see in Figure 32, their evolution path has been everything but constant, making it difficult to construct a trend. Anyway, acquisitions completed by non-Italian investors present a CAGR of 13,4% for the years 2010 to 2021 considered with a peak of 44% of total transactions closed in 2013. According to this evidence, we can confirm that there is an interest for Italian targets from non-Italian corporations which seems to restart increasing since a couple of years.

Most interested investors are the ones coming from developed economies. With major buyers (in terms of number of acquisitions) coming from France, United States, and Luxembourg. In fact, among the 190 non-Italian acquisitions occurred over the last twelve years only the 6,8% has been performed by corporations originating from emerging economies (i.e., China, Russia, and Brazil).
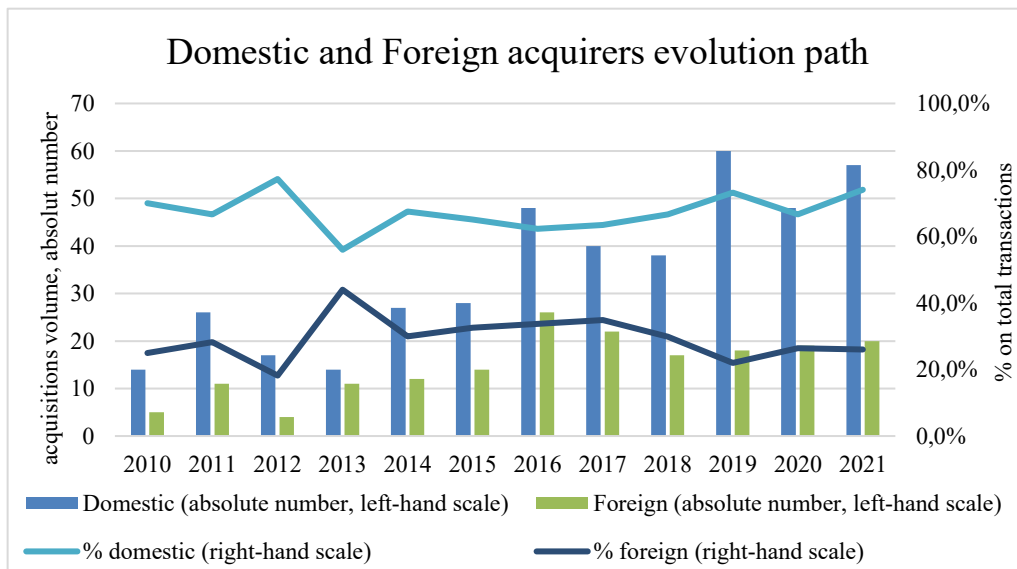
Figure 32, Domestic and Foreign acquirers in F&B sector 2010-2021, Data: Eikon database, Author Elaboration

To have a look to the last numbers, as of May 2022, among the 34 transactions completed, 11 were from foreign firms corresponding to a 32,4%. This confirms the Italian trend which is supposed to increase now that the restrictions from the pandemic will start to slowly fade (KPMG, 2022).

2.7 Conclusions

In this chapter we have analyzed the different type of acquirers of an M&A deal presenting a picture of the global and Italian features. Both globally and in Italy, we have pointed out an increase in the number of private equity investors in 2021 and, focusing on our country, an ongoing interest from foreign buyers for Italian corporations. Focusing then our attention on the Italian agro-industrial business, between 2010 and 2021 a total number of 133 transactions has been performed by Italian financial funds and 61 by foreign financial fund, showing in 2021 a number of acquisitions 1,5 to 5 times bigger compared to 2010, respectively.

As we have just said, the increase in total number of transactions performed, goes together with the increase in presence of financial acquirers, emphasizing the importance of this kind of investors in the panoramic of the whole sector. Being in presence of both strategic and financial acquirers it can be of particular interest to analyze their impact on the acquired corporations' performance. This to see, for example, the different implications for a company in case of an acquisition by a financial fund instead of an operating company.

Even if the vast majority of the deals performed in the last 10 years was from Italian corporations, looking at the different acquirers in terms of origin, we have seen that the years 2020-2021 presented an increase in absolute numbers and a stability in the percentage of foreign buyers on the entirety of investors in the sector. The food & beverage sector is one of the excellences of the Made in Italy and it is a sector anchored to Italian tradition and culture, for these reasons having knowledge about them is of fundamental importance for potential investors.

Along the chapter we have discussed features of different acquirers highlighting in which way they differ and how this could have an impact on the acquired companies. For example, we have discussed about the geographical and cultural distance themes. Because of the same culture, the same shared values, and the same practices, we should hypothesize that being acquired by an Italian corporation would guarantee a better outcome compared to an acquisition by a foreign one that has to overcome distance issues. On the other hand, we have seen that by being in the business of making acquisitions, financial investors could complete a transaction

faster compared to strategic buyers. By the way, no evidence has still been presented, so it could be of particular relevance to verify if and in which circumstances a type of acquirer outperformed another one. In the next chapter we are going to sum up literature and results about this theme with the aim of moving to the core subject of the thesis: the effect of different investors on the Italian food & beverage targets.

CHAPTER 3 – Prevalent literature on M&As' impact and scope of our analysis

Starting from now, we move into the core of the subject of this thesis: the impact of M&As on target companies' post-acquisition performance. Up to now results have been mixed, some ended up saying that performance improved after the sale to another entity, some other ended up saying the opposite. For this reason, in the first part of this third chapter we sum up the literature that has been written in the past about the impact of mergers and acquisitions. In particular, we analyze the effects of acquisitions on targets' performance, then we have a look at the foreign acquirers and its impact, and also at the financial buyer and its effects. This first part is concluded presenting the results obtained in the papers considered.

Moving from the relevant literature to the effects of M&As on Italian targets active in the food & beverage sector, in the second part of the chapter we talk about the sample selection and the hypotheses construction. In a first place, we describe how we constructed the database starting from the information provided by Eikon and Orbis, and how we got the final sample that we are going to use for the analysis. Then, we focus on describing descriptive statistics of this sample to get a first insight on what could be the effect on targets according to the buyer we are considering. In fact, we describe more samples according to the different type of investor: a sample including all companies acquired (independent from which type of investor), a sample including only those firms acquired by domestic investors, one with foreign investors only, a sample with firms acquired by strategic buyers, and one of companies acquired by financial investors. Starting from these first findings the last part of the chapter covers the hypotheses identification.

3.1 Literature review

First article dealing with the impact of acquisitions on the entities involved' performance goes back to at least 50 years ago when a paper highlighted the importance of planning when implementing an acquisition strategy (Ansoff et al, 1970). From that moment on, increasing number of studies has been developed about the subject, with different focus, measures of interest (i.e., profitability, efficiency), and results. According to the previous studies, we point out that we took into consideration only studies that dealt with *accounting-based* measures. The reasons why we focus on these measures coincide with two of the motives exposed by Thanos and Papadakis (2012). In a first place, *accounting-based* measure allow to objectively observe the realized performance as presented in firm's statements. So, they are something that is not subject to interpretation and not debatable. The second reason relates to the ability of

accounting-based measures to express the performance in terms of profitability, efficiency, and growth permitting the analysis of the intersection among the variables and their evolution over time (i.e., before and after the acquisition; among different corporations). When at first the effects of M&As appeared in papers, the main focus was on the performance of the acquiring firm (Thanos and Papadakis, 2012), mainly because of the lack of information about target firms that were, principally, small private enterprises. With time, also the perspective of the acquired companies has been included, highlighting the importance of having a view of the overall impact of mergers and acquisitions.

The objective of this paragraph is to review the extant literature grouping it according to the specifics discussed in each paper we considered with the aim of getting insights on what has already been discussed, with which conclusions, and on possible gaps that could be studied in the future. First, we sum up the articles dividing them by macro subject: impact of M&As broadly speaking, impact of foreign acquirer vs domestic owner, and impact of financial vs strategic investor. Then, to the presentation of the subject and the methodology used, results obtained will follow.

3.1.1 M&As' impact literature

Main subject of M&A studies concerned the effect of extraordinary operations broadly speaking, with some papers focusing on a particular sector (i.e., Russian retail sector in the study of Lorentz et al (2006)). Mergers and acquisitions transactions can be of two types: horizontal and vertical. In case of horizontal acquisitions, a firm invests in another one that is active at the same level of the value chain. On the other hand, when talking about vertical acquisitions, a corporation buys another one which is active at other levels of the value chain (i.e., a supplier, a distributor) (Tarver, 2022). Up to 2010, according to Thanos and Papadakis (2012) 36 articles have been written since 1970 about the topic of horizontal mergers and acquisitions. For the last twelve years (2011-2022) we looked for articles that have been published on the theme of M&As impact. Following the methodology of the authors we filtered on Web of Science all the literature that presented in the title or in the abstract the following words: merger(s), acquisition(s), accounting-based measure(s), and acquisition impact. From the list of articles we obtained, for results summary we only considered those papers that analyzed the effect of acquisitions on both the acquired and the acquiring or the acquired company only. As we can see in Figure 33 the interest for the topic seems to persist and it is growing.
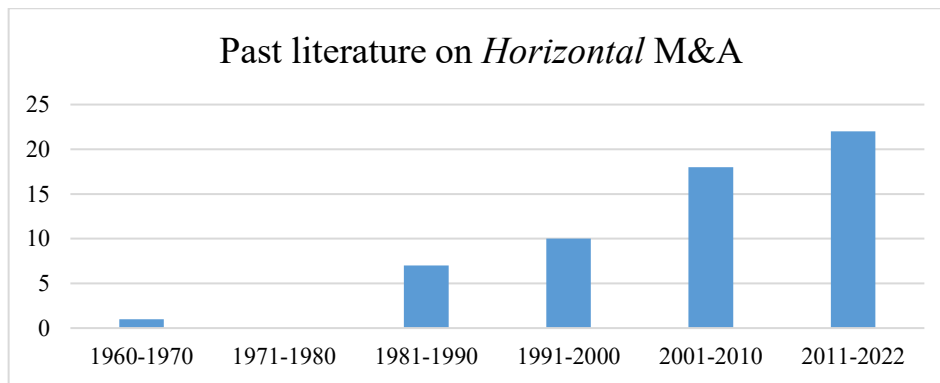
Figure 33, Number of papers regarding M&As' impact from 1970 to 2022, Data: Thanos and Papadakis (2012) and Web of Science, Author Elaboration

As we mentioned, first paper was the one by Ansoff (1970) with focus on the fundamental role of planning for acquiring corporations. To that one, we needed to wait 15 years to get another study on the issue given that the decade between 1970 and 1980 was characterized by zero articles concerning M&A transactions. In 1985 the subject came back to scientific studies with the paper by Kusewitt that analyzed the factors which characterize an acquisition strategy (i.e., size, timing, acquisition paid) that can have an impact on the post-acquisition performance. In the same year also Lamont and Anderson include the mergers and acquisitions' effect in their study.

All the literature produced until 1990 concerned only acquiring corporations' performance. The first paper that considered also the acquired entity was written in 1991 and analyzed the realization of synergies for the merged entity through ROA evolution (Harrison et al., 1991). In that case the aim was to study profitability path conditioned by an M&A operation. From that moment, the 60% of the articles that have been published until 2022 included the target firm in the analysis with results concerning only it, or it and the buyer (Figure 34).
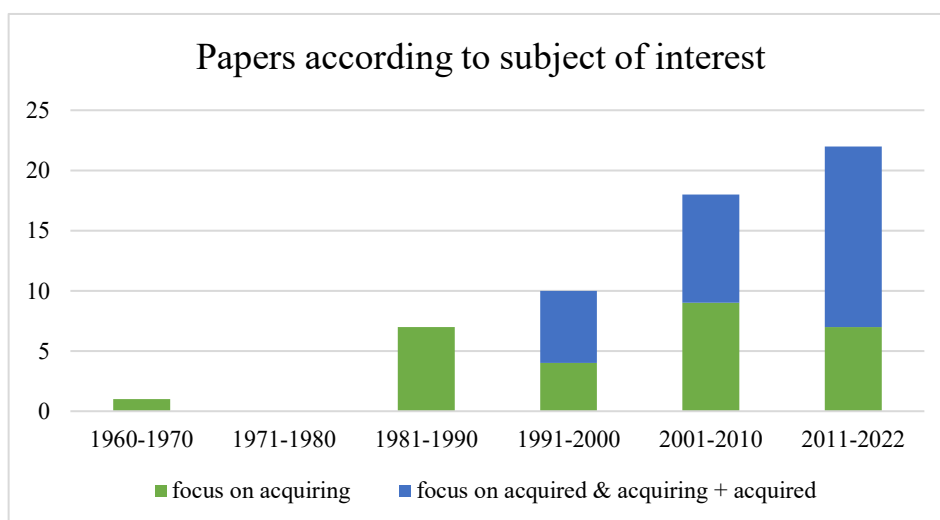
Figure 34, Number of papers divided by focus, Data: Thanos and Papadakis (2012) and Web of Science, Author Elaboration

Since our focus is on the entity sold, these are the searches that interested us the most. For the first time, with Ramaswamy (1997), a sector analysis had the target company's performance as main focus. He studied the banking sector and the different evolution of acquired corporations in situation in which the acquiring bank was a similar financial institution or a dissimilar one. Across the years authors tried to get insights on specific sectors of the economy, posing further attention on the importance of the theme. We are going to follow the same idea in our analysis on the food & beverage industry with the aim of getting results that can be extended to the Italian economy as a whole. In 1997, Krishnan brought the attention on the complementarity of the top management teams of the entities involved and its effects on the post-acquisition performance (Krishnan et al., 1997). Following this study, further searches on the impact of CEO change were published, and the theme was developed particularly by Krug (Krug and Nigh, 1998; Krug et al., 2014). The possibility of analyzing the top management turnover due to mergers and acquisitions can help identify in which way it contributes to the integration phase's success or failure.

In 1998 Hitt went deep on the reasons why some acquisitions presented highly favorable outcomes while others highly unfavorable outcomes (Hitt et al., 1998) allowing for an overview of US acquisitions market in the decade 1970-1980. Going back to the importance of sectors' studies, additional insights on US M&A were given by an analysis published by Krishnan five years later about the consolidation of US hospitality sector (Krishnan R. A. and Krishnan H., 2003) and the performance of acquired hospitals.

According to Thanos and Papadakis (2012) research, the years 2000 to 2010 were the ones with the major number of publications about M&A (16 out of 36 spread across 5 decades). To name a few among the studies which concerns specific countries, we remember the insights on the Greek (Papadakis and Thanos, 2010) and Hong Kong (Cheng and Leung, 2004) economy, in addition to the US market analysis. The fact that the majority of publications happened during the last 20 years, puts further focus on the relevance of carrying on this type of research which seems to be an actual and active field of research.

After the publication by Thanos and Papadakis (2012) additional literature has been published about the impact of M&As on performance. In fact, moving to more recent years, focus has been more on acquiring and acquired companies or on target firms only. Some authors studied the effects of M&As on particular countries (Dokukina, 2013; Pervan et al., 2015; Rao-Nicholson et al., 2016; Khotbi, 2018; Fees et al., 2021; Pazarskis et al., 2021; Aggarwal and Garg, 2022), some others as Borodin et al. (2020) and Rani et al. (2020) analyzed the impact

on targets active on broader regions (i.e., Europe and US, Asia). In addition, literature has been written about the critical success factors in the pre- and post-acquisition phase (Gomes et al., 2013, Bodner and Capron, 2018), about the long-term survival (Thompson and Kim, 2020), but especially a lot of papers concerning cross-border M&As have been published.

3.1.2 Cross-border M&As' impact literature

As we have seen in the second chapter, an important phenomenon that has become more and more common, is the one concerning cross-border mergers and acquisitions. Coherently with the increase in the number of operations performed by foreign investors, literature started dealing with the consequences of this type of transactions on the post-acquisition performance in comparison to companies which remained domestic. One of the first articles that dealt with this subject was signed by Li and Guisinger in 1991 and concerned the long-term survival of foreign acquired corporations in the US (Li and Guisinger, 1991).

Of particular interest, in the field of cross-border M&A is the concept of *distance*, both culturally and geographically speaking, and its impact on companies' performance. About this, different papers have been published. Here we mentioned first research by Morosini, Shane, and Singh that studied the impact of national cultural distance (formula by Kogut and Singh was used) on the growth in sales of the acquired firm (Morosini et al., 1998). Additional insights to the theme of cultural distance were given by Stahl and Voigt, that verified its impact on synergies realization (tested with ROA) and some other qualitative and quantitative variables (i.e., sociocultural integration, shareholder value) (Stahl and Voigt, 2008). More recently, to the concept of cultural distance, the one of geographic distance was added by Bick. By the way in this work the focus was not on the post-performance, but on the acquisition phase itself (Bick et al., 2017). The importance of the *distance* theme relates to the awareness that results can provide. Being conscious of the impact of the distance can help corporations to decide which strategy to follow when internationalize.

The concept of *nation* is also of big importance in the field of foreign investment, and multiple studies have been conducted about specific countries and the effects of "the foreign buyer" on their companies. First in the United Kingdom, that has been in first place the subject of research by Conyon about the effect of cross-border acquisitions on wages, employment, and labor productivity (Conyon et al., 2002). To this, additional searches on productivity were made (Harris and Robinson, 2003; Schiffbauer et al., 2017). Second to be analyzed was the Chinese market. It has also been studied more than once. Initially in 2002 when Buckley, Clegg, and Wang analyzed the effect on labor productivity of the inward foreign investments (Buckley et

al., 2002). China was further examined in the following years in terms of productivity again (Liu et al., 2017; Chen et al., 2017), but also investments (Liu et al., 2017; Chen et al., 2017) and profitability (Chang et al. 2013). Among the studies on multiple other countries, we highlight the ones on the Italian market. Italian market is considered of particular interest because of its level of fragmentation (so called *small business economy*) and its perceived hostility toward foreign investors (Campagnolo and Vincenti, 2022). Our study will be focused on Italian economy as well, for the same reasons stated by the authors, plus the ones we exposed in Chapter 1 when we talked about the food & beverage sector attractiveness, which is the center of this thesis.

In 2005 was first analyzed the effect of cross-border acquisition on the labor productivity (Piscitello and Rabbiosi, 2005; Benfratello and Sembenelli, 2006), then studies on growth, size (ICE and Prometeia, 2014; Bentivogli and Mirenda, 2017; Barbaresco, Matarazzo, and Resciniti, 2018; Campagnolo and Vincenti, 2022), profitability, and efficiencies followed (Bentivogli and Mirenda, 2017; Barbaresco, Matarazzo, and Resciniti, 2018; Campagnolo and Vincenti, 2022).

As we said at the beginning of the chapter, we focus on papers which dealt with *accounting-based* measures. Each research focused, at least, on one measure, but it is more likely that the analysis was extended to more than one variable, in particular to get insights on how the different measures react to the same event (the foreign acquisition). To have a look to the most used variables, we consider data presented in the study made by Campagnolo and Vincenti (2022), where a panoramic on 27 studies that dealt with cross-border M&A is presented. Together with that, a table which exposed the different variables analyzed in each paper is shown (Figure 35).
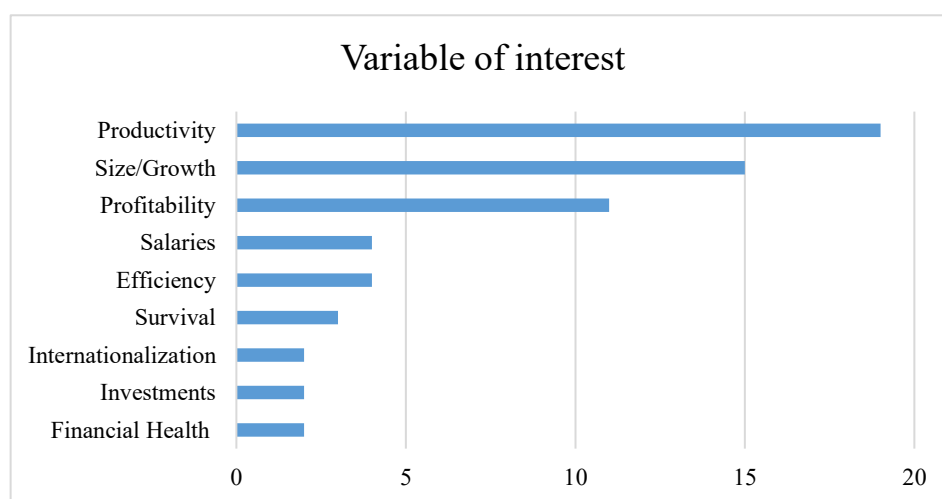
Figure 35, Variable of interest in 27 studies objects of analysis, Data: Campagnolo and Vincenti (2022), Author Elaboration

As we can observe the most studied variable has been productivity that appeared 19 times out of 62 (31% of studies). In particular, inside the productivity variable, labor productivity has been the focus of 11 of the 19 studies together with the total factor productivity (TFP) that complemented it appearing in the remaining 8 searches.

3.1.3 Financial M&As' impact literature

We have seen in Chapter 2 that financial acquirers are becoming more present in the buyers' scenario compared to 5 years ago, with increase both in number and value of investments performed. Despite this *position improvement*, not so much literature has been written about the effect of an acquisition performed by a financial investor compared to a one performed by a strategic acquirer.

One of the first study presented on the subject goes back to 1995 when Phan and Hill published an analysis on post-performance in leveraged buyouts (LBOs) (Phan and Hill, 1995). Together with EBIT, used as variable to measure performance, they also implemented a qualitative analysis on strategy and structure of acquired firm. Only two years later a more specific study was published, but the main focus was on the profitability of the acquiring corporations measured by shareholders' return (Healy et al., 1997).

Moving to more recent years, the study performed by Fidrmuc et al. (2012) gave a new perspective in the field of acquirers' analysis. Instead of valuing the post-acquisition performance itself, the authors started by identifying which selling process the target chooses. By the choice of the process (i.e., controlled sale vs negotiation), the kind of investor follows (strategic vs financial). The study then sees the performance as a consequence of these two events. According to Gemson (2021), the two kind of acquirers have different goals and look for different kind of targets, so we can hypothesize this is the reason why not much literature exists about their impact on acquired corporations. By the way, all the studies that were done up to that moment could be of some importance for acquiring corporations, but not for target ones, identifying a gap in the subject analyzed.

A concrete insight on the effects of financial acquirers is given by the most recent study by Herrera-Echeverri, Nandy, and Fragua (2022). The authors analyzed how the exports evolved after a financial investment occurred. Their focus was on 22 OECD countries and 12 industries. In addition, they considered both the foreign and national financial buyers and divided the results according to the origin of the investor and also added country-specific factors. The

results (exposed in the following dedicated session), which can have policy implication, excluded endogeneity thanks to the use of instrumental variables (IV) technique.

The theme of the foreign and domestic financial investor was presented before by Humphery-Jenner, Sautner, and Suchard (2017). By the way, the focus of this study was, again, on the acquirer performance and their stock price evolution, not providing insight on target corporations.

As we have just seen, the literature about the effect of financial investors is poor and more focused on buyer performance, at the cost of acquired companies. This represents a gap that should be fulfilled with additional research on the theme that could give a better picture of the material impact of financial investors on targets' performance.

3.1.4 Previous literature results

Before to start talking about results obtained as of today, we want to further emphasize there is no results in which everyone agreed upon. As we show immediately after, not only each paper ended up with different conclusions, but even the same paper got different outcomes according to the variable under analysis. For this reason, we are going to consider all the variables of each study in presenting the results, and we will focus only on that studies that has the target corporation, or both the target and the acquiring corporations as center of attention.

From this moment on, we treated papers that analyzed multiple dimensions the following way

- We considered *positive* impact if the variable analyzed showed statistically significant improvement,

- We considered *negative* impact if the variable analyzed showed statistically significant deterioration,

- We considered *both positive and negative* if, for the same variable, the study obtained both the results (i.e., additional variables considered should explain the outcome).

So, if a paper presented the results about two variables where one improved and one deteriorated, we count one positive result and one negative result. On the other hand, if a paper presented both positive and negative outcome on the same variable, it is counted once as *both positive and* negative.

To be coherent with the structure of the paragraph we are going to show the outcomes following the same order of the papers' presentation and we will end up trying to sum everything that has been discovered.

Looking at the evidence from the papers we cited on the paragraph *3.1.1*, the overall result presents a mixed impact of M&A on target's performance (Figure 36). The most used variable in these papers has been Return On Assets (ROA), which benefits from being the best comparison among companies given that it is not affected by changes in capital (cf. ROE).
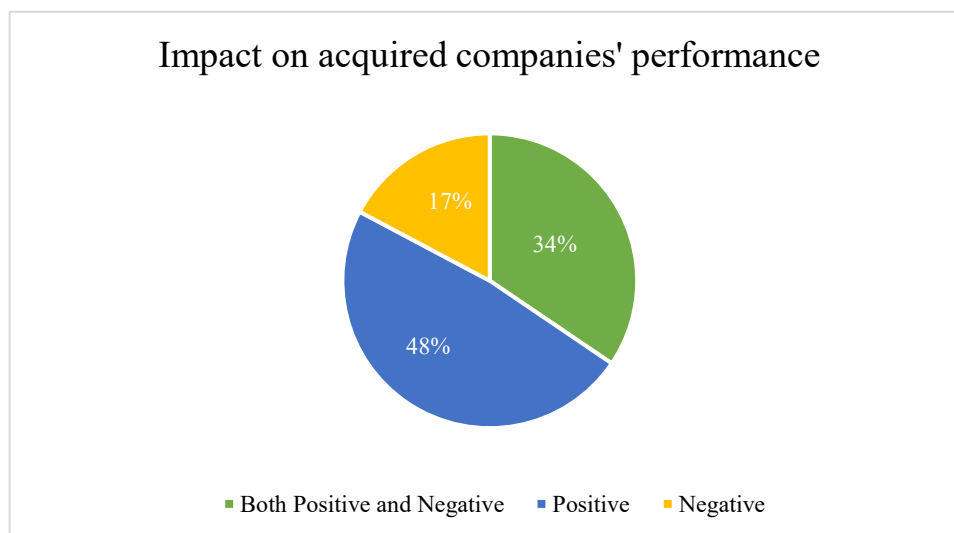
Figure 36, Impact of M&A on post-acquisition performance, Data: Thanos and Papadakis (2012) and Web of Science, Author Elaboration

Majority of the studies had a short-term horizon (i.e., effects 3 years after the transactions) and ended up having an increased ROA in the period that followed the acquisitions (Phan and Hill, 1995; Harrison et al., 1991). Other authors obtained differences in the ROA evolution because of additional variables considered. Krishnan (1997) discovered that if the acquisition was among two complementary companies, ROA increased, otherwise not significant improvements were observed. On the other hand, Ramaswamy (1997) that studied the specific of the banking sector, explained that according to her analysis the ROA increased if the transactions were among similar banks, if the two were dissimilar negative outcomes followed.

Studies that considered revenues and other type of measures, like the level of innovation, presented a negative impact of M&A on the growth of the acquired corporations (Phan and Hill, 1995; Stiebale and Reize, 2011), or again, mixed results according to additional variables. The study of Krishnan (2003) measured the effects splitting the acquisitions between *diversifying* and *not diversifying* and concluded that the increase in revenues is present only if the transaction is a *diversified* one.

Broadly speaking about M&A, we have highlighted the uncertainty in the results. Papadakis and Thanos (2010) examined the impact of M&A and found out that measures used to study the post-performance transaction were not statistically significant related. According to them, this could be one of the reasons why the literature about M&A obtained, across the years, different and sometimes contradictory results, explaining the results exposed above.

We move now to the analysis of the results in the cross-border M&A literature (paragraph *3.1.2*). As we said in the dedicated paragraph, to have a look to the most common variables, we use the data provided by Campagnolo and Vincenti (2022). On the same paper, it is possible to read the results of the literature considered (Figure 37).
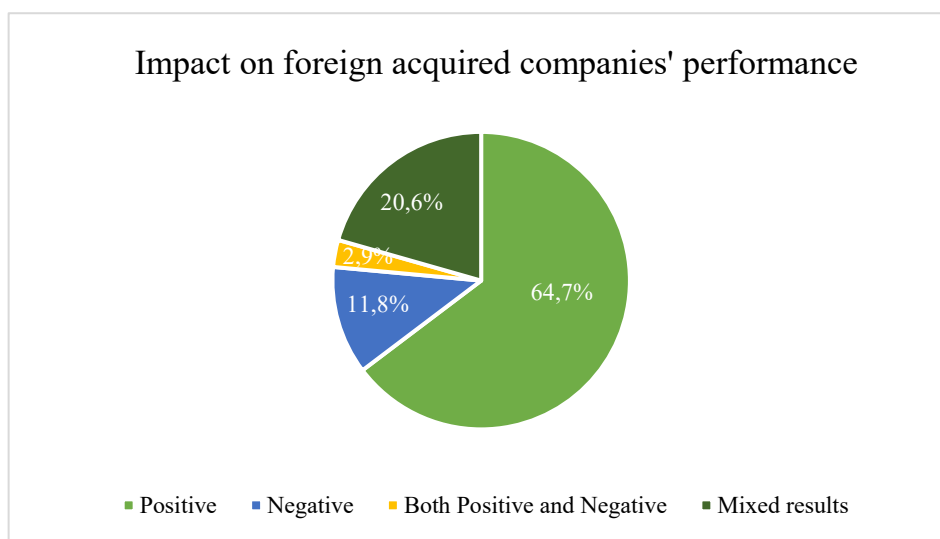
Figure 37, Impact of M&A on post-acquisition performance, Data: Campagnolo and Vincenti (2022), Author Elaboration

These results are aligned with the ones we exposed before. As shown, also here literature presented mixed outcomes. By the way, here, the majority of the papers highlighted a positive impact of the foreign acquirer compared to the domestic one.

Also here, the majority of papers studied more than one variable, ending up with multiple different results for the same study. On a sample of 28 articles (the ones in the authors' analysis plus their own), and a totality of 61 results obtained, the variable which the most experienced a positive income is productivity (14 positive results), followed by profitability (9 positive results) and size (8 positive results). The least studied variables were the ones which experienced only positive outcomes: financial health (Bentivogli and Mirenda, 2017; Chen et al., 2017), investments (Liu et al., 2017; Chen et al., 2017) and internationalization (Barbaresco et al., 2018). We highlight the small percentage of negative results only, which are a few compared to totality of results (4 out of 61).

Unfortunately, the lack of research on financial acquirers results in the lack of results about their effects on the companies they decide to invest in. Apart from the qualitative outcome that the best acquirer of a company depends on this last's characteristics (Fidrmuc et al., 2012), the only concrete outcome we got (standing to the paper we analyzed) comes from the study of Herrera-Echeverri, Nandy, and Fragua (2022). As we mentioned, they recently studied the evolution of exports that followed a transaction by financial investors. According to the authors, an improvement in the value of exports can be observed following an investment from financial funds, so also here, a positive impact. This effect is further increased by country-specific factors such as trade freedom. Table 2 helps us summing the overall studies about impact of acquisitions on targets' performance and presents opportunities to study fields that up to now have not been deepened. As we can see both financial health and investments level have been discussed very few compared to productivity and profitability, leaving the floor to possible future research to cover the gaps.

	AUTHORS	Prod.	Prof.	Size	Eff.	Sal.	Fin. H.	Inv.	Intern.	Surv.	Oth.
M&A	Papadakis and Thanos (2010); Harris and Robinson (2003); Krishnan et al. (2003; Hitt et al. (1998); H.A. Krishnan et al. (1997); Ramaswamy (1997); Phan, Hill (1995); Harrison et al. (1991), Correia et al. (2013); Pervan et al. (2015); Borodin et al. (2020); Rao-Nicholson (2016); Pazarskis et al. (2021); Rahman et al. (2016); Ringel and Choy (2017); Rani wt al. (2020); Fees et al. (2021); Méndez-Ortega and Teruel (2020); Zhang et al. (2018); Stiebale and Reize (2011); Ayoush et al. (2020)	**X** *(1)*	**X** *(17)*	**X** *(5)*	**X** *(1)*						**X** *(7)*
Cross-border M&A	Campagnolo and Vincenti (2022); Barbaresco, Matarazzo, and Resciniti (2018); Bentivogli and Mirenda (2017); Chen, Hua, and Boateng (2017); Liu, Lu, and Qiu (2017); Schiffbauer, Siedsclagb, and Ruane (2017); Damijan, Kostevc, and Rojec (2015); Buckley, Elia, and Kafouros (2014); ICE and Prometeia (2014); Siedschlag, Kaitila, Mcquinn, and Zhang (2014); Chang, Chung, and Moon (2013); Chen (2011); Feys and Manigart (2011); Arnold and Avorcik (2009); Chari, Chen, and Dominguez (2009); Kronborg and Thomsen (2009); Bertrand and Zitouna (2008); Salis (2008); Karpaty (2007); Benfratello and Sembenelli (2006); Fukao, Ito, Kwon, and Takizawa (2006); Piscitello and Rabbiosi (2005); Buckley, Clegg, and Wang (2002); Conyon, Girma,; Thompson, and Wright (2002); Mata and Portugal (2002); Li and Guisinger (1991).	**X** *(19)*	**X** *(11)*	**X** *(15)*	**X** *(4)*	**X** *(3)*	**X** *(2)*	**X** *(2)*	**X** *(2)*	**X** *(3)*	
Financial M&A	Herrera-Echeverri, Nandy, and Fragua (2022).								**X** *(1)*		

Table 2, N=93 results, Number of times each dimension has been studied, Data: Thanos and Papadakis (2013), Pervan et al. (2015), Borodin et al. (2020), Rao-Nicholson (2016), Campagnolo and Vincenti (2022) & Herrera-Echeverri, Nandy, and Fragua (2022), Author Elaboration

Stated this, we can sum up what we said in this paragraph in a bullet list that captures the main conclusions:

1. Most targets benefitted from acquisitions given the improvement in the performance after the transaction,

2. Focusing on cross-border transactions, the impact of foreign acquirer seems to be of greater value to targets compared to the domestic one,

3. Productivity and profitability, being the most studied variables, seem to be the ones benefitting more from the foreign acquisition,

4. Future research should focus on variables that up to today have not been in depth analyzed,

5. Given there is no literature about the impact of financial acquirer compared to the strategic one, it should be a possible field for future research.

3.2 Introduction to the analysis of the post-acquisition performance in the Italian food & beverage sector

Coherently with what has already been analyzed in the past and with the object of current studies, in this thesis, we are going to focus on the impact of mergers and acquisitions in the post-transaction performance of acquired companies. Main characteristic of our studies is that it is done at sector level. Starting from information about Italian food & beverage M&A market we will try to get insights about the different acquirers and their effects on targets.

As we said in Chapter 1, in the last decade more than 600 acquisitions have been performed which had, as target, an Italian company operating in the food & beverage industry. Best-performance year in terms of number of transactions completed was 2019. The pandemic followed, and this induce a slowdown in acquisitions' pace. By the way levels in 2021 recovered compared to prior year testifying an ongoing activity for the M&A market in this sector.

Once we constructed the database, in the fourth chapter we are going to study how the performance of acquired corporations operating in the Italian food & beverage sector evolved after transaction. First, we will verify whether acquisition, in general, improved, or deteriorated performance, according to different variables. Second, we will split acquirers among domestic and foreign to discover which of them performed better. And third, we are going to analyze the performance of target companies acquired by strategic and financial investors. But before going deep in the statistical methodologies we will use, and before running our analysis, we observe the statistical properties of the sample we constructed using Eikon and Orbis (BvD) databases.

3.2.1 Sample selection

Starting from the evidence emerged during database construction, we decided to study performance evolution of acquired companies according to buyer type. As we said, we group our targets based on the business (strategic or financial) of the acquiring firm and its origin (domestic or foreign). To decide which timeframe was the most suitable to study the effects on acquired firms, we went back to the literature we mentioned. Across studies, different time horizons have been considered in evaluating the impact of acquisitions. By the way no consensus has been reached about a proper period to analyze it (Thanos and Papadakis, 2012). We opted, according to other studies (i.e., Bentivogli and Mirenda, 2017), for a three-years period.

Given that Orbis database (BvD) provides companies' statements of 10 years ago at most, an analysis on the entire database, from 2010 to 2022, is not possible due to the lack of data we need. To fit this limitation, we reduce the sample of analysis to those companies that have been subject to acquisitions during the years from 2015 to 2018. Transactions performed during those years have been 233: 114 from Italian strategic buyers, 45 from foreign strategic buyers, 40 from Italian financial buyers, and 34 from foreign financial buyers. Summary of what we have just described is shown in Figure 38.
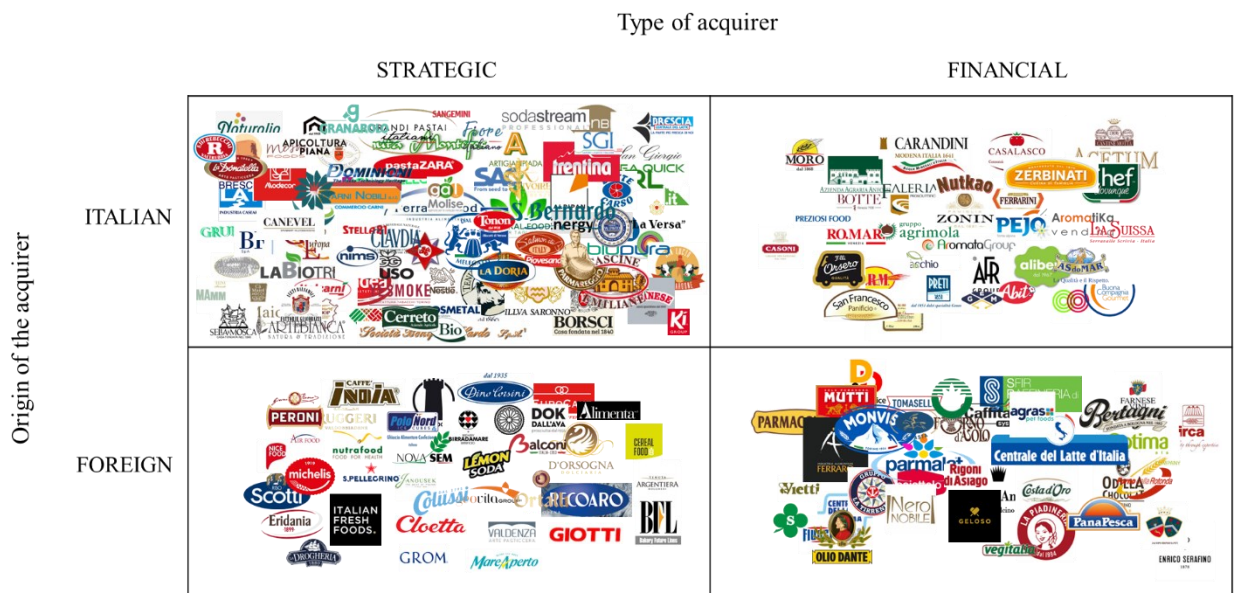
Figure 38, Targets acquired between 2015 and 2018 classified according to investor type, Data: Eikon database, Author Elaboration

We consider only firms that had financial statements available for both 3 years prior the acquisition, and 3 years after the acquisition, excluding the transaction's year (7-years consecutive financial statements in total). In addition, among those we need to select companies

not again acquired in the three years after the transaction occurred. Of those 233, only 94 provide the full disclosure we need. So, we start from this reduced sample of firms acquired between the years 2015-2018 for which we computed properties of three indicators: profitability (ROA), proxy for cash generation (EBITDA margin) and growth (revenues). As we can see in Figure 39, major number of M&A occurred in 2016 (39,4%), followed by 2017 with 23,4% of acquisitions completed, 2018 with 19,1%, and 2015 with 18,1%. Most of acquirers are Italian companies (56%) with the remaining 44% of investors coming from abroad.
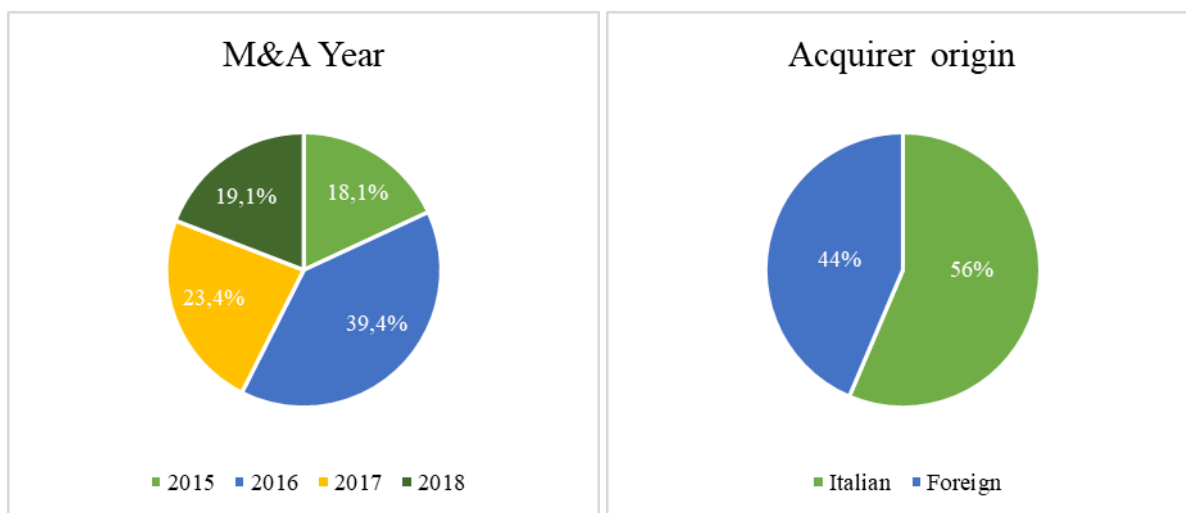
Figure 39, N=113, Treated companies sample characteristics, Data: Eikon database, Author Elaboration

Among the foreign buyers included in the sample, the most active ones were France (9 acquisitions between 2015 and 2018), Belgium, and United Kingdom, with 7 and 6 transactions respectively.

3.2.2 Statistical properties of the sample

To get an initial snapshot of sample properties, we can see in Table 3, that ROA seems to suffer from acquisitions that push it down from 6% to 3% on average. If profitability seems to decrease, on the other side, growth seems to increase. Revenues are 5,8% percentage point higher in the post-acquisition period. Indebtedness of target corporations seems to be higher once acquired, with post- levels 9,5% higher compared to pre- levels, on average. Further insights can be given if we add considerations about the other profitability measure: the EBITDA margin. As we can see from the table, margin appears to benefit from acquisitions that push it up from a negative average to a positive one.

thousand USD	Obs	Mean	Std. Dev.	Min.	Max.
ROA_pre	94	0,06	0,09	-0,37	0,30
ROA_post	94	0,03	0,09	-0,34	0,30
EBITDA_margin_pre	94	-0,10	1,82	-17,45	0,75
EBITDA_margin_post	94	0,07	0,25	-2,13	0,43
Debt_on_assets_pre	94	0,21	0,14	0,00	0,61
Debt_on_assets_post	94	0,23	0,17	0,00	0,91
Revenues_pre*	94	73.002	123.052	58,53	768.534
Revenues_post*	94	77.259	130.842	44,59	942.612

Table 3, Descriptive statistics of treated group with EBITDAmargin (unmatched), Data: Orbis database (BvD), Author Elaboration

What we exposed before allows us to get a picture of the overall impact of M&As on Italian targets active in the food & beverage industry. Acquisitions seems to speed up targets growth in the period that follows the transaction as the increase in revenues testifies. Coherently, debt on assets also increases, meaning that growth is, at least partially, financed through increase in indebtedness. By the way, even if targets' size increases, acquired firms seems to become less efficient following the acquisition. A decrease in profitability is in fact a symptom of a higher increase in costs than in revenues ending up with lower efficiency.

In the following paragraphs we observe also descriptive statistic of samples divided by type of investor, to end up making hypotheses useful for the analysis in the fourth chapter.

3.2.3 Focus on domestic, foreign, strategic, and financial investors

Since we want to also study the impact of different type of investors on target firms, we observe, in addition, statistical properties for smaller samples of domestic and foreign acquired companies together with properties of firms taken over by strategic and financial acquirers.

From the original sample we described before, we first filtered it for the companies that have been taken over by Italian investors in the period 2015-2018, and then for the investors coming from all countries except from Italy between the same years. At a first sight, in both the samples we face a reduction in profitability (i.e., ROA) and an increase in indebtedness and size following the acquisition. Only exception seems to be the evolution of EBITDA margin, which increases for domestic acquired companies and decreases for foreign acquired ones. But looking at non-Italian acquirers, and according to the considerations we did in Chapter 2, we could hypothesize that companies acquired by foreign investors deteriorates their performance due to *distance* (culturally and geographically speaking).

*thousand USD	Obs	Mean	Std. Dev.	Min.	Max.
ROA_pre	53	0,06	0,08	-0,13	0,30
ROA_post	53	0,03	0,09	-0,34	0,30
EBITDA_margin_pre	53	-0,25	2,41	-17,45	0,21
EBITDA_margin_post	53	0,09	0,08	-0,14	0,25
Debt_on_assets_pre	53	0,20	0,14	0,01	0,61
Debt_on_assets_post	53	0,22	0,15	0,00	0,78
Revenues_pre*	53	74.771	142.892	58,53	768.534
Revenues_post*	53	76.327	150.552	44,59	942.612

Table 4, DOMESTIC investors - Descriptive statistics of treated group (unmatched), Data: Orbis database (BvD), Author Elaboration

*thousand USD	Obs	Mean	Std. Dev.	Min.	Max.
ROA_pre	41	0,05	0,10	-0,37	0,21
ROA_post	41	0,03	0,08	-0,23	0,18
EBITDA_margin_pre	41	0,09	0,23	-0,85	0,75
EBITDA_margin_post	41	0,04	0,37	-2,13	0,43
Debt_on_assets_pre	41	0,21	0,14	0,00	0,52
Debt_on_assets_post	41	0,25	0,19	0,01	0,91
Revenues_pre*	41	70.715	93.016	295,69	436.528
Revenues_post*	41	78.463	101.661	209,12	485.405

Table 5, FOREIGN investors - Descriptive statistics of treated group (unmatched), Data: Orbis database (BvD), Author Elaboration

With this numbers it seems that companies suffer, in terms of profitability, when being acquired. But if we look at revenues, they seem to grow, testifying an increased firms' size after the transaction. In particular for foreign acquired companies which show a 11% increase from the average of the time prior the acquisition. Same considerations we did before holds also here: we see an increase in size, partially financed with debt (increase in indebtedness), but a loss in terms of efficiency.

Then, we move to the second type of acquirer of interest: financial. Also here, starting from our initial sample we first considered all the firms acquired by operating companies (*strategic* sample) and then we considered only firms which have been acquired by companies which macro-activity was *"financial"*, according to Eikon classification, during the years from 2015 to 2018 (*financial* sample). With an eye on financial acquired companies, contrary to what we said in Chapter 2 about the possible improvement in performance of targets in the short-term, Table 7 shows us a decrease in performance.

*thousand USD	Obs	Mean	Std. Dev.	Min.	Max.
ROA_pre	59	0,05	0,08	-0,15	0,30
ROA_post	59	0,03	0,10	-0,34	0,30
EBITDA_margin_pre	59	-0,21	2,28	-17,45	0,26
EBITDA_margin_post	59	0,08	0,11	-0,41	0,43
Debt_on_assets_pre	59	0,20	0,14	0,00	0,61
Debt_on_assets_post	59	0,22	0,19	0,00	0,91
Revenues_pre*	59	76.627	145.317	58,53	768.534
Revenues_post*	59	76.375	150.556	44,59	942.612

Table 6, STRATEGIC investors - Descriptive statistics treated group (unmatched), Data: Orbis database (BvD), Author Elaboration

*thousand USD	Obs	Mean	Std. Dev.	Min.	Max.
ROA_pre	35	0,06	0,10	-0,37	0,20
ROA_post	35	0,03	0,05	-0,07	0,18
EBITDA_margin_pre	35	0,08	0,25	-0,85	0,75
EBITDA_margin_post	35	0,05	0,39	-2,13	0,40
Debt_on_assets_pre	35	0,22	0,13	0,00	0,52
Debt_on_assets_post	35	0,26	0,13	0,01	0,64
Revenues_pre*	35	66.890	73.027	295,69	255.404
Revenues_post*	35	78.749	90.313	209,12	349.298

Table 7, FINANCIAL investors - Descriptive statistics treated group (unmatched), Data: Orbis database (BvD), Author Elaboration

Again, all the considerations we did for previous observations, hold even for strategic and financial acquirers. In the post-transaction period profitability deteriorates in terms of Return On Assets that is, on average, 40% to 50% lower in the three years after the acquisitions. EBITDA margin improves for strategic acquired companies and deteriorates for financial acquired ones, and indebtedness increases in both samples, but the most interesting number concerns level of revenues. In fact, if the major improvement from pre- to post- acquisition level is shown in the "financial" sample, where revenues are 17,7% higher in the post-transaction period compared to the pre-transaction one, we also face an unconventional trend compared to other samples in the "strategic" one, which shows, even if small, a decrease in revenues.

3.3 Hypotheses construction

The analysis of the prevalent literature and the characteristics of our sample allow us to construct the hypotheses we want to test in next Chapter. Keeping in mind we are going to test the same variables for all our samples, this section is divided following the order of analysis we are going to develop, and Table 8 summarizes all the hypothesized effects.

3.3.1 Effects of M&As on Italian food & beverage targets' performance

Once the transaction is completed, the integration phase begins. This is the moment when the implementation of estimated synergies starts, in order to get the full value from the acquisition. So, mergers and acquisitions' impact on acquired companies' performance differs from acquisition to acquisition. Specific features of the food & beverage sector, such as the link with the Italian culture and tradition require investors to be knowledgeable about processes to successfully integrate, and this can have an impact on acquisition's outcomes.

As we discussed in the first part of the Chapter mixed results were obtained and the most used accounting-based measure has been Return On Assets (ROA). Moving together with the majority of the studies, we are going to analyze post-acquisition performance using the same measure and getting insights on companies' profitability. Access to valuable resources and capabilities that can be shared and transferred is possible thanks to M&A (Campagnolo and Vincenti, 2022). Through creation and development of synergies, acquisitions should have a positive effect on ROA after transaction (Harrison et al., 1991; Phan and Hill, 1995). Despite this, other studies have found a not significant or even negative effect of M&As on targets profitability (Krishnan, 1997; Ramaswamy, 1997). Not having definite results, and because of the specificity of the sector, we want to analyze which is the impact of acquisitions on targets' profitability. As first step, in the next chapter we are going to test acquisition's effect on average ROA post-transactions of targets active in the food & beverage sector.

In a second place, we want to study the effects on the EBITDA margin. By being a proxy for cash generation, this indicator can tell how efficient a company is in managing ordinary operations. Testing the acquisition impact on company margin allow us to get insights on how well the new owner is managing the operative business. To do this, we are going to test transaction's effect on the average EBITDA margin post-acquisition of target firms.

Lastly, we want to study acquired firms' growth. Following an acquisition, a corporation, generally speaking, expands its network of customers, its products range, or both. And, at the same time, it could be able to exploit advantages from economies of scale and scope generation. Given that the vast majority of companies active in the food & beverage sector has a micro/small dimension, being acquired by a bigger company can provide access to additional resources that can allow the firm to grow. So, to get insights on Italian targets' growth, we look at how their revenues behaved in the three-years period after the transaction. By testing the effect of acquisitions on the average revenues post-transaction we want to verify whether a company grows or not because of the transaction.

3.3.2 Effects of domestic and foreign M&As on Italian food & beverage targets'
performance

As we already said, because of its economic features (i.e., micro and small family-owned enterprises) and of its specific features (i.e., anchored to Italian tradition, specific processes) the food & beverage is a peculiar sector for the Italian economy, so we want to try to understand whether different type of acquirers could suite or not. In first place, as other authors did (i.e., Conyon et at, 2002; Buckley et al., 2002; Harris and Robinson, 2003; Schiffbauer et al., 2017) we are going to analyze the effect of domestic and foreign acquirers on the targets post-acquisition performance.

As we discussed, in case of foreign acquisitions, the majority of authors found out a positive correlation between the event and the post-acquisition performance of target companies (i.e., Kronborg & Thomsen, 2009; Barbaresco et al., 2018). Despite this, the integration phase is more difficult for foreign acquirers compared to domestic ones especially because of the cultural distance, at the national level and at the organizational level (House et al., 2004; Schimizu et al., 2004 in Campagnolo and Vincenti, 2022). Post-acquisition difficulties could negatively affect acquired company's performance. The access to additional resources we mentioned in the prior paragraph is present also here, but it could be difficult to transfer capabilities because of the distance (Campagnolo and Vincenti, 2022).

If we sum these considerations to the specifics of the sector we mentioned at the beginning, we could hypothesize a negative impact of foreign acquisitions on the performance of targets active in the food & beverage sector. And as we have seen in section *3.2.3* this seems to be true given the statistical properties of our sample. Indeed, both domestic and foreign acquirers appear to negatively impact profitability of food & beverage target firms (i.e., lower level of both ROA and EBITDA margin). On the other hand, growth seems to benefit from acquisition (i.e., increase level of revenues).

What we are going to do in the second part of our analysis concerns tests on the effects of acquisitions performed by domestic and foreign acquirers, respectively on the three dimensions of interest. As for the first sample, we regress profitability (average ROA post-transaction), margin (EBITDA margin post-transaction), and growth (average revenues post-transaction) on acquisition to see the transaction impact on targets.

3.3.3 Effects of strategic and financial M&As on Italian food & beverage targets' performance

Last topic of interest concerns the impact of financial buyers on Italian food & beverage companies. Given that up to now almost no literature has been written about the impact of financial investors on target firms, it is still an unexplored area. We want to get insights both about impact of strategic and financial buyers analyzing average ROA, EBITDA margin, and revenues post-acquisition. Further considerations can be done in this site because of the specificity of each acquirer combined with the specificity of the sector. By keeping the actual management in place because of their investment model, financial funds could lead a positive post-acquisitions performance of targets which would benefit from maintaining the same leadership, not changing values, processes, and systems. On the contrary, strategic acquirer could substitute actual management with its own providing discontinuity that could put at risk target stability and performance. By the way, looking at our samples, profitability and margins seem to deteriorate following the investment by a fund, and the same seems to hold for strategic investors. In the third and last part of the study we are going to test the effect of acquisitions by strategic and financial investors on company's profitability (average ROA post-transaction) and margins (average EBITDA post-transaction).

Lastly, looking at the target's growth, and coherently with what we hypothesized in paragraph *2.3* about the possible better performance in the short-term because of the characteristics of financial investors and their behavior during acquisition process, we can see that revenues increased more than 17% in the sample of targets acquired by financial buyers. And, on the other hand, we can see that with strategic buyers, revenues seem to deteriorate in the years after the acquisition. So, the last regression we run is about the effect of acquisitions by strategic and financial buyer, respectively, on the average size post-transaction of acquired companies (average revenues) with the aim of getting insights of acquisitions' impact on targets' growth.

EVENT		HYPOTESIZED EFFECT
Acquisition	⟹	*positive/negative* on ROA, EBITDA margin & Revenues
Acquisition by **domestic** investor	⟹	*positive* on ROA, EBITDA margin & Revenues
Acquisition by **foreign** investor	⟹	*negative* on ROA, EBITDA margin & Revenues
Acquisition by **strategic** investor	⟹	*positive/negative* on ROA, EBITDA margin & Revenues
Acquisition by **financial** investor	⟹	*negative* on ROA, EBITDA margin & *positive* on Revenues

Table 8, Summary of tested effects, Author Elaboration

3.4 Conclusions

What we developed in this chapter is the starting point for the analysis we are going to implement in the fourth chapter. Results about impact of acquisitions on targets' post-transaction performance have been mixed across literature and years because of different variables (i.e., profitability, productivity) and economies (i.e., country vs sector level analysis) studied. Despite the differences, here we highlight the majority of positive results compared to not significant and negative ones. Based on the studies we discussed, target companies' productivity has been the variable which benefitted the most from acquisition, together with profitability and growth. Different outcomes relate also to different acquirers, broadly speaking, M&A improve acquired firm performance. Being more focused, also foreign acquirers improve target company's post-acquisition performance. On the other hand, about financial buyers not significant insights has been already developed. Starting from this consideration, impact of financial funds could be field for future research together with those topics less explored across studies.

That said, in the second part of the chapter we moved to what our sample of analysis is and the hypotheses construction. Our focus are Italian targets operating in the food & beverage sector, for which we are going to analyze the performance evolution according to the following three scenarios: post-acquisition performance in general, post-acquisition performance in case of domestic and foreign acquirers, and post-acquisition performance in case of strategic and financial acquirers. Our initial sample is made up of 94 companies acquired between 2015 and 2018 for which financial data of 7 consecutive years were available. Then we have samples with 53 and 41 companies for domestic and foreign investors scenarios, and with 59 and 35 companies for strategic and financial investors ones. According to different hypothesis tested, we want to study the post-transaction performance path in terms of profitability (i.e., ROA), margins (i.e., EBITDA margin), and growth (i.e., revenues).

CHAPTER 4 – Acquisitions' impact on the Italian food & beverage targets' performance

The aim of this fourth and last chapter is to get insights on the effects of M&As on the Italian food & beverage targets. To do this, we apply the statistical methodology of the *propensity score matching* to our samples. Keeping the control group fixed, we move the treated one according to what we want to study. As we said, we first analyze the effects of acquisition *versus* non-acquisition, then we look at the impact of domestic and foreign acquirers and we end up with the effects of strategic and financial investors.

The first part of the chapter concerns the description of the control group, meaning its features and descriptive statistics. Then we move to the statistical methodology. We present the *propensity score matching* technique, its steps, why to prefer it instead of linear regression, and in which way we applied it using the STATA software. In the end we present the outcomes we obtained by implementing our analysis for all our variables of interest.

To complement the analysis, we studied the post-acquisition performance also according to targets' features (*top performer* and *normal*, *SMEs* and *large*). We conclude the chapter presenting results, limitations, and suggestions for future research. What we are trying to do is both to present the reality of acquisitions in a fundamental sector for Italian economy and to get managerial implications for those who could be interested in investing in this sector.

4.1 Data

In paragraph *3.2.2* we exposed the statistical properties of our treated samples. For these groups we combined data from Eikon database and Orbis (BvD). The first one allowed us to identify:

1. Which companies have been acquired since January 2010 up to May 2022,
2. Macro activity of the firm acquired,
3. Who were the acquirors, their industry, and their macro activity.

The second one gave us all the financial information (i.e., EBIT, EBITDA, total assets, total debt, and revenues) about the firms acquired between 2015 and 2018 that we wanted to consider inside the sample. In the end, to have more complete data (meaning the EBITDA margin), we decided to use the reduced sample of 94 observations for the analysis on the impact of acquisition *versus* non-acquisition. We want to highlight that we dropped observation of companies we considered to be *outliers* that would have had a significant impact on the statistics of the overall sample.

For what concerns the control group, meaning the one that did not receive the treatment (i.e., not acquired), we extrapolated from Orbis (BvD) database the data for 100.000 companies active in two BvD sectors: food & beverage and agriculture (Figure 40). This because in the treated group companies included came from both these two sectors, so we wanted to be consistent with that and consider the same sectors in the control group.

Since the database gave us all the firms still operating in the sector, to exclude from the group those companies that have been subject to acquisition, we combine data from Eikon and Orbis and excluded all the companies that have been acquired in the last 10 years. In this way, we are sure that the companies inside the control group have not experienced any M&A during the years we are analyzing (2012 to 2021).
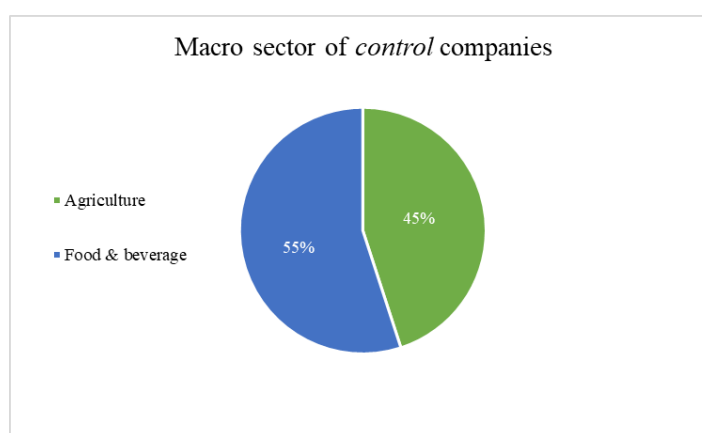
Figure 40, Activity macro-sector for firms in the control group, Data: Orbis (BvD) database, Author Elaboration

Of those 100.000 firms we considered only those which had 7 consecutive years financial statements available for the period of analysis (from 2012 to 2021) and the following information available: ROA, EBITDA margin, debt on assets, and revenues. Since the event *acquisition* is not present in this group, to catch the data we went back in time as follows: we consider as *post* values the last three years available, we skip one year, and then consider other three years as *pre* values. In a second moment we compute the average values of both the *pre* and *post* period for each company and then we got the descriptive statistics.

thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	14.194	0,04	0,10	-2,81	1,72
ROA_post	14.194	0,03	0,09	-1,39	1,58
EBITDA_pre	14.194	-0,13	58,69	-3.270	3.575
EBITDA_post	14.194	0,36	22,85	-419	2.669
DEBT_pre	14.194	0,23	0,21	0,00	1,60
DEBT_post	14.194	0,23	0,21	0,00	3,07
REVENUES_pre*	14.194	8.281	45.146	1,03	2.720.549
REVENUES_post*	14.194	9.848	53.111	0,02	2.661.266

Table 9, Descriptive statistics of the control group (unmatched), Data: Orbis (BvD) database, Author Elaboration

As shown in Table 9, the final control group is composed by 14.194 companies and presents, on average, lower values for all the variables of interest with the exception of the EBITDA post which is 4 to 8 time higher compared to the value in the treated groups (Table 3). First, we match this control group with the overall sample of treated companies. In a second place, we match it with the sample of firms acquired by domestic and then foreign investors (this analysis sees the *acquisition by domestic investor* and then *acquisition by foreign investor* as the treatments). Third, we match it with the sample of firms acquired by strategic and then with the sample of firms acquired financial investors (this analysis sees the *acquisition by strategic* and the *acquisition by financial investor* as the treatments).

4.2 Variables

As we mentioned in the prior chapter, different dimensions (i.e., productivity, profitability, growth, etc.) were analyzed across years to study the M&As' impact on the acquired companies' performance mainly using accounting-based measures. Moving together with most of the authors, we use ROA to test for profitability evolution and revenues to test for growth evolution. But we also use EBITDA margin as second measure of profitability and as a proxy for cash generation. In particular, we are going to test all the variables in all our samples to verify the impact of different acquirers on profitability, margin, and growth of target corporations.

To avoid biases due to characteristics (i.e., environmental, and organizational) of a particular year, we use the average values of three years pre- and post-acquisition in our analysis for all our variables. This seems to be a good time frame to verify which are the effects of an acquisition on the performance of the acquired company. By the way different authors showed that the effects could show up even after a much longer period of time (i.e., Li and Guisinger, 1991; Thompson and Kim, 2020).

Being the companies of our treated group being acquired in the years 2015-2018, for some of them among the post-acquisition values there are the years 2020 and 2021. Both the years have been characterized by the Covid-19 pandemic and this could have some effects on the results of those years. By the way, the same is true for those companies included in the control group. Given this, to remain consistent with the work, we assumed that, on average, the pandemic impact is mitigated. In all the studies we controlled for *pre-treatment* variables: ROA_pre and debt on assets_pre. These are the variables that have been used to match each treated unit with an untreated one.

In each situation the outcome variable changes according to what we are studying (i.e., ROA_post, EBITDAmargin_post, and REVENUES_post) and the same holds for the treatment variable (i.e., TREAT, TREAT_domestic, TREAT_foreign, TREAT_strategic or TREAT_financial).

4.3 Statistical methodology

If we are in a situation where a M&A operation took place, to analyze the effective transaction impact, it is not sufficient to compare the variables of interest before and after the acquisition occurred (Campagnolo and Vincenti, 2022). In fact, a change in the performance could be due to factors that do not concern acquisition itself. This is the reason why authors, in their papers, often use methods based on *propensity score* that reduce confounding effects on operational studies addressing problems related to endogeneity. Most of the papers we cited in the prior paragraph used methodologies based on the propensity score matching, only a few used linear regression techniques (i.e., Thompson and Kim, 2020). As we presented in the prior paragraph, moving together with the majority of authors, we apply PSM for our research.

4.3.1 Propensity Score Matching

Propensity Score Matching (PSM) can be defined as a quasi-experimental method that consists of recreating conditions of randomized experiments by creating an "artificial control group" that matches each treated unit with one or more untreated units with similar characteristics (The World Bank, 2019). Generally speaking, the effects of a treatment can be observed by comparing outcomes between treated and untreated subjects (Greenland, Pearl, and Robins, 1999 *in* Austin, 2011). A common methodology used was the regression, which is now being sided by propensity score matching methods.

Standing to the work of Austin (2011), the outcome derives from two, mutually exclusive, possible treatments. Each subject can be part of just one group, the treated one or the control one (untreated). To estimate the causal effect between the treatment and the outcome we have two ways: randomized control trials (RCT) and observational studies. In RCT outcome can be observed directly by comparing the outcomes thanks to randomization, in observational studies, on the other hand this cannot be done, so propensity score is applied. If baseline covariates are similar or not between treated and untreated subjects depend on the propensity score (Austin, 2011). What is important to highlight is that the computation of the propensity score happens in observational studies, and not in randomized experiments, where the propensity score is known and defined.

Being the reduction of confounding effects the aim of the propensity score methods, here we mention the four methods used, with particular attention to the one we are going to use too. According to Rosenbaum and Rubin (1983) to obtain unbiased estimates of the treatment effects, the strongly ignorable treatment assignment assumption needs to be fulfilled. To this goal, two conditions are necessary:

1. Independence of treatment assignment from the potential outcomes depending on the observed baseline covariates (*no unmeasured confounders* assumption),
2. Nonzero probability of every unit in the sample to be subject to either treatment (Austin, 2011).

Propensity score matching, *stratification* (or subclassification) *on the propensity score*, *inverse probability of treatment weighting using the propensity score*, and *covariate adjustment using the propensity score* are the four aforementioned methodologies. The first one will be applied also in our study and consists in the following: based on the propensity score, two groups (treated and untreated) will be created matching similar scores. There are two ways to implement propensity score matching, meaning the one-to-one (1:1) and the many-to-one (M:1). The most common is the one-to-one that consist of forming pairs of treated and untreated subjects which present similar values of the propensity score. The subsequent step, once the matched sample is created, is to juxtapose results between treated and untreated units. The computations of variance of the estimated treatment effect and its statistical significance follow (Austin, 2011). How to select among untreated units that have "close" propensity score? Two possibilities: *nearest neighbor matching* and *nearest neighbor matching within a specified caliper distance*. In the first case there is no limitations in terms of maximum distance between the score of the treated and untreated subjects matched, and the treated unit is matched with the untreated unit that presents the closest score. In the second situation conditions that set a maximum distance between the two scores (the one of the treated unit, and the one of the untreated) are in place. So, for every treated unit you should "identify all the untreated subjects whose propensity score lay within a specified distance of that of the treated subject" (Austin, 2011) and then, among the selected ones, the one with the closest score is chosen for matching. When no untreated subject has a score that relies in the prespecified lay, no match happens, and the treated subject is excluded from the final sample.

According to Austin (2011), when creating the pairs of treated and untreated units, different decisions need to be taken. In a first place, there is the need to make a choice between *matching with replacement* and *matching without replacement*. If *matching with replacement* is chosen,

one untreated subject can be used in many matched series. On the other hand, if *matching without replacement* is used, if an untreated unit is matched with a treated one, it cannot be further considered to match other upcoming treated subjects. This mean, an untreated subject can be part of one matched group at most (Hill and Reiter, 2006 *in* Austin, 2011). In a second place, there is the need to choose between *greedy* and *optimal* matching. When *greedy* matching is implemented, the starting point is the random choice of one treated subject to which the match of the untreated subject with the closest propensity score follows. The process ends when the sample of treated subjects that can be matched with untreated ones ends. If *optimal* matching is in place, the main aim is to "minimize the total within-pair difference of the propensity score" (Austin, 2011).

4.3.2 Practical Implementation

Multiple steps are involved in the implementation of the PSM as shown in Figure 41. Here we present a brief overview of how to put in place a *propensity score matching* analysis following these 5 steps.
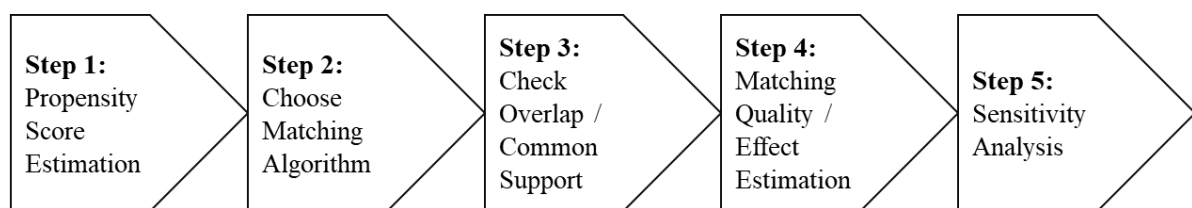
Figure 41, Implementation of the Propensity Score Matching, Source: Caliendo and Kopeinig (2008)

The first step is the estimation of the propensity score and includes two tasks: the choice of which model to use, and the choice of which variables to include. Concerning the model choice, we need to identify if we are in front of a binary (i.e., participation vs nonparticipation) or non-binary treatment (i.e., more than two alternatives). Already thinking about our analysis, we will assess the impact of acquisition versus non-acquisition in targets' performance, so we are in a binary treatment situation. Being this our focus, we limit the description of the model to the binary treatment. In general, *logit* and *probit* models are preferred and usually they yield to the same results. Moving to the variables' choice, only the ones "that influence simultaneously the participation decision and the outcome variable should be included" (Caliendo and Kopeinig, 2008). An important point is that variables included need to be unaffected by the participation to the treatment, and data used should come from the same database, both for the treated and untreated (Heckman et al., 1999 *in* Caliendo and Kopeinig, 2008). Literature up to now suggests that economic theory and empirical findings should be at the base when choosing variables.

The second step deals with the matching algorithm choice and goes back to what we presented before about *nearest neighbor matching* and *nearest neighbor matching within a specified caliper distance*. Together with these two most common algorithms, there are two other possibilities: *stratification & interval matching*, and *kernel and local linear matching*. On average, they should all give similar results (Smith, 2000 *in* Caliendo and Kopeinig, 2008), but with small size sample the choice could be of some importance. By the way, how to choose between the different matching algorithms, depends on the situation.

At the base of the third step, there is the common support assumption. It is a necessary condition that consist of having overlap "in the range of propensity scores" across the two groups (treated and control) (Garrido et al., 2014). This ensures that what can be observed in the treatment group is observable also in the untreated one (Bryson et al., 2002 *in* Caliendo and Kopeinig, 2008). Checking the overlapping area can be done mainly in two ways:

1. Comparing the minimum and the maximum value of the score in both the treated and the control group,
2. Estimating the density distribution in both the treated and the control group.

Once the common support region is defined, everything that lies out from it is not considered in further analysis and will not be part of the final sample.

The fourth step consists of assessing the matching quality by checking whether "the distribution of the relevant variables in both the control and the treatment group" (Caliendo and Kopeinig, 2008) is balanced after the matching procedure. The check is done by comparing the situation before and after the matching. This is done in multiple ways: standardized bias (SB), statistics indicators, t-test, joint significance and pseudo-R^2, and stratification test. The standardized bias method has been first suggested by Rosenbaum and Rubin in 1985 and consists of computing, for each covariate (X) "the difference of sample means in the treated and matched control subsamples as a percentage of the square root of the average of sample variances" (Caliendo and Kopeinig, 2008) in both the treated and untreated groups. It is computed both before and after matching as follows:

$$\text{SB}_{\text{before}} = 100 \cdot \frac{\overline{X}_1 - \overline{X}_0}{\sqrt{0.5 \cdot (V_1(X) + V_0(X))}} \qquad \text{SB}_{\text{after}} = 100 \cdot \frac{\overline{X}_{1M} - \overline{X}_{0M}}{\sqrt{0.5 \cdot (V_{1M}(X) + V_{0M}(X))}}$$

X (V) identifies the mean (variance) for the treated (1) and the untreated (0) group before and after (M) the matching. The problem with the use of the SB concerns the lack of clarity regarding the success of the procedure. To understand whether the match is well done, it is

possible to look at the Rubin's B indicator that shows the *absolute standardized difference of the means of the linear index of the propensity score in the treated and non-treated group*[13] once matched which should be under 25%.

Fifth and last step is the sensitivity analysis. Approaches to do that can be divided in two categories: sensitivity of the results assessed with respect to deviations from the considered assumption, and incorporation of the subjects who failed the common support test information (Caliendo and Kopeinig, 2008).

4.3.3 Why PSM and not Regression?

Propensity Score Matching and regression are methods to estimate the effects of a treatment when in presence of observational data, regression has been used more than propensity in the past. By the way, PSM ensures that the treated and the control group are comparable (Crown, 2014).

Reasons why prefer PSM to regression are mainly practical. In first place, to assess whether the model was correctly specified is easier for propensity score matching compared to regression. As we saw in section *3.2.2.*, in PSM, with the use of standardized bias or of indicators (i.e., Rubin's B) it is possible to verify the matching quality. On the other hand, in case of a regression the use of statistics such as the R^2 do not tell if the model is correctly specified. In second place, when using PSM methods you can separate the design of the study from the analysis of the study, as happens in RCTs (Austin, 2011) allowing for estimating the effect of the treatment only once an acceptable matching is set. With regression this is not possible since the effects are always evident. In third place, PSM is more flexible compared to regression model. And lastly, the fourth reason why propensity score matching should be preferred to regression relates to the degree of overlap in distribution of baseline covariates in treated and untreated groups. In PSM it is possible to easily compare the outcomes of both the treated and untreated subjects, and if the matched treated units are a few the decision about whether to restrict the analysis or discontinue it follows. In case of regression to verify the degree of overlap is difficult (Austin, 2011).

4.3.4 Propensity Score Matching in STATA

The theory we presented in the prior sections is practically implemented by statistical software such as STATA, that is the one we used for our study. We first analyzed descriptive statistics of both the treated and untreated groups, then we used the functions *psmatch2* and *pstest* to get

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[13] STATA helpfile

the matches and assess their quality, and we ended up running the regressions to test our hypotheses.

The function *psmatch2* implements different propensity score matching methods in order to adjust for pre-treatment observable differences between a group of treated and a group of untreated units. STATA has an "help guide" that explains how the software effectively applies methodologies. For what concerns propensity score matching, *psmatch2* "calculates approximate standard errors on the treatment effects assuming independent observations, fixed weights, homoskedasticity of the outcome variable within the treated and within the control groups and that the variance of the outcome does not depend on the propensity score" [14].

When applying the *psmatch2* function there is the need to provide three main elements:

1. The treatment variable, which should take the value 0 if the unit is untreated and the value 1 if it is treated,
2. The outcome variable or variables, which are where we want to see the treatment's effects, and
3. The independent variables, which are the base for the matching process.

For what concerns our analysis, as we said in paragraph *4.2*, we changed the treatment variable according to which hypothesis we study each time. Among the different methodologies available, we went for the nearest neighbor matching (without caliper distance). It matches the treated and the untreated by taking each treated unit and looking for the control unit which presents the closest propensity score (Grilli and Rampichini, 2011).

In implementing the different matchings, together with the *probit* model set by default, we also left the other settings as they were:

- one as number of neighbors, and
- the replacement option.

Both the options allow for bias reduction at the cost of a higher variance value. To improve the matching quality, we opted for the common support feature. In this way we consider only the units that present a propensity score which falls in the intersection of the support of the propensity score of treated and untreated groups.

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[14] Leuven E., Sianesi B., 2003, "*PSMATCH2: Stata module to perform full Mahalanobis and propensity score matching, common support graphing, and covariate imbalance testing*", http://ideas.repec.org/c/boc/bocode/s432001.html, 15 September 2022

Once all the information are in place, we run the program and the software automatically creates additional variables that allow us to understand how the matching has been done and which control unit was matched to each treated one. In addition, the output tells whether there are some off-support units and identifies them. Variables created are the following (Leuven and Sianesi, 2003):

- *_pscore* which is the estimated propensity score,
- *_treated* which shows the word "untreated" or "treated" whether the unit is part of the control or of the treatment group,
- *_support* which shows the word "on support" or "off support" whether the unit presents a propensity score which belongs to the intersection as we said before,
- *_weight* which expresses how many times that observation is used as a match,
- *_outcome_variable* which shows for the treated units the value of the matched outcome,
- *_id* which is a new identifier for each unit (both untreated and treated ones),
- *_n1* which shows for every treated unit the *id number* of the matched control observation, and
- *_nn* which shows for every treated unit the number of matched control observations.

As we said in the prior paragraph, in a second place, we test whether the matching is well-balanced. To do that we apply the function *pstest* which calculates the quality of the match. Among the indicators given we looked at the Rubin's B which should be under 25%.

Once the matched sample is formed and we are sure that it is well-balanced, we implement regressions to describe the treatment effect on the targets' performance. All this said, we now have all the tools to analyze the outputs and get some insights and results for the hypotheses we presented in Chapter 3.

4.4 STATA results

In this section we present features of each matched samples (i.e., acquisition *vs* non-acquisition, foreign *vs* non-acquisition, and financial *vs* non-acquisition) and the results we obtained in implementing the regressions on the matched samples to test our hypotheses. We studied each outcome variable (ROA_post, EBITDAmargin_post, and REVENUES_post) in all the samples with the aim of testing the effect of different acquirers on post-acquisition performance of target companies and we adjusted the model (add or drop control variables) in order to get the most significant results.

4.4.1 Effects on targets' performance of acquisition vs non-acquisition

First analysis we did, concerned performance evolution of target firms following the transaction. We compared it with the performance of companies that have not been subject to any acquisition, and with the *psmatch2* function we obtained the matched sample useful for the comparison. Each of the 94 treated subjects has been matched with an untreated one, and the Rubin's B indicator at 9,6% guaranteed for the matching quality.

thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	94	0,06	0,09	-0,37	0,30
ROA_post	94	0,03	0,09	-0,34	0,30
EBITDA_pre	94	-0,10	1,82	-17,45	0,75
EBITDA_post	94	0,07	0,25	-2,13	0,43
DEBT_pre	94	0,21	0,14	0,00	0,61
DEBT_post	94	0,23	0,17	0,00	0,91
REVENUES_pre*	94	73.002	123.052	58,53	768.534
REVENUES_post*	94	77.259	130.842	44,59	942.612

Table 10, Descriptive statistics of treated group – MATCHED, Data: Orbis database (BvD), Author Elaboration

thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	92	0,05	0,08	-0,32	0,28
ROA_post	92	0,04	0,09	-0,35	0,31
EBITDA_pre	92	0,10	0,24	-1,52	0,65
EBITDA_post	92	0,08	0,33	-1,81	0,79
DEBT_pre	92	0,20	0,21	0,00	0,89
DEBT_post	92	0,20	0,22	0,00	0,98
REVENUES_pre*	92	8.702	32.052	14,05	265.764
REVENUES_post*	92	10.631	39.325	16,75	332.382

Table 11, Descriptive statistics of control (untreated) group - MATCHED, Data: Orbis database (BvD), Author Elaboration

As we can see in Table 10 and 11, matched samples are similar, on average, if we look at ROA and DEBT indicators. Before getting these results, we tried to match the samples also on the base of the EBITDA margin and size (revenues), but it ended up in not significant matches (see *Appendix 1*).

Starting from this database of 186 observations we run the regressions. In a first place, we tested the effects of being acquired on targets' average post-transaction profitability (ROA_post). The regression model was:

$ROA\_post_i = \alpha TREAT_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

Where *TREAT$_i$* is a dummy variable which identifies whether the company has been acquired or not, *ROA_pre$_i$* indicates target *i* average profitability before acquisition, *EBITDAmargin_pre$_i$*

indicates target *i* average margin before acquisition, *DEBT_pre*$_i$ indicates target *i* average indebtedness before acquisition, and *REVENUES_pre*$_i$ the average target size before investment. For each of the regressions we run on this sample, we controlled for all the independent variables given that provided us more significant regressions.

For what concerns ROA, we got significant output (F (5, 180) = 16,43) and *slightly statistically significant* results (α = -0,020, t = -1,71, p < 0,10). According to these outcomes, acquisitions have a negative impact on targets' profitability (Figure 42). Indeed, on average, acquired firms will experience a decrease in ROA levels in the 3 years after the transaction.

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT	-.0196004	.0114479	-1.71	0.089	-.0421897	.002989
ROA_pre	.5345244	.0660053	8.10	0.000	.4042806	.6647681
EBITDAmargi~e	-.0013035	.0042654	-0.31	0.760	-.0097201	.0071131
DEBT_pre	-.044789	.0317422	-1.41	0.160	-.1074237	.0178457
REVENUES_pre	6.29e-08	5.98e-08	1.05	0.295	-5.52e-08	1.81e-07
_cons	.023832	.0109556	2.18	0.031	.0022141	.0454499

Figure 42, Regression results (TREAT on ROA_post), Source: STATA

Second regression we run was to test the effects on the EBITDA margin. We used the same regression model as before:

$$EBITDAmargin\_post_i = \alpha TREAT_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$$

In this case, we got significant regression (F (5, 180) = 4,25), but not significant results for the effects on the EBITDA margin (α = -0,019, t = -0,43, p > 0,10). In here we do not find any support neither for an improvement or a deterioration of targets' margin in the period following the acquisition (Figure 43).

EBITDAmargi~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT	-.0189698	.0439565	-0.43	0.667	-.1057062	.0677665
ROA_pre	1.133248	.2534408	4.47	0.000	.6331506	1.633345
EBITDAmargi~e	.0015023	.0163778	0.09	0.927	-.0308149	.0338196
DEBT_pre	.1372445	.1218806	1.13	0.262	-.103254	.377743
REVENUES_pre	1.45e-07	2.30e-07	0.63	0.528	-3.08e-07	5.98e-07
_cons	-.0142499	.0420662	-0.34	0.735	-.0972562	.0687564

Figure 43, Regression results (TREAT on EBITDAmargin_post), Source: STATA

Last regression we run to test the impact of acquisition on targets, concerned the effect on firms' growth (revenues). Also here, we used the same model:

$$REVENUES\_post_i = \alpha TREAT_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$$

Primarily because of the different in size of companies inside the two samples, also this time, we got significant regression (F (5,180) = 365,18) and not significant results (α = 857, t = 0,18, p > 0,10). By finding not significant results on targets' growth after acquisition, we cannot posit for an increase or a reduction in size following the transaction (Figure 44).

```
REVENUES_post | Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
--------------+-----------------------------------------------------------------
       TREAT  |   857.0171   4868.675     0.18   0.860   -8750.002    10464.04
     ROA_pre  |   60200.77    28071.4     2.14   0.033    4809.419    115592.1
EBITDAmargi~e |  -245.9726   1814.029    -0.14   0.892    -3825.47    3333.525
    DEBT_pre  |   13762.61   13499.63     1.02   0.309   -12875.28    40400.51
REVENUES_pre  |   1.018755   .0254356    40.05   0.000    .9685651    1.068946
       _cons  |  -4170.323   4659.302    -0.90   0.372    -13364.2    5023.555
```

Figure 44, Regression results (TREAT on REVENUES_post), Source: STATA

4.4.2 Effects on targets' performance of domestic and foreign vs non-acquisition

In a second place we focused on the post-transaction performance in targets acquired by domestic and foreign buyers, and we compared them with the performance of companies which have never been acquired. The *psmatch2* function allowed for the creation of the samples. First, all the 53 domestic acquired firms have been matched with an untreated subject, and a Rubin's B indicator at 11,9% guaranteed for the matching quality.

thousand USD	Obs	Mean	Std. Dev.	Min.	Max.
ROA_pre	53	0,06	0,08	-0,13	0,30
ROA_post	53	0,03	0,09	-0,34	0,30
EBITDA_margin_pre	53	-0,25	2,41	-17,45	0,21
EBITDA_margin_post	53	0,09	0,08	-0,14	0,26
Debt_on_assets_pre	53	0,20	0,14	0,01	0,61
Debt_on_assets_post	53	0,22	0,15	0,00	0,78
Revenues_pre*	53	74.771	142.892	58,53	768.534
Revenues_post*	53	76.327	150.552	44,59	942.612

Table 12, DOMESTIC investors – Descriptive statistics of treated group - MATCHED, Source: STATA

thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	53	0,06	0,08	-0,20	0,30
ROA_post	53	0,04	0,07	-0,11	0,29
EBITDA_pre	53	0,20	0,72	-0,32	5,27
EBITDA_post	53	0,20	0,81	-1,17	5,73
DEBT_pre	53	0,19	0,22	0,00	0,98
DEBT_post	53	0,25	0,24	0,00	0,93
REVENUES_pre*	53	9.277	26.416	14,05	156.848
REVENUES_post*	53	10.385	30.407	16,75	184.552

Table 13, Descriptive statistics of untreated (control) group - MATCHED, Source: STATA

As in all the others matching procedures, we matched on the base of ROA and indebtedness before acquisition. The model we used to study the effect on ROA was the following one:

$ROA\_post_i = \alpha TREAT\_domestic_i + \beta ROA\_pre_i + \gamma DEBT\_pre_i + \_cons$

With these samples, we controlled only for ROA and DEBT because otherwise the regression would not be significant. We kept those independent variables and changed the dummy, which this time takes value 1 if the company is acquired by an Italian firm and 0 otherwise. Even if the regression is significant (F (3, 102) = 7,51), no significant results were obtained (α = -0,006, t = -0,44, p > 0,10). We are not able to suppose an increase or a decrease in companies' average profitability after the acquisition by a domestic acquirer, but we can observe a negative coefficient (Figure 45).

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_domestic	-.0063584	.0145798	-0.44	0.664	-.0352774	.0225606
ROA_pre	.4151239	.0961949	4.32	0.000	.2243217	.6059262
DEBT_pre	-.0331194	.0414057	-0.80	0.426	-.1152474	.0490087
_cons	.0202143	.0145938	1.39	0.169	-.0087324	.049161

Figure 45, Regression results (TREAT_domestic on ROA_post), Source: STATA

Then we studied the effect of domestic acquisition on the EBITDA margin:

$EBITDAmargin\_post_i = \alpha TREAT\_domestic_i + \beta ROA\_pre_i + \gamma DEBT\_pre_i + \_cons$

What we got here, is a not significant regression (F (3, 102) = 0,50). Because of this result we are not able to get any insight on the evolution of EBITDA margin in target post-acquisition time, so we are not able to say whether margins increase or decrease because of a M&A transaction.

Lastly, we tested the effect of domestic acquisition on companies' growth, and keeping in mind the difference in average size of firms we controlled for additional variables using the following model (for which the regression was significant given that F (5, 100) = 194,15):

$REVENUES\_post_i = \alpha TREAT\_domestic_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

With no significant results (α = -254, t = -0,03, p > 0,10) we cannot state that acquisitions would increase or decrease average companies' size post-transaction (Figure 46).

```
REVENUES_post |  Coefficient  Std. err.       t     P>|t|     [95% conf. interval]

TREAT_domestic |   -254.0012   7315.583    -0.03    0.972    -14767.91    14259.91
      ROA_pre |    57426.29   46375.73     1.24    0.219    -34581.83    149434.4
EBITDAmargin_pre |  -252.3264    2017.47    -0.13    0.901    -4254.929    3750.276
     DEBT_pre |    16096.24   19669.83     0.82    0.415    -22928.14    55120.61
  REVENUES_pre |    1.001866   .0338826    29.57    0.000     .9346435    1.069088
        _cons |    -5009.28   6915.628    -0.72    0.471    -18729.69    8711.129
```

Figure 46, Regression results (TREAT_domestic on REVENUES_post), Source: STATA

Then we moved to the sample of firms acquired by foreign companies. All the 41 targets in the sample have been matched with one untreated subject from the control group (Rubin's B at 21,7%).

*thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	41	0,05	0,10	-0,37	0,21
ROA_post	41	0,03	0,08	-0,23	0,18
EBITDA_pre	41	0,09	0,23	-0,85	0,75
EBITDA_post	41	0,04	0,37	-2,13	0,43
DEBT_pre	41	0,21	0,14	0,00	0,52
DEBT_post	41	0,25	0,19	0,01	0,91
REVENUES_pre*	41	70.715	93.016	295,69	436.528
REVENUES_post*	41	78.463	101.661	209,12	485.405

Table 14, FOREIGN investors – Descriptive statistics of treated group - MATCHED, Source: STATA

*thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	41	0,05	0,09	-0,35	0,21
ROA_post	41	0,06	0,08	-0,13	0,26
EBITDA_pre	41	0,11	0,21	-0,64	0,77
EBITDA_post	41	0,18	0,34	-0,06	1,93
DEBT_pre	41	0,18	0,18	0,00	0,65
DEBT_post	41	0,19	0,20	0,00	0,94
REVENUES_pre*	41	8.288	18.325	78,37	101.917
REVENUES_post*	41	9.765	21.951	30,07	116.756

Table 15, Descriptive statistics of untreated (control) group - MATCHED, Source: STATA

As before, variables used to match treated and untreated are the average profitability and the average indebtedness pre-acquisition[15]. First, we studied the effect of foreign acquirers on the average profitability post-acquisition using the following model:

$ROA\_post_i = \alpha TREAT\_foreign_i + \beta ROA\_pre_i + \gamma DEBT\_pre_i + \_cons$

Independent variables are the same as prior analysis, but the dummy changed. Here *TREAT_foreign*$_i$, identifies whether the company has been subject to an acquisition from a

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[15] In the *Appendix* trials with other matching variables and the reasons why we did not used them are presented.

foreign investor or not. We obtained a significant regression (F (3, 78) = 3,27) that gave us *slightly statistically* significant results (α = -0,028, t = -1,71, p < 0,10). Given this output, we conclude that cross-border acquisitions contribute to the reduction in targets profitability evolution (Figure 47).

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_foreign	-.0283378	.0165495	-1.71	0.091	-.0612852	.0046097
ROA_pre	.176484	.0913502	1.93	0.057	-.0053802	.3583483
DEBT_pre	-.0541708	.0554175	-0.98	0.331	-.1644985	.056157
_cons	.0572157	.0168914	3.39	0.001	.0235875	.0908439

Figure 47, Regression results (TREAT_foreign on ROA_post), Source: STATA

Second, we studied the effect of foreign investors on targets' EBITDA margin using the same model:

$$EBITDAmargin\_post_i = \alpha TREAT\_foreign_i + \beta ROA\_pre_i + \gamma DEBT\_pre_i + \_cons$$

Unfortunately, this time we got a regression which was not significant (F (3, 78) = 1,27), even if we try to control for additional variables. This did not allow us to get any significant insight on the evolution of target margins in the period following the acquisition. Because of not significant regression we cannot state for an increase or a decrease in average post-acquisition targets' margin.

Last regression we tested for foreign acquirers was about the impact on average revenues post-transaction. Coherently with prior regressions, we used the model:

$$REVENUES\_post_i = \alpha TREAT\_foreign_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$$

The regression was significant (F (5, 76) = 175,80), but not the results we obtained (α = 3.440, t = 0,59 p > 0,10). So, we cannot state that, once acquired by a foreign investor, companies would experience a change in growth because of acquisition (Figure 48).

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_foreign	3440.015	5785.331	0.59	0.554	-8082.471	14962.5
ROA_pre	61096.1	33528.61	1.82	0.072	-5681.921	127874.1
EBITDAmargi~e	-1376.658	13869.56	-0.10	0.921	-29000.28	26246.96
DEBT_pre	7486.845	17871.99	0.42	0.676	-28108.3	43081.99
REVENUES_pre	1.037584	.0393249	26.38	0.000	.9592615	1.115906
_cons	-2946.87	5341.31	-0.55	0.583	-13585.01	7691.272

Figure 48, Regression results (TREAT_foreign on REVENUES_post), Source: STATA

4.4.3 Effects on targets' performance of strategic and financial vs non-acquisition

Next sample of analysis includes firms acquired by strategic investors. Each of the 59 treated units has been matched with a subject coming from the control group, using the *psmatch2* function (Rubin's indicator at 14,8%).

thousand USD	Obs	Mean	Std. Dev.	Min.	Max.
ROA_pre	59	0,05	0,08	-0,15	0,30
ROA_post	59	0,03	0,10	-0,34	0,30
EBITDA_margin_pre	59	-0,21	2,28	-17,45	0,26
EBITDA_margin_post	59	0,08	0,11	-0,41	0,43
Debt_on_assets_pre	59	0,20	0,14	0,00	0,61
Debt_on_assets_post	59	0,22	0,19	0,00	0,91
Revenues_pre*	59	76.627	145.317	58,53	768.534
Revenues_post*	59	76.375	150.556	44,59	942.612

Table 16, STRATEGIC investors – Descriptive statistics of treated group - MATCHED, Source: STATA

thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	59	0,06	0,07	-0,05	0,30
ROA_post	59	0,06	0,08	-0,06	0,40
EBITDA_pre	59	0,25	0,90	-2,45	5,91
EBITDA_post	59	0,19	0,66	-1,35	4,48
DEBT_pre	59	0,22	0,24	0,00	0,99
DEBT_post	59	0,24	0,22	0,00	0,96
REVENUES_pre*	59	6.905	19.547	21,47	129.006
REVENUES_post*	59	9.471	28.042	41,74	192.249

Table 17, Descriptive statistics of untreated (control) group - MATCHED, Source: STATA

Starting from the matched sample we run the first regression to analyze the effect of strategic acquisitions on targets' profitability in terms of ROA. In this set of regressions, we controlled for additional variables since allowed us to get more significant models. To study ROA evolution we used the following model:

$ROA\_post_i = \alpha TREAT\_strategic_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

We obtained a significant regression ($F_{(5, 112)} = 4,56$) with *statistically* significant results ($\alpha = -0,034$, .t = -2,00, $p < 0,05$). We got that targets acquired by strategic investors experienced a reduction in ROA average value in the period following the transaction (Figure 49).

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_strategic	-.0341201	.0170242	-2.00	0.047	-.0678513	-.0003888
ROA_pre	.3939511	.1035771	3.80	0.000	.1887263	.5991759
EBITDAmargin_pre	.0010001	.0047249	0.21	0.833	-.0083617	.010362
DEBT_pre	-.0486148	.0419861	-1.16	0.249	-.1318049	.0345752
REVENUES_pre	8.52e-08	7.77e-08	1.10	0.275	-6.87e-08	2.39e-07
_cons	.0444572	.0161789	2.75	0.007	.0124008	.0765136

Figure 49, Regression results (TREAT_strategic on ROA_post), Source: STATA

Then we moved to the effects of strategic investors on targets' EBITDA with the same model:

$EBITDAmargin\_post_i = \alpha TREAT\_strategic_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

As already happened, this time we got a not significant regression ($F_{(5, 112)} = 0,77$). For this reason, we could not get any significant insight on the evolution of targets' EBITDA margin after an acquisition by an operating company and we cannot state that there will be some effects on targets' margin because of acquisition.

For what concerns revenues, we studied their evolution according to the same model we used before:

$REVENUES\_post_i = \alpha TREAT\_strategic_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

Even here we did not find significant results ($\alpha = -2.061$, $t = -0,31$, $p > 0,10$) despite a significant regression ($F_{(5,112)} = 236,52$). So, we were not able to state for an increase or a reduction in revenues following an acquisition by a strategic investor (Figure 50). This means that we cannot tell whether there will be an effect on targets' size in the period after the transaction.

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_strategic	-2060.882	6684.303	-0.31	0.758	-15304.97	11183.21
ROA_pre	27195.52	40668.06	0.67	0.505	-53383.03	107774.1
EBITDAmargin_pre	-191.2067	1855.174	-0.10	0.918	-3866.996	3484.582
DEBT_pre	12365.84	16485.23	0.75	0.455	-20297.52	45029.21
REVENUES_pre	.9942493	.0305004	32.60	0.000	.9338166	1.054682
_cons	-1638.946	6352.41	-0.26	0.797	-14225.43	10947.54

Figure 50, Regression results (TREAT_strategic on REVENUES_post), Source: STATA

Last sample of analysis was the one composed by companies acquired by financial investors and their comparable which have not been acquired. Even in this case the *psmatch2* constructed

each pair of treated and untreated subject with the Rubin's B indicator at 16,3% which guaranteed for the quality of the match[16].

*thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	35	0,06	0,10	-0,37	0,20
ROA_post	35	0,03	0,05	-0,07	0,18
EBITDA_pre	35	0,08	0,25	-0,85	0,75
EBITDA_post	35	0,05	0,39	-2,13	0,40
DEBT_pre	35	0,22	0,13	0,00	0,52
DEBT_post	35	0,26	0,13	0,01	0,64
REVENUES_pre*	35	66.890	73.027	295,69	255.404
REVENUES_post*	35	78.749	90.313	209,12	349.298

Table 18, FINANCIAL investors – Descriptive statistics of treated group - MATCHED, Source: STATA

*thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	35	0,06	0,10	-0,36	0,20
ROA_post	35	0,04	0,09	-0,24	0,20
EBITDA_pre	35	0,13	0,46	-1,59	1,56
EBITDA_post	35	0,18	0,45	-0,46	1,88
DEBT_pre	35	0,19	0,20	0,00	0,88
DEBT_post	35	0,18	0,18	0,00	0,81
REVENUES_pre*	35	6.888	15.529	29,98	81.026
REVENUES_post*	35	8.247	18.168	21,53	93.793

Table 19, Descriptive statistics of untreated (control) group - MATCHED, Source: STATA

Once we obtained the matched sample we proceeded with the last set of regressions. Always controlling for average profitability, EBITDA margin, indebtedness, and size pre-acquisition, we tested as first the effect of financial funds on targets' profitability evolution after transaction using the following model:

$ROA\_post_i = \alpha TREAT\_financial_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

The only difference with regards to prior models is the dummy variable TREAT_financial which takes value 1 if the company has been acquired by a financial fund and 0 otherwise. The regression we run was significant ($F_{(5, 64)} = 3,02$), but we did not obtain significant results ($\alpha = -0,010$, t= -0,56 p > 0,10). So, we were not able to tell whether there would be an increase or a decrease in targets profitability after financial investors intervention (Figure 51).

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[16] In *Appendix 1* trials with other matching variables and the reasons why we did not used them are presented.

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_finan~l	-.0101994	.0182395	-0.56	0.578	-.046637	.0262381
ROA_pre	.327195	.1091143	3.00	0.004	.1092142	.5451758
EBITDAmargi~e	-.0105833	.0301133	-0.35	0.726	-.0707414	.0495749
DEBT_pre	-.0024183	.0515039	-0.05	0.963	-.1053092	.1004727
REVENUES_pre	-2.10e-08	1.50e-07	-0.14	0.889	-3.22e-07	2.80e-07
_cons	.0256766	.0162882	1.58	0.120	-.0068628	.0582159

Figure 51, Regression results (TREAT_financial on ROA_post), Source: STATA

As usual, the second effect we tried to study was on the average EBITDA margin post-acquisition. The regression model was always the same:

$EBITDAmargin\_post_i = \alpha TREAT\_financial_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

And even here, despite a significant regression (F (5, 64) = 15,39), we did not obtain significant results (α = -0,09, t = -1,13, p > 0,10). We are not able to say if an acquisition by a financial fund would improve or deteriorate acquired companies' margin (Figure 52).

EBITDAmargi~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_finan~l	-.0931842	.0822278	-1.13	0.261	-.257453	.0710846
ROA_pre	-1.442812	.491912	-2.93	0.005	-2.425519	-.4601048
EBITDAmargi~e	1.033917	.1357574	7.62	0.000	.7627108	1.305124
DEBT_pre	-.1178499	.2321916	-0.51	0.614	-.5817059	.346006
REVENUES_pre	2.56e-07	6.78e-07	0.38	0.708	-1.10e-06	1.61e-06
_cons	.165249	.0734308	2.25	0.028	.0185541	.3119438

Figure 52, Regression results (TREAT_financial on EBITDAmargin_post), Source: STATA

Our last regression was to test the effect of financial buyers on targets' growth, and coherently with previous analyses, the model we used was:

$REVENUES\_post_i = \alpha TREAT\_financial_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

The output was a significant regression (F (5, 64) = 124,53), but again not significant results (α = 1.368, t = 0,21, p > 0,10). Main reason of this output relates to the different size of companies inside the samples which is the variable that most explains the variance. Even here we cannot support neither for an increase or a reduction in targets' growth in the period after the acquisition from a financial fund (Figure 53).

```
REVENUES_post │ Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
──────────────┼────────────────────────────────────────────────────────────────
TREAT_finan~l │  1368.338    6535.987     0.21   0.835     -11688.8     14425.47
      ROA_pre │  89755.52    39100.31     2.30   0.025     11643.68     167867.4
EBITDAmargi~e │ -11057.29    10790.87    -1.02   0.309    -32614.53     10499.95
     DEBT_pre │  2128.944    18456.07     0.12   0.909    -34741.29     38999.18
 REVENUES_pre │  1.142896     .0539102   21.20   0.000     1.035198     1.250594
        _cons │ -4398.627    5836.746    -0.75   0.454    -16058.87     7261.615
```

Figure 53, Regression results (TREAT_financial on REVENUES_post), Source: STATA

Table 20 sums up the results we gained with our regression. As we can see significant results were obtained only for what concerns the impact on profitability which seems to be negatively impacted by acquisitions. Regarding the other variables, results were not satisfactory, so in the following section we try to argue about the outputs and try to figure out the reasons behind the numbers we got.

	Acquisition	**Domestic Acquisition**	**Foreign Acquisition**	**Strategic Acquisition**	**Financial Acquisition**
ROA_post	negative	negative (not significant)	negative	negative	negative (not significant)
EBITDA_post	negative (not significant)	*regression not significant*	*regression not significant*	*regression not significant*	negative (not significant)
REVENUES_post	positive (not significant)	negative (not significant)	positive (not significant)	negative (not significant)	positive (not significant)

Table 20, Summary of regression results, Author Elaboration

4.5 Discussion: do the characteristics of the acquirer matter?

Our research contributes to the literature about M&As' impact on target performance at the sector level and tries to get insights on the effects of different possible investors on targets operating in the food & beverage industry. By the way our results seem to be different from some of the major previous literature (Phan and Hill, 1995; Harrison et al., 1991).

First insight we have discovered stems for a reduction in company's profitability in the period following the acquisition disregarding from the type of investors. Coherently with institutional theory which implies negative effects because of difference in target and acquiror (Campagnolo and Vincenti, 2022) what we got tells us that, on average, companies which would be acquired will probably experience lower ROA values. This seems to hold in general (see acquisition vs non-acquisition) and when we are in front of foreign and strategic buyers. Coherently with the

problems we exposed in paragraph *2.5.2*, it could be more difficult to integrate companies coming from different countries because of the distance (geographic and cultural). In addition, we are talking about a sector characterized by high level of *corporate culture* mainly related to companies' features: being mainly family enterprises there is a link with tradition and Italian culture. As we exposed in Chapter 1, the Italian food & beverage sector is symbol of quality in Italy and abroad (Cerved Market Intelligence, 2022), and to operate inside it, deep knowledge of processes and tradition is required, since also products and processes have a link with Italy. When a company experiences an acquisition, it could happen that organizational structure changes with direct consequences on the efficiency of the process. In particular, this could happen with foreign buyers who are strangers to Italian culture. This is confirmed by regression numbers which tell us that on average companies acquired by foreign investors will experience a 2,83% lower ROA compared to the 1,96% lower ROA of the totality of acquisitions. For what concerns strategic acquirers, the negative impact could be due to features we described in Chapter 2 (i.e., need to integrate the businesses). By having the necessity to combine the two businesses, it is possible that with strategic acquirers we need longer period of time to see synergies realization, and this could show up with negative impact in the short-term. On the other hand, we found not significant impact on ROA in case of domestic, and financial investors. This means that acquisitions made by those kinds of acquirers seem to not have an impact on targets profitability, at least for our analysis.

When looking at the lower level of ROA in the post-acquisition phase, we could try to get insights on whether this lower value is due to intrinsic characteristics of target acquired (i.e., ROA degrowth prior to acquisition) or to acquisition effects (i.e., bad synergies exploitation). To try to understand which situation is closer to our samples, we looked at ROA pre-transaction evolution computing its growth or degrowth from the third year prior to acquisition to the year before it. According to our findings (Figure 54) in the majority of the samples, ROA was growing in the period immediately before the transaction. This supports, at least partially, the hypothesis that the lower level of ROA could be attributable to acquisition outcome. With the exception of foreign and strategic buyers that invested most in "bad-performing" companies, so, the negative effect on ROA post could be due also to intrinsic characteristics of the targets. To be more precise, in the next paragraph we are going to test whether the pre-acquisition condition of the target could have an impact on the post-transaction performance. By the way, we highlight that what we observed to support this thought is limited to a short-term period which implies the possibility that the integration process is not still completed, so an analysis in the long run may provide different and more precise outcomes (Bertrand and Zitouna, 2008).

Figure 54, ROA growth in the period before acquisition (3 years), Data: Orbis database (BvD), Author Elaboration

Looking at EBITDA margin, we did not find any significant relationship between the different treatments and the variable. Prior literature discovered a positive relationship between the acquisition by foreign companies and the average margin post-acquisition highlighting an increased profitability of foreign acquired firms compared to purely domestic ones (Campagnolo and Vincenti, 2022). Our sample of foreign acquired did not allow to run a significant regression, and the same happened with companies acquired by domestic and strategic investors. This way we are not able to get any insight about the impact on the Italian food & beverage sector for these types of acquirers. For what concerns the other samples, due to the lack of significant results we conclude that acquisitions have no impact on firms' margin in the years following the transaction. By the way, given the fact that EBITDA margin was not a variable used for the match, we have that the two samples present some differences, and this could be one of the reasons why regressions are not able to identify any significant correlation between the treatment and the margin evolution post-acquisition.

Lastly, our research contributes to identify the link between acquisitions and the average post-transaction size of targets. As shown in the previous paragraph, no significant results were obtained, but here the main problem relates to the size of the companies in the samples. Indeed, what can be observed is that, on average, companies in the treated samples are almost 10 times

bigger compared to companies in the untreated ones. This was true also before implementing the matching, by the way, we did not match on the base of the revenues because no significant match was available (see *Appendix 1*), so we encounter this difference also after the chosen matching procedure. That's why in all our samples when looking for the treatment impact on targets' size, we controlled for the average pre-transaction revenues. In fact, if we do not control for them, we find *statistically* significant and positive impact of treatment on average post-transaction size of targets. However, this would be misleading since the acquired companies were already bigger compared to not acquired ones, so they are not larger because of the acquisition. Even if not significant, in most of the samples the treatment coefficient has a positive sign, leaving the floor open for future research that can try to get significant results about the positive effect of acquisitions on targets size. That said, is there a reason why companies subject to acquisition are bigger? We could hypothesize that investors are more interested in firms which already have a structured and a solid turnaround, symbol of a functioning customers network. However, this prototype of company does not match the idea of small family business we associate to the firms operating in the food & beverage sector. Investors in this sector bought both small and medium enterprises (SMEs) and larger companies. So, it could be interesting getting insights on the different outcomes according to the dimension of the target, and that's exactly what we are going to do in the following paragraph.

4.6 What if the acquisition outcome depends on the target?

Given that the results did not show significant effects on targets performance according to different acquirers, we tried to get insights on the possible effects given *a priori* characteristics of the target, that we believed could be of some relevance to better understand the determinants of post-acquisition performance. All of these, disregarding the acquirer type and focusing only on the event "*acquisition*".

In a first place we decided to analyze the different post-acquisition performance according to the target pre-acquisition conditions. We divided our acquired companies in *top performer* and *normal*. The first sample was made up with those firms that in the three years prior to the acquisition presented growth in both profitability and size (i.e., ROA growth and revenues growth > 0). On the other side, the *normal* sample was made up with all other companies that presented degrowth in at least one of the two dimensions or on both of them.

In a second place, we divided our targets according to their dimensions (based on number of employees in the transaction year) in *SME* and *large* companies. We considered as *SME* all the

firms that presented less than 50 employees at acquisition (the ones with 50 employees are included) and accordingly, we considered as *large* the ones with more than 50 employees at acquisition date.

4.6.1 Being top performer matters?

For this part of analysis also, we applied PSM to match first, *top performer* targets and then *normal* targets with our control group to test the effects of acquisition on ROA, EBITDA margin, and revenues post-transaction.

Investing in *top performer,* we hypothesize that acquirers left them at that: profitable companies growing in size. So, we could attribute any significative effect to already existent target's characteristics. On the other hand, *normal* firms presented negative performance in profitability or revenues or both in the period before the acquisition, so it is likely that investors implemented some actions (i.e., redesigning business model, investing in new assets) that could have an impact on post-acquisition performance.

Even this time, for all the four samples (*top performer, normal, SME,* and *large*) of this analysis we matched treated and untreated units on the base of ROA_pre and DEBT_pre. Table 21 and 22 summarize descriptive statistics of the control and the treated group for *top performer* sample (Rubin's B indicator at 7,1%).

thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	26	0,07	0,05	-0,08	0,15
ROA_post	26	0,04	0,10	-0,23	0,30
EBITDA_pre	26	0,13	0,13	0,03	0,75
EBITDA_post	26	0,10	0,14	-0,41	0,40
DEBT_pre	26	0,19	0,11	0,00	0,46
DEBT_post	26	0,26	0,19	0,00	0,91
REVENUES_pre*	26	39.787	64.951	1.066	291.382
REVENUES_post*	26	47.622	66.333	1.789	268.594

Table 21, TOP PERFORMER targets – Descriptive statistics of treated group – MATCHED, Source: STATA

thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	26	0,07	0,05	-0,00	0,17
ROA_post	26	0,04	0,08	-0,10	0,23
EBITDA_pre	26	0,16	0,18	0,02	0,87
EBITDA_post	26	0,12	0,15	-0,03	0,58
DEBT_pre	26	0,18	0,18	0,00	0,76
DEBT_post	26	0,18	0,14	0,00	0,56
REVENUES_pre*	26	4.112	7.686	76,77	29.034
REVENUES_post*	26	5.705	11.180	117,60	41.501

Table 22, Descriptive statistics of untreated (control) group – MATCHED, Source: STATA

Even here we started analyzing the effect on post-acquisition profitability (average ROA post). The model we used was:

$ROA\_post_i = \alpha TREAT\_top\ performer_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

We end up with a not significant regression ($F_{(5, 46)} = 1{,}11$). This does not allow us to understand whether once acquired, top performer companies presented an increase or a decrease in profitability.

Second measure of interest was the EBITDA margin, on which we tested the effect using the same model as before:

$EBITDAmargin\_post_i = \alpha TREAT\_top\ performer_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

What we had here is a significant regression ($F_{(5, 46)} = 6{,}93$) with not significant results ($\alpha = -0{,}014$, $t = -0{,}44$, $p > 0{,}10$). This finding does not allow us to support an increase or a reduction in *top performer* companies' margin in the period following the acquisition (Figure 55).

EBITDAmargin_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_topperformer	-.0146939	.0337223	-0.44	0.665	-.0825735	.0531856
ROA_pre	.1242361	.3295345	0.38	0.708	-.5390824	.7875547
EBITDAmargin_pre	.5394683	.1035342	5.21	0.000	.3310647	.7478718
DEBT_pre	.135891	.1118834	1.21	0.231	-.0893186	.3611006
REVENUES_pre	3.05e-07	3.54e-07	0.86	0.392	-4.07e-07	1.02e-06
_cons	-.0022951	.0379706	-0.06	0.952	-.0787259	.0741357

Figure 55, Regrression results (TREAT_top performer on EBITDAmargin_post), Source: STATA

Lastly, we tested revenues evolution always controlling for all the variables pre-acquisition:

$REVENUES\_post_i = \alpha TREAT\_top\ performer_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

Based on significant regression ($F_{(5, 46)} = 134{,}87$) we obtained, even here, not significant results ($\alpha = 6.198$, $t = 1{,}51$, $p > 0{,}10$). We cannot say that *top performers* increase or decrease their size in the period following the acquisition. By the way, despite not significant, coefficient is positive (Figure 56).

```
    REVENUES_post | Coefficient  Std. err.      t    P>|t|    [95% conf. interval]
------------------+--------------------------------------------------------------
TREAT_topperformer|   6197.862   4109.279    1.51   0.138    -2073.686    14469.41
          ROA_pre |   64366.48   40155.86    1.60   0.116    -16463.07      145196
   EBITDAmargin_pre|  -2371.492   12616.29   -0.19   0.852    -27766.78    23023.79
         DEBT_pre |   689.1699     13633.7    0.05   0.960    -26754.04    28132.38
     REVENUES_pre |  .9960481    .0431035   23.11   0.000     .9092853    1.082811
            _cons |  -2567.321    4626.954   -0.55   0.582     -11880.9    6746.255
```

Figure 56, Regression results (TREAT_top performer on REVENUES_post), Source: STATA

Once completed the analysis on *top performer* we replicated it for *normal* companies. Starting by the matching procedure, the *psmatch2* combined all the treated subjects with an untreated one (Rubin's B indicator at 6,5%). As before, table 23 and 24 present the descriptive statistics of both the treated and the control group.

thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	68	0,05	0,10	-0,37	0,30
ROA_post	68	0,03	0,08	-0,34	0,18
EBITDA_pre	68	-0,20	2,13	-17,45	0,30
EBITDA_post	68	0,05	0,28	-2,13	0,43
DEBT_pre	68	0,21	0,14	0,00	0,61
DEBT_post	68	0,22	0,16	0,01	0,78
REVENUES_pre*	68	85.977	137.147	58,53	768.534
REVENUES_post*	68	88.888	146.985	44,59	942.612

Table 23, NORMAL targets – Descriptive statistics of the treated group – MATCHED, Source: STATA

thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	67	0,05	0,09	-0,29	0,30
ROA_post	67	0,04	0,08	-0,31	0,30
EBITDA_pre	67	0,13	0,23	-0,30	1,43
EBITDA_post	67	0,10	0,15	-0,19	0,84
DEBT_pre	67	0,21	0,19	0,00	0,87
DEBT_post	67	0,19	0,18	0,00	0,82
REVENUES_pre*	67	8.761	24.028	91,51	147.139
REVENUES_post*	67	10.691	30.305	81,95	177.720

Table 24, Descriptive statistics of the untreated (control) group – MATCHED, Source: STATA

Starting from effects on profitability, we replicated the model:

$ROA\_post_i = \alpha TREAT\_normal_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

Despite a significant regression (F $(5, 129) = 6,89$) not significant results were obtained ($\alpha = -0,013$, $t = -0,92$, $p > 0,10$). We are not able to tell whether acquirors acted significantly on the profitability of *normal* targets, by the way, even if not significant the impact tends to be negative (Figure 57).

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_normal	-.0128324	.0139183	-0.92	0.358	-.04037	.0147053
ROA_pre	.3758011	.0734912	5.11	0.000	.2303969	.5212052
EBITDAmargin_pre	-.0001948	.0043689	-0.04	0.965	-.0088387	.0084491
DEBT_pre	-.0307682	.0404753	-0.76	0.449	-.1108496	.0493133
REVENUES_pre	5.20e-08	6.57e-08	0.79	0.430	-7.79e-08	1.82e-07
_cons	.0234891	.0137789	1.70	0.091	-.0037728	.0507509

Figure 57, Regression results (TREAT_normal on ROA_post), Source: STATA

Moving to the EBITDA margin and always using the same model:

$EBITDAmargin\_post_i = \alpha TREAT\_normal_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

Unfortunately, in this case we did not obtain significant regression (F (5, 129) = 1,44), and this does not allow us to tell anything about how acquisition impacted on *normal* companies' margins.

In the end, we tested revenues:

$REVENUES\_post_i = \alpha TREAT\_normal_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

Even here, despite a significant regression (F (5, 129) = 251,20) we did not get any significant result (α = -112, t = -0,02, p > 0,10). Despite the result is not significant, we have that the coefficient is negative (Figure 58). Further research could get insights on the decreased size of targets in the period following the acquisition.

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_normal	-111.9435	6570.372	-0.02	0.986	-13111.59	12887.7
ROA_pre	65195.52	34692.84	1.88	0.062	-3445.122	133836.2
EBITDAmargin_pre	-131.0162	2062.408	-0.06	0.949	-4211.54	3949.508
DEBT_pre	22949.19	19107.11	1.20	0.232	-14854.69	60753.08
REVENUES_pre	1.015713	.0309954	32.77	0.000	.9543879	1.077038
_cons	-6249.479	6504.566	-0.96	0.338	-19118.92	6619.964

Figura 58, Regression results (TREAT_normal on REVENUES_post), Source: STATA

4.6.2 Being SME or large matters?

We then asked ourselves whether the target dimension could have an impact on the post-acquisition time performance. As we said, by being of bigger dimension, large companies can count on developed processes and larger-scale network of relationships (i.e., higher contractual power). For this reason, investors could decide to bet on them and their already consolidated position. On the other side, small & medium enterprises could need more investors' action to

grow and to have access to more resources (both financial and economics). We started by matching *SME* with untreated companies. Matching results are shown in Tables 25 and 26 (Rubin's B indicator at 21,9%).

*thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	52	0,05	0,11	-0,37	0,30
ROA_post	52	0,04	0,09	-0,34	0,30
EBITDA_pre	52	-0,27	2,44	-17,45	0,75
EBITDA_post	52	0,06	0,33	-2,13	0,43
DEBT_pre	52	0,19	0,14	0,00	0,61
DEBT_post	52	0,23	0,18	0,00	0,78
REVENUES_pre*	52	18.748	37.545	295,69	255.404
REVENUES_post*	52	23.031	42.991	209,12	291.015

Table 25, SME targets – Descriptive statistics of treated group – MATCHED, Source: STATA

*thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	51	0,07	0,08	-0,13	0,31
ROA_post	51	0,04	0,09	-0,33	0,32
EBITDA_pre	51	0,17	0,22	-0,03	1,34
EBITDA_post	51	0,21	0,45	-0,38	2,62
DEBT_pre	51	0,22	0,25	0,00	0,96
DEBT_post	51	0,22	0,20	0,00	0,97
REVENUES_pre*	51	6.764	18.471	51,37	122.182
REVENUES_post*	51	7.476	17.905	49,49	108.470

Table 26, Descriptive statistics of untreated (control) group – MATCHED, Source: STATA

For this analysis we used the same model as the prior one, so, starting by profitability we implemented the following regression:

$ROA\_post_i = \alpha TREAT\_SME_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

Here we obtained significant regression (F (5, 97) = 3,43), but not significant results (α = 0,006, t = 0,39, p > 0,10), so no impact of acquisitions on small & medium companies' profitability (Figure 59).

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_SME	.006699	.0173106	0.39	0.700	-.0276577	.0410558
ROA_pre	.3468212	.0929334	3.73	0.000	.1623742	.5312682
EBITDAmargin_pre	.0008469	.0049973	0.17	0.866	-.0090713	.010765
DEBT_pre	-.0240562	.0429831	-0.56	0.577	-.1093657	.0612533
REVENUES_pre	8.44e-08	2.86e-07	0.30	0.768	-4.83e-07	6.51e-07
_cons	.0172814	.0171876	1.01	0.317	-.0168312	.051394

Figure 59, Regression results (TREAT_SME on ROA_post), Source: STATA

Next, we tested effects on EBITDA margin following our model:

$$EBITDAmargin\_post_i = \alpha TREAT\_SME_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$$

For what concerns EBITDA margin post-transaction of SME, we obtained a not regression (F (5, 97) = 1,98). So, we are not able to tell whether acquisitions increase or decrease average margin of targets acquired in the period following the acquisition.

As usual, last dimension we tested for this sample is revenues. Coherently with all we have done until now we regressed the following:

$$REVENUES\_post_i = \alpha TREAT\_SME_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$$

Significant regression (F (5, 97) = 400,80) with *slightly statistically* significant results (α = 2.752, t = 1,81, p < 0,10). We got results that tell us SMEs increase their size in the period immediately after the acquisition (Figure 60).

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_SME	2752.388	1520.174	1.81	0.073	-264.7362	5769.513
ROA_pre	1833.573	8161.171	0.22	0.823	-14364.09	18031.24
EBITDAmargin_pre	218.7425	438.8465	0.50	0.619	-652.2463	1089.731
DEBT_pre	2970.613	3774.665	0.79	0.433	-4521.053	10462.28
REVENUES_pre	1.085847	.0250829	43.29	0.000	1.036064	1.13563
_cons	-685.9548	1509.37	-0.45	0.651	-3681.637	2309.727

Figure 60, Regression results (TREAT_SME on REVENUES_post), Source: STATA

Last matching procedure we implemented is the one for *large* targets. Each acquired company (treated) was matched with an untreated unit (Rubin's B indicator at 18%).

thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	42	0,05	0,06	-0,10	0,20
ROA_post	42	0,02	0,08	-0,23	0,18
EBITDA_pre	42	0,10	0,07	-0,08	0,30
EBITDA_post	42	0,07	0,11	-0,41	0,20
DEBT_pre	42	0,22	0,12	0,02	0,52
DEBT_post	42	0,22	0,15	0,01	0,91
REVENUES_pre*	42	140.619	155.300	58,53	768.534
REVENUES_post*	42	144.880	167.500	44,59	942.612

Table 27, LARGE targets – Descriptive statistics treated group – MATCHED, Source: STATA

*thousand USD	Obs.	Mean	Std. Dev.	Min.	Max
ROA_pre	42	0,05	0,06	-0,09	0,20
ROA_post	42	0,04	0,08	-0,16	0,24
EBITDA_pre	42	0,11	0,11	-0,04	0,52
EBITDA_post	42	0,10	0,12	-0,19	0,44
DEBT_pre	42	0,19	0,18	0,00	0,60
DEBT_post	42	0,23	0,23	0,00	1,22
REVENUES_pre*	42	7.250	14.451	30,39	74.163
REVENUES_post*	42	9.432	21.254	23,07	117.805

Table 28, Descriptive statistics of untreated (control) group – MATCHED, Source: STATA

We first applied the model to test effects on large targets' profitability:

$ROA\_post_i = \alpha TREAT\_large_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

Significant regression (F $(5, 78)$ = 4,25) brought significant results (α = -0,05, t = -2,49, p < 0,05). We have that acquisition reduce ROA of large targets, negatively impacting their profitability in the period immediately after the acquisition (Figure 61).

```
        ROA_post │ Coefficient  Std. err.      t    P>|t|     [95% conf. interval]
─────────────────┼────────────────────────────────────────────────────────────────
     TREAT_large │  -.0459026   .0184457    -2.49   0.015    -.0826252    -.00918
         ROA_pre │    .426264   .1553538     2.74   0.008     .1169783    .7355497
 EBITDAmargin_pre │   .0948799    .095788     0.99   0.325    -.0958193    .2855791
        DEBT_pre │  -.0426087   .0543239    -0.78   0.435    -.1507591    .0655418
    REVENUES_pre │   1.53e-07   7.18e-08     2.14   0.036     1.04e-08    2.96e-07
           _cons │     .01878   .0183092     1.03   0.308    -.0176709    .0552309
```

Figure 61, Regression results (TREAT_large on ROA_post), Source: STATA

Second dimension we analyzed was EBITDA margin evolution post acquisition according to our model:

$EBITDAmargin\_post_i = \alpha TREAT\_large_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

We obtained significant regression (F $(5, 78)$ = 14,31), but not significant results (α = -0,04, t = -1,63, p > 0,10). We cannot say that acquisitions improve or deteriorate target companies' margin. By the way, the coefficient is negative stemming for a negative impact of acquisitions on large targets EBITDA margin (Figure 62).

EBITDAmargin_p~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_large	-.0355415	.02185	-1.63	0.108	-.0790414	.0079584
ROA_pre	-.2255769	.1840252	-1.23	0.224	-.591943	.1407892
EBITDAmargin_pre	.894087	.1134662	7.88	0.000	.6681932	1.119981
DEBT_pre	-.0741152	.0643496	-1.15	0.253	-.2022254	.053995
REVENUES_pre	1.51e-07	8.50e-08	1.78	0.079	-1.81e-08	3.21e-07
_cons	.0269432	.0216883	1.24	0.218	-.0162349	.0701213

Figure 62, Regression results (TREAT_large on EBITDAmargin_post), Source: STATA

In the end, last regression we run was to test large targets' post-acquisition revenues:

$REVENUES\_post_i = \alpha TREAT\_large_i + \beta ROA\_pre_i + \mu EBITDAmargin\_pre_i + \gamma DEBT\_pre_i + \delta REVENUES\_pre_i + \_cons$

The regression we run was significant ($F(5, 78) = 146,07$) but did not provide significant results ($\alpha = -833$, $t = -0,07$, $p > 0,10$). In this way, we are not able to understand whether the impact of acquisition is since it seems to be absent (Figure 63). Despite this, the coefficient is negative stemming for a smaller size for acquired firms (even if not significant).

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_large	-833.4014	11316.62	-0.07	0.941	-23363.06	21696.25
ROA_pre	269492	95311.11	2.83	0.006	79742.18	459241.9
EBITDAmargin_pre	-5053.026	58766.87	-0.09	0.932	-122048.9	111942.8
DEBT_pre	34834.98	33328.22	1.05	0.299	-31516.4	101186.4
REVENUES_pre	1.011961	.044047	22.97	0.000	.9242697	1.099651
_cons	-18270.17	11232.89	-1.63	0.108	-40633.14	4092.809

Figure 63, Regression results (TREAT_large on REVENUES_post), Source: STATA

4.6.3 Discussion: do the characteristics of the target matter?

What we did in this paragraph had the aim to complement the main analysis of this thesis. We discovered that, grouping the targets according to their own characteristics instead of according to acquirers' ones could reveal additional insights on post-acquisition performance of acquired corporations. Table 29 sums up what we have just presented.

Our hypothesis of a negative impact of acquisitions on post-transaction performance seem to find confirmation also in this second analysis results. What we obtained, even when not significant, testifies a decreased post-acquisition performance in terms of profitability and margins for all targets type. Only exception is SMEs' profitability which presented a positive coefficient (not *statistically* significant). Despite being top performer, and/or large companies they also suffer in the three years following the acquisition. The only positive outcome concerns targets' growth post-transaction. Regressions on revenues presented for *top performer* and SME

targets show positive coefficient in terms of revenues, but this is *statistically* significant only for *small & medium* firms.

	Top performer **targets**	*Normal* **targets**	*SME* **targets**	*Large* **targets**
ROA_post	*regression not significant*	negative (not significant)	postive (not significant)	**negative**
EBITDA_post	negative (not significant)	*regression not significant*	*regression not significant*	negative (not significant)
REVENUES_post	positive (not significant)	negative (not significant)	**positive**	negative (not significant)

Table 29, Summary of regression results, Author Elaboration

Comparing these results with the ones presented in Table 20, allows us to hypothesize some conclusions:

1. the negative impact on profitability depends on the type of buyer (foreign, strategic), but it is present also in case of *large* targets, so post-acquisition ROA is significantly affected by both the acquirer's (being foreign or strategic) and the acquiree's characteristics (being a *large* target),

2. for what concerns revenues, the only *statistically* significant effect was positive for *SME* targets. Being the other results mixed (and not *statistically* significant) both for different buyers and targets, does not allow us to state for a positive or negative impact on post-acquisition performance,

3. not significant regressions or not significant results both for different acquirers and different targets samples in terms of EBITDA margin do not allow us to exclude a positive or a negative impact of acquisitions in target's performance.

These conclusions leave the floor open to future research that can implement regression models which combine the characteristics of both acquirers and targets to study the post-transaction performance.

4.7 Managerial and policy implications

From a managerial perspective, our results advise target owners to well evaluate whether it is worth to be acquired or not. Indeed, on the base of this study, acquisitions have a negative impact on acquired firms given they seem to reduce targets' profitability in the period after the transaction. Being the study focused on the food & beverage sector further considerations can be done in relation to sector's features. As we highlighted, to operate in this industry knowledge

of culture and processes is required and this is surely a fact managers need to consider in case multiple investors are interested in their company. They should be able to understand which of the potential bidders would be able to exploit synergies given its preparation and understanding of the industry. For example, Italian corporations would be closer to targets than foreign ones given that they share culture and knowledge. On the other side, financial investors are used to leave management of the acquired company in place, and this would guarantee continuity compared to a strategic buyer that would probably extend its organizational structure to the target. By the way, even if we obtained negative effects on targets' profitability for foreign and strategic investor, the other results do not support any evidence about this, since they tell there is no significant impact of acquisitions by domestic, and financial buyers. As we explain in the next paragraph, we leave the floor to future research to try to get insights on different acquirers' impact. We do not find support for positive effects of acquisition on targets' EBITDA margin and size given different acquirer characteristics, so what we can suggest to owners of acquired firms is to be conscious of which the aim of the sale is. Probably, if the only aim would be to increase profitability, according to our analysis, external growth it is not a good choice, but if the aims are others (i.e., increase company's size) our study do not exclude positive impact of transaction on the post-acquisition target performance, whatever the acquirer. In fact, according to what we exposed in Chapter 1, business combinations in the food & beverage sector are a solution to industry's problems such as fragmentation and generational problems.

From the acquirer point of view, if we look at sector's features, companies operating in the food & beverage industry could be good targets for an acquisition strategy. As we highlighted in the first chapter of this thesis, firms active in the *agro-industrial* business benefit from increases in revenues and production value. This could be an incentive for potential investors interested in the sector: entering in a healthy company provides advantages in terms of established and functioning processes and guarantees less financing problems (lower cost of financing because of lower risk). By the way, the complementing analysis we did shows primarily negative effects on targets profitability and margins, for any type of target and disregarding the type of acquirer, with the only exception of *small & medium* targets. To understand if it is worth to invest, considering each acquirer characteristics could be useful. For example, Italian companies operating in the same sector should be the most interested one. In fact, what we said about the domestic acquirer (i.e., no cultural and geographical distance, sharing language, and values) and the importance of corporate culture for Italian food & beverage companies suggest that Italian firms would easily enter those targets compared to foreign acquirers that should overcome distance barriers and learning Italian culture. On the other hand, between strategic

and financial investors these last one could be particularly interested in food & beverage targets. In fact, as we already said, given that we are in front of a healthy sector with major need for investments, growth potential is big for financial acquirers that are mainly interested in earning from the investment. In particular, the fact that financial buyers use to leave the management of the investee, is the base for allowing the target to follow its growth path and to reach the prefixed acquirer's aim. Strategic buyers instead could have different acquisition aims above synergies creation. For example, a strategic investor could acquire a competitor that otherwise could put its strategy at risk, or it could acquire a supplier to ensure continuous supply. By having different purposes, whether an acquisition is a good or a bad deal depend on different situations.

That said, which is a better acquirer? Maybe not the foreign one, given that, on average, we obtained that companies acquired by these investors see their profitability reduced after the transaction. On the other hand, even if with not *statistically* significant results, we got that financial buyers seem to outperform strategic ones (given their *statistically* significant negative effect on ROA) ending up being better investors than operating companies. And also, which targets benefitted from acquisitions? We got that, if *large* targets suffer from acquisition because of a reduction in ROA post value, *SME* firms result being better off in terms of growth (i.e., increased level of sales post-transaction).

Lastly, considering policy implications, Italy tends to be skeptical particularly in front of foreign investors, and the negative impact on profitability that we obtained in our study seems to support this hostility. Relative to this, we found out that no *golden power*[17] is in place for companies operating in the food & beverage sector. As we said multiple times, the *agro-industrial* sector is one of the pillars for the Italian economy (Cerved Market Intelligence, 2022) and it is one of the symbols of the Made in Italy around the world. Together with this, we have seen that it has been subject to increasing number of acquisitions from foreign investors (both strategic and financial) and we had that they deteriorate post-acquisition performance in terms of ROA. Given this evidence, and keeping in mind we are talking about a healthy growing sector (Sgambato, 2022) which helped Italy supporting the economic restart following the pandemic, one might ask: wouldn't it be appropriate to activate, in some situations, a *golden power* also for a strategic sector as the food & beverage one is?

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[17] Introduced with the law-decree number 21 of 2012, the golden power allows the government to veto resolutions, acts or operations implementation of companies manage strategic activities, dictating conditions and prescriptions or opposing a veto on the purchase of shareholdings (Bechis, 2022). It was primarily thought for prevent foreign investments in Italian strategic sectors such as defense, energy, 5G network, transports, communications, and pharmaceutical. In 2021, 496 warnings were presented.

In addition, according to our results, policymakers should safeguard food & beverage targets from acquisition in general given that their profitability post-transaction could be affected. By the way, as we said multiple times, the not significant outcomes we obtained for EBITDA margin and growth, do not allow us to suggest policymakers to disincentivize acquisitions. This is confirmed by the analysis according to targets' features that highlighted a positive impact of acquisitions on *SME* targets and presented positive coefficients for *top performer* (even if not *statistically* significant). Given sector's features such as fragmentation, generational problems, and the need for investments, consolidation could be a solution to overcome them, ending up preserving sectors' growth and allowing for foreign affirmation. That said, future research, on a longer period of time after the acquisition, could study long-term implications that should help to have insight on the effective resolution of the aforementioned sector's limitations.

4.8 Limitations and future research

Our research presents several limitations that leave space for future research. First, when considering the three years post-acquisition values, we included only targets which are still active, without considering those that bankrupted and those that have been incorporated. By observing only still operating companies, we are in presence of the so-called *survivorship bias*, which seems to be technically not eliminable (Barbaresco et al., 2018).
Second limitation goes together with the first one and relates to small-sized samples. Because of limited data availability in our accessible databases, most of the observations were dropped causing a considerable reduction in treated subjects. Future research could fill the gap due to these two limitations by using secondary data (i.e., accounting data on incorporated companies) and different databases which would provide more information than the one we were able to get.

Third, regression models we used for this study were general models that most likely do not consider all the potential covariates that could affect the outcome post-transaction. Being able to control for additional features both of the target (i.e., growth before acquisition) and of the bidder (i.e., cultural distance from the target) could guarantee the generation of a more complete model which would be able to capture those confounders we did not control for. In addition, we only studied accounting-based variables, but including also non-financial variables (i.e., level of R&D) could get more insights. On this side, future research should deepen our study by implementing diversified models with multiple variables.

Fourth, even if we supposed that the Covid-19 effects have been mitigated given that both the treated and control group faced the pandemic period (i.e., the samples include 2020 and 2021

accounting numbers), we cannot control for the qualitative impact. For example, because of the pandemic it is possible that the integration processes of companies acquired in 2018 have been stopped or partially modified because of the new challenges the period required. One way for future research to try to fill this gap is by interviewing acquiring company's owners to understand in which way the pandemic created unexpected issues and if and how these issues impacted on the business combinations.

Fifth, in our study we considered a time frame of 3 years after the acquisition to analyze its impact on targets performance. Implementing only short-time analysis keeps out those effects that will show only after long-time periods (Bertrand and Zitouna, 2008). As we already highlighted, the integration process could take more than just 3 years, so future research could cover longer-time periods that can complement and give further insights to our analysis.

Lastly, the analysis, above being implemented at the sector level, it is focused on a peculiar sector of the Italian economy. Even if this is not a limitation, given that we chose the food & beverage sector for specific reasons, it suggests extending the analysis allowing for results' generalization. In fact, siding these results with studies about other Italian manufacturing sectors characterized by deep know-how such as fashion or furniture ones could give solidity in terms of results and complement our analysis.

4.9 Conclusions

This chapter allowed us to study the phenomenon of M&As in the Italian food & beverage sectors, providing us some significant and interesting results. Starting from control group description, moving through explanation of statistical model we used and its STATA command output, we came up to practical implementation of regression models. The control group is made up by more than 14 thousand companies active in the food & beverage and in the agricultural sector and presents lower values of variables, on average. To overcome some of the difference among the samples and being able to compare treated units with untreated ones, we applied the Propensity Score Matching methodology. Using the *psmatch2* function of STATA, we matched our samples on the base of two variables: average ROA and average indebtedness pre-transaction. Matching resulted to be of some quality, and this allowed us to run our regressions.

What we discovered is that acquisitions seem to negatively impact on targets' profitability, with most important results for what concerns acquisitions in general (first sample of analysis), acquisitions by foreign investors, and by strategic ones. Above the negative effects on

profitability, treatment coefficients tell us that on average, food & beverage targets acquired by foreign or strategic buyer will experience a lower level of ROA after transaction compared to companies subject to acquisition, whatever the acquirer. Despite a negative effect on the ROA side, not significant effects have been observed for what concerns EBITDA margin and growth post-transaction. Our results could be of some help for managers of the sector who are interested in being acquired by different investors. They should evaluate whether the aim of the sale is and being conscious that, if increase of profitability is not an option, positive effects of acquisition (i.e., in terms of company size) on targets' post-acquisition performance have not been excluded, for any kind of acquirer.

To complement our findings and get additional insights, we did the same analysis differentiating, this time, for targets characteristics. What we obtained were negative effect on average ROA post-transaction of *large* companies, but positive on revenues for *small & medium* companies. By the way, here we find confirmation of the negative impact on average profitability for food & beverage targets in the period following the acquisition, that support our hypotheses.

Despite these results, our study presents some limitations such as the *survivorship bias*, the short-term horizon, and the limited size of the samples. These gaps to be filled, together with the not *statistically* significant results we obtained leave the floor to future research that may try to analyze the effects of acquisitions on this particular and interesting sector for the Italian economy.

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Appendices

Appendix 1 – Matching attempts

In implementing the matching, we encountered some difficulties because of bad quality of the match or because of not significant regressions. This appendix presents the different trials we did before finding a more satisfactory matching alternative, that is the one we have presented in our analysis.

In a first place we wanted to study the effect of acquisitions on the growth path of our variable of interest (i.e., ROA, EBITDA margin, and revenues growth post-acquisition). This way we would have mitigated the difference among the two samples in terms of absolute numbers (i.e., revenues) by comparing them on a relative base. To do this, we computed both growth pre- and post-acquisition as follows:

$$Xpre_{growth} = \frac{(X_{t-1} - X_{t-3})}{X_{t-3}} \qquad Xpost_{growth} = \frac{(X_{t+3} - X_{t+1})}{X_{t+1}}$$

Where X is the variable of interest computed both for independent (ROA, EBITDA margin, indebtedness, and revenues growth pre-acquisition) and dependent variables (ROA, EBITDA margin, and revenues growth post-acquisition). Looking at the first equation, *t-1* is the year prior to the acquisition and *t-3* refers to values three years before acquisition. On the other hand, looking at the second equation *t+1* is the year following the acquisition and *t+3* refers to value of three years after the transaction.

Once defined the variables, we tried to match on the base of independent variables, but apart from the sample *acquisition vs non-acquisition*, we did not obtained matching of quality. Even if we dropped some of the independent variables and tried to match only on the base of two of these variables (i.e., ROApre_growth and DEBTpre_growth). In fact, the Rubin's B indicator was well above 25% in all the samples. In addition to this, no significant regressions were constructed given that in all cases "Prob > F" was above 0,005.

So, we abandoned this option and decided to go for the absolute values. We computed the average values of all variables pre- and post-acquisition as follows:

$$X_{pre} = \frac{X_{t-3} + X_{t-2} + X_{t-1}}{3} \qquad X_{post} = \frac{X_{t+1} + X_{t+2} + X_{t+3}}{3}$$

In a first version, we tried to match on the base of all the available independent variables, but again we encountered problems in terms of matching quality. Indeed, also here, the Rubin's B indicator was well above 25% in all the samples. By the way, looking at the regressions, we

faced, not only significant models, but also some significant results. So, starting from this evidence, we decided to try to match the samples on the base of a lower number of variables, paying the price of a higher variance for the other ones (that we explained in paragraph *4.5*). After trying different combination of variables (i.e., EBITDA margin & revenues pre-acquisition, ROA & revenues pre-acquisition), we end up with matching that presented a lower than 25% Rubin's B indicator in all the samples for the combo ROA & indebtedness pre-acquisition. And this is the final option we used for the matching procedure and the regressions models.

By the way, we did not stop here, given that we wanted to mitigate the revenues different size among treated and control group. So, we tried to match the samples on the base of the earlier chosen variables adding revenues growth pre-acquisition. Unfortunately, this procedure was once again not successful because of a low quality of the final matched sample.

Having availability of additional variables, or of broader control sample, would be of some help in finding out more significant matching with high quality. Further research could try to overcome these limitations.

Acquisitions' impact regressions results

Source	SS	df	MS			
				Number of obs	=	186
				F(5, 180)	=	16.43
Model	.439033304	5	.087806661	Prob > F	=	0.0000
Residual	.962120318	180	.005345113	R-squared	=	0.3133
				Adj R-squared	=	0.2943
Total	1.40115362	185	.007573803	Root MSE	=	.07311

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT	-.0196004	.0114479	-1.71	0.089	-.0421897	.002989
ROA_pre	.5345244	.0660053	8.10	0.000	.4042806	.6647681
EBITDAmargi~e	-.0013035	.0042654	-0.31	0.760	-.0097201	.0071131
DEBT_pre	-.044789	.0317422	-1.41	0.160	-.1074237	.0178457
REVENUES_pre	6.29e-08	5.98e-08	1.05	0.295	-5.52e-08	1.81e-07
_cons	.023832	.0109556	2.18	0.031	.0022141	.0454499

Source	SS	df	MS			
				Number of obs	=	186
				F(5, 180)	=	4.25
Model	1.67468585	5	.33493717	Prob > F	=	0.0011
Residual	14.1848433	180	.078804685	R-squared	=	0.1056
				Adj R-squared	=	0.0808
Total	15.8595291	185	.085727185	Root MSE	=	.28072

EBITDAmargi~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT	-.0189698	.0439565	-0.43	0.667	-.1057062	.0677665
ROA_pre	1.133248	.2534408	4.47	0.000	.6331506	1.633345
EBITDAmargi~e	.0015023	.0163778	0.09	0.927	-.0308149	.0338196
DEBT_pre	.1372445	.1218806	1.13	0.262	-.103254	.377743
REVENUES_pre	1.45e-07	2.30e-07	0.63	0.528	-3.08e-07	5.98e-07
_cons	-.0142499	.0420662	-0.34	0.735	-.0972562	.0687564

Source	SS	df	MS			
				Number of obs	=	186
				F(5, 180)	=	365.18
Model	1.7652e+12	5	3.5305e+11	Prob > F	=	0.0000
Residual	1.7402e+11	180	966778664	R-squared	=	0.9103
				Adj R-squared	=	0.9078
Total	1.9393e+12	185	1.0482e+10	Root MSE	=	31093

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT	857.0171	4868.675	0.18	0.860	-8750.002	10464.04
ROA_pre	60200.77	28071.4	2.14	0.033	4809.419	115592.1
EBITDAmargi~e	-245.9726	1814.029	-0.14	0.892	-3825.47	3333.525
DEBT_pre	13762.61	13499.63	1.02	0.309	-12875.28	40400.51
REVENUES_pre	1.018755	.0254356	40.05	0.000	.9685651	1.068946
_cons	-4170.323	4659.302	-0.90	0.372	-13364.2	5023.555

Domestic investors' impact regressions results

Source	SS	df	MS		
Model	.12647241	3	.04215747		
Residual	.572504979	102	.005612794		
Total	.698977389	105	.006656928		

	Number of obs	=	106
	F(3, 102)	=	7.51
	Prob > F	=	0.0001
	R-squared	=	0.1809
	Adj R-squared	=	0.1568
	Root MSE	=	.07492

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_domestic	-.0063584	.0145798	-0.44	0.664	-.0352774	.0225606
ROA_pre	.4151239	.0961949	4.32	0.000	.2243217	.6059262
DEBT_pre	-.0331194	.0414057	-0.80	0.426	-.1152474	.0490087
_cons	.0202143	.0145938	1.39	0.169	-.0087324	.049161

Source	SS	df	MS		
Model	.495183263	3	.165061088		
Residual	33.9297076	102	.332644192		
Total	34.4248909	105	.327856104		

	Number of obs	=	106
	F(3, 102)	=	0.50
	Prob > F	=	0.6857
	R-squared	=	0.0144
	Adj R-squared	=	-0.0146
	Root MSE	=	.57675

EBITDAmargin~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_domestic	-.1048389	.1122413	-0.93	0.352	-.327469	.1177911
ROA_pre	.5039834	.7405471	0.68	0.498	-.9648882	1.972855
DEBT_pre	-.0672717	.3187577	-0.21	0.833	-.6995261	.5649827
_cons	.1809482	.1123488	1.61	0.110	-.0418951	.4037914

Source	SS	df	MS		
Model	1.2166e+12	5	2.4332e+11		
Residual	1.2533e+11	100	1.2533e+09		
Total	1.3419e+12	105	1.2780e+10		

	Number of obs	=	106
	F(5, 100)	=	194.15
	Prob > F	=	0.0000
	R-squared	=	0.9066
	Adj R-squared	=	0.9019
	Root MSE	=	35402

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_domestic	-254.0012	7315.583	-0.03	0.972	-14767.91	14259.91
ROA_pre	57426.29	46375.73	1.24	0.219	-34581.83	149434.4
EBITDAmargin_pre	-252.3264	2017.47	-0.13	0.901	-4254.929	3750.276
DEBT_pre	16096.24	19669.83	0.82	0.415	-22928.14	55120.61
REVENUES_pre	1.001866	.0338826	29.57	0.000	.9346435	1.069088
_cons	-5009.28	6915.628	-0.72	0.471	-18729.69	8711.129

Foreign investors' impact regressions results

Source	SS	df	MS			
Model	.05437631	3	.018125437	Number of obs	=	82
Residual	.432744187	78	.005548002	F(3, 78)	=	3.27
				Prob > F	=	0.0257
				R-squared	=	0.1116
				Adj R-squared	=	0.0775
Total	.487120497	81	.006013833	Root MSE	=	.07448

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_foreign	-.0283378	.0165495	-1.71	0.091	-.0612852	.0046097
ROA_pre	.176484	.0913502	1.93	0.057	-.0053802	.3583483
DEBT_pre	-.0541708	.0554175	-0.98	0.331	-.1644985	.056157
_cons	.0572157	.0168914	3.39	0.001	.0235875	.0908439

Source	SS	df	MS			
Model	.487033688	3	.162344563	Number of obs	=	82
Residual	10.006907	78	.12829368	F(3, 78)	=	1.27
				Prob > F	=	0.2921
				R-squared	=	0.0464
				Adj R-squared	=	0.0097
Total	10.4939407	81	.129554824	Root MSE	=	.35818

EBITDAmargi~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_foreign	-.1513168	.0795827	-1.90	0.061	-.3097537	.0071201
ROA_pre	.2018582	.4392823	0.46	0.647	-.6726857	1.076402
DEBT_pre	.1428691	.2664902	0.54	0.593	-.3876722	.6734104
_cons	.1482796	.081227	1.83	0.072	-.0134309	.30999

Source	SS	df	MS			
Model	4.8729e+11	5	9.7458e+10	Number of obs	=	82
Residual	4.2132e+10	76	554366275	F(5, 76)	=	175.80
				Prob > F	=	0.0000
				R-squared	=	0.9204
				Adj R-squared	=	0.9152
Total	5.2942e+11	81	6.5361e+09	Root MSE	=	23545

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_foreign	3440.015	5785.331	0.59	0.554	-8082.471	14962.5
ROA_pre	61096.1	33528.61	1.82	0.072	-5681.921	127874.1
EBITDAmargi~e	-1376.658	13869.56	-0.10	0.921	-29000.28	26246.96
DEBT_pre	7486.845	17871.99	0.42	0.676	-28108.3	43081.99
REVENUES_pre	1.037584	.0393249	26.38	0.000	.9592615	1.115906
_cons	-2946.87	5341.31	-0.55	0.583	-13585.01	7691.272

Strategic investors' impact regressions results

Source	SS	df	MS			
Model	.170567839	5	.034113568			
Residual	.8374752	112	.007477457			
Total	1.00804304	117	.008615752			

Number of obs = 118
F(5, 112) = 4.56
Prob > F = 0.0008
R-squared = 0.1692
Adj R-squared = 0.1321
Root MSE = .08647

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_strategic	-.0341201	.0170242	-2.00	0.047	-.0678513	-.0003888
ROA_pre	.3939511	.1035771	3.80	0.000	.1887263	.5991759
EBITDAmargin_pre	.0010001	.0047249	0.21	0.833	-.0083617	.010362
DEBT_pre	-.0486148	.0419861	-1.16	0.249	-.1318049	.0345752
REVENUES_pre	8.52e-08	7.77e-08	1.10	0.275	-6.87e-08	2.39e-07
_cons	.0444572	.0161789	2.75	0.007	.0124008	.0765136

Source	SS	df	MS			
Model	.872027904	5	.174405581			
Residual	25.301016	112	.225901928			
Total	26.1730439	117	.22370123			

Number of obs = 118
F(5, 112) = 0.77
Prob > F = 0.5719
R-squared = 0.0333
Adj R-squared = -0.0098
Root MSE = .47529

EBITDAmargin_p~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_strategic	-.1045144	.0935728	-1.12	0.266	-.2899168	.0808881
ROA_pre	.0516579	.5693074	0.09	0.928	-1.076352	1.179668
EBITDAmargin_pre	.014712	.0259704	0.57	0.572	-.0367449	.0661689
DEBT_pre	.3139369	.2307748	1.36	0.176	-.1433138	.7711875
REVENUES_pre	3.53e-08	4.27e-07	0.08	0.934	-8.11e-07	8.81e-07
_cons	.1152732	.0889266	1.30	0.198	-.0609235	.29147

Source	SS	df	MS			
Model	1.3632e+12	5	2.7265e+11			
Residual	1.2911e+11	112	1.1527e+09			
Total	1.4923e+12	117	1.2755e+10			

Number of obs = 118
F(5, 112) = 236.52
Prob > F = 0.0000
R-squared = 0.9135
Adj R-squared = 0.9096
Root MSE = 33952

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_strategic	-2060.882	6684.303	-0.31	0.758	-15304.97	11183.21
ROA_pre	27195.52	40668.06	0.67	0.505	-53383.03	107774.1
EBITDAmargin_pre	-191.2067	1855.174	-0.10	0.918	-3866.996	3484.582
DEBT_pre	12365.84	16485.23	0.75	0.455	-20297.52	45029.21
REVENUES_pre	.9942493	.0305004	32.60	0.000	.9338166	1.054682
_cons	-1638.946	6352.41	-0.26	0.797	-14225.43	10947.54

Financial investors' impact regressions results

Source	SS	df	MS			
Model	.064396287	5	.012879257	Number of obs	=	70
Residual	.27257505	64	.004258985	F(5, 64)	=	3.02
				Prob > F	=	0.0164
				R-squared	=	0.1911
				Adj R-squared	=	0.1279
Total	.336971338	69	.004883643	Root MSE	=	.06526

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_finan~l	-.0101994	.0182395	-0.56	0.578	-.046637	.0262381
ROA_pre	.327195	.1091143	3.00	0.004	.1092142	.5451758
EBITDAmargi~e	-.0105833	.0301133	-0.35	0.726	-.0707414	.0495749
DEBT_pre	-.0024183	.0515039	-0.05	0.963	-.1053092	.1004727
REVENUES_pre	-2.10e-08	1.50e-07	-0.14	0.889	-3.22e-07	2.80e-07
_cons	.0256766	.0162882	1.58	0.120	-.0068628	.0582159

Source	SS	df	MS			
Model	6.65973739	5	1.33194748	Number of obs	=	70
Residual	5.53984995	64	.086560156	F(5, 64)	=	15.39
				Prob > F	=	0.0000
				R-squared	=	0.5459
				Adj R-squared	=	0.5104
Total	12.1995873	69	.176805614	Root MSE	=	.29421

EBITDAmargi~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_finan~l	-.0931842	.0822278	-1.13	0.261	-.257453	.0710846
ROA_pre	-1.442812	.491912	-2.93	0.005	-2.425519	-.4601048
EBITDAmargi~e	1.033917	.1357574	7.62	0.000	.7627108	1.305124
DEBT_pre	-.1178499	.2321916	-0.51	0.614	-.5817059	.346006
REVENUES_pre	2.56e-07	6.78e-07	0.38	0.708	-1.10e-06	1.61e-06
_cons	.165249	.0734308	2.25	0.028	.0185541	.3119438

Source	SS	df	MS			
Model	3.4052e+11	5	6.8104e+10	Number of obs	=	70
Residual	3.5001e+10	64	546894416	F(5, 64)	=	124.53
				Prob > F	=	0.0000
				R-squared	=	0.9068
				Adj R-squared	=	0.8995
Total	3.7552e+11	69	5.4424e+09	Root MSE	=	23386

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_finan~l	1368.338	6535.987	0.21	0.835	-11688.8	14425.47
ROA_pre	89755.52	39100.31	2.30	0.025	11643.68	167867.4
EBITDAmargi~e	-11057.29	10790.87	-1.02	0.309	-32614.53	10499.95
DEBT_pre	2128.944	18456.07	0.12	0.909	-34741.29	38999.18
REVENUES_pre	1.142896	.0539102	21.20	0.000	1.035198	1.250594
_cons	-4398.627	5836.746	-0.75	0.454	-16058.87	7261.615

Top performer targets regressions results

Source	SS	df	MS			
Model	.040662251	5	.00813245			
Residual	.336559761	46	.007316517			
Total	.377222012	51	.00739651			

Number of obs = 52
F(5, 46) = 1.11
Prob > F = 0.3675
R-squared = 0.1078
Adj R-squared = 0.0108
Root MSE = .08554

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_topperformer	-.0163775	.0255847	-0.64	0.525	-.0678768	.0351218
ROA_pre	.5090694	.2500135	2.04	0.048	.0058183	1.012321
EBITDAmargin_pre	.0135335	.0785501	0.17	0.864	-.1445795	.1716466
DEBT_pre	.046602	.0848845	0.55	0.586	-.1242615	.2174656
REVENUES_pre	3.13e-07	2.68e-07	1.17	0.249	-2.27e-07	8.53e-07
_cons	-.0051762	.0288078	-0.18	0.858	-.0631632	.0528109

Source	SS	df	MS			
Model	.440182728	5	.088036546			
Residual	.584705182	46	.012710982			
Total	1.02488791	51	.020095841			

Number of obs = 52
F(5, 46) = 6.93
Prob > F = 0.0001
R-squared = 0.4295
Adj R-squared = 0.3675
Root MSE = .11274

EBITDAmargin_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_topperformer	-.0146939	.0337223	-0.44	0.665	-.0825735	.0531856
ROA_pre	.1242361	.3295345	0.38	0.708	-.5390824	.7875547
EBITDAmargin_pre	.5394683	.1035342	5.21	0.000	.3310647	.7478718
DEBT_pre	.135891	.1118834	1.21	0.231	-.0893186	.3611006
REVENUES_pre	3.05e-07	3.54e-07	0.86	0.392	-4.07e-07	1.02e-06
_cons	-.0022951	.0379706	-0.06	0.952	-.0787259	.0741357

Source	SS	df	MS			
Model	1.2728e+11	5	2.5457e+10			
Residual	8.6823e+09	46	188744823			
Total	1.3597e+11	51	2.6660e+09			

Number of obs = 52
F(5, 46) = 134.87
Prob > F = 0.0000
R-squared = 0.9361
Adj R-squared = 0.9292
Root MSE = 13738

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_topperformer	6197.862	4109.279	1.51	0.138	-2073.686	14469.41
ROA_pre	64366.48	40155.86	1.60	0.116	-16463.07	145196
EBITDAmargin_pre	-2371.492	12616.29	-0.19	0.852	-27766.78	23023.79
DEBT_pre	689.1699	13633.7	0.05	0.960	-26754.04	28132.38
REVENUES_pre	.9960481	.0431035	23.11	0.000	.9092853	1.082811
_cons	-2567.321	4626.954	-0.55	0.582	-11880.9	6746.255

Normal targets regressions results

Source	SS	df	MS			
Model	.191418288	5	.038283658	Number of obs	=	135
Residual	.716584176	129	.005554916	F(5, 129)	=	6.89
				Prob > F	=	0.0000
				R-squared	=	0.2108
				Adj R-squared	=	0.1802
Total	.908002465	134	.006776138	Root MSE	=	.07453

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_normal	-.0128324	.0139183	-0.92	0.358	-.04037	.0147053
ROA_pre	.3758011	.0734912	5.11	0.000	.2303969	.5212052
EBITDAmargin_pre	-.0001948	.0043689	-0.04	0.965	-.0088387	.0084491
DEBT_pre	-.0307682	.0404753	-0.76	0.449	-.1108496	.0493133
REVENUES_pre	5.20e-08	6.57e-08	0.79	0.430	-7.79e-08	1.82e-07
_cons	.0234891	.0137789	1.70	0.091	-.0037728	.0507509

Source	SS	df	MS			
Model	.36523091	5	.073046182	Number of obs	=	135
Residual	6.54979637	129	.050773615	F(5, 129)	=	1.44
				Prob > F	=	0.2147
				R-squared	=	0.0528
				Adj R-squared	=	0.0161
Total	6.91502728	134	.051604681	Root MSE	=	.22533

EBITDAmargin_p~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_normal	-.0689973	.042079	-1.64	0.104	-.1522517	.0142571
ROA_pre	.4491684	.2221855	2.02	0.045	.009569	.8887677
EBITDAmargin_pre	-.0051271	.0132084	-0.39	0.699	-.0312603	.021006
DEBT_pre	.1266285	.1223688	1.03	0.303	-.1154812	.3687382
REVENUES_pre	1.90e-07	1.99e-07	0.96	0.341	-2.03e-07	5.83e-07
_cons	.0550322	.0416576	1.32	0.189	-.0273884	.1374527

Source	SS	df	MS			
Model	1.5548e+12	5	3.1096e+11	Number of obs	=	135
Residual	1.5969e+11	129	1.2379e+09	F(5, 129)	=	251.20
				Prob > F	=	0.0000
				R-squared	=	0.9069
				Adj R-squared	=	0.9032
Total	1.7145e+12	134	1.2795e+10	Root MSE	=	35184

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_normal	-111.9435	6570.372	-0.02	0.986	-13111.59	12887.7
ROA_pre	65195.52	34692.84	1.88	0.062	-3445.122	133836.2
EBITDAmargin_pre	-131.0162	2062.408	-0.06	0.949	-4211.54	3949.508
DEBT_pre	22949.19	19107.11	1.20	0.232	-14854.69	60753.08
REVENUES_pre	1.015713	.0309954	32.77	0.000	.9543879	1.077038
_cons	-6249.479	6504.566	-0.96	0.338	-19118.92	6619.964

SME targets regressions results

Source	SS	df	MS			
Model	.123346332	5	.024669266	Number of obs	=	103
Residual	.697544184	97	.007191177	F(5, 97)	=	3.43
				Prob > F	=	0.0067
				R-squared	=	0.1503
				Adj R-squared	=	0.1065
Total	.820890516	102	.008047946	Root MSE	=	.0848

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_SME	.006699	.0173106	0.39	0.700	-.0276577	.0410558
ROA_pre	.3468212	.0929334	3.73	0.000	.1623742	.5312682
EBITDAmargin_pre	.0008469	.0049973	0.17	0.866	-.0090713	.010765
DEBT_pre	-.0240562	.0429831	-0.56	0.577	-.1093657	.0612533
REVENUES_pre	8.44e-08	2.86e-07	0.30	0.768	-4.83e-07	6.51e-07
_cons	.0172814	.0171876	1.01	0.317	-.0168312	.051394

Source	SS	df	MS			
Model	1.50244409	5	.300488818	Number of obs	=	103
Residual	14.7331986	97	.151888646	F(5, 97)	=	1.98
				Prob > F	=	0.0886
				R-squared	=	0.0925
				Adj R-squared	=	0.0458
Total	16.2356427	102	.159172968	Root MSE	=	.38973

EBITDAmargin_p~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_SME	-.1266642	.0795564	-1.59	0.115	-.2845616	.0312333
ROA_pre	.3676404	.4271047	0.86	0.391	-.4800442	1.215325
EBITDAmargin_pre	.0120669	.0229665	0.53	0.600	-.0335152	.057649
DEBT_pre	.4737886	.1975424	2.40	0.018	.0817216	.8658555
REVENUES_pre	1.38e-08	1.31e-06	0.01	0.992	-2.59e-06	2.62e-06
_cons	.0795186	.078991	1.01	0.317	-.0772566	.2362939

Source	SS	df	MS			
Model	1.1114e+11	5	2.2228e+10	Number of obs	=	103
Residual	5.3794e+09	97	55457674.1	F(5, 97)	=	400.80
				Prob > F	=	0.0000
				R-squared	=	0.9538
				Adj R-squared	=	0.9515
Total	1.1652e+11	102	1.1423e+09	Root MSE	=	7447

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_SME	2752.388	1520.174	1.81	0.073	-264.7362	5769.513
ROA_pre	1833.573	8161.171	0.22	0.823	-14364.09	18031.24
EBITDAmargin_pre	218.7425	438.8465	0.50	0.619	-652.2463	1089.731
DEBT_pre	2970.613	3774.665	0.79	0.433	-4521.053	10462.28
REVENUES_pre	1.085847	.0250829	43.29	0.000	1.036064	1.13563
_cons	-685.9548	1509.37	-0.45	0.651	-3681.637	2309.727

Large targets regressions results

Source	SS	df	MS
Model	.108434691	5	.021686938
Residual	.398406396	78	.005107774
Total	.506841087	83	.006106519

Number of obs = 84
F(5, 78) = 4.25
Prob > F = 0.0018
R-squared = 0.2139
Adj R-squared = 0.1636
Root MSE = .07147

ROA_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_large	-.0459026	.0184457	-2.49	0.015	-.0826252	-.00918
ROA_pre	.426264	.1553538	2.74	0.008	.1169783	.7355497
EBITDAmargin_pre	.0948799	.095788	0.99	0.325	-.0958193	.2855791
DEBT_pre	-.0426087	.0543239	-0.78	0.435	-.1507591	.0655418
REVENUES_pre	1.53e-07	7.18e-08	2.14	0.036	1.04e-08	2.96e-07
_cons	.01878	.0183092	1.03	0.308	-.0176709	.0552309

Source	SS	df	MS
Model	.512630992	5	.102526198
Residual	.559032478	78	.007167083
Total	1.07166347	83	.012911608

Number of obs = 84
F(5, 78) = 14.31
Prob > F = 0.0000
R-squared = 0.4784
Adj R-squared = 0.4449
Root MSE = .08466

EBITDAmargin_p~t	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_large	-.0355415	.02185	-1.63	0.108	-.0790414	.0079584
ROA_pre	-.2255769	.1840252	-1.23	0.224	-.591943	.1407892
EBITDAmargin_pre	.894087	.1134662	7.88	0.000	.6681932	1.119981
DEBT_pre	-.0741152	.0643496	-1.15	0.253	-.2022254	.053995
REVENUES_pre	1.51e-07	8.50e-08	1.78	0.079	-1.81e-08	3.21e-07
_cons	.0269432	.0216883	1.24	0.218	-.0162349	.0701213

Source	SS	df	MS
Model	1.4041e+12	5	2.8083e+11
Residual	1.4996e+11	78	1.9225e+09
Total	1.5541e+12	83	1.8724e+10

Number of obs = 84
F(5, 78) = 146.07
Prob > F = 0.0000
R-squared = 0.9035
Adj R-squared = 0.8973
Root MSE = 43847

REVENUES_post	Coefficient	Std. err.	t	P>|t|	[95% conf. interval]	
TREAT_large	-833.4014	11316.62	-0.07	0.941	-23363.06	21696.25
ROA_pre	269492	95311.11	2.83	0.006	79742.18	459241.9
EBITDAmargin_pre	-5053.026	58766.87	-0.09	0.932	-122048.9	111942.8
DEBT_pre	34834.98	33328.22	1.05	0.299	-31516.4	101186.4
REVENUES_pre	1.011961	.044047	22.97	0.000	.9242697	1.099651
_cons	-18270.17	11232.89	-1.63	0.108	-40633.14	4092.809