Institutional Cultural Difference in Cross-Border M&A operations: Empirical findings and solutions to reduce its perception within capital markets

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"It takes a village to raise a child"

- African proverb

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Luxembourg, February 2020 Giulia Negri

General Content Overview

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List of abbreviations and acronyms

AAR	Average Abnormal Return
AR	Abnormal Return
bn	Billion
BoD	Board of Directors
BHAR	Buy-and-Hold Abnormal Return
BMP	Boehmer Masumeci and Poulsen test
BU	Business Unit
CAAR	Cumulative Average Abnormal Return
CAGE	Cultural, Administrative, Geographic, Economic (Distance)
CAR	Cumulative Abnormal Return
cf.	confer (compare; *from Latin*)
CFIUS	Committee on Foreign Investment in the United States
CPI	Corruption Perception Index
e.g.	exempli gratia (for example; *from Latin)*
etc.	et cetera (and other similar things; *from Latin)*
ESG	Economic Social and Governance
EU	European Union
f.e.	fixed effects
FDI	Foreign Direct Investments
FFJR	Fama, Fisher, Jensen, and Roll
Forex	Foreign Exchange rates
FT	Financial Times
GDP	Gross Domestic Product
GLOBE	Global Leadership and Organizational Behavior Effectiveness
i.e.	id est (that is to say; *from Latin)*
IFRS	International Financial Reporting Standards
IPO	Initial Public Offering
KPI	Key Performance Indicator
LBO	Leveraged Buy-Out
MSCI	Morgan Stanley Capital International
MSE	Mean Squared Errors

M&A	Mergers and Acquisitions
n.s.	non-significant
NYSE	New York Stock Exchange
OC	Organizational Capability
OECD	Organization for Economic Co-operation and Development
OLI	Ownership-location-internalization
PE	Private Equity
RBV	Resource-Based View
ROA	Return on Assets
ROCE	Return on Capital Employed
ROE	Return on Equity
ROI	Return on Investments
ROS	Return on Sales
TCE	Transaction cost economies
UNCTAD	United Nations Conference on Trade and Development
UK	United Kingdom
US(A)	United States (of America)
US$	United States Dollars
WACC	Weighted Average Cost of Capital

Abstract

Despite both the number and the value of Cross-Border Mergers and Acquisitions (M&A) are overall increasing, academic literature is still fragmented onto whether they create or destroy value for the shareholders of the acquiring company. Capital markets believe that Cross-Border M&A do not create value for the shareholders of the acquiring company and the biggest impediment is generated by the institutional cultural difference between acquirer and target company. This dissertation examines how the negative reaction can be smoothed and how the institutional cultural difference effect can be moderated by some empirical solutions:

a) the presence of a Private Equity Investor among the company's shareholders;
b) The level of social (i.e. non-financial) metrics, the so-called Environmental, Social, and Governance metrics (ESG Score);
c) The track record of the acquirer in carrying out Cross-Border M&A;
d) The adoption of the same accounting standards by the companies involved in the transaction;
e) The rate of internationalization of the Board of Directors of target and acquirer.

The empirical analysis is based on a sample that includes deals from the United States and the European Union and that occurred from 2004 through 2018. Findings show that there is a negative reaction from capital markets in the days following the announcement and that the reaction is even worse in the presence of a high level of institutional cultural difference. The reaction can be significantly smoothed by the presence of a private equity firm, a higher ESG score, the number of transactions undertaken in the past, and the consistency of the accounting standards. No significant relation is found between the rate of internationalization and the capital markets reaction. In addition, all these findings are not sensitive to the passing of time. The analyses are carried out with event studies used under the "global model setting" in a multi-country sample and with multiple regression models.

The study adopts a new standpoint on the topic, as it does not have the aim to prove or deny that cross-border M&A are well or badly perceived by capital markets. The study proceeds on the assumption that capital markets penalize these operations and tries to identify some empirical solutions to limit the shareholders' wealth loss over the Cross-Border M&A announcement days.

Zusammenfassung

Obgleich sowohl die Anzahl als auch der Wert grenzüberschreitender Unternehmenstransaktionen (Cross-Border M&A) insgesamt zunimmt, besteht in der Wissenschaft kein Konsens darüber, ob sie für die Aktionäre des Käuferunternehmens Wert schaffen oder zerstören. An den Kapitalmärkten scheint es, als würden Cross-Border M&A keinen Wert für die Aktionäre des erwerbenden Unternehmens schaffen und dass das größte Hindernis hierfür im institutionellen kulturellen Unterschied zwischen Käufer- und Zielunternehmen liegt. In dieser Dissertation wird untersucht, wie die negative Reaktion und der Effekt der institutionellen kulturellen Differenz durch einige empirische Lösungen gemindert werden kann:

a) die Präsenz eines Private-Equity-Investors unter den Aktionären des Unternehmens;
b) den Score der sozialen (d.h. nicht-finanziellen) Informationen, den sogenannten Umwelt-, Sozial- und Governance-Score (ESG-Score);
c) die Erfahrung des Käuferunternehmens in der Durchführung grenzüberschreitender Unternehmenstransaktionen;
d) die Anwendung derselben Rechnungslegungsstandards durch die an der Transaktion beteiligten Unternehmen;
e) der Anteil an internationalen Führungskräften im Verwaltungsrat des Ziel- und Käuferunternehmens.

Die empirische Analyse basiert auf einer Stichprobe, die Transaktionen aus den USA und der Europäische Union umfasst und aus den Jahren 2004 bis 2018 berücksichtigt. Die Ergebnisse deuten darauf hin, dass die Kapitalmärkte in den Tagen nach der Ankündigung negativ reagieren und dass die Reaktion bei einem hohen Grad an institutionellen kulturellen Unterschieden noch schlechter ist. Die negative Reaktion kann durch das Vorhandensein eines Private Equity-Investors, einen höheren ESG-Score, die Anzahl der in der Vergangenheit durchgeführten Transaktionen und die Konsistenz der Rechnungslegungsstandards signifikant gemildert werden. Es wird kein signifikanter Zusammenhang zwischen dem Grad der Internationalisierung des Verwaltungsrates und der Reaktion der Kapitalmärkte festgestellt. Ausserdem sind die Ergebnisse über die Zeit hinweg robust. Die Analysen basieren auf Ereignisstudien, die

in einem Mehr-Länder-Kontext verwendet und mit multiplen Regressionsmodellen durchgeführt werden.

Die Studie nimmt einen neuen Standpunkt zum Thema ein, da sie nicht das Ziel hat, zu beweisen oder zu leugnen, dass Cross-Border M&A an den Kapitalmärkten gut oder schlecht wahrgenommen werden. Die Studie geht davon aus, dass Kapitalmärkte auf diese Investitionsform negativ reagieren und versucht, empirische Lösungen zu finden, um den Vermögensverlust der Aktionäre unmittelbar vor und nach Cross-Border M&A Ankündigung zu begrenzen.

PART ONE: THE NEED OF A STUDY

Abstract

Part One has the aim to present the purpose of the research and the research question, after the importance and the relevance of the topic has been analyzed.

Preliminary literature findings are briefly presented in this Part, as well as the theoretical and the empirical settings. With reference to the theoretical setting, the finance theories that underpin this dissertation are presented. With reference to the empirical setting, the preliminary sample is described. The same paragraph introduces the two most important metrics of the dissertation: the institutional cultural difference and the M&A performance.

Last, the structure of the dissertation is presented to accompany the reader in the reading.

CHAPTER 1. INTRODUCTION

1.1. Relevance of the topic

Cross-Border Mergers and Acquisitions (M&A)[1] have become increasingly relevant in today's world economy and in the last 20 years, they contributed to change the industrial landscape.

Evidence from the United Nations Conference on Trade Development (UNCTAD) shows that in 2018, the global flows coming from foreign direct investment (FDI) fell by 13 per cent, to US$1.3 trillion. Despite that, in 2018, global Cross-border M&A rose by 18% (from US$694 billion in 2017 to US$816 billion in 2018).

Despite the increasing economical relevance of the topic, the academic literature is still fragmented onto whether this is a good or a bad way to create value for the shareholders of the acquiring company. Cross-Border M&A, with respect to domestic ones, add an additional layer of difficulty to an already very complicated operation: the institutional cultural difference existing between the target and the acquiring company. A large difference leads to poor acquisition performance, as synergy gains require a stronger effort in post-acquisition coordination (Ahern, Daminelli, and Fracassi, 2015).

Academic literature is divided onto whether the institutional cultural difference is a hurdle to synergy creation, or rather, whether it can enrich both companies. The majority of the literature existing on this topic shows that capital markets are aligned with the first way of thinking. Financial markets perceive that the institutional cultural difference is an impediment in the success of a Cross-Border M&A.

In the academic world, there is extensive research on whether cross-border M&A create or destroy value for the acquiring companies. The findings from this stream of research have not been consistent as some Scholars find a negative effect on shareholders' value following an M&A transaction (e.g. Datta and Puia, 1995), while others find a positive effect (e.g. Goergen and Renneboog, 2004; Gubbi, Aulakh, Ray, Sarkar, and Chittoor, 2010). Scholars claim that one of the aspects that may hinder cross-border M&A from being as effective as wished is in fact a cultural distance between the acquirer and the target company (e.g.: Mohsin and Zurawicki, 2002).

[1] Note that in the document M&A is always meant as Mergers and Acquisitions, in the plural form, unless otherwise specified.

The difference in institutional culture creates boundaries and disagreements among individuals, hence jeopardizing the integration between the acquirer and the target (Bauer, Matzler, and Wolf, 2016), affecting, on its turn, the generation of the synergy (Larsson and Finkelstein, 1999), the indicator used by managers to assess the performance of an M&A.

Despite the commonly spread thinking that Cross-Border M&A generally perform worse that domestic ones, under the synergy point of view, there are some Authors that prove the opposite. They argue that the cultural distance can be a way to enrich the two companies (Morosini, Shane, and Singh, 1998) and that Cross-Border M&A create more wealth for shareholders (Danbolt and Maciver, 2012) as it can serve as a means to transfer new routines and repertoires.

This research is aimed at providing some empirical solutions through which the negative capital markets' perception can be decreased, avoiding that shareholders' wealth be destroyed in period when Cross-Border M&A are announced.

In the light of the above, are there any factors that can smooth the negative perception that capital markets have with respect to Cross-Border M&A, with reference to the institutional cultural difference, given that this is not *per se* necessarily a hurdle?

This is the purpose of this dissertation.

1.2. Research Gap and Aim of the Study

The purpose of this dissertation is not to prove whether Cross-Border M&A produce or erode wealth for the shareholders. This piece of research analyses the biggest hurdle existing in the creation of synergies between the acquiring and the target company, institutional culture. This is perceived as a factor that can put at stake the creation of value that could be created by the M&A. However, the negative reaction is caused by, as the name itself says, a *perception* of this difference, which may not necessarily be a negative factor. On the contrary, the merger of the two companies may entail the merger of the two cultures as well, that may enrich both parties.

Despite that, still most research agrees on the following statement: the smaller the culture, the smaller the negative perception from capital markets, and the smaller the

decrease in the stock price on the day of the announcement. Given that M&A are reaching (if they have not already) an increasing importance in capital markets' ordinary functioning, it is fundamental to understand if there exist some factors that can reduce their bad perception towards this kind of announcement.

In the light of this, this is the research question of the study:

Research question: *Assuming that the institutional cultural difference is not* per se *a hurdle to the success of a Cross-Border M&A, can its negative perception spread among capital markets be smoothed by some moderators?*

These moderators, referred to as "empirical solutions" are:

- The track record of the acquirer in carrying on Cross-Border M&A;
- The adoption of the same accounting standards by the companies involved in the transaction;
- The disclosure of social (i.e. non-financial) metrics, the so-called Environmental, Social, and Governance (ESG) metrics;
- The presence of a Private Equity (PE) investor in the equity of the acquiring company;
- The rate of internationalization of the Board of Directors (BoD) of the acquirer.

These solutions all have in common four features:

1) They convey a piece of **information**, hence making the financial markets' operators decide on a more solid ground;
2) The pieces of information that they convey are **public**, hence easily retrievable by capital markets' operators;
3) The pieces of information that they convey all play a crucial role in the **Cross-Border M&A process**:
    a. the track record of the acquiring company denotes whether it is a *una tantum* operation, or whether the acquirer is quite familiar with the rules and the mechanisms of Cross-Border M&A;

b. accounting principles determine the numbers on which due diligence and the negotiation are based on;
c. social metrics define whether the market can have a higher level of trust in the company that is announcing the operation;
d. the Private Equity, in being a "temporary shareholder" has all the economic interests in leading the backed-company towards a good deal;
e. the degree of internationalization of the Board of Directors defines the degree of internationalization already present in the two companies, that shows whether the cultural difference did *de facto* exist even before the transaction or not.

4) The information conveyed transmits **reliability** with respect to the acquiring company.

Moderators were handpicked based on a thorough study of the Cross-Border M&A phenomenon and based on a thorough study of capital markets' reaction to each of the moderators above.

1.3. Theoretical setting

Since the focus of this dissertation is on capital markets' perception and the institutional cultural difference between two countries, this paragraph illustrates the business theories that underpin the work:

- Institutional Theory. This theory is used to define culture at an institutional level.
- Principal-Agent Theory. This theory explains how managers take important and strategic decisions, such as a Cross-Border M&A, on behalf and in the best interest of the company's shareholders.
- Capital Markets' efficiency Theory. This theory is used to capture the fact that stock prices reflect promptly the pieces of information financial markets receive from companies.

1.3.1. Institutional Theory

Institutional theory was introduced into organizational modern business studies by Scott in 1987 and formalized later in 1995, basing on the previous works of Di Maggio and Powell (1983) and North (1990).

Scott states that:

["Institutions consist of cognitive, normative, and regulative structures and activities that provide stability and meaning to social behavior. Institutions are transported by various carriers.][2]

Scott asserts that institutions are an impersonal, yet an objective, reality and they consist of three different systems: (i) regulative, (ii) normative, and (iii) cognitive.

In his definition, Scott underlines the importance of carriers, culture being one of them. These carriers convey the elements of which institutions are made of.

He defines three typologies of carriers: cultures, social structures, and routines. By cross-classifying the carriers with the pillars he presents the scheme presented in Table 1:

Table 1 Institutional Pillars and Carriers

Carrier	**PILLAR**		
	Regulative	***Normative***	***Cognitive***
Cultures	Rules, laws	Values, expectations	Categories, typifications
Social structures	Governance systems, power systems	Regimes, authority systems	Structural isomorphism, identities
Routines	Protocols, standard procedures	Conformity, performance of duty	Performance programs, scripts

Source: Scott, 1995 (p. 52)

In this representation, it is evident how the culture has an effect at an institutional level. Under Scott's perspective, the social order, the aggregation of different institutions, is founded on a shared social reality, which, in turn, is a social construct (North, 1990), being created in social interactions. This concept can be applied to organizations and multinational companies (Kostova, Roth, Dacin, 2008), as well as to countries, as *"institutions effect human exchange at all level: political, social, or economic"* (North, 1990)[3].

[2] Scott, 1995 (p. 33)

[3] North, 1990 (p.3)

1.3.2. Principal-agency theory

Despite not being one of the two core theories of this work, one can say that all finance studies that analyze how managerial decisions are reflected in shareholders' wealth are in fact an implementation of the principal-agent theory.

The dawn of the principal-agency theory can be traced back to the 1960s and 1970s, when Scholars studied the risk sharing among individuals that decide to cooperate. The risk grows as different people may have a difference perception, and a consequent aversion, for risk (Eisenhardt, 1989).

Agency theory analyses the relationship between the owner of a company (i.e. the principal), and the person in charge of managing the firm (i.e. the agent), delegated by the ownership itself. This simple and straightforward concept is applied to marketing, organizational theory, accounting, and clearly to finance.

In the finance world, agency theory as it is known today, was formulated by Jensen and Meckling (1976), Fama (1980), and Fama and Jensen (1983).

The principal and the agent act by virtue of a contract that specifies how the management team has to act always in the best interest of the owners of the company. Clearly, the agent should always act to preserve the wealth of the owners that in the case of publicly listed companies are multiple shareholders. However, problems may arise when the agent has a different risk-aversion with respect to the owners or when the agent's variable remuneration is linked to Key Performance Indicators (KPIs) that are not aligned with the ones that measure the principal's performance.

This principal-agent theory underlies this work as it is typically the management team that take the decision of undertaking a Cross-Border M&A, especially in publicly listed companies, where ownership is fragmented among different shareholders.

1.3.3. Market efficiency Theory

The Efficient-market theory (Fama, 1969, 1970, 1991) revolves around the fact that stock market prices are able to "*fully reflect*"[4] the information at all times. In his cornerstone paper of 1970, Eugene Fama presented three kinds of market efficiency: weak, semi-strong, and strong.

[4] Fama, 1970, p. 413

Before explaining all three definitions of market efficiency, it is fundamental to illustrate the conditions that are sufficient to make a market efficient:

i) The absence of transaction costs in trading securities;

ii) The absence of cost for all market participants to access information;

iii) The presence of a shared belief among all market actors that the current information effect the current stock price and its future trend.

All the above certainly mark an ideal and efficient market, yet not a concrete one. Luckily, these are sufficient conditions to make a market efficient, but they are not necessary. Under this light of reasoning, Fama states that the *"market may be efficient if a sufficient number of investors have access to available information"*[5]. With reference to (iii), he also underlines that different investors can disagree on the effect that an information can have on a stock price and this would not make the market inefficient, provided that there are not investors with further information allowing them to make finest evaluations. However, disagreement to the existence of further information as well as the existence of transaction costs are triggers to the market efficiency, despite they do not necessarily entail it.

Strong market efficiency concerns the fact that in the market there are individual investors or a group of investors (in his paper, mutual fund managers) that have access to a monopoly of set of information relevant to the price trend and formation. This is thought as being the one that best represents the financial markets' setting, namely a world where a few individuals have privileged pieces of information.

The semi-strong and the weak efficiency are less restringing. According to the semi-strong efficiency, stock prices are believed to fully reflect all those pieces of information that are "*obviously*"[6] available to the public. Finally, in the weak market efficiency hypothesis, the information just concerns historical prices and stock returns. Hence, in a weakly efficient market, past returns of a stock are able to predict its future returns (Fama, 1991).

The tests to measure weak, semi-strong, and strong market efficiency naturally evolved in Fama (1991) and took the following names: test for return predictability, event studies, and test for private information.

[5] Fama, 1970, p.388

[6] Fama, 1970, p. 415

As this work is concentrated on analyzing the market reaction after a specific announcement, i.e. the Cross-Border M&A, particular emphasis is dedicated to the second typology of efficiency.

Fama (1970; 1991) states that semi-strong efficiency can be verified, hence that stock prices adjust accordingly after a big announcement, such as:

- the issue of the annual report making reference to Ball and Brown (1968);
- the Federal Reserve announcement of the change in the discount rate (Waud, 1980);
- the announcement of a secondary offer of existing common shares and newly issued ones (Scholes, 1969) in the context of an Initial Public Offering (IPO)
- annual variation on the dividends paid out, that is associated with a change in the stock price of the same sign (Charest, 1978; Ahrony and Swary, 1980; Asquith, 1983)
- the issue of new shares are perceived as bad news, reflecting accordingly on stock prices, consistently with the hypothesis that there is a decrease in the demand for that stock (Asquith and Mullins, 1986; Masulis and Korwar, 1986)
- the shares' buy-back through bid or open-market purchases have a positive effect on the shares' price (Dann, 1981; Vermaelen, 1981)

Event studies are the cleanest evidence there is on efficiency, hence through an event study, the semi-strong efficiency is verified with the results of the analysis itself (Fama, 1991). Fama concludes that stocks prices adjust efficiently to corporate information with reference to information regarding strategic and investments' decisions, as well as the announcement of transactions that change the corporate control, such as Cross-Border M&A.

The research question of this work is focused on the stock price adjustment to an event, hence in this work the semi-strong efficiency condition is enough, as the announcement of a Cross-Border M&A can be reasonably considered as an *"obviously"* public information and can be easily compared to the examples illustrated above.

1.4. Empirical Settings

1.4.1. Sample

Overall, the initial sample considers all operation announced and completed between 01/01/2004 and 31/12/2018. Specifically, the sample includes observation that have the following characteristics:

- The acquirer company after the operation has 51% of the shares of the target company;
- The acquirer and the target have their headquarters in different countries;
- The acquirer and the target belong to one of the following areas: China, USA, European Union;[7]
- The operation is announced and completed;
- In case the same bidding company undertook two or more M&A in the period considered, the operations must be at least one year apart.

These three regions (China, USA, and EU) were each selected for a specific reason.

European Union. EU is a very active market in terms of M&A and Cross-Border M&A. In addition, one of the moderator that is believed to reduce the negative perception on the day of the announcement of the takeover is the consistency of Accounting Standards, realized in the context of EU that may ease the due diligence process of the target company.

USA. The USA have always been the most active market ever in terms of M&A in general, both at a domestic and cross-border level. In 2018, the increase in the Cross-Border M&A trend was incentivized by the 2017 tax reform thanks to which overseas retained earnings do not generate a tax liability.

China. According to UNCTAD[8], China is the most active country among those considered as "Developing and Transition Economies" in terms of FDI, where the majority of FDI is made of M&A

[7] Later on in the work, China will be self-excluded by the sample

[8] UNCTAD, World Investment Report 2019: Special Economic Zones, 2019

1.4.2. Measure of Culture

Each country has its own way to define, and consequently perceive, culture.
The Cambridge Dictionary defines culture as "the way of life, especially the general customs and beliefs, of a particular group of people at a particular time". The American Merriam-Webster dictionary, that lists the work culture as the third most looked up word of all times (before love and democracy) provides four definitions for it:

- the customary beliefs, social forms, and material traits of a racial, religious, or social group;
- the set of shared attitudes, values, goals, and practices that characterizes an institution or organization;
- the set of values, conventions, or social practices associated with a particular field, activity, or societal characteristic;
- the integrated pattern of human knowledge, belief, and behavior that depends upon the capacity for learning and transmitting knowledge to succeeding generations.

Finally, to provide a non-Anglo-Saxon example, the Italian Treccani Encyclopedia defines culture as: "The set of intellectual knowledge that, acquired through study, reading, experience, and the influence of the environment and reworked in a subjective and autonomous way, becomes a constitutive element of the personality, contributing to enrich the spirit, to develop or improve the individual faculties, especially judgment".
In the academic world, there exist more than one hundred ways in which culture can be measured (Taras, Rowney, and Steel, 2009). This is because culture can be either individual or collectively shared. Moreover, when one looks at culture at a collective level, the level of clusterization has to be set, e.g. a corporation, a region, a country can all cluster a different kind of culture.
As the focus of this work is concentrated on the institutional culture that can be perceived at a national level, this is the perimeter used.

1.4.3. Measure of M&A performance

In the practitioners' world, the success or failure of an M&A is measured through synergies. Synergies can be defined as the additional value that is created in the moment

in which the entities that were separated before the M&A come together. The synergy is the difference between the enterprise value of the new merged company and the summation of the acquirer and the target company taken on a stand-alone basis. If this value is positive, synergies occurred (Damodaran, Raggi, 2015). In this sense, synergies are calculated by measuring the cost reduction or the increase in the value of the customer base thanks to M&A.

In the academic world, the M&A performance can be measured essentially in two ways. With the first methodology, Scholars want to capture the increase in the economics of the company, with the second methodology, Scholars want to capture the trend of the stock price of the company either that is acquired or that is acquiring at the time of the announcement of the operation.

As the scope of this dissertation is to study the sentiment of capital markets towards acquiring company, this work is measuring M&A with the performance of the stock price in the days that surround the announcement of the operation.

1.5. Structure of the dissertation

The dissertation aims first at presenting the literature existing in the field of Cross-Border M&A with specific reference to the cultural difference existing between the acquiring company and the target company. In the light of the literature review in Part Two, the research gap is outlined, followed by the research question of the study. Across the literature review and the research gap sections, three numbered Statements are defined in order to reach to the Research Gap and to the Research Question.

In Part Three, the research design is described, followed by the potential sample and by the empirical analysis.

Part Four concludes the dissertation discussing the limitations of the research, the contribution of the study, and potential development of the research.

Two are the pillars of this work: culture and M&A, hence, to each of them an independent and equally relevant chapter is dedicated. The literature review both with respect to culture and Cross-Border M&A unfolds to allow the reader a full understanding on how the two are intertwined.

The literature presented in Part Two concentrates on what is believed to be one of the biggest hurdles in the success of the acquisition process, as perceived by financial

markets, the cultural difference meant in an institutional way between the acquirer and the target company. The Cross-Border M&A literature review starts with some preliminary definitions then proceeds indicating how this kind of operation is perceived by financial markets opposite to domestic ones.

Eventually, the work blends the two pillars and concentrates on the factor thought to be the main cause of the difference in the performance of acquisition: the institutional cultural difference between target and acquirer. Despite a *real* presence of institutional cultural difference between the companies involved in a Cross-Border M&A, this may not necessarily have a negative impact *per se*. Hence, some empirical solutions can be taken into account to decrease the negative perception of capital markets with reference to Cross-Border M&A.

These solutions are:

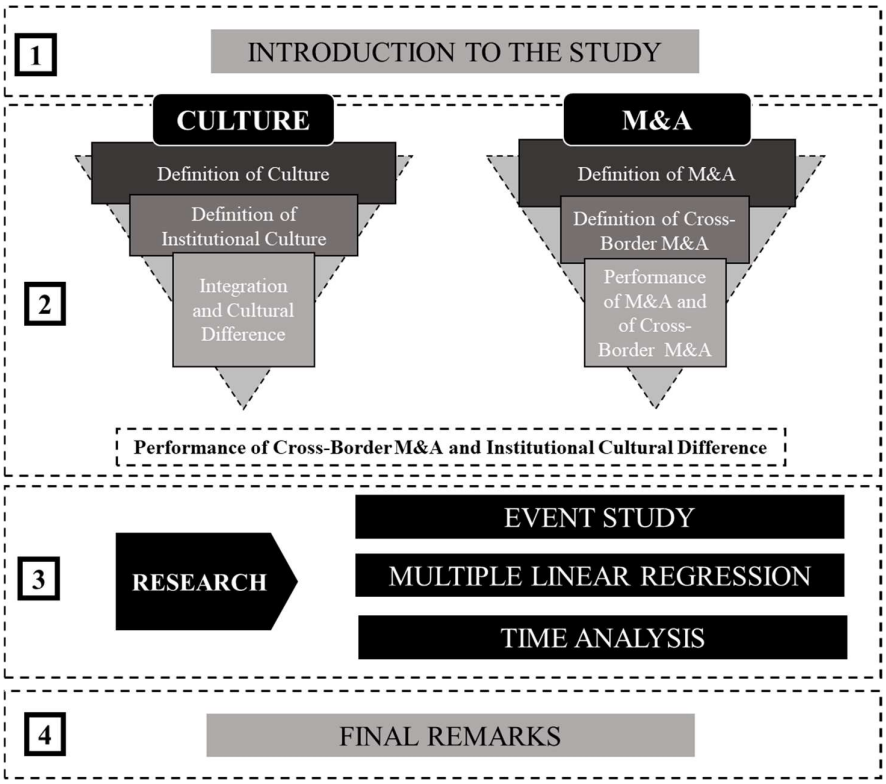
a) The track record of the acquirer in carrying out Cross-Border M&A;
b) The adoption of the same accounting standards by the companies involved in the transaction;
c) The disclosure of social (i.e. non-financial) metrics, the so-called ESG metrics;
d) The presence of a PE investor in the equity of the acquiring company;
e) The rate of internationalization of the Board of Directors of target and acquirer.

In the second part of the study, concentrated on the empirical research, three studies are presented:

1) Event study measuring the performance of the stock return around the time in which the M&A is announced;
2) Multiple linear regression with moderator factors to capture the strength that the empirical solutions have on decreasing the negative perception capital markets have towards Cross-Border M&A;
3) Time analysis that capture the non-surprise that capital markets should have towards a now “ordinary” event such as the announcement of a Cross-Border M&A. This analysis shows if this phenomenon is robust across time.

Figure 1 presents the structural flow of this document.

Figure 1 Structure of the Thesis



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PART TWO: THE MERGER AND ACQUISITION OF CULTURES

Abstract

Part Two presents the two pillars of this work: the culture and the M&A. Despite this is a PhD Thesis in management, as the two subjects are equally important for the sake of the objectivity of the analysis, equal dignity and relevance have been assigned to the two topics.

Chapter 2 presents how the word culture can be interpreted and how its meaning varies across different studies. After the definition, Chapter 2 concludes by stating which definition this study adopts with respect to culture.

Chapter 3 presents the literature review in terms of Cross-Border M&A and on how capital markets react to its announcement.

Chapter 4 joins the concepts of culture and Cross-Border M&A trying to figure out how the two related in previous research.

CHAPTER 2. CULTURE

2.1. Preliminary definitions

The word “culture” has been used in many different ways. In common language, it is meant as the degree of literacy of someone and, at the same time, it has been used to define some routines and rituals of a specific People.

In the last decades, this concept has started to be very popular in the international business research.

In such context, the word “culture” is used to express the values of a specific group of persons for whom there is a common background (the nation they were raised into, the company they work for, etc.)

Still, also in the international business research, the concept of culture is in fact so intrinsic and so personal, that up to day there does not exist a univocal way to measure it, let alone define it. In recent years Taras, Rowney, and Steel (2009) highlighted 121 ways in which culture is quantified, and more than 60 years ago, 164 different definition of culture already existed (Kroeber and Kluckhohn, 1952).

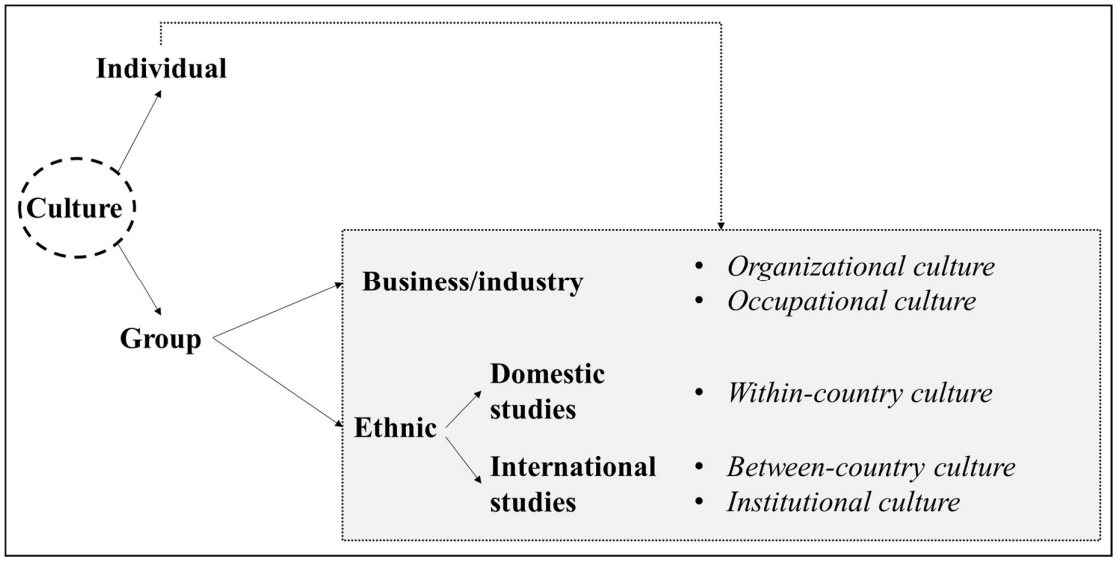
Despite the large number of definitions existing before the ‘80s, it was not until the publication of Hofstede famous work “Culture’s Consequences” (Hofstede, 1980) that the word *culture* was defined and, most importantly, operationalized in a commonly accepted way.

Regardless of the straight-forwardness and, at the same time, the deepness of how Hofstede defines and measures culture, more than 100 authors elaborated their own way to define culture (Taras et al., 2009).

Different authors define culture in different ways as in each definition, the point of view through which they look at it can be different. For example, the concept of culture can be used as an archetype to analyze the organizational culture, or as the culture existing amongst different regions located in the same country.

In the light of the multiple ways at which the culture can be looked at, before defining the one that will be studied in this research, a general segmentation of the culture definition was autonomously elaborated (Figure 2).

Figure 2 Segmentation of culture definitions



Source: Author's elaboration

2.2. Literature frameworks

Culture may be defined according to two main approaches: individual and group level.

2.2.1. Individual Culture

According to the first standpoint, culture is embedded in every person "in the form of a loose network of domain-specific knowledge structures, such as categories and implicit theories" (Hong, Morris, Chiu, and Benet-Martinez, 2000). Hence, according to this approach, an individual's culture is not represented in the form of a "highly general structure, such as an overall mentality, world view, or value orientation" (Hong et al., 2000). That is, in fact, typical of the differing standpoint: the aggregation concept of culture. According to the individual approach, culture is a mental schema, a frame, that can be switched on and off according to the situation in which an individual finds herself in.

The fact that culture can be defined at an individual level is a direct consequence of the context in which one person is raised and educated. Culture, in this sense, is the aggregation of the learning and the experience a person lives in the upbringing context, such as family, schools, peers, and eventually job context.

The fact that one individual has within herself a personal and unique level of culture does have an effect in how this person relates whenever she joins different groups. This, on its turn, create new levels of culture with which a person has to interrelate that will change according to the relating group.

In fact, the opposite point of view is the one that sees culture as something that aggregates different people taken at different levels. This kind of culture changes too, but the difference with the first approach is that, while the individual is typical for each and every single person, when culture is observed at an aggregation level, the same culture is shared and common among different persons.

The next paragraph analyzes the different aggregation levels of culture.

Still, one should not forget that each level of aggregation is affected by the individual culture of each person (as depicted in Figure 2).

2.2.2. Culture as an aggregator of groups

When the concept of culture is applied to groups, defined as a cluster of different people that share a common experience, it is still difficult to define what an "experience" can be.

Schein (2010) define a group as a cluster of members that "have a shared history". In this sense, any social member that share a piece of her own history with someone else will have changed her values and routines because of the history that she shares with the other members of the group. In the light of this, Schein defines the culture of a group as:

> *["the pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.]*[9]

There are some specific feature that define that define a group culture concretely. They are:

- Stability,
- Depth,

[9] Schein, 2004, p. 17

- Breadth, and
- Pattering or integration.

To these four features that characterize an aggregating culture, there is another very important characteristic that is spontaneity, as the culture of a group changes an individual within a society without this individual event noticing it.

The rest of the section describes different levels of aggregations leading to different typologies of culture.

2.2.2.1. Business aggregation

The company in which an individual works for can represent the first level of aggregation.

In a company, the top management team will speak with their fellow colleagues of developing the "right kind of culture," a "culture of quality" or a "culture of customer service," suggesting that culture has something to do with certain values that managers are trying to inculcate in their organizations.

In this regard, what is spread in the company as a culture is most likely how the management team leads and reflect their own personal views on a business issue.

In fact, the organizational culture, or corporate culture, reflects someone's original beliefs and values, their sense of what is right and wrong and what actions correspond to a specific strategy. When a company is firstly created or when it faces a new task, issue, or problem, the first solution proposed to deal with it reflects some individual's own assumptions. The individuals who succeed, who can concretely affect the group to adopt a certain behavior to the problem, will likely be the founders or the leader of a company. This is especially true for small companies or startups, where the culture and the best practice of the company still have to be created.

In this sense, the organizational or corporate culture is defined as "*the beliefs and values shared by senior managers regarding appropriate business practices*" (Weber, Shenkar and Raveh, 1996)[10] In addition, at an even narrower level, one can even talk about an "occupation" culture. When there is a long period of training or apprenticeship into a new job position, the candidate may evolve some attitudes, norms, and values that

[10] Weber et al., 1996, p. 1216

eventually will become taken-for-granted assumptions for the members of those occupations (Schein, 2010). This applies to a more general level to the functional level. For instance, marketing people will look at sales increase first thing, while finance people will determine whether the company is performing well or not depending on the fact that the operating margins increase over time.

2.2.2.2. Ethnographic aggregation

Like managers pass on to newly hired the organizational culture, in a culture based on the belonging to the same geographical area, elder people would pass on to the youngest generation their values, habits, and routines. In addition to the role that parents play in passing on the values to their offspring, there are other ways, that are equally important, such as: own experience, educational setting, friends, and peers (Tabellini, 2008).

In this case, the aggregation is defined with an ethnographic criterion. In some cases, the geographical definition of boundary is delimited to some area within the same country; sometimes the geographical boundary is the national one. Studies that analyses culture differentiating within the same country, are *domestic* studies, while studies that analyses culture as a factor that pools people from the same nationality are called *international* studies.

- *Domestic Studies: Within-country culture*

Many Authors challenged the use of national border as a definition of joint culture and were more prone for a division within the same country, *inter alia*: Tung (2008); Au (1999), Earley (1993, 2006), Markus and Kitayama (1991), Tsui et al. (2007).

Basing on the assumptions that they see culture as a set of common values in a community (Matsumoto et al., 2008), these Authors comment that various cultural distinctions can be found within a single country as well as across countries (Richter, Hauff, Schlaegel, Gudergan, Ringle, and Gunkel, 2016), and that looking at a country as a definition of culture might even be misleading (Tung, 2008).

These researchers start from the assumption that it is also wrong to assume that culture remains stable over time and that national cultural difference is not necessarily the same (Easterby-Smith, Malina, and Yuan, 1995; Fischer and Schwartz, 2011). On the contrary, this point of view assumes that each person bears a different level of culture,

that clusters different people from different countries on the one side, but at the same time, make them different also within the same country (Tung, 2007)

- *International Studies*

In fact, cross-cultural international studies assume that the growth within the same country can be used to represent a common set of values and routines. In this sense, Authors thinking that being raised in the same nation creates in two individuals the same values. They claim that national culture is an artifact of a common patterns of formative experiences. In addition, national cultures can be a good proxy for the employee intentions and behaviors (among others, Hofstede, 1980, Schneider and De Meyer, 1989).

As per the cross-cultural studies that study a business phenomenon, such as the M&A, culture can be meant either on a "pure" national culture basis or on an institutional level. Given that Cross-Border M&A are an international business operation, this study is adopting an international perspective with respect to the definition of culture.

a) Between-country culture: National Culture

Scholars belonging to this stream believe that because two people belong to two different nationalities are culturally different. In addition, in this stream there exist many ways to identify and operationalize the concept of culture.

The most popular to date, with more than 54,000 citations in 2010 (Tung and Verbeke, 2010) is the one of Hofstede "Culture's Consequences: International Differences in Work-Related Values" (1980). Hofstede did his cornerstone study in a company called HERMES in his book (that was actually IBM).

He defines culture as the "collective programming of the mind, which distinguishes one group from another"[11]. In this sense, the culture is a pool of values shared by people that were brought up in the same nation.

Scholars studying the culture mostly follow the paradigms as proposed by Hofstede in 1980 and rationalized further by Kogut and Singh (1988), according to which the cross-national difference is attributed to a strict sense of belief and values. Hofstede's work dominates by far the cultural literature (Beugelsdijk, Kostova, and Roth, 2017) also

[11] Hofstede, 1980, p. 25

because he was among the firsts, if not the first, to develop a detailed way in which national cultural can be broken down and operationalized.

Hofstede in his 1980 work proposes four different ways in which two countries are different, or better *distant*:

a. Power distance - "the extent to which a society accepts the fact that power in institutions and organizations is distributed unequally".
b. Uncertainty avoidance - "the extent to which a society feels threatened by uncertain and ambiguous situations and tries to avoid these situations by providing greater career stability, establishing more formal rules, not tolerating deviant ideas and behaviors, and believing in absolute truths and the attainment of expertise".
c. Masculinity versus femininity - "the extent to which the dominant values in society are 'masculine' – that is, assertiveness, the acquisition of money and things, and not caring for others, the quality of life, or people".
d. Individualism versus collectivism - "a loosely knit social framework in which people are supposed to take care of themselves and of their immediate families only", where this dimension is separate from the previous ones, despite some Authors tend to use them interchangeably (Hofstede et al., 2005).

After the publication of the 1980 work, he adds two further dimensions in his 2005 book:

e. Long-term orientation versus short term normative orientation – "long-term orientation stands for the fostering of virtues oriented toward future rewards—in particular, per- severance and thrift. Its opposite pole, short-term orientation, stands for the fostering of virtues related to the past and present—in particular, respect for tradition, preservation of "face," and fulfilling social obligations"[12].
f. Indulgence versus restraint – "Indulgence stands for a tendency to allow relatively free gratification of basic and natural human desires related to enjoying life and having fun. Its opposite pole, restraint, reflects a conviction that such gratification needs to be curbed and regulated by strict social norms"[13].

With reference to the two further metrics, Hofstede et al. (2005) find a negative, though weak, correlation with another index, power distance. This means that typically

[12] Hofstede, Hofstede, and Minkov, (2005), p. 239

[13] Hofstede, Hofstede, and Minkov, (2005), p. 281

societies where there is a high perception for hierarchy are likely to be less indulgent. In addition, societies showing to be more indulgent are also the ones that pay more attention to a long-term orientation.

Another approach, still included in this stream is characterized by Authors that cluster many countries under the same cultural level, hence defining a "cultural area", that groups together different countries as they share roots. Due to their common roots (e.g. a colonization, language, etc.), these countries can be considered as part of the same cultural area. Hofstede himself did that in 2001, as well as, among others Ronen and Shenkar (1985, 2013).

Another study that is worth mentioning is the one of House, Hanges, Javidan, Dorfman, and Gupta, (2004), that founded the GLOBE (Global Leadership and Organizational Behavior Effectiveness) group

Following the path paved by Hofstede, they identify nine cultural dimensions not in order to calculate how distant countries are to each other, but to understand whether they belong to the same cultural area. They keep some of Hofstede's dimensions, such as *power distance* and *uncertainty avoidance*. They separate "individualism v. collectivism" into institutional collectivism and in-group collectivism. Institutional collectivism is "*the degree to which organizational and societal institutional practices encourage and reward collective distribution of resources and collective action*"[14], while in-group collectivism is "*The degree to which individuals express pride, loyalty, and cohesiveness in their organizations or families*"[15]. The GLOBE group also broke down the "masculinity v. femininity" dimension and observed two further sets of distance: gender egalitarism and assertive. The former is the degree to which a society minimizes the different between genders, while the latter is the extent to which societies are either assertive or aggressive. Last, the GLOBE research group created three new dimensions, that adding up to the six previously described generates a dashboard of nine dimensions. These three are:

- Humane orientation – the extent to which a society rewards individuals for being caring, fair, and thoughtful;

[14] House et al., 2004, p. 12

[15] House et al., 2004, p. 12

- Future orientation – the extent to which people engage into long-term planning. This dimension is related with the saving attitude of a society[16];
- Performance orientation – the extent to which a society encourages individuals for performance improvement and excellence.[17]

b) Institutional theory

Culture meant as a set of values and beliefs makes what is defined in this document as the "pure" national cultural difference.

It is undoubtedly true that many management Scholars adopted the Hofstede paradigm, but at the same time, quite a high number of researchers in different fields started to advance some criticism to his approach, such as Shenkar (2001, 2012) in the field of international business; Imm Ng, Anne Lee, and Soutar, (2007) in the field of marketing; and Baskerville (2003) in accounting studies.

There are also Authors that analyze the difference between two countries on a more holistic level, as they think that the distance between two countries is affected also by some other aspects, other than the belonging to a different culture. These Authors embrace the so-called "institutional approach" (Berry, Guillén, and Zhou, 2010), where the concept of institution is defined by Hughes in 1939 and elaborated by Scott in 1987[18]:

> *[one of the] features of social life which outlast biological generations or survive drastic social changes. [The] man […] transmits to future generations a great number of his acquired ways of behaving. He alone gives reasons for his ways, makes a virtue of them and glorifies them for their antiquity.*

Authors that firstly introduced the concept of institutional theory state that institutions are made of three main pillars/components (DiMaggio and Powell, 1985; Scott, 1995, 1987):

- Normative Setting,
- Regulatory Setting,

[16] House et al., 2004, p. 103

[17] House et al., 2004, p.13

[18] Scott, 1987, p. 499

- Cognitive Setting,

described in Chapter 1.

Authors using the institutional approach think that the distance between two countries is surely attributable to culture, but culture per se, hence meant in a "pure" way, is just one component. In fact, two countries are also different on the economic, financial, political, administrative, demographic, knowledge, and global connectedness side at the same time (Berry et al., 2010).

Some Authors operationalized in different ways the measurement of the institutional distance between two countries.

The most common methods are:

- Berry et al., 2010 and
- Ghemawat, 2001.

Ghemawat built a CAGE Comparator that analyses the distance between two countries according to four points of view: Culture, Administration, Geography, and Economy. Each of these dimensions is affected by the factors presented in Table 2, where the "C – Cultural" component is represented by the parameters embedded in Hofstede's definition.

Table 2 Factors included in the CAGE Framework

Cultural	**Administrative**
• different languages • different ethnicities; lack of connective ethnic or social networks • different religions; • different social norms C	• absence of colonial ties • absence of shared monetary or political association • political hostility • government policies • institutional weakness A
Geographic	**Economic**
• physical remoteness • lack of a common border • lack of sea or river access • size of country • weak transportation or communication links • differences in climates G	• differences in consumer incomes • differences in costs and quality of: ✓ natural resources ✓ financial resources ✓ human resources ✓ Infrastructure ✓ intermediate inputs ✓ information or knowledge E

Source: Author's elaboration from Ghemawat (2001)

The institutional approach is opposite to the one that analyze only culture as a cause of difference between two countries. As a matter of fact, "pure" culture does not capture a range of dimensions that generate the difference between two nations (Ghemawat, 2001). In addition, still contrasting Hofstede's approach, some authors say that the culture features still have their roots in economic, legal, religion, and idiom factors (Tang and Koveos, 2008).

Conclusions

International Business is focused on understanding a how country-level context relates to individual and firm behavior and how crossing national borders creates specific challenges and opportunities for global business (Beugelsdijk et al., 2017). As M&A is studied in the field of finance and in the field of international business, in this study the institutional approach to the difference between two countries will be adopted. Basing on the ground set in this Chapter, Chapter 4 presents the new definition of culture that is used in this research.

CHAPTER 3. MERGERS AND ACQUISITIONS

3.1. Preliminary Definitions

The aim of each company in the world is, or should be, to foster growth. Growth can be reached in three ways:

a) Internal Growth;
b) External Growth;
c) Partnership Growth.

These paths can be pursued in two directions (Dunning, 1988): horizontally (i.e. the expansion in new product lines) or vertically (i.e. the increase of its level of integration). As for the Internal Growth, this is characterized by investments in fixed assets or in the working capital. This is done by companies that, at the same time, have the possibility to finance this process by themselves or that can easily get access to a financing and that do not want to face a more complicated kind of growth, via external lines.
External Growth, the most popular kind of growth (Thanos and Papadakis, 2012), occurs through the merging or the acquisition of another company, or of a branch of an existing company. It occurs when a business purchases the existing assets of another entity through an operation that is formally appraised (Shim, 2012).
The external growth has the following advantages over the internal growth:

- it allows to reach a market in a fast way;
- it is more easily programmable;
- it allows to overcome barriers to entry;
- it allows the acquirer to take advantage of the skills already existing in the target.

Finally, the Partnership Growth is realized when the company formalizes agreements with industrial partners that may let it reach a wider range of the market.
The purpose of this work is to concentrate on (b), external growth, and specifically on Mergers and Acquisitions.

M&A are finance operations that entail the change, via the payment in cash or in shares, in the total or partial control of a company (Conca, 2010).

The actors involved in the M&A process are the firm that wants to acquire or merge with another firm, called the acquiring company, the bidder company, or, simply the acquirer, and the company that is being bought or merged with the bidder company in the process; this is called target company, or simply target.

The M&A operation is usually undertaken with the purpose to generate an entity in which the financials and the strategy of the target and of the bidder are improved. For this, it is a very complex process and has some relevant drawbacks, as:

- it entails a long decision process;
- it involves significant financial resources;
- it entails serious problems of integration between the companies involved;
- it is a particularly complex process as it needs financial, strategic, and organizational competences, all at the same time.

In international M&A, all the above factors are emphasized with respect to a domestic one, as the operation undergoes a twofold pressure: one external, related to the host country (i.e. the country in which the target is headquartered), and one related to the bidder (Davis, Desai, and Francis, 2000).

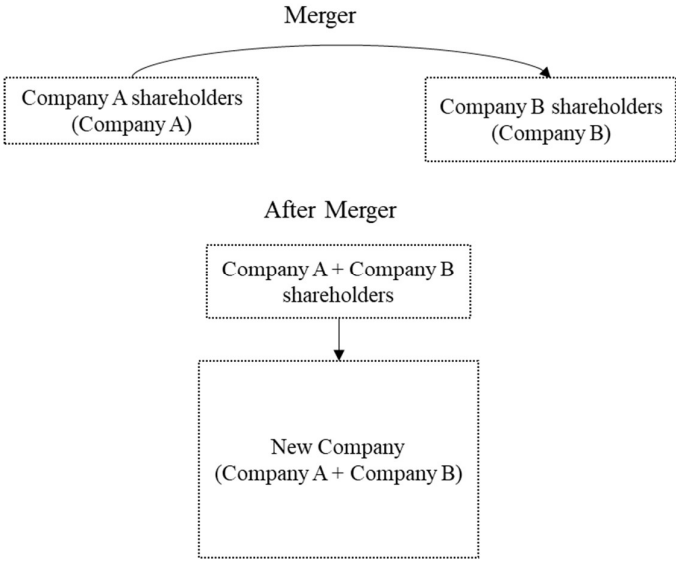
3.1.1. Type of M&A Deals

For the sake of clarity, it is important to define what is concretely meant by M&A in this research. Looking at the impact that an M&A deal has on the corporate structure, it is possible to identify three deals: Merger, Acquisition, Demerger.

a) Merger

A merger occurs when two separated companies are joint together. After the merger, the two separate companies will no longer exist, as all assets, liabilities, and operations will have merged and become one (Figure 3). After the merger, the shareholders of the separate companies become the shareholders of the joint company.

Figure 3 Effects of a Merger



Source: various Authors

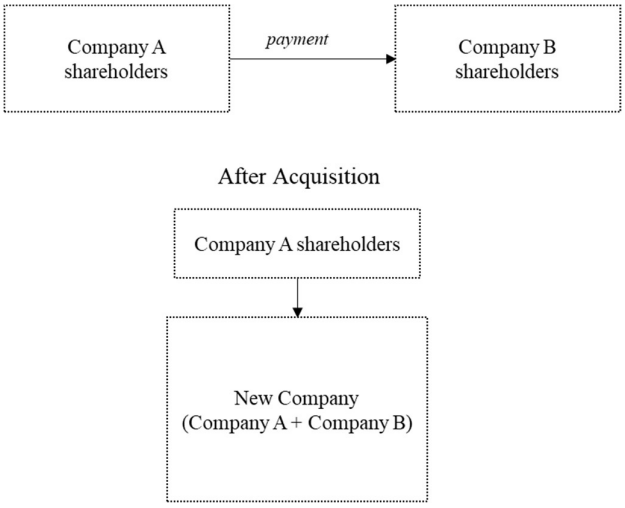
b) Acquisition

During an acquisition, the shareholders of the bidder company buys from external shareholders their shares in the target company. After the acquisition, the shareholders of the target company will no longer be such and will be opted out from the shares of the target. This is why acquisitions are also commonly called "takeover". The shareholders of the bidding company, after the acquisition, will become the shareholders of both the bidder and the target that. The acquisition, unlike the merger can occur at any percentage of share control. This is why acquisition can involve minority, majority or totality stakes. If the acquisition occurs at 100%, typically, target and bidder merge after the acquisition is finalized (Figure 4).

c) Demerger

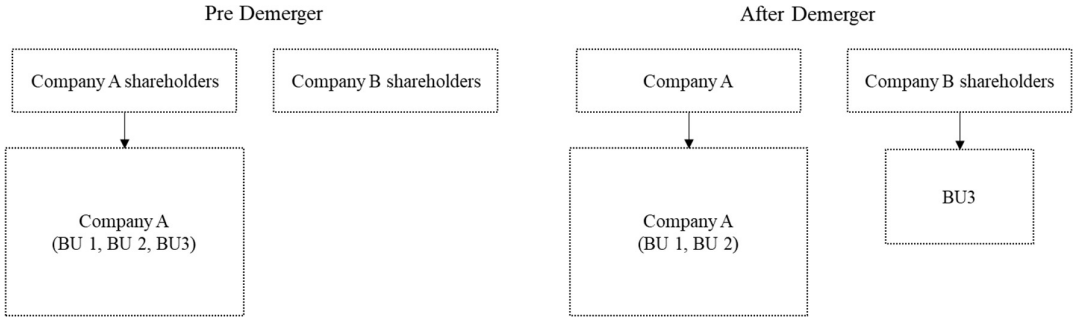
During a demerger, shareholders of a company dismiss one part, typically a BU (Business Unit) and sell it, through a spin off, to external shareholders. The BU that is being sold to external shareholders is no longer controlled by the shareholders of the company that owned it before the demerger occurred (see Figure 5).

Figure 4 Effects of an Acquisition involving 100% of the target's shares



Source: various Authors

Figure 5 Effects of a Demerger



Source: various Authors

This work explores M&A that only involve mergers and acquisitions that brought the acquirer to own at least 51% of the share capital of the target.

Depending on the strategy followed by the acquirer, there may exist different types of M&A (Shim, 2012):

- Vertical M&A;
- Horizontal M&A;
- Conglomerate M&A.

A vertical M&A occurs when the companies involved are bound in a customer-supplier relation. Typically the target and the bidder belong to the same industry and operate in

the same supply chain, but at different levels (McGrath, 2011). Motivations leading to a vertical M&A are referred to economies of scope.

A horizontal M&A occurs when there is relatedness between the two companies (Bruton, Oviatt, and White, 1994), meaning that they operate either in same business or in a similar one. The goal of a horizontal M&A is usually to grate a larger company to achieve economies of scale.

Finally, a conglomerate M&A occurs when the companies involved operate in different businesses; the primary reason for this operation is the risk diversification.

Each of the operations above mentioned can be cross-border in case the acquirer and the target have their headquarters in two different countries.

3.1.2. Motivation behind M&A

Despite being led by different forces that vary across sectors (Kang and Johansson, 2000), the motivation pushing an acquiring company to undertake an M&A operation is made of the following drivers (Walker, 2000; DePamphilis 2010):

- Synergy;
- Diversification;
- Strategy realignment and enhancement in the level of discipline of the top management
- Technological change;
- Fiscal policies;
- Market share achievements and market power;
- Optimism in valuing the target company
- (only in some countries) Utilization of tax creadit.

While all of the other items in the list above are straightforward and are related to the corporate strategy, the only driver that is worth a description is *synergy*, as this concept is repeated many times in this work in the following chapters.

Synergy.

If the sum of the profits, margins, and savings of two companies taken on a standalone basis is lower than the profits, margins, and savings realized by the two companies

merged, one can say that synergies occurred. Synergy is the additional value obtained from the sum of the two parts taken as one only company (Damodaran and Roggi, 2015). This means that the companies merged together generate more value for their respective shareholders than the one they would create if they stayed independent. Synergies occur as the target companies has features that are unique for the bidder company (Asquith, 1983).

There exist two kinds of synergies: operating synergy and financial synergy.

Operating synergy involves economies of scale and scope. Economies of scale are reached when the size of the merged company allows operational costs to be reduced. As a consequence, economies of scale allows the merged company to increase its profitability. Operating synergy is measured with KPIs such as *inter alia* ROS, ROA, and ROCE.

Operating synergy also stands for economies of scope. Economies of scope are realized when it is cheaper to produce the same product line in one only company rather than doing that in different companies. Also in this case, the efficiency, namely the cost reduction, resulting from the economies of scope will allow the company to increase its profitability. Also in this case, the KPIs mostly used to capture economies of scope are *inter alia* ROS, ROA, and ROCE.

Financial synergy is related to the cost of capital of the merged company, the WACC. The target company's balance sheet may have a better solvency profile, that allows the merged company to reduce the cost of financial debt. Due to the lower riskiness profile of the merged company, the cost of equity will reduce consequently, generating a lower WACC. The decrease in the overall cost of capital of the company will have a positive effect of the company's valuation (as free cash flows will be discounted at a lower rate).

3.2. Literature Frameworks

The topic of M&A has been highly debated both in the academic world and in the practitioners' world, as M&A are more and more used as a way to pursue strategic expansion (Shimizu, Hitt, Vaidyanath, and Pisano, 2004). Despite decades of literature review have passed, many studies still investigate the phenomenon from an economic, organizational, and sociological point of view.

In fact, five are the streams in the business research world that concentrated on M&A (Larsson *et al.*, 1999).

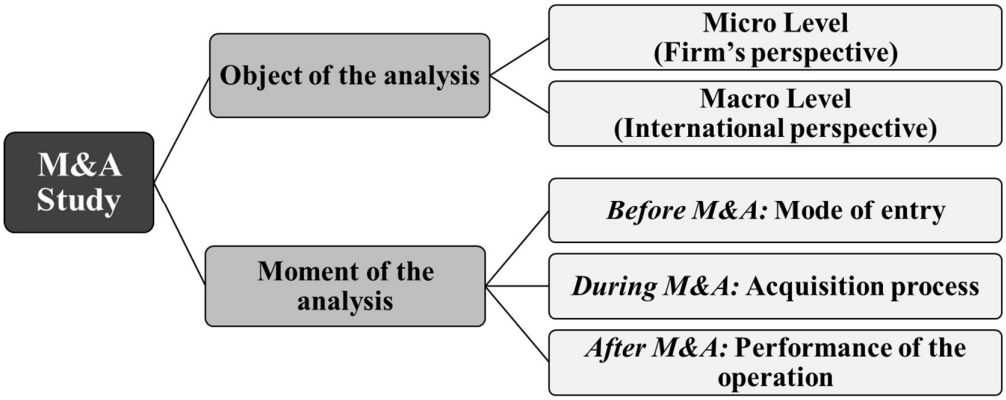
1. Strategic management scholars study the M&A as a way to purse a specific strategy;
2. Studies in economics focus on the use of M&A as a way to expand market power and examine M&A performance mostly with accounting metrics;
3. Finance studies typically concentrate on the performance of the M&A, looking at capital market-based performance;
4. Organizational scholars analyze the integration process that occurs in the aftermath of the finalization of the deal;
5. Research in the field of Human Resource Management examine the psychological aspects of the M&A integration and how this affects the individuals' carriers.

Regardless the multitude of papers and research conducted in this field, there does not seem to be an agreement on the effectiveness of the transactions neither at a domestic level, nor at an international level and it is still difficult to assess whether M&A actually create value. Some Authors say there is no correlation between M&A and the variation in the company's performance, others say that this relation exists, but M&A destroyed value of the company's owners, rather than created it (Craninckx and Huyghebaert, 2011).

The purpose of this study is to concentrate on M&A as seen at an international level.

Basing on the literature up to date, two may be the main blocks of study when approaching M&A and especially Cross-Border M&A: (i) the object of the analysis, and (ii) the "moment" of the analysis with reference to the operation itself (see Figure 6 below).

Figure 6 Literature Frameworks



Source: Author

As for the *object of the analysis*, there are two approaches: the first one is concentrated on the firm and on the industry, i.e. micro level; the second one is concentrated on the M&A phenomenon at a cross-national level, i.e. macro level.

- Micro Level. The economic discipline concentrates on M&A and Cross-Border M&A under the following points of view (Shimizu *et al.,* 2004):
  - Transaction cost economies (TCE) (Williamson, 1976; Madhok, 1997; Brouthers and Brouthers, 2000)
  - Organizational Capability (OC) (Madhok, 1997)
  - Ownership-location-internalization (OLI) (Hirsch, 1976; Dunning, 1980; Dunning and Lundan, 2008; Bertrand, Mucchielli, and Zitouna, 2007)
  - Resource-based View (RBV) (Barnay, 1991; Peteraf, 1993);
  - Organizational Learning (Miller, 1993, Vermeulen, and Barkema, 2001)
- Macro Level. The literature studying Cross-Border M&A approaches cross-national difference according to two point of views:
  - National Cultural Distance (Hofstede, 1980)
  - Institutional Differences (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998; Ghemawat, 2001).

Concerning the micro level, as for the theorists adopting the TCE approach, they argue that a company undertakes M&A and Cross-Border M&A in order to minimize the transaction costs and in order to internalize specific assets (Williamson, 1976; Madhok, 1997).

Scholars studying the OC theory believe that a company's past experience affects its present and future actions. Under this light of reasoning, the organizational capabilities are both a source of competitive advantage and serve as a boundary for one company's actions (Madhok, 1997), making of M&A a way to expand such boundaries.

Scholars adopting the OLI framework, developed by Dunning in 1980, embrace what is called an "eclectic" theory of international production. According to Dunning, the success of a company is the full control on some assets, of which the company has *Ownership*. This defines its competitive advantage, as these owned assets are not available on the free market. However there are some *Location* in the world that are particularly talented in some industry, hence making those locations unique. This leads the process of *Internationalization*.

According to the RBV, formulated by Barnay and Peteraf in the '90s and contextualized in the M&A environment, M&A are a way to acquire the capabilities to which a firm would not have access otherwise (Anand and Delios, 2002).

Last, organizational learning perspectives see a company as a bundle of routine-based systems that form the previous experiences and affect their future success (Basuil and Datta, 2015). These Scholars set the M&A as both a way to learn from the diversity (Barkema and Vermeulen, 1998), and as a way to enhance performance in the long run (Miller, 1993),

As per the macro level perspective, Scholars adopt mainly one of these two approaches (Berry *et al.,* 2010): the "pure" cultural distance and the "institutional" distance. Scholars embracing the former follow the paradigms as proposed by Hofstede in 1980, according to which the cross-national difference is attributed to a strict sense of culture. As described in Chapter 2, Hofstede proposes four different ways in which two countries are different: 1) Power distance; 2) Uncertainty avoidance; 3) Masculinity/femininity; and 4) Individuality.

At the same time, Scholars adopting an institutional approach claim that the difference between two countries cannot just be traced back to mere culture, but has to be explained through an institutional difference (Ghemawat, 2001) and should be meant as a set of multidimensional measures (Berry *et al*., 2010). This stream of Scholars adopts an eclectic approach to the word "culture" that also implies, among others, a political, economic, administrative, and legal difference between two countries.

As per the *moment of the operation*, past academic literature concentrates on three different moments:

- *Before* the acquisition takes place: this stream studies the decision to undertake M&A or Cross-Border M&A as a way to enter in a specific market;
- *During* the acquisition process: this stream studies the due diligence and negotiation process;
- *After* the acquisition is finalized: this stream studies the success of the operation and the firm performance.

With reference to the first moment, Cross-Border M&A are seen as a way to enter in a new geography; hence, Scholars concentrate on the decision to undertake M&A rather than on its performance. These studies see M&A as just one of the possible ways to expand in a target geography, where the alternatives are, e.g.: joint ventures or greenfield investments (Brouthers *et al.*, 2000). At the same time, researchers studying the entry mode are divided in those believing that companies do that in order to minimize transaction costs and those studying the internalization of the assets of the target company (Madhok, 1997).

With reference to the moment of the acquisition process, Scholars concentrate on the negotiation and on the due diligence, in the context of uncertainty that typically characterizes cross-border investments (Shimizu *et al.*, 2004). There is a narrow stream of Scholars that studies the role of advisors, investment bankers, and other professional firms in advising and closing the deal of Cross-Border M&A (e.g. Angwin, 2001).

Finally, with reference to the performance after the operation is finalized, there are two time horizons: short term and long term. The former refers to the market reactions when the acquisition is announced; while long term is usually seen as the realization of the synergies, i.e. the integration process. Long term performance is analyzed in the literature under two perspectives: shareholders' value and synergy creation. According to the first approach, long-term stock returns are used. This approach is however highly criticized, as some Authors believe results are not robust (Craninckx *et al.,* 2011). The second way to analyze long-term performance is concentrated on the operating performance (hence, using accounting measures).

Conclusion.

In line with the literature framework illustrated so far, regarding the object of the analysis, this study the study is concentrating on the institutional approach. As per the moment of the analysis, the dissertation is concentrating on the performance of the operation. In this work, the performance of the M&A is meant as the perception of capital markets, hence not necessarily related to the operational results and the creation of synergies. As the sentiment by capital markets can be observed after the a short-time after the operation has been announced or completed, this work position itself as depicted in Table 3 reported below.

Table 3 Literature Frameworks

Object \ Moment		ENTRY MODE	ACQUISITION PROCESS	PERFORMANCE OF THE OPERATION	
				Short Term	Long Term
MICRO LEVEL (Firm's Perspective)	Transaction cost economies (TCE)				
	Organizational Capability (OC)				
	Ownership-location-internalization (OLI)				
	Resource-based View (RBV)				
	Organizational Learning				
MACRO LEVEL (International Distance)	National Cultural Distance				
	Institutional Distance			X	

Source: Author's elaboration

3.3. Cross-border M&A: trends and literature findings

After highlighting the academic relevance of the subject, some trends and findings are presented to highlight the managerial and practical relevance of this subject.

3.3.1. General framework of M&A Waves

An M&A wave can be observed when there is a similar trend in the number and value of aggregated bids over time (Martynova and Renneboog, 2008a). Recent story tells that there have been six waves of mergers and typically each of them is strictly related with changes in the political, economic, and regulatory setting (Martynova *et al.,* 2008b):

1) *First Wave (1890s-1900s).* The first wave of M&A mostly interested the manufacturing sector, involving horizontal operations. These were also the years in which some of the largest US multinational companies were founded, as General Electric, Standard Oil, and Kodak. These operations were carried with the purpose of creating monopolies. This wave coincides with the beginning of the trading on industrial shares on the NYSE. Historically, this period saw the advent of the economic expansion as well as several innovation in the industrial processes.
2) *Second Wave (end of 1910s-1929)*. This wave was the consequence of the aftermath of the end of World War I and it ended with the first big market plummet of 1929.
3) *Third Wave (1960s-1970)*. This is also called the Conglomerate Era (DePamphilis, 2010), as the drivers leading this wave of M&A were expansion and diversification. This era ended when the oil price crises started.
4) *Fourth Wave (end of 1970s- 1989)*. If the third wave was characterized by a diversification approach, the fourth era was driven by the need to refocus the business. This need was achieved in two ways: either companies would divest non-core businesses or they would embark in overvalued deals. This trend started at the beginning of the '70s but it peaked in the '80s, where hostile takeovers and the Leveraged Buy-Out (LBO) became the most widespread techniques. The fourth era came to an end a couple of years after the big market crash of 1987, that remains, to date, the biggest market drop of history (Source: Bloomberg)[19].
5) *Fifth Wave (late 1990s- 2001).* If the previous era was made of overvalued ad overpriced deals, the decade of the 1990s was defined as the "era of the mega deals". Deals were very different in their "nature": deals of the fourth wave were often hostile; the ones of this wave were conducted on a more "friendly" basis, as the intent was to pursue synergetic advantages (Craninckx, *et al.,* 2011). The enthusiasm for the recovery of the previous financial crisis was emphasized by the arise of the Information Technology and of the World Wide Web (DePamphilis, 2010). In this period, Cross-Border M&A deals started to play an important role, as foreign investors started to invest significantly in the US market and vice versa. Continental Europe started to play an important role in this wave, compared to the previous ones

[19] https://www.bloomberg.com/news/features/2017-10-16/black-monday-at-30-wall-street-remembers-the-1987-stock-market-crash

(Martynova and Renneboog, 2006). European transactions accounted for half of the transactions, distinguishing from the previous eras in which US and UK operations accounted for all of them (Craninckx *et al.,* 2011; Huyghebaert and Luypaert, 2010). This era ended abruptly with the explosion of the Internet Bubble in 2001 causing a *momentum* of recession.

6) *Sixth Wave (2003-2008)*. Globalization and internationalization pushed the sixth wave of M&A, characterized by the intervention of venture capital investors and by a high level of leverage. Over this period, the number of deals sharply increased: only in 2007, 35,982 deals were announced, accounting for an aggregate deal value of US$ 1,345 billion in the USA and US$ 3,053 billion in Europe (Huyghebaert *et al.,* 2010). The tendency was abruptly stopped by the burst of the subprime financial crisis of 2007-2008. This last global financial crisis also partially affected Cross-Border M&A (Rao and Reddy, 2015).

Still, the international business world may find itself in the *Seventh Current Wave*. In the past few years, there has been a positive change in the variation of the number of M&A. In 2014, the aggregate value of M&A globally reached US$ 1.75 trillion; in the first half the year, there has been an increase of 75% over the same period in the previous year and the largest in terms of volume of the ten previous years (Camaya Partners, 2015).

In 2015, EY reported that more than half of global companies are pursuing acquisitions, with the vast majority of them being international ones. Cross-Border M&A are expected to be 84% of the total, with over half of them (54%) targeting deals in their immediate region and nearly a third (30%) targeting outside the surrounding countries. In 2016, the 18,592 deals were worth US$ 3.26 trillion on a whole. In 2017, M&A decreased by 3.2% in terms of value reaching a value of US$ 3.15 trillion (corresponding to 18,433 deals). Regardless of the slight negative performance of 2017, it was the fourth consecutive year with M&A value overcoming US$ trillion (Merger Market, 2018).

In the first half of 2018 only, according to Thomson Reuters data reported by UNCTAD (2019) pending worldwide M&A rose by 65% if compared with the first half of the previous 2017 peaking $3 trillion of value. Also, the first half of 2018 only was characterized by thirty mega-deals (deals greater than 10 billion in size). The year 2018

finally closed with a total of $4.1 trillion of M&A values and with a total number of 44 megadeals (J.P. Morgan, 2019), the third highest year ever in terms of M&A. The current trend is characterized by oligopolistic goals and this goal made the target higher and higher in their value, as their acquisition will increase revenues' stream, market share, and, possibly, margins.

3.3.2. Cross-Border M&A

Cross-Border M&A are considered as part of a broader family of transactions, that includes all international investments: Foreign Direct Investments (FDI). OECD definition of FDI states that:

> *"Foreign direct investment (FDI) is a category of investment that reflects the objective of establishing a lasting interest by a resident enterprise in one economy (direct investor) in an enterprise (direct investment enterprise) that is resident in an economy other than that of the direct investor. The lasting interest implies the existence of a long-term relationship between the direct investor and the direct investment enterprise and a significant degree of influence on the management of the enterprise. The direct or indirect ownership of 10% or more of the voting power of an enterprise resident in one economy by an investor resident in another economy is evidence of such a relationship."*

It is also explained by the OECD that four are the types of business foreign transaction that can be defined as FDI:

i. purchase/sale of existing equity in the form of mergers and acquisitions;
ii. greenfield investments;
iii. extension of capital (additional new investments); and
iv. financial restructuring;

making Cross-Border M&A a sub-category of FDI, where the former is the most represented within FDI. Cross-Border M&A accounted in 2018 for 62% of FDI, the highest level since the burst of the Internet bubble (UNCTAD, 2019)

It is hence evident that for a business transaction to be considered a Cross-Border M&A, the following elements must be present all at the same time:

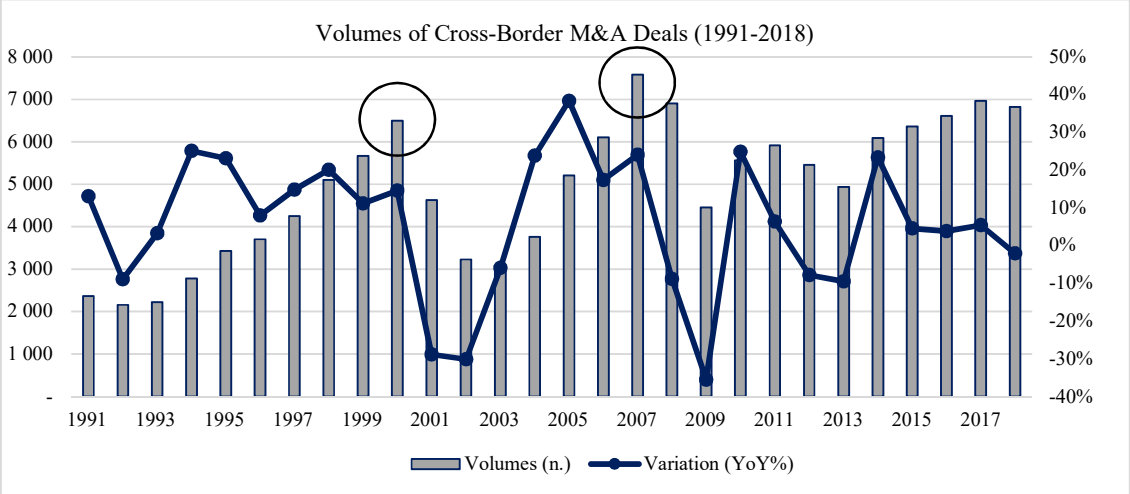
i. the two entities must be resident in two different foreign countries, with the country of the target company being the *host* country and the country of the acquirer being the *home* country;
ii. assets and operations have to be totally or partially combined;
iii. the operation must entail a change in the control of the acquired company as a direct consequence of the transaction.

For the purpose of this document and this study, only an M&A operation where the companies involved are headquartered in different countries is defined as a Cross-Border M&A. There may be other streams of literature that consider as Cross-Border M&A those operations involving companies with headquarters in the same country, in case they integrate operations located in different countries (Shimizu *et al.,* 2004), but they are not included in the scope of this analysis.

3.3.2.1. Motivations behind Cross-Border M&A

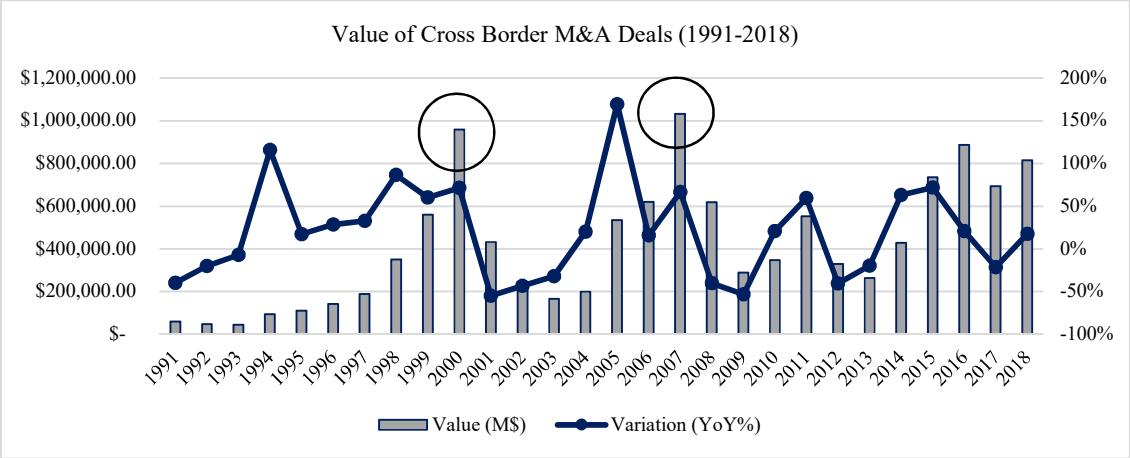
As described in the Chapter 1 as well as in Section 3.3.1 "General Framework of M&A Waves", in the light of an increasing globalization and trade liberalization, Cross-Border M&A have become quite spread in the financial world, (Sharma, 2016), to the extent that they are now more frequent than domestic ones.
Graph 1 and Graph 2 reported below depict the trend of the volumes of Cross-Border M&A and their value trend, respectively.

Graph 1 Trend of Cross-Border M&A Volumes



Source: Author's elaboration from UNCTAD data (2019)

Graph 2 Trend of Cross-Border M&A Value Deals



Source: Author's elaboration from UNCTAD data (2019)

From both representations, it can be gathered that Cross-Border M&A follow the "capital markets fever". The highest levels both in terms of numbers and value can be spotted in the years in which two financial crisis exploded, the dotcom bubble and the subprime crisis, in 2000 and 2007, respectively (marked in the graphs with a circle).

The same graphs show that, despite the number of cross-border transactions decrease by 2.10% in the last two-year period (2017-2018) for the first time since 2013, the value actually increased by 17.55%, meaning that larger prices are being paid for a lesser number of target companies.

Despite their positive trend in terms of deals, they are very difficult to implement. The level of difficulty is so high that it makes them a less preferred option in case the investment is expected to be small. In this way, companies prefer to enter a new geography through a mechanism such as a joint venture, in order to reduce costs (Hennart and Reddy, 1997; Brouthers *et al.,* 2000). In this case, the management team can rely on the pieces of information shared with the local partner, making the information and transaction costs lower.

Still, despite their high level of difficulty, why are they so numerous?

There may be different business-related reasons leading a bidder to take over a company in a foreign country:

i. *Market access and Industry Consolidation.* As many Scholars report, the first motivation pushing the bidder company towards a foreign target is quite logical:

Cross-Border M&A are used to enter in the target's local market (Kogut *et al.*, 1988; Brouthers *et al.,* 2000; Harzing, 2002). International M&A may be a way to implement an internalization and diversification strategy for a company seeking opportunities across different locations and markets in a turbulent and continuously changing environment (Shimizu *et al.,* 2004), such as the financial world of today.

ii. *Domestic market saturation.* Cross-Border M&A may be led by the saturation of the domestic market of the bidder company, that would expand abroad to look for market holes. In some sectors, such as in the automotive one, this is accompanied by the excess production capacity of the acquiring company (Kang and Johansson, 2000).

iii. *Geographic diversification.* Among all reasons that push a company to undertake a Cross-Border M&A, this is maybe the most natural as it is the basis of an internationalization strategy of the acquiring company. In this sense, the acquiring company may look for a target in countries where the economic cycle is not correlated with the one of its own home country[20] (De Pamphilis, 2019).

iv. *Host country foreign policy*. Depending on the foreign policy of the host country, Cross-Border M&A may be more advantageous than simple export. In small markets, host countries governments may be more keen on adopting foreign policies that do not facilitate M&A, rather incentivize export strategies (Cai and Karasawa-Ohtashiro, 2018), in order not to penalize the local businesses. On the other hand, host markets with a larger size may be keener on easing M&A operations in order to increase competition efficiency. Regardless of the size of a host market, Cross-Border M&A can actually be a way for bidder companies to save on some heavy transportation or tariffs (Di Giovanni, 2005), like it is happening in the United States in the recent protectionist scenario.

v. *Skill access.* According to Kang *et al.* (2000), Cross-Border M&A may be led by the necessity to get access to intangible assets like technology, human resources, brand or customer lists. Again, if the competitive advantage of the target bears a high level of difficulty, training the right personnel for a specific task may be more complex than acquiring a local company in which that

[20] De Pamphilis, 2019, p. 497

competences and talents are already developed (Brouthers *et al.*, 2000). However, according to the organizational theory, in case of a high multi-national diversity, a company could prefer to start up a brand new company rather than take over another one (Barkema and Vermeulen, 1998).

vi. *Time pressure*. Despite the complexity and the big risk embedded in Cross-Border M&A, if the bidder has to enter in a specific geography in a relatively short amount of time, buying a functioning company may be the quickest way, as investments from scratch need a much slower process. This is especially true in case the market in which the target is headquartered grows at a very fast pace: in a context like this, the bidder company would not be allowed the time necessary to set up all the activities and make them fully effective and still benefit of the current competitive advantage.

The above reasons are some of the most important reasons of why a company decides to undertake Cross-Border M&A in the first place. Once the decision is made, the management of the acquirer has to face some country-specific features that, albeit not being the reasons why a company undertakes M&A, are fundamental in the decision-making process.

i. *Macroeconomic context and financial markets regulations*. The regulatory framework of a country strongly affects the financial markets' structure. For this reason, for example, the European Union is shaping a new capital markets setting, the Capital Markets Union, in order to create a one and only capital market in which capitals can flow freely, as according to the Treaty of Rome of 1957. The Capital Markets Union, started in 2014 and supposed to become effective as from 2019 and has the purpose of improving the access to funding businesses, with the ultimate goal of supporting economic growth and job creation across the EU. The Capital Markets Union's action plan is aimed to:
    - Financing innovation, start-ups and non-listed companies;
    - Making it easier for companies to enter and raise capital on public markets;
    - Enhancing long term, infrastructural and sustainable investments;
    - Fostering retail investments;
    - Strengthening banking capacity;

- Developing local and regional capital markets;
- Facilitating Cross-Border investments.

With reference to the last pillar, the EU acknowledges the importance that Cross-Border M&A have for the host countries' economies and the role that they may have in preserving their financial stability.

Financial markets' regulations have an effect on the so-called "financial market integration" (Francis, Hasan, and Sun, 2008), that is the level of ease of the financial access from another country. In this sense, countries that are financially integrated show more openness to foreign investors, while countries that are financially segments make it difficult for foreign investors to invest. Francis *et al.* find that companies located in financially integrated countries show larger gains coming from Cross-Border M&A with respect to companies located in segmented financial markets. This is due to the fact that firms coming from countries that are financially close miss out opportunities as they lack of resources and capital with respect to those locates in countries that are financially open.

ii. *Corporate governance system.* Capital markets can alter the choice of a Cross-Border M&A also in terms of corporate governance and shareholders' protection system. The different structure of the corporate governance system will play a fundamental role in the determination of the capital gain when Cross-Border M&A occur. With a stronger shareholders' protection system the value of the deal may be higher as a stronger shareholders' orientation may grant a more efficient management when the integration phase will start (Martynova and Renneboog, 2008b). Dabolt and Maciver (2012) found that the governance system can impact the gains of the acquirer company, as gains are typically higher when the bidder finds itself in a country with a strong governance system. In addition, Cross-Border M&A can serve as a way to improve weaker governance systems, as operations with acquirers coming from countries with better investors' protection mechanisms lead to enhancement in the corporate governance system of the host country (Albuquerque, Brandão-Marques, Ferreira, and Matos, 2018).

iii. *Institutional stability of the host country and sovereign country credit rating*. If the target country suffers a low level of institutional stability, meant as the whole of the administrative and regulatory framework, and its degree of stability is far from the one of the acquirer company, this can somehow affect the effectiveness of the deal itself, which may not be even completed. (Xie, Reddy, and Liang, 2017). The institutional stability, on its turn, has some effects on the country credit rating, that has been proved to have a positive effect on Cross-Border M&A when enhanced.

iv. *Economic stability of the host country*. The economic stability of a country can be measured with the Foreign Exchange rates (shortly, Forex). Forex can affect the trend and the direction of the Cross-Border M&A towards a specific country (Blonigen, 1997; Georgopulos, 2008; Sharma, 2016). They have such effect as acquisitions involve firm-specific assets, that are bought with the intent to generate other returns involving, on their turn, further amount of foreign currencies, producing virtuous or vicious cycles in the event of a currency appreciation or depreciation, respectively (Blonigen, 1997). Stability or volatility of the Forex are affected by the policies of the Central Bank of a country.

v. *Fiscal policy of the host country*. The fiscal policy is a lever used by governments and state agencies to enhance government's proceeds which eventually are a means to improve one country's economy. On the other hand, a decrease in the tax burden may attract some foreign investors, easing Cross-Border capital inflows. In a study based in the US, Scholars demonstrated that a 1% increase in the corporate income tax rate could reduce, on a general level, FDI by 1.1% (Wijeweera, Dollery, and Clark, 2007). In Europe, Coeurdacier, De Santis, and Aviat (2009) demonstrated that a 10% decrease in the difference of statutory corporate tax rates between the acquirer's and the target's countries would entail an increase in the outbound investments by nearly 70%.

vi. *Legal System.* When acquiring a foreign company, the bidder takes into consideration the commercial legal framework of the host country. Different country legal frameworks can be traced back to the "legal families or traditions" (La Porta *et al.,* 1998): common law, which has English origin, and civil law,

which dates back to the Roman Empire era. According to La Porta *et al.* (1998), there are three families of civil law: French, German, and Scandinavian. Having a thorough knowledge of the legal setting in which the target company is located is fundamental, in that the legal framework defines shareholders' rights protections, markets openness, creditors' rights, and the legal enforcement. La Porta *et al.* state that a common law-based legal framework has the tendency to protect investors more than the countries whose laws originate in the civil law, and especially the French-civil-law, tradition. Past research shows that Cross-Border M&A register a higher target premium in common law countries in the light of the higher level of financial disclosure (Weitzel and Berns, 2006).

vii. *Regulations*. Another aspect that affects the destination of Cross-Border M&A is the regulations specifically issued to regulate them, for example the CFIUS[21] that has the only purpose to scrutinize all the international M&A targeting the US. Cross-Border regulations in terms, for example, of Antitrust can present a headwind with reference to international M&A to the point that they can lengthen the completion process, namely the number of days passing between the announcement date and the merging date. For example, in 2016, the AT&T acquisition of Time Warner took almost 2 years to be completed (601 days) and Bayer's acquisition of Monsanto (one of the least performing Cross-Border M&A of the past few years) took even more than 2 years (746 days).

viii. *Corruption.* Corruption is a hinder to Cross-Border M&A, and more in general, to FDI, as it increases the information and transaction costs. In addition, it generates a locked-in mechanism according to which neither of the two parties is free, as one party can always blackmail the other of taking or asking for briberies. Costs generated by the corruption level are so high that the worsening of host country corruption index will also worsen the ratio between price and the stand-alone value (Weitzel *et al.,* 2006). Corruption is often analyzed with government effectiveness, as some Scholars perceive that in very rigid government setting, bribes may in fact be a way to speed up processes (Leff, 1964). Weitzel *et al.* proved that target premiums are positively associated with government effectiveness.

[21] Committee on Foreign Investment in the United States

3.3.2.2. Literature Findings on M&A and Cross-Border M&A

Regardless of their popularity and the fact that they are used as an instrument to expand rapidly in new markets, several researches point out that most of *all* M&A fails both in how they are perceived by the markets and in the consequent increase of profitability (e.g. Dickerson, Gibson, and Tsakalotos, 1997; Schonberger, 2006). Past literature tried to motivate the unwanted effect of the M&A from both a strategical and financial point of view. Extensive research has been studying this phenomenon for decades, but Scholars do not agree on the ingredients of a successful operation (King, Dalton, Daily, and Covin, 2004), nor there is a common thinking on whether it can be in fact a way to pursue growth in the first place.

The rest of the section illustrates the findings in the literature concentrated on the performance of M&A in general to introduce the topic and then proceeds with a focus on Cross-Border M&A.

Performance of M&A

Despite the consistent body of literature concentrated on M&A, up to date, Scholars did not reach an agreement on whether this can be a way in which companies can foster growth or not.

From a *management* perspective, an M&A is considered profitable in case the margins and the turnovers are enhanced. M&A are an opportunity to increase wealth for the company, for its shareholders and employees, and for the management team (McGrath, 2011). This can happen only if the two companies integrate and create synergies successfully.

In the *academic* world, there is a debate on <u>what</u> defines a good performance of an M&A operation, as the definition of the right measure also defines the goodness of the performance itself: adopting different measures can lead to much different conclusions. The use of a metric over another one depends on the Scholar's standpoints (Schoenberg, 2006).

Below are illustrated three different standpoints that change the performance indicator that measure the success of the M&A performance. The first two relate to the financial world, and the third one is used in sociological studies:

i) *Capital markets.* Scholars studying the performance of M&A are concerned with the markets' reaction at the announcement date (King *et al.,* 2004). As for Capital markets, the most widespread metric used is the Abnormal Return through the event study methodology, firstly introduced by Fama, French, Jensen, and Roll in 1969.

ii) *Acquirer.* Academics involved in the operating performance from the bidding company's point of view are concerned with the firm's economic and financial results (Zollo and Meier, 2008). These studies use accounting ratios and metrics, such as the ROE or the ROS.

iii) *Employees.* Researchers interested in the sociological aspect of the M&A integration analyze the success of the M&A through the effect that the operation has on the employees, measuring, for example, the level of layoffs or the level of post-merger stress (Cartwright and Cooper, 1990).

The metrics related to the first two standpoints will be described in the Methodology section dedicated to the measurement of M&A Performance (Section 6.3), while the metrics related to the sociological disciplines are out of this study's scope.
When talking about performance of the M&A, two are the standpoints in the analysis: the target perspective, here reported for the sake of completeness, and the acquirer one, the standpoint of the analysis.

- Target company perspective

In case the M&A operation is not total, i.e. it does not entail the final merge of the two companies involved but there is just the partial acquisition of the equity capital of the target company, performance of both companies are still observable.
The literature findings concerning the target and the acquirer's performance are very different. Target companies generally show short-term positive abnormal return (Jensen and Ruback, 1983; Cartwright and Schoenberg, 2006), while acquirers do not enjoy the same effect, as their stock performance worsens in the period after the M&A (Agrawal, Jaffe, and Mandelker, 1992; Stahl and Voigt, 2008**).** The positive effect on the target return does not depend on its location (Sharma, 2016) nor on the nationality of the acquiring company (Eun, Kolodny, and Scheraga, 1996).

Results are consistent in studies carried on in the UK, in the US, in Continental Europe, and in Asia (*inter alia,* Conrad and Niden, 1992; Draper and Paudyal, 1999; Goergen and Renneboog, 2004; Black, Carnes, Jandik, and Henderson, 2007).

The positive result on the target firm, from a pure operating perspective, can be only jeopardized in the case of a hostile takeover (Schwert, 2000). In this case, the sales grow at a lower rate with respect to the full sample including both hostile and friendly takeovers, and the ROE as well as the Market/Book Value Ration are smaller.

- Acquiring company perspective

If results are generally consistent for target companies, they are very far from being aligned for bidders, briefly reported below.

✓ Negative performance

In 2005, Moeller, Schlingemann, and Stulz proved that shareholders of companies taking over in an M&A process lost wealth due to a high valuation of the target that eventually did not correspond to a positive synergy. Authors estimate that, shareholders of US acquiring companies lost an aggregate of $ 7bn in the 1980s and an aggregate of $ 240bn for the period 1998-2001 only, due to the much higher value and number of transactions.

This theory is confirmed by a study of 2011, where Craninckx *et al.* demonstrated that from 30% to 50% of the operations in the sample proved to destroy shareholders' value in the two-year period following the finalization of the deal.

This negative perception is corroborated by a growing circle of executives, consultants, and journalists (Bruner, 2002) affirming that M&A destroy value, as they are aware of the bare truth: 20% of M&A fail to success.

A concrete example can be of major proof. On January 02 2019, the US group Bristol Myers Squibb announced the biggest takeover of the Pharma sector of all times at that period: with US$ 74 bn, the US company will eventually control 31% of another US company, Celgene. On the day of the announcement, the target company stock price increased by 28.5%, while the bidder's one lost over 12%.

Finally, one interesting point of view is the one of Hackbarth and Morellec (2008). The two Authors predict a model according to which the announcement of an M&A operation can alter also the stock Beta of the bidder. In particular, if the Beta of the

acquirer is larger than the one of the target, then the Beta will increase after the operation announcement. Conversely, if the Beta of the acquirer is smaller than the one of the target company, then the Beta of the acquiring company will decrease.

When testing the model, they overall find out that regardless of the relation between the acquirer and target's Beta, the acquirer's one drops slightly after the announcement.

This is astonishing, as if one looks at the broader picture, it can be gathered that the value of the company decreases. In fact, as the Beta increases, the cost of equity capital increases too leading to a larger WACC. As operating cash flow are discounted at the WACC, the value decreases as the denominator increases.

In this sense, too, the M&A is thought to destroy the shareholders' wealth.

- ✓ Positive effects

As per the capital markets perspective, Walker (2000) analyses a sample of US domestic M&A and finds out that generally acquiring companies earn higher returns in case they are pursuing diversification strategy, geographic expansion, in case they pay the bid in cash, or in case they want to increase the market share. The limited case in which bidders do not earn from a stock price increase when they announce M&A is when they underline the possibility of an overlap with the target company in their existing operations.

Finally, the literature shows different results concerning the operating performance: some Scholars find that the operating performance is enhanced, i.e. synergies are created (e.g. Powell and Stark, 2005); other Scholars claim that companies that undertake M&A perform worse than companies which do not (e.g.: Dickerson *et al.*, 1997).

Performance of Cross-Border M&A

Cross-Border M&A and the performance of the stock prices of the acquiring targets are the focus of this dissertation. Also for transnational deals, the performance of the target company's stock price are positive and are not repeated in this section that only concentrates on the performance of the stock price of the bidder.

In case a company pursues an internationalization strategy, the equity investment is surely not the only option. A company can decide to expand into a target geography not only by investing in another company's equity, but also by creating a joint venture, or

through a greenfield investment, by setting up alliances, partnerships, or through export strategies (Delios and Beamish, 1999; Pan and Tse, 2000). If all these choices are compared, Cross-Border M&A, in being an M&A itself, is the only option that entails, at the same time full control over the investment in terms of human resources, knowledge, and technology (Shimizu *et al.,* 2004). On the other hand, joint ventures, alliances, partnerships, and export strategies all bear a lower level of risk, still without granting the full decisional power. Last, greenfield investment may grant full control over the investment, yet without the big advantage of the acquisition of the pre-existing local networks.

Regardless of the control advantages that they are meant to ensure, Cross-Border M&A are very difficult to implement: they require a considerable level of financial resources, they entail a scrutiny process of the potential target companies, and this has to be carried on with a physically (and not only) distant country.

As per the results in the Cross-Border M&A performance, also in this case there are different opinions: some Authors say that they do not produce any additional wealth for the acquirer's shareholders, while others affirm that they do. There are in fact some Scholars that prove that the performance is negative, some Scholars that show that the effect of the M&A is either null or mixed on the acquirer, and finally there are studies that show some positive effects for the acquirer.

Despite this lack of agreement between the two different streams of research, surely there is one of the two that emerges and that is also commonly accepted in the practitioners' world: Cross-Border M&A do not benefit from a positive reputation from capital markets as they usually do not bring the desired level of operating and financial synergies.

- ✓ Negative performance

Among of the first studies concentrating on the topic there is the one of 1990 by Conn and Connel. The two Authors carry out a study about the US and UK markets according to which acquirers do not enjoy positive abnormal returns after an international M&A. Over the years, 1996 by Cakici, Hessel, and Tandon proved that US bidder companies register negative abnormal returns. On the contrary, if a non-US company acquires a US company they gain substantially in the days surrounding the announcement of the operation (+2%).

Comparing international and domestic operations, Eckbo and Thorburn in their 2000 study found a superior performance when the acquirer buys a target nationality. Aw and Chatterjee (2004) conducted a three-way study focused on the UK. They studied UK acquiring domestic targets, target located in Continental Europe, and target located in the US. Results are quite interesting, and they are consistent with the relation investigated in this study. Aw *et al.* (2004) find that all M&A lead to a negative performance for the acquiring company, only to three different extents. The less negative performance is registered for domestic operations; the second less negative performance occurs for UK companies acquiring US targets; and the worst performance is recorded for UK companies acquiring Continental Europe targets.

According to Conn, Cosh, Guest and Hughes (2005), Cross-Border M&A, besides showing a lower return around the time of announcement, also present a lower long-term return.

Again in 2006, Schoenberg, reports that approximately only 50% of Cross-Border acquisitions could be considered successful. In a study of 2007, Black *et al.* report that US companies undertaking a Cross-Border operation register more negative abnormal returns with respect to the ones registered in the context of domestic operations.

Further evidence that Cross-Border M&A do not benefit the shareholders of the acquiring company is given by Gregory and O'Donohoe (2015). Their study focuses on the inward international acquisitions targeting British firms. With great surprise, they find out that the companies that destroy the most their wealth come from the US. This result holds until if the sample is not controlled for the corporate governance systems.

- ✓ Null or mixed performance

On the other hand, Campa and Hernando (2004) find that target firm stock price perform positively after the day of announcement (their stock yield a 9% cumulative abnormal return), whereas acquirers' stock prices' return are on average null.

Starks and Wei (2013) prove that the positivity of the stock price return around the day of the announcement depend on the corporate governance setting of the target country. The corporate governance system is a factor that was already studied by Martynova *et al.*, as the difference between the corporate governance systems can generate a sort of "spillover effect" (2008b). Martynova *et al.* find out that if the acquiring company comes from a country with a governance system with a strong shareholder orientation,

inevitably a portion of the synergy will result in the improvement of the governance of the target company.

In terms of performance, a high level of a governance system may also affect the trend of the stock price of the target. For example, US targets experience a higher return if acquired by foreign bidders, with respect to when they are acquired by domestic bidders. This is due to the fact that a foreign bidder would find in the US one of the best corporate governance system in the world (Stark *et al.,* 2013).

The listing status is something that is deepened by a study of Faccio, McConnell, and Stolin (2006) showing mixed evidence. The paper show how the performance of the stock price of the acquiring company changes according to the listing status of the target company. Specifically, if the target is listed the announcement of a Cross-Border M&A generates an insignificant average abnormal return negative by 0.38%. If the target is unlisted, the announcement entails a positive and significant average abnormal return of 1.48%.

A mixed performance is also reported in the study of Doukas and Travlos (1988) according to which capital markets privilege the newness of the target country with respect its familiarity. In their study of international acquisitions of US companies, the abnormal returns of the acquirers are positive, yet insignificant, in case the acquirer has not already acquired in the target country. On the contrary, if the target is located in a country where the bidder already acquired, then the abnormal return is negative, despite being insignificant. Moreover, abnormal returns are higher in the case in which the acquirer is expanding in new industries and in case the target country is a less developed economy that the US. Finally, Lowinski, Schiereck, and Thomas (2004) found that there is no difference between domestic and international Cross-Border M&A in the Swiss context.

- ✓ Positive performance

Eun et al. (1996) find that on average Cross-Border M&A generate wealth for US acquirers and target. The level of wealth gained varies across nationalities and characteristics of the acquiring company. This however, founds evidence with respect to the fact that Cross-Border M&A do create synergy and this synergy is shared between the target and the bidder (Eun *et al.,* 1996).

In 2009, Chari, Ouimet, and Tesar carried on a study based on international mergers targeting emerging market. They find that the acquisition carried on by a bidder located in a developed economy generates for an abnormal return of 1.16% if the target is located in an emerging market.

Mateev (2017) still finds a positive evidence with respect to Cross-Border M&A carried out by European bidders. He proves that European acquirers normally earn positive abnormal returns both in cross-border and domestic acquisitions. He also underlines how the performance differs according to the payment method (stock and cash deals) and depending on the listing status of target companies. He finds out that acquirer's shareholders gain more when the payment is made through stocks than in cash if they are located in the UK and if the target is unlisted. As per Continental Europe, the acquirers' shareholders gain the most when the payment is made in cash and the target is a listed company. Finally, in the 10 days following the announcement of a Cross-Border M&A, Chinese acquirers are found to experience a positive abnormal return (0.45%–1.49%) (Boateng, Du, Bi, and Lodorfos, 2019)

Positioning of the study

This work does not have the goal to estimate whether in the sample studied the abnormal return is positive or negative, as it is the purpose of this dissertation to go beyond the *mere* performance on the announcement day.

This work aims at studying how a human perception, that still plays a big role when a Cross-Border M&A is announced, can be redirected by considering some empirical actions.

In the light of the literature review presented above and in the light of what is a widespread thinking in the practitioners' world, capital markets do still have a bad perception towards Cross-Border M&A as, in this context, there are multiple layers of difficulty that add up to an already challenging business operation.

The perception of capital markets is affected by investors' subconscious sentiments (Danbolt, Siganos, and Vagenas-Nanos, 2015), which may alter their estimation of expected synergies and the risks coming from the merger. It is then the investors' sentiment that has an effect on the abnormal return of the acquirer's stock price.

At the same time, in being such a complicated task, Cross-Border M&A can expose emotions for the top management and the key persons involved (Hassett, Reynolds,

Sandberg, 2018). The integration between acquirer and target of different nationalities is so difficult that the amount of stress caused onto the target firm executives is so high that around 70% of them leave the company after five years after the deal is finalized (Krug, Aguilera, 2004) due to higher management costs or "*simply"* to higher integration costs (Krug, Wright, Kroll, 2014).

In this sense, when an international merger or acquisition is undertaken there are many forces that come in the picture and that can increase the difficulty of the transaction. Such forces are the cultural difference and its incompatibility (e.g. Cartwright *et al.*, 2006; Stahl *et al.*, 2008; Faulkner, Teerikangas and Joseph, 2012).

CHAPTER 4. CULTURAL DIFFERENCE AND CROSS-BORDER M&A

After analyzing culture and Cross-Border M&A as two separate worlds, Chapter 4 blends the two topics and presents how the role of culture is perceived in these operations according to past research findings and identify new definition of cultural difference.

4.1. Culture, heritage, and business transactions

When talking about Cross-Border M&A, the cultural difference derives from different norms, routines, and repertoires of organizational design, between the target and the bidding company (Morosini et al., 1998).

In his 1980 book, Hofstede says:

> *"Culture consists in patterned ways of thinking, feeling, and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values. […] Culture is to a human collectivity what personality is to an individual."*

It can be gathered that the culture can affect the way in which someone is imprinted with the ideas of what is good or bad, or right and wrong. This is actually reflected, for instance in the legislative power of a country that dates back to the Roman Empire ages, hence affecting directly the political stability, the governance rules, or the institutional stability. In fact, culture is like a mark in each People that makes of them who they are, how they behave, their level of openness, and how they negotiate in transactions. What can be believed as an effective management practice in one country may not be for another one. This is also the reason why many multinational companies despite having a subsidiary in many countries of the world, mandate the management team to be of the same nationality of the global shareholder.

The contextual elements that stem from culture have all been proved to badly influence the performance of a Cross-Border M&A: the difference in the corporate governance structure, the institutional framework, the taxation policies, the financial market

structure, just to name a few, are negatively related to Cross-Border M&A, and they can also affect the location where they are undertaken (Martynova et al., 2008b; Xie et al., 2017).

As the focus shifts towards this angle, much research proves that cultural differences can in fact alter the results of the post-merger integration (Cartwright et al., 2006), and that the cultural difference between the acquirer and the target has a significant negative impact on the results (e.g. Nahavandi and Malekzadeh, 1988; Datta, 1991; Cartwright et al., 1992; Chatterje *et al.,* 1992; Weber *et al.*, 1996; Conn et al., 2005).

4.2. The definition of Institutional Culture

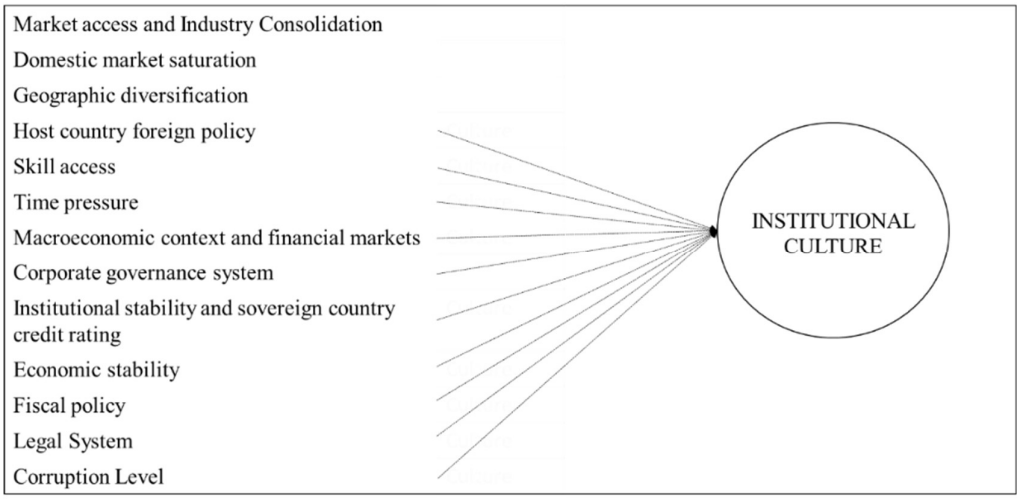
How institutions are organized and structured is a direct consequence of the set of their heritage, background, and values, i.e. of their culture. Different Authors proved that culture is a powerful determinant of how institutions are set (Licht, Goldschmidt, and Schwartz, 2007; Ahern *et al.,* 2015).

Basing on the founding father of culture, Hofstede (1980) and on the founding fathers of institutional theory, North (1990) and Scott (1995), this dissertation introduces the definition of "*institutional culture"* defined as *shared beliefs, values, and competences that formed the regulatory, normative, and cognitive setting of a country*.

This definition includes all the features differentiating the legislative, normative and cognitive setting of one country from another one. This means that, *inter alia,* shareholders' protection mechanisms (that affect financial markets), the fact that a legislative framework is based on common or civil law, the fact that a country is more prone to have a lower tax rate are all consequences of the history that a People lived and of its values, hence of the culture.

This definition follows a holistic approach to the word "culture". Almost all the motivations behind a Cross-Border M&A (illustrated in Figure 7), are nothing but a more or less direct consequence of the institutional culture, as the culture that carries institutions (Scott, 1995) derives from the heritage of a People (Hofstede, 1980) and the values and the heritage of a People affect the legislative framework (La Porta *et al.*, 1998).

Figure 7 Motivations behind Cross-Border M&A related to Institutional Culture



Source: Author's elaboration

Knowing beforehand that Cross-Border M&A are such difficult processes, why eventually aren't synergies created, leading capital markets to think that it is a non-profitable choice?

Resuming the elements presented in Section 3.3.2.1 in paragraph *"Motivations behind Cross-Border M&A"*, one can observe how what affects the bad perception of capital markets is generated by the *difference* of these factors existing between the target and the acquirer, namely:

- Host country foreign policy *difference*
- Skill access *difference*
- Time pressure *difference*
- Macroeconomic context and financial markets *difference*
- Corporate governance system *difference*
- Institutional stability and sovereign country credit rating *difference*
- Economic stability *difference*
- Fiscal policy *difference*
- Legal System *difference*
- Corruption Level *difference.*

Looking closer at the factors that hinder a positive performance in a Cross-Border M&A, it can be said that, in the light of the literature findings and in the light of the above definition, most of them can be traced back to the institutional culture (Figure 7).

Reprising Krug *et al.*'s evidence (2004) according to which 70% of the target's Executives leave the company after the merge is completed, seven target companies will be left with little, if none, leadership.

Without continuous leadership and, yet, in the aftermath of a Cross-Border M&A in the presence of all the differences listed above, then synergies may not occur as expected. In fact, in a stationary moment, they may not be realized at all.

Knowing that, capital markets may fear that this happens when an international merge is announced. From this, the negative perception of market: a human bias based on something that *may* happen in the future. In addition, past research has shown that a specific country popularity in another country strongly affects what people think of a Cross-Border M&A involving a popular or unpopular country, to the extent that this change their intensity (Hwang, 2011)

In the light of what presented above, it can be inferred that institutional cultural difference is one of the biggest (if not the biggest) reason why Cross-Border M&A are more complicated than domestic ones. Each country has a different economic, legal, cognitive, and political structure and this is the factor that differentiates the performance of the domestic M&A from the Cross-Border M&A as perceived by financial markets, that do not believe that they can lead to a positive outcome.

This standpoint pushed financial academicians to focus not just on the strategic and financial aspect of the operations *per se*, but more on the human side of it, looking for the success keys of M&A in the human resources (Stahl *et al.*, 2008). Considering this perspective, Scholars shifted the focus on the management of the cultures, that are also being merged in the operation and that has to be implemented during the post-integration process to lead to the success of the M&A (Cartwright *et al.,* 2006).

This is also the standpoint adopted in this study, and leads to Statement (1).

> **Statement (1):** The institutional cultural *difference* leads the capital markets to think that the Cross-Border M&A may result in a non-profitable operation.

4.3. Literature Review

4.3.1. Relevance of Culture in Cross-Border M&A studies

National cultural difference is relevant to Cross-Border acquisition performance (Morosini, 1998; Bauer *et al.,* 2016), as cultural gaps can entail hurdles in achieving synergy benefits (Stahl *et al.,* 2008). Despite reluctant at first sight, Scholars have come to accept that culture affects economic phenomena (Guiso, Sapienza, and Zingales, 2006). With particular reference to business combinations, cultural difference can affect FDI in a broader sense, as well as equity investments, in a narrower sense (Guiso *et al.,* 2009; Hwang, 2011;). However, it is not just a matter of lower gain, it is also a matter of opportunity, as the cultural difference existing between the acquirer and the target is negatively related with the volume of transactions (Ahern, *et al.*, 2015).

Social scientists began to study culture at the beginning of the 20th century, but it was not until the '80's that the business world became interested into M&A and culture (Faulkner *et al.*, 2012). As mentioned above, business Scholars were not keen on thinking that something so blur and vague as culture could impact something so defined as the economy (Guiso *et al.,* 2006) through beliefs and values that impact agents' perceptions and actions (Aggarwal, Faccio, Guedhami, and Kwok, 2016). Thanks to more sophisticated techniques and several operationalization of the word "culture" researchers began to explain economic phenomena via the role by culture.

With reference to business combinations, the first studies were concentrated in the US, the biggest market active in M&A. In the first years, the word "culture" was meant as more of an organizational culture, differing from company to company. It was with the advent of the Cross-Border M&A wave of the '90s that the culture gained also a country-located meaning (Faulkner *et al.,* 2012).

Since the beginning of the 21st century, the interest for Cross-Border M&A is not only limited to the Anglo-Saxon world, but broadened also to Continental Europe and to Asian companies, with particular reference to China (*inter alia*, Deng 2009, 2010; Liu and Deng, 2014; Zheng, Wei, Zhang and Yang 2016, Boateng et al., 2019), Japan (e.g., Fukao, Ito, Kwon, and Takizawa, 2008), and India (e.g., Gubbi, Aulakh, Ray, Sarkar, and Chittoor, 2010).

4.3.2. Beyond Hofstede: other definitions of Culture relevant to M&A studies

Hofstede's definition of culture is surely the most widespread in the literature. Still, there are many other definitions relevant to Cross-Border M&A studies, and that should be mentioned, as they contributed to shape the research question and the study.

- Cartwright *et al.* (1993) describe "cultural compatibility" to capture the cause for the unwanted Cross-Bordr M&A performance. They say that it is the "*complex interaction between the existing type of premarital culture of the partners and the terms and interpretation of the type of marriage contract the parties believed they had entered*".[22] This incompatibility is a result of the differences that exist, for example, in accounting practices, the managerial style, and in the workforce in general
- Weber *et al.* (1996) for the first time provide an operationalization of the "cultural fit". According to them, when analyzing the performance of companies located in two different countries, the relationship between national and corporate culture can not be overlooked. National and corporate cultures are, in fact, equally important inputs that affect the success or failure of an international M&A. In their study, the Scholars operationalize the cultural fit with the following items[23]:
    - national cultural differences, based on Hofstede,
    - corporate cultural differences, based on a survey,
    - "autonomy removal" (the extent to which goals as well as strategic and operational decisions were determined by the acquiring top management team and not in accordance with the target's one), based on a survey
    - Stress, based on a survey
    - Cooperation attitude, based on a survey.
- Morosini *et al.* 1998 define national cultural distance as "the degree to which the cultural norms in one country are different from those in another country"[24], still using the operationalization of Hofstede (1980).

[22] Cartwright *et al.,* 1993, p.57

[23] In this list, only the most relevant ones are reported

[24] Morosini *et al.,* 1998, p. 139

- Birkinshaw, Bresman, and Håkanson, 2000 adapt two of the six pillars in Hofstede revised definition of 1990 to introduce the concept of "cultural convergence", that is the extent to which R&D units of companies involved in Cross-Border M&A changed culture over the four-year period of integration after the operation took place.
- Guiso *et al.* 2006 define culture as "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation"[25]. In their paper they acknowledge that their definition is not comprehensive, as it is a definition that helps them focusing on those components of culture that affect economic activities.

4.3.3. Cultural Difference and Cross-Border M&A performance

As per the relation between the cultural difference and Cross-Border M&A, there are two different and opposing streams of literature. One the one side, there are Scholars claiming that this is a hurdle to the success, and this is the one affecting the performance of the stock returns; on the other side, there are Scholars arguing that each culture is made of specific routines and repertoires that can in fact be useful to the acquirer.

As per the first stream of research, this is grounded on the Hofstede's (1980) study that proves that the interaction among different people with different cultural background may entail more difficulties, higher costs, and risks.

One of the first studies is the one by Chatterjee, Lubatkin, Schweiger, and Weber (1992) In their study, Chatterjee *et al*., found a strong and opposite relation between the cultural difference perception and the shareholders' gains. Many Scholars embrace this view, like Nahavandi *et al.* (1988) and Conn *et al.* (2005). Conn *et al.* (2005) conducted a research with reference to the UK comparing the results of both domestic and Cross-Border M&A. They found out that the higher the cultural distance between the acquirer and the target, the larger the negative influence on long-term returns.

In addition, in their work of 2007, conducted for all OECD Member States, Bertrand *et al.* claimed that the cultural distance generates higher organizational costs, hence discouraging Cross-Border operation between countries with a higher level of it. This

[25] Guiso *et al.,* 2006, p. 23

hypothesis is further confirmed by an analysis of 2015 developed for the US market, according to which Cross-Border M&A do not create value for the shareholders of acquiring firms (Basuil *et al.,* 2015), unless they undertake operation in the same industry. Authors also emphasize how the cultural difference can counterbalance, in a negative way, the positive effect of the industrial affinity aforementioned. Further, there is a strong negative relation between the cultural distance and the takeover premium when US bidders acquire overseas targets (Lim, Makhija, and Shenkar, 2016). Negative evidence is also present in a recent study of Boateng *et al.* (2019), in which Cross-Border M&A originating from China prove to be producing wealth for the acquirer until the cultural distance does not enter in the picture. The higher the cultural distance, the lower the value created both in the short term and in the long term.

More generally speaking, culture is perceived so discriminating that it can not only affect the M&A operation per se, but also *whether* a company even undertakes M&A, rather than greenfield investments and joint ventures (Kogut *et al.*, 1988).

In the practitioners' world, in a study conducted by the then Hay Group (now Korn Ferry), a US consulting firm, 90% of European M&A are reported to miss the forecasts, attributing this mismatch to difficulties in combining cultures and governance structures (Faulkner, *et al.,* 2012), as the cultural incomparability most likely leads to failure in the post integration efforts (Lee, Kim, and Park, 2015). Cultural difference is also a source of stress and generates negative attitude towards the Cross-Border M&A itself (Weber *et al.,* 1996)

Despite the thinking that Cross-Border M&A perform worse that domestic ones, there are some Authors that, despite understanding why cultural difference can create hurdles, affirm that it can play the role of a double-edged sword (Reus and Lamont, 2009).

They start from the assumption that "distance" does not necessarily means "incongruence", as evidence indicates that the distance in the cultural background can lead, in some contexts, to "complementarity" (Weber *et al.,* 1996).

This is why in the definition adopted in this research, the word "distance" is not included in the definition on purpose. Rather, the word "difference" is used.

This strand of Scholar argues that cultural difference can be a way to enrich the two companies (Morosini *et al.,* 1998) and that Cross-Border M&A create more wealth for

shareholders (Danbolt and Maciver, 2012). Morosini *et al.* (1998) argue that the cultural distance existing between the target and the bidder can serve as a means to transfer new routines and repertoires. Danbolt *et al.* (2012) further claim that while bidders undertaking domestic operations register a significant negative abnormal return, bidders undertaking international M&A register a small, though insignificant, impact on their share prices, leading them to think that the value creation is larger in Cross-Border M&A than it is in domestic ones.

Again, the wider the cultural difference between the target and the acquirer, the larger the likelihood of a successful M&A if the combination of the two cultures favors innovation and new ways to trouble-shooting (Page, 2007).

This leads to a further development of Statement (1) in Statement (2):

> **Statement (2):** The institutional cultural *difference* leads the capital markets to think that the Cross-Border M&A may result in a non-profitable operation. Regardless, the diversity in the culture between the acquirer and the target is not necessarily a hurdle for the creation of synergy.

PART THREE: THE RESEARCH

Abstract

Part Three has the aim to describe the empirical analyses of the dissertation.

Chapter 5 presents the research setting. The Research Gap is described in detail to lead to the Research Question. In Chapter 5, all moderators aiming to smooth the bad perception of capital markets are described. For each of them, Chapter 5 presents a literature review in relation with Cross-Border M&A. At the end of this Chapter, the hypotheses setting and contribution of the study are described.

Chapter 6 describes the Methodology used in the research, with particular emphasis on the event study methodology. Chapter 6 presents also how the two pillars, institutional culture and M&A performance, are measured in the research. The last part of Chapter 6 describes the variables used in the model.

Chapter 7 shows the results of the empirical analysis:

a) The event study;
b) The multiple regression;
c) The time analysis.

CHAPTER 5. RESEARCH SETTING

5.1. Research Gap

In the academic literature, Scholars do not agree on the metrics that should be used to appraise the M&A operation performance. They also do not agree on whether the performance is positive and whether M&A is a way to pursue growth. Nevertheless, they all agree on something: the difference between the culture of the target and of the bidder is something that can not be disregarded when talking about Cross-Border M&A. Still, they disagree on the effect that the cultural difference can have in the integration process. Some Authors say it is a hurdle; others say it can provide learning opportunities (Reus *et al.*, 2009).

Capital markets perception is more alike to the first of the two streams of research: synergies and integration are more difficult to achieve in the case of a Cross-Border M&A. When the parties involved in the transaction do not share the same culture, capital markets do not reward the stock price on the days of the announcement, rather the opposite, as the abnormal return of bidders is even more negative than it is for domestic M&A.

Despite this, Cross-Border M&A are not a subject that can be set aside, quite the opposite. Given the increasing trend of Cross-Border M&A, this phenomenon has to be studied and understood thoroughly. Cross-Border M&A gained more importance since the ‘90s thanks to a more widespread deregulation adopted by many countries and thanks to the reduction of trade barriers (Sharma, 2016) and they will do much more in the next years.

Hence, given that Cross-Border M&A will be more and more important, empirical solutions that can lead to a decrease in the bad perception of capital markets need to be identified. In this way, capital markets do not just concentrate on the operation announced, but also on the past choices of the acquirer.

Consequently, this study wants to identify some moderators that can smooth the institutional cultural distance effect.

Following the literature frameworks presented in Chapter 2, 3, and 4, this study will concentrate on international M&A and will examine the role that the institutional cultural difference can have on their performance within capital markets, not

necessarily related to the operational performance nor to the creation of synergies or the integration process.

5.2. Research Question

In the light of this, Statement (1) and (2) can be further developed in a conclusive Statement (3).

> **Statement (3):** The institutional cultural *difference* leads capital markets to think that Cross-Border M&A may result in non-profitable operations. Regardless, the diversity in the culture between the acquirer and the target is not necessarily a hurdle for the creation of synergy. Are there any factors that can smooth the negative perception that capital markets have with respect to Cross-Border M&A, with reference to the institutional cultural difference?

Consequently, the research question of this study is:

> ***Research Question:*** *Assuming that the institutional cultural difference is not* per se *a hurdle to the success of a Cross-Border M&A, can its negative perception spread among capital markets be smoothed by some moderators?*

The moderators mentioned in the research question are empirical solutions that are supposed to smooth the perception of capital markets. Past researchers already proved that cultural distance can be moderated by some external factors, such as social integration mechanisms as well as operational integration (Björkman, Stahl, and Vaara, 2007). The moderators proposed in the study have the following characteristics in common:

1. They convey a piece of **information**, hence making capital markets' operators decide on a more solid ground;
2. The pieces of information that they convey are **public**, hence easily retrievable by capital markets' operators;
3. The pieces of information that they convey all play a crucial role in the **Cross Border M&A process**;
4. The piece of information that they convey stands for **reliability.**

a. Track Record of the acquirer

The first moderator factor is the track record of the acquirer in undertaking Cross-Border M&A. In today's financial world, there are companies that can be defined "serial acquirers", as they grow mainly via M&A, like Cisco, General Electric, Facebook, and Google (Chao, 2018). According to the organization learning theory (Miller, 1993 and Vermeulen *et al.*, 2001), *ceteris paribus*, the higher the number of Cross-Border M&A, the higher the possibility to create value for the shareholders (Basuil *et al.,* 2015), thanks to economies of experience. In this sense, a stream of literature of the '90s found that past acquisition experience is associated with acquisition success (Bruton *et al.,* 1994). In more recent studies, Vermeulen *et al.* (2001), and Basuil *et al.* (2015) proved that a company can benefit from its own track record only if the acquisition is made in a related business and provided that the acquirer is already present in that specific region or area, either with greenfield investment or with previous acquisitions. In this light, a cross-border M&A can be a means of learning for the acquirer. Providing that the management team is supposed to learn from past experience (Aktas, de Bodt, and Roll, 2011), capital markets should trust more companies used to acquire foreign companies. In the first half of 2019, when this dissertation idea was already defined, a B journal "International Review of Financial Analysis" published an article by Boateng, Du, Bi, and Lodorfos, which uses the prior experience of acquiring companies as a moderator factors against the cultural distance between the acquirer and the target. This study demonstrates how the past experience of a bidder in experiencing in the past Cross-Border M&A is something that can affect the opinion of capital markets towards them. This very recent study will be used to compare the results of this research, as this dissertation and the paper by Boateng *et al.* (2019) are very different as:

- This thesis uses a sample of US and the EU companies, while that paper only analyses Chinese acquirers;
- This thesis studies the institutional cultural difference, while Boateng et al.'s paper uses Hofstede national culture distance metrics;
- This thesis uses a very recent sample going from 2004 through 2018, while Boateng et al.'s paper uses one from 1998 through 2012; and finally
- The variables used in Boateng et al.'s model convey the message that the study is limited to the Far-East areas, as among the variables there are some like: a

"language dummy" to indicate if the target company uses Mandarin as a main language and an "Asia dummy", that measures if the target companies is located in Asia or not.

b. Consistency of accounting standards

In case the level of accounting quality is low, during a Cross-Border M&A, there may be more room for errors in the appraisal of the target company price (Black *et al.*, 2007). In the business world, it is now common knowledge that IFRS stand for high accounting quality (Barth, Landsman, and Lang, 2008). The common use of IFRS is used as a moderator in the model as, up to date, they are the only accounting standards, which at the same time, stand for quality and that are adopted by different countries, that are culturally different by definition.

Past research shows that the adoption of IFRS led to a significant increase in cross-border acquisition towards the adopting countries (Louis and Urcan, 2014). Francis, Huang, and Khurana (2016) argued the same by studying a sample over the period 1998–2004 (hence, prior to the mandatory adoption of IFRS, that occurred in 2005 for EU listed companies). They found that the aggregate volume of M&A activity across country pairs is larger for pairs of countries with similar Generally Accepted Accounting Principles (GAAP). With an additional analysis of the sample in 2006, they also found that the 2005 mandatory adoption of IFRS attracted a higher volume of cross-border M&A among IFRS-adopting countries, and that this increase in the M&A activity within the IFRS countries is more pronounced for country pairs with low similarity in GAAP in the pre-IFRS adoption period.

c. Disclosure of "social" (i.e. non-financial) metrics

Information asymmetry is particularly important in the context of Cross-Border M&A and finance theory shows that information signals can reduce adverse selection (Spence, 1974) in M&A operations, especially if the target has a different nationality from the bidder. In addition to the disclosure of mandatory financial metrics, in financial markets the disclosure of ESG metrics is broadening (Source: Thomson Reuters). Concerning non-financial metrics, commonly defined as "social", this study adopts the social disclosure definition as presented by Brooks and Oikonomou (2018). The two Authors define social disclosure as "any information that a firm makes public, typically within

or alongside its annual accounts or in a stand-alone report related to its performance, standards or activities under the corporate social responsibility (CSR) umbrella"[26].

Nowadays, it is widely accepted that listed and unlisted companies choose to disclose some social metrics and this has led many Scholars to study this subject. Social impacts, or more in general ESG topics, are increasingly important in the financial market and they can even affect the credit rating of a company depending on its industry. One example is provided by the Fitch ESG Heat Map[27] that see some industries as more ESG-relevant than others (Dallocchio, Vizzaccaro, Negri, and Anconetani, 2019) and attributes for this a different credit rating, that affects the cost of debt and the WACC.

Despite the great hype that surrounds sustainability matters today, back in the '70s, the distinguished Milton Friedman revealed to be one of the biggest opponent to social responsibility, as the only "social responsibility of business is to increase its profits", as its paper was titled (1970). He argues that investments undertaken in this direction can drift resources away from shareholders, as the implementation of social responsibility principle imposes costs whose benefits are difficult to measure in a tangible way. From 1970 to date, there is now about 50 years of research studying the relation between social metrics disclosure and their benefits, as CSR has become a widely renowned practice.

In order to link the social metrics disclosure to a good level of reliability within capital markets, and use it as a moderator in this study, focused on M&A and cultural difference, these logical steps need to be taken:

1. The disclosure of social metrics by a company is positively related with its social performance;
2. The social performance of a company is positively related with its announcement of an M&A operation.

Eventually, to use the CSR disclosure to moderate cultural difference a further logical layer is needed:

3. The social performance depends on the difference in culture.

[26] As per the CSR umbrella definition it is intended the commonly accepted definition as drafted by the European Commission as "the responsibility of enterprises for their impacts on society [and] to integrate social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy". Source: European Commission (2011)

[27] FitchRatings, Aug 6th 2019, Fitch Ratings Launches ESG Heat Map for Corporate Issuers

Reference for the three logical steps is here provided. One could think that the fact that a company discloses social metrics does not make it necessarily a high-level social performer, as there is evidence that when the choice of disclosure is voluntary, companies disclose only those pieces of information at their own convenience, regardless their actual ability to be engaged in these activities (Hodder-Webb, Cohen, Nath, and Wood, 2009). Despite such cynical approach, strong evidence can be found with reference to step (1) linking non-financial disclosure and social performance, as presented in Clarkson, Richardson, and Vasvari's work of 2008. This association may stem from a virtuous cycle according to which CSR may act as a "commitment device" (Brooks *et al.,* 2018; Boot, Greenbaum, and Thakor, 1993) and pushing the company to *actually* behave ethically, to keep these scores higher.

Scholars have also studied the relation between M&A and social performance. In particular, corporate social performance has a positive ascendance on the announcement of an M&A and on its performance in terms of announcement returns, long-term returns, and post-merger long-term operating performance (Deng, Kang, and Low (2013), hence proving evidence for logical step (2).

As for final step (3), past research proved that corporate social performance is significantly associated with difference in cultural dimensions (e.g. Ringov and Zollo, 2007; Ho, Wang, and Vitell, 2012), hence making it plausible that the high level of disclosure of social metrics can smooth the negative perception of capital markets within Cross-Border M&A.

d. Presence of a Private Equity investor

When a private equity invests in a company becoming one of its shareholders, this generates the so-called "signaling effect", according to which everyone in the market knows that the backed-company is of high quality (Humphery-Jenner, Sautner, and Suchard, 2017). A message of high quality is conveyed for two reasons: the first one is the highly selective screening process that is dedicated by a private equity firm before investing in the backed-company, the second one is the sharing of knowledge, experience, and network that the PE can do once a shareholder (Caselli and Negri, 2018).

As per the role that the presence of a Private Equity may have in the context of a Cross-Border M&A, existing literature showed that there is a positive relation between the intervention of a private equity investor and the M&A.

From the target side, the PE plays a positive role in facilitating an acquisition from a physically distant acquirer (Wu, Reuer, and Ragozzino, 2013). In addition, when the target is participated by a PE, this leads to a higher premium (Reuer, Tong, and Wu, 2012).

From the acquirer side, Humphery-Jenner *et al.* in their work of 2017, proved that the presence of a Private Equity investor is positively related with the market performance of the acquirer after the M&A announcement, especially if the target company is located in a weak information country. This shows that a deal in which a PE-backed company is involved as the acquirer is a deal characterized by a high level of quality. The PE, as a "temporary" shareholder, has all the interests in leading the acquirer only towards a "good" deal of M&A, as in this case, the value of the backed-company will increase over time, leading eventually to an increase of their IRR (internal rate of return) at the moment of the exit.

e. Level of internationalization of the Board

When two companies merge, it is not just the client list, the operations, and the assets that are merging. The Board of Directors is also merging. It is in this moment that the cultural gap is perceived at an individual level. When Volvo Construction Equipment, a Scandinavian company, acquired Samsung Heavy Industry, a South Korean company, the main cause that managers attributed to the low level of integration was the distance in culture at the management level (Lee *et al.,* 2015). This occurred regardless managers on both sides spent time in studying each others' culture and despite they knew that the possibility of a cultural clash was real. Yet, it happened anyway: the Korean management stated that Swedish managers did not seem to fully understand the Korean culture and Swedish managers struggled in accepting the high strict of hierarchy of the Korean culture based on Hofstede (1980). The question is: would the integration had occurred in case the Directors of Samsung were Americans, or in case the management of Volvo were Japanese? The answer is, maybe. As a matter of fact, despite the fact that the two companies were headquartered in two culturally distant countries, the soft skills and the values of the Board would have played a moderating effect.

Past literature showed that differences in the management style have a negative effect on the M&A performance (Datta, 1991; Cartwright *et al.*, 1993). At the same time, there is evidence that the management style is ethnocentric i.e. reflecting the nation in which it is formed and it is affected by the national culture (Lubatkin, Calori, Very, and Veiga, 1998). Past research already proved that there is a positive perception from the capital markets towards M&A announcements with reference to the multi-nationalism of the Board (Miletkov, Poulsen, and Wintoki, 2017). With reference to Cross-Border M&A, foreign Directors could act as real "playmakers" in that they have a cross-border network by definition and they can leverage on it to identify suitable targets and negotiate value-enhancing deals (Agyei-Boapeah, Fosu, and Ntim, 2019).

In addition, in a multi-national Board, the cultural clash "already exists" and management is used to it. Dealing with directors with a different nationality will not likely add further stress to the M&A negotiation. In the light of this, the level of multi-nationalism is considered as a moderator in smoothing the negative perception towards the cultural difference within financial markets.

Conclusion

There is a last, albeit very important, feature that defines all the moderators presented. With the only exception of the IFRS utilization to a lesser extent, all of them are levers that can be controlled by the acquirer company. Each of these solution is a strategic or financial choice. A company can decide to undertake Cross-Border M&A, it can decide to disclose non-financial metrics, it can decide whether to involve private equity investor. Finally, they can decide whether they want to internationalize the Board of Directors.

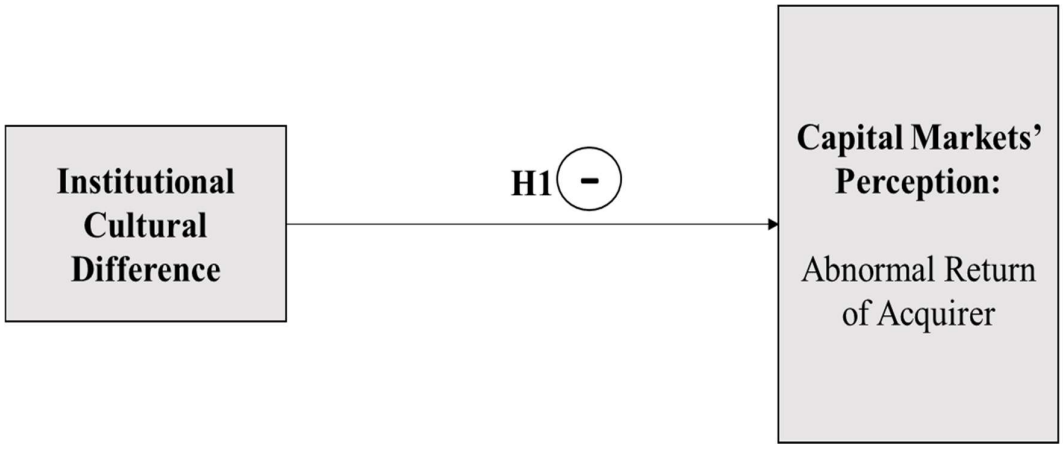
5.3. Hypothesis Setting

The study is composed of three different parts.

The Hypothesis explored in the first part is:

> ***Hypothesis 1:*** *The higher the institutional cultural difference, the lower the abnormal return of the bidder company in the period following the announcement of a Cross-Border M&A (Figure 8).*

Figure 8 Hypothesized relation between institutional cultural difference and Capital Market Perception



Source: Author's elaboration

The first part of the study aims at setting a baseline for the following hypotheses (Hypotheses 2a, 2b, 2c, 2d, 2e and represented in Figure 9)

Hypothesis 2a (H2a): *The higher the level of institutional cultural difference, the lower the negative perception by capital markets of a Cross-Border M&A announcement in case a Private Equity Investor is a shareholder of the acquiring company.*

Hypothesis 2b (H2b): *The higher the level of institutional cultural difference, the lower the negative perception by capital markets of a Cross-Border M&A announcement in the presence of a higher ESG Score.*

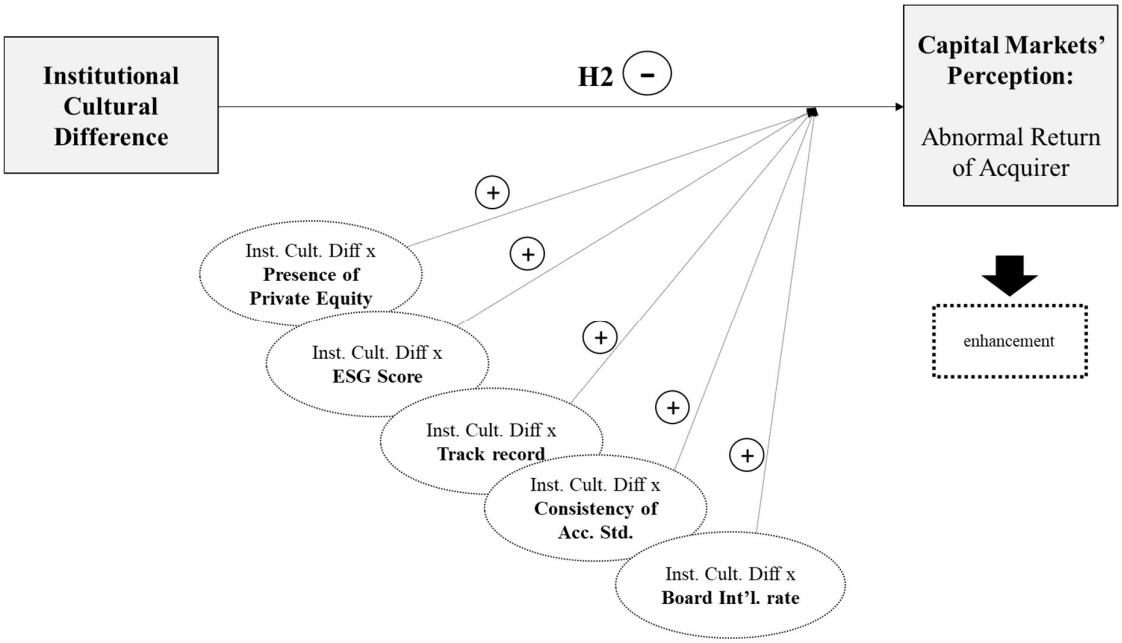
Hypothesis 2c (H2c): *The higher the level of institutional cultural difference, the lower the negative perception by capital markets of a Cross-Border M&A announcement in the presence of a larger experience of the acquirer in undertaking Cross-Border M&A.*

Hypothesis 2d (H2d): *The higher the level of institutional cultural difference, the lower the negative perception by capital markets of a Cross-Border M&A announcement in case the companies involved adopt the same Accounting Standards.*

Hypothesis 2e (H2e): *The higher the level of institutional cultural difference, the lower the negative perception by capital markets of a Cross-Border M&A announcement in the presence of a higher internationalization rate of the Board of Directors.*

Hypotheses 2a, 2b, 2c, 2d, and 2e are tested with the use of moderator factors created with interaction items generated with the CAGE index (cf. Section 6.4) used to capture the institutional cultural difference and the respective empirical solution (i.e. presence of PE, ESG Score, Track Record, Consistency of Accounting Standards, and international BoD). This interaction factor is expected to have a positive relation with reference to the capital markets' perception measured by the AR of the acquirer.

Figure 9 Hypothesized relation between institutional cultural difference and capital markets perception in the presence of moderators



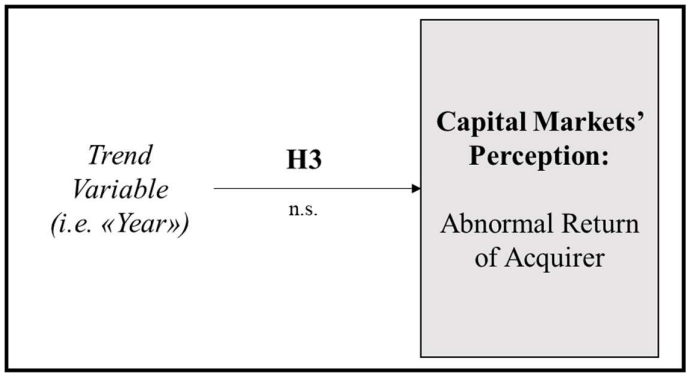
Source: Author's elaboration

The third part of the study is concentrated on analyzing whether the passing of time affects or not the abnormal return, hence assessing whether results are robust across time.

As illustrated in Section 3.3.1 "General Frameworks of M&A Waves", Cross-Border M&A are becoming more and more popular. As capital markets witness on a regular basis these transactions, their reaction (either enthusiasm or disapproval) around such events should not be affected by the passing of time.

***Hypothesis 3 (H3)**: The passing of time does not affect the Abnormal Return.*

Figure 10 Hypothesized relation between the trend variable and the capital markets' perception



Legend: n.s. = non significant

Source: Author's elaboration

This third and final part will be carried on by including in the model a "trend variable" that will track the passing of time. In the third part, despite not being the primary goal, **H1** and hypotheses of group **H2** will be further tested.

5.4. Contribution of the study

The study aims at contributing at the existing literature on three different layers: academic, managerial, and institutional.

Academic contribution

As for the contribution to the *academic* world, there is no study that takes the institutional cultural difference perception as a contextual factor to be dealt with and tries to find out some empirical solutions to moderate it, starting from the assumption that cultural difference *per se* does not necessarily has negative consequences on the performance of Cross-Border M&A.

In the second place, the cultural difference has never been looked at according to the holistic approach adopted in this work. Business papers involving culture always look at the culture as meant as a national level (cf. Hofstede's definition). On the other hand, studies that focus on the institutional difference between the target and the bidder, never use the wording *"institutional culture"* as the "*shared beliefs, values, and competences that formed the regulatory, normative, and cognitive setting of a country"*. As seen in

previous chapters, culture can in fact be meant at an institutional level as how institutions are organized in terms of norms, regulations, and cognitions is a direct consequence of a People's culture. Authors like North (1990), Scott (1995), Ghemawat (2001), and Berry et al. (2010) all provided a clear association between the institutions and culture, but none of them used the this terminology linking them to each other in a straightforward way.

Last, concerning the methodology, this study aims at presenting a further application of the Global Market Model in the context of an event study. In event study-based works, typically the behavior of inward or outward Cross-Border M&A is studied for one country. The complexity of the sample used in this research, given by the different nationalities of either the target or the bidder, required the adoption of a rarely used Market Model, that is the one adopted in multi-country settings (Park, 2004).

Managerial contribution

As for the contribution to the *managerial* world, this study provides some empirical solutions, some best practices to consider in order to convey a positive and a trustful message to the financial community. In addition, this research wants to help in shifting the focus from the *acquisition* to the *acquirer*, as the bidder's past strategic and financial choices should also be considered when judging the announcement of a Cross-Border M&A.

Institutional contribution

As per the contribution to the *institutional* world, with specific reference to the moderator "Consistency of accounting standards", this study aims at proving that the adoption of unified accounting standards, could be beneficial to the perception of capital markets of Cross-Border M&A. Consequently, there would be lower information asymmetry when performing due diligence.

CHAPTER 6. RESEARCH DESIGN AND METHODOLOGY

6.1. Methodological Setting

The methodologies used in this work are the following, where each of them represents a different research block:

- Event study;
- Multiple linear regression;
- Multiple linear regression with time analysis (shortly, "Time analysis").

Each one of the three methodologies deals with a different part of the work.

The event study is aimed at assessing whether Cross-Border M&A are perceived in a negative way from capital markets, generating a loss for shareholders' wealth.

Expectation: In the days following the announcement of Cross-Border M&A, there is a drop in the stock price generating a negative abnormal return for the bidder company.

Regardless of the outcome of the first research block, the second block aims at presenting empirical solutions to enhance the performance of the share around the days of the announcement.

Expectation A: the abnormal return decreases as the institutional cultural difference increases

Expectation B: the moderating factors have a positive effect on the abnormal return of the stock price of the bidder company and the larger the institutional cultural difference between the acquirer and the target, the better the effect of the moderator.

As per the last research block, this aims at representing an epilogue in the modern Cross-Border M&A wave. As it has been presented in previous chapters, capital markets witness cross-border M&A every day. Hence, the passing of time is not supposed to affect the abnormal returns of acquiring companies.

Expectation: time has a non-significant impact on the abnormal return.

6.2. Event Study Methodology

6.2.1. Preliminary Definitions

Event studies investigate the trend of a company's stock over the days in which a corporate event verifies (Kothari and Warner, 2007). Event studies assume that in the short term, markets are efficient and that the release of a piece of information is reflected on the stock behavior (hence on the stock return) immediately after the date in which the information is released (Fama, Fisher, Jensen, and Roll, 1969).

Fama, Fisher, Jensen, and Roll were the first ones to introduce such methodologies in 1969 and the first ones to investigate the behavior of stock after a specific event occurs. Since then, the event study methodology has evolved and has become a starting point for studies in the business and legal literature.

In the field of management literature, a multitude of papers in finance and accounting use the event study practice.

As per the finance stream, this methodology has become a standard reference to study the behavior of a stock around the time of a corporate event announcement (Binder, 1998), such as the announcement of an M&A or the hiring or firing of a top Executive.

In the accounting literature, securities' behavior is studied with reference to the announcement of quarterly, annual earnings and dividends distributions.

Last, in the legal literature, the effect of regulation is studied through event study, investigating how the issue of new regulations affect the surrounding environment.

The theoretical logic underpinning the event study is very straightforward: the release of an information will entail a change in the stock price that is not related to the performance of the index in which such security is listed.

Whenever the price of a security, typically a stock, changes, this generates a return. This return can said to be expected, based on the historical trend of the security over the previous period. This expectation of return of the security *i* can be represented according to this probability function, illustrated by Formula (1):

$$E\left[R_{it}\right] \qquad (1)$$

When some specific corporate events occur, hence when a piece of conditional information, X, is released at time t, there is the generation of an extra-portion of return (either positive or negative), defined, *abnormal.* Following Formula (1), the abnormal return of a security *i* can be represented by Formula (2)*:*

$$\epsilon^*_{it} = R_{it} - E\,[R_{it} \mid X_t] \qquad (2)$$

where

- ϵ^*_{it} is defined as the abnormal return,
- R_{it} is the actual return that is occurring for security *i* at time *t*, and
- $E(R_{it})$ is the normal return for time period *t*.

This model is the simplest representation of an event study, and it is called Constant-Mean-Return Model as it assumes that the mean return of the security *i* remains a constant throughout the observation period (Campbell, Lo, and Mackinlay, 1997) .
When approaching the event study methodology, before starting with the analysis, there are some steps that need to be taken (elaborated from Campbell et al., 1997 and summed up in Table 4):

Table 4 Typical steps in the event study methodology

STEP	**TASK**
1	Event identification
2	Selection Criteria
3	Abnormal Return and Return Model identification
4	Estimation Procedure
5	Testing Procedures

Source: elaboration from Campbell et al., 1997

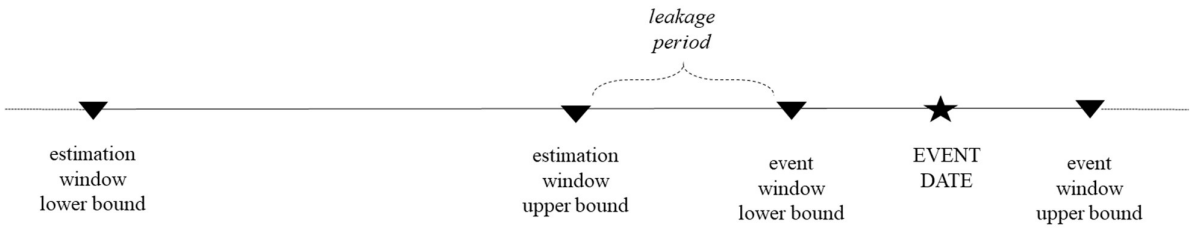
As per Steps number 1 and number 2, they are quite self-explaining: the researcher needs to build up the sample by identifying the event that is thought to have a conditional power on the stock return. The selection of the event will lead to the observations selected and included in the sample.
Step number 3 is not as straightforward, as there exist different return models and different typologies of abnormal returns. It is then up to the researcher to identify both

the typology of abnormal return and model that best suit to the research (further details are provided in Section 6.2.4 "Expected Return Model" and Section 6.2.5 "Abnormal Return Calculation").

Afterwards, following Step 4, the event timeline has to be drawn identifying the following moments (As represented in Figure 11):

a) the event date – the day in which the information is released;
b) the estimation window – the set of past observations prior to the event date that are needed to compute the normal expected return;
c) the event window - the period of trading days over which the abnormal return is calculated;
d) the leakage period – the period between the estimation window and the event date, in which the leakage of the conditional information may already have an effect on the stock price.

Figure 11 Event timeline



Source: Author's elaboration

As per the estimation window and the event window, they both change according to whether the study is exploring a short-horizon event study or a long-horizon one, even if for the two approaches, the choice of both the estimation window and of the event window is left to the researcher. For example, for a short event study, a commonly accepted estimation goes between 150 and 250 trading days[28] prior to the event. The event window is typically no longer than 61 days symmetrically distributed around the event date: 30 days prior and 30 following the event, commonly represented as [-30,+30]. Basing on the timeline, abnormal returns are aggregated (see Paragraph 6.2.6 "Aggregation of Abnormal Returns")

[28] In Chapter 6, 7, 8, and 9 when referring to the event study, "day" always means "trading day"

Step number 5 requires the researcher to set the framework to test for the significance of the abnormal returns; further information on the tests that can be used are described in Paragraph 6.2.7 “Significance tests”).

6.2.2. Frequency of stock returns

As per the frequency with which stock returns are collected, the choice lies between a daily or a non-daily frequency (in this case, the frequency can be weekly or monthly).
Daily stock returns allow for a precise measurement of the pace of the stock-price adjustment (Fama, 1991). Market efficiency is always assumed in very short periods of time. Hence, when using daily returns, tests for market efficiency are not necessary as event studies results themselves provide a direct test for it (Fama, 1991). Depending on the purpose of the study, sometimes the analysis can deal with intraday returns, that allows an even more precise measurement of the effect of the event (Kothari et al., 2007), such is the case for studies analyzing IPO, Seasoned Equity Offerings, and underpricing.

6.2.3. Time Horizon

As per the time horizon, the crossroad is divided into short and long-horizon event studies. Event studies that involve a short time horizon are mostly concentrated into a maximum length of 30 days after the event object of the analysis. On the other hand long-horizon focused event studies are concentrated on time span that include in the event window a time span longer than 1 year after the event occurrence.
As for the estimation window, the choice of the time horizon is up to the researcher, depending on the survey that is being carried on. There are surely evident upside and downsides for both approaches.
Researchers seem to agree that that short-horizon event studies have a higher predictable power. In addition, as said in the previous section, the market efficiency can be assumed in the short time, while the same can not be claimed for a long time horizon.
On the other hand, Scholars agree on the problems in interpreting long-horizon event studies’ tests. The scarce reliability of the tests conducted on long-term event studies is then reflected on the low level of inference that can be gathered from such studies

(Kothari *et al.*, 1997). Like some Scholars say: *"the analysis of long-run abnormal returns is treacherous"*[29] (Lyon, Barber, and Tsai, 1999)

6.2.4. Expected Return Models

When approaching the event study methodology, once all data is collected and hypotheses are set, the researcher has to choose the return model, as different models exist and have been used in past research. This section presents the models that are mostly used.

Constant-Mean-Return Model

The constant-mean-return model is definitely the simplest among all return models and it is the one described at the beginning of this section and represented by Formula (2). As the name itself suggests, it assumes that the mean return of stock *i* is constant throughout the observation period (Campbell *et al.,* 1997) *(Note:* see above for the formula underlying this return model). When this model is used to study daily stock data, nominal returns are typically taken into account; whereas when monthly data are used, the researcher can use either real, excess (the portion of return that is larger than what is commonly used as a risk-free return), or nominal returns.

In being the simplest model, some Authors say it lacks of sensitivity. Hence, when using such model, Authors should carefully choose the significance test to prove it.

Market model

The market model is a model that related the return of any security *i* to the return of a market portfolio, where the assets that belong to the portfolio are assumed to be taken in equal weight. The model underlying equation implies the normality of such securities. The market model is expressed with this formula:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \qquad (3)$$

where:

- $R_{it\ is}$ the return in the period *t* for the security *i*
- R_{mt} is the return in the period *t* for the market
- α_i and β_i are the regression parameters

[29] Lyon, Barber, and Tsai, 1999, p. 165; p. 198

- ϵ_{it} *is* the zero-mean disturbance factor

The market model is an improvement of the constant-mean-return-model. The fact that the market role is included in this formula reduces the variance of the abnormal returns. This, according to Campbell et al. (1997) generates a greater power in the detection of the event effects in the sample analyzed. Typically, stock indices are taken to represent the market portfolio.

As per the market model, this is definitely the most popular model (Strong, 1992) and is proven to be robust by the cornerstone Scholars for event studies, Brown and Warner that used in their 1980 work defining it later as "simple", still very well specified and relatively reliable under many perspectives (Brown and Warner, 1980 and 1985). This model implies the existence of a linear ad stable relation between the market return and the stock *i* return (Campbell *et al.,* 1997) and that the information that allegedly generates a turbulence in the expected return and the market return, $R_{mt,}$ are independent.

Market-adjusted model

The fundamental assumption of the market-adjusted model is that *ex ante* expected returns are the same for all stocks. In this sense, they are also equal to the expected market return in any period considered in the analysis (Strong, 1992).

For every security *i*, the following equation (3) is true:

$$E(R_i) = E(R_m) \quad (4)$$

where:

- R_{it} is the stock return for security *i*
- R_{mt} is the return on the index

According to the market-adjusted model, the abnormal return for security *i* in period *t* is calculated in the following way:

$$MAR_{it} = R_{it} - R_{mt} \quad (5)$$

where:

- R_{it} is the stock return for security *i* in period t
- R_{mt} is the return on the index in period t

The market-adjusted model can be explored as a last resort when the data availability is limited, as for some events it is physiologically impossible to retrieve past data. Such is the case for IPOs (for examples, where underpricing is the subject of the study) as, in that case, historical data is not available (Campbell *et al.,* 1997)

Capital Asset Pricing Model (CAPM)

The abnormal return using the CAPM is

$$CAPMAR_{it} = R_{it} - R_{ft} - \beta_i[R_{mt} - R_{ft}] \quad (6)$$

where:

- β_i is the slope from a regression of (R_{it} - R_{ft}) on (R_{mt} - R_{ft}) for the estimation period)
- R_{ft}, is rate of a security considered as risk-free; in Europe, the risk free rate is usually considered to be equal to the 10-year German Bund yield to which a country-specific spread is added
- R_{it} is the stock return for security *i* in period t
- R_{mt} is the return on the index in period t

The matched/control portfolio model

The matched/control portfolio model (MPM) is a variant of the CAPM model, and it is also known as the "difference in returns" benchmark. With this methodology, there are two different portfolios:

- portfolio *p* is made of the securities subject of the study,
- portfolio *q* is made of another sample of securities that are typically independent on those of the first one.

Under this methodology, the abnormal return is then measured as the difference between the returns on the two portfolio and follows this formula:

$$MPMAR = R_{pt} - R_{qt} \quad (7)$$

where both returns are studied in the period *t.*

Fama French three-Factor model

The Abnormal Return according to the Fama French three-Factor Model, shortly, the Factor Model or FM is calculated as:

$$FFMAR_{it} = R_{it} - R_{ft} - \beta_{i1}[R_{mt} - R_{ft}] - \beta_{i2}HML_t - \beta_{i3}SMB_t \quad (8)$$

where:

- β_{i1}, β_{i2}, $\beta_{i3}$are estimated by regressing security *i*'s excess returns on the market excess returns in time period t, book-to-market, and size factor returns for the estimation period;
- HML, and SMB are the Fama-French book-to-market and size factor returns (for further information on the HML and SMB factors, refer to Fama and French, 1992, 1993);
    - HML is the "high-minus-low" book-to- market portfolio return in time period t
    - SMB is the "small-minus-big" size portfolio return in time period t.
- R_{it} is the stock return for security i in period t
- R_{mt} is the return on the index in period t
- R_{ft}, is rate of a security considered as risk-free

Global Market Model

Global Market Models study event in samples having observations coming from different countries. For this reason, they are also known as multi-country models. Due to the difficulty in their elaboration, they are very rarely used.

Their adoption is quite recent, as they were firstly introduced in 2004 by Park and they were used by a very limited amount of Scholars (among others: Campbell, Cowan, and Salotti, 2010; Hu, Kaspereit, and Prokop, 2016).

Every other model presented in the previous part of this section can be used as a global one, as the "global" characteristics are added to plain return models. Park, in his lead paper, uses the Market Model and explains how multi-country event studies should add to the Market Model the world market index return and the change in the currency exchanges.

In the light of this, the formula that represents the global model is the following (Park, 2004):

$$R_{ijt} = \alpha_i + \beta_i R_{mjt} + \gamma_i R_{wmt} + \delta_i X_{jt} + \varepsilon_{ijt} \quad (9)$$

where:

- R_{ijt} is firm i's stock return in its home country j on day t,
- R_{mjt} is the market index return in country j on day t,

- R_{wmt} is the world market index return on day t,
- X_{jt} is the change in the foreign currency exchange rates in country j on day t,
- α_i , β_i , γ_i, and δ_i are company-specific parameters,
- ε_{ijt} is a random-error term.

As per the world return, the most used are:

- S&P 500,
- MSCI (Morgan Stanley Capital International) World Index, or
- Financial Times Stock Exchange World Index.

In her doctoral thesis, Salotti, one of the co-authors of Campbell *et al.* (2010) proposes an in-depth literature review of the event studies in global setting that shows how this model is not frequently adopted. The following table resumes only those published in the journals ranked at least at a B level by the VHB (Verband der Hochschullehrer für Betriebswirtschaft)[30]. Table 5 reports whether Authors used a market model (MM), a market-adjusted return model (MAR), or a Constant-Mean (CM) one.

Table 5 Use of Event Study models in Global settings - Literature Review

Article	Journal	n. Countries	Model
Bailey, Karolyi and Salva (2006)	JFE	40	MM
Chakrabarti, Huang, Jayaraman and Lee (2005)	JBF	46	MAR
DeFond, Hung and Trezevant (2007	JAE	26	MM, MAR
Doidge (2004)	JFE	11	MM
Ekkayokkaya, Holmes and Paudyal (2007)	EFM	15	MAR
Faccio, McConnell and Stolin (2006)	JFQA	17	MAR
Fields, Fraser and Kolari (2007),	JRI	n.a.	CM
Harvey, Lins and Roper (2004)	JFE	18	MM
Jegadeesh and Kim (2006)	JFM	7	MAR
Keloharju, Knüpfer and Torstila (2006)	RFS	24	MAR
Melvin and Valero (2009)	EFM	21	MM
Norden and Weber (2004)	JBF	n.a.	MM, MAR

Source: Salotti (2009)

Other models

The Market Model or the Fama-French three-Factor are not the only ones that use factors. In fact, other models that represent abnormal return and that include other

[30] http://vhbonline.org/en/service/jourqual/vhb-jourqual-3/complete-list-of-the-journals/

factors are generally *factor models*. Portfolios of traded securities typically represent factors. These kinds of model have the benefit to reduce the variance of the abnormal return. In this kind of models, factors like Fama and French's ones or the Market Portfolio are used to explain the variation of the abnormal return, while in the Market one there is only one factors, in the Fama and French's one, there are three of them.
For example, Sharpe (1970) and Sharpe, Alexander, and Bailey (1995) use model where factors are based on an industry classification. Again, in other approaches, the abnormal is computed by taking the difference between the actual return and the one of a portfolio made of companies of comparable market capitalization by size (Campbell *et al.,* 1997).

6.2.5. Abnormal Return Calculation

The researcher also has to decide the typology of AR that will be used in the study, as there are more than one, even if as Kothari et al. (2007) say "The question of which model of expected returns is appropriate remains an unresolved issue".[31]
There are in fact some alternatives to the common measurement of the AR, even if they are more appropriate for long-term horizon studies. These alternatives are:

- characteristic-based matching approach, commonly known as the Buy-and-Hold Abnormal Return, and
- Jensen's alpha approach.

BHAR
An alternative way in which one can compute the AR within an event study is the BHAR methodology. The Buy-and-Hold Abnormal Return Methodology was firstly introduced by Barber and Lyon in 1996 and Mitchell and Stafford in 2000.
As remarked later by Lyon *et al.* in 1999, this methodology allows to capture in a more precise way the strength of this method lies in its ability to "represent the investor experience" (p. 198).
As the name itself suggests, the BHAR methodology is preferably used for long-term studies as its formula overcome the limitations that the CAR methodology can present for longer time periods (Basuil and Datta, 2015). The BHAR formula was in fact elaborated to estimate AR in period of at least one year after the event occurred and it

[31] Kothari and Warner, Chapter in "Handbook of Corporate Finance", p.22

better represents the return when security holder wealth changes around the period analyzed (Kothari and Warner, 2007). Like explained by Mitchell et al. (2000), the BHAR represents "the average multiyear return from a strategy of investing in all firms that complete an event and selling at the end of a prespecified holding period versus a comparable strategy using otherwise similar nonevent firm"[32].

Aside from the rationale behind it and the core formula to compute it, the process of BHAR is similar to the one of AR:

a) The researcher computes the buy-and-hold return in the period after the announcement is made (as explained above, typically one year after the announcement)
b) The return computed in step (a) is regressed against the reference portfolio, built according to common features or depending on the fact that they are listed in the same Stock Exchange
c) The abnormal return, according to the Buy-and-Hold Return methodology is computed as:

$$BHAR_i(t,T) = \prod_{t=1}^{T}(1 + R_{i,t}) - \prod_{t=1}^{T}(1 + R_{B,t}) \qquad (10)$$

Jensen's alpha approach

The Jensen's alpha approach, also called "calendar-time portfolio approach" is designed again for long-term horizon analyses, and for studies with sample spread over decades. Assuming that the AR is studied 2 years after the event took place, due to the fact that the number of event is not distributed uniformly over the sample, the number of firms that would be included in the market portfolio keep on changing over time. With this approach, new firms are added and taken out from the sample at each observation period (most likely, each month). In this way, the portfolio is rebalanced in each observation period to create excess returns with a weighted portfolio. In a second moment, excess returns are regressed either on the CAPM formula, or on the Fama-French three-factor model or, like presented below, on the Carhart (1997) four-factor model:

$$R_{pt} - R_f = \alpha_p + \beta_p(R_m - R_f) + \gamma_p SMB_t + \delta_p HML_t + \lambda_p UMD_t \qquad (11)$$

[32] Mitchell and Stafford, p. 296

where:

- R_{pt} is the weighted return for each observation period (e.g. month) of the companies included in the sample and that experienced the event in the preceding period (e.g. the previous month);
- R_f is the risk-free rate;
- R_{mt} is the return on the weighted market portfolio;
- SMB_{pt} and HML_{pt} represent the Fama-French factors, described above;
- UMD_{pt} is the difference between the return of past one-year "winners" and "losers";
- α_p, the Jensen alpha, is the average AR of each observation period (e.g. a month) in the post-event period,
- β_p, γ_p, δ_p, and λ_p are the parameters of the regressions for each of the four factors.

6.2.6. Aggregation of Abnormal Returns

Once estimated, the researcher has to aggregated the different abnormal returns, across time and across stocks.

For starters, abnormal returns are aggregated across stocks in order to create the average abnormal returns (AAR_t). This allows to gather conclusion on the consequence of a specific event for the average firm in the sample.

In the aggregation across time, the AAR_t and it is a mean for each specific stock and it can be represented by this formula:

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it} \quad (12)$$

where AR_{it} is the Abnormal Return for security *i* over time *t*.

Secondly, abnormal returns can be aggregated on a time basis to calculate the CAR (Cumulative Abnormal Return) for a specific interval.

A CAR_i analyzes the consequences of an event over time (*inter alia*, Campbell *et al.*, 1997).

$$CAR_{it} = \sum_{T1}^{T2} AR_{it} \quad (13)$$

The formula above describes the CAR over period *t*, going from T1 and T2.

Afterwards, the final step consists in aggregating events to create a Cumulative Average Abnormal Return (CAAR) in order to take into consideration both aggregations. In this sense, the CAAR is an average of the CAR calculated above with the following formula:

$$\text{CAAR}_{N,n} = \frac{1}{N} \sum_{i=1}^{N} CAR_{in} \quad (14)$$

with which the CAAR for the portfolio made of N securities for a period with an *n* length. If event study results are used in cross-sectional analyses, as it is the case of this research, the single CAAR are used as dependent variable in the regression models.

6.2.7. Significance Tests

After all the analysis, the researcher has to test the significance of the results. Tests can be either parametric or non-parametric. The former assume that abnormal returns are normally distributed, while non-parametric tests do not assume a median of zero, but rather use a sample excess return median to calculate the sign of an event date excess return (Corrado and Zivney, 1992). The two most commonly used non-parametric tests are the sign test and the rank test.

Parametric tests:

- *Student t-test*

The first significance test is the popular Student t-test, according to which the CAAR is divided by its own standard deviation. This test provides inference for single observations of single firms in each time point *t,* where the null hypothesis is that the Abnormal Return of stock *i* in time *t* is equal to 0.

The t-statistic is calculated as:

$$t_{CAARi,t} = \frac{CAAR_{i,t}}{S_{CAAR_i}} \quad (15)$$

H_0: $\text{CAAR}_{i,t} = 0$

where S_{CAARi} is the cumulative average abnormal returns standard deviation in the estimation window. The Student t-test has the big advantage that sets the scene for all other tests, on the other side the biggest backlash of the t-test is its proneness to the volatility caused by the event itself (Boehmer, Masumeci, and Poulsen, 1991). Nevertheless, the t-test forms the basis and induced the evolvement of many other test statistics.

- *Patell t-test*

The Patell test (Patell, 1976) is a widely used test statistic in event studies. It explores the Standardized Abnormal return, and it follows the below reported equation:

$$t_{Patell_{AAR}} = \frac{ASAR_t}{S_{ASAR_t}} \tag{16}$$

where the $ASAR_t$ is the Accumulated Standardized Abnormal Return. This test can also be applied to CAAR. In this case, the t-statistic is the following:

$$t_{Patell_{CAAR}} = \frac{1}{n}\sum_{i=1}^{N}\frac{CSAR_i}{S_{CSAR_i}} \tag{17}$$

where the $CSAR_i$ is the cumulative standardized abnormal return of stock *i* and it is divided by its own standard deviation.

- *BMP test*

Another test that is widely used in the event study literature in capital markets is the one of Boehmer, Masumeci, and Poulsen, also referred as BMP test (Boehmer et al., 1991). The t-statistic for average abnormal return according to this test is the following:

$$t_{BMP_{AAR}} = \frac{ASAR_T}{\sqrt{N}S_{ASAR_t}} \tag{18}$$

For CAAR, the t-statistic is:

$$t_{BMP_{CAAR}} = \sqrt{N}\frac{\overline{SCAR}}{S_{\overline{SCAR}}} \tag{19}$$

where $\overline{SCAR}$ is the average of the standardized CAR across the whole sample made of N observations; $S_{\overline{SCAR}}$ is its own standard deviation.

The BMP test, compared with the Patell test, has been proved to provide larger confidence regardless of the size of the sample used (Marks and Masumeci, 2017).

In 2010, Kolari and Pynnönen (2010) propose a modification to the Patell-test to take into consideration the cross-correlation of the abnormal returns.

Non parametric tests

As said above, two are the non-parametric tests: the sign test and the rank test.

- *Sign test*

As per the sign test, as the name itself suggests, it is based on the sign of the AR and it requires that AR and, more in general, the CAR are independent across securities and that the expected share of positive AR is 50%, meaning that under the null hypothesis the AR has the same probability of being either negative or positive.
The test statistic, advanced by Cowan (1992), is:

$$t_{SIGN_{AR}} = \left[\frac{N^+}{N} - 0.5\right]\frac{N^{1/2}}{0.5} \sim N\ (0,1) \qquad (20)$$

The con of this test is that it does not indicated for skewed distributions, like the ones of daily stock returns. As a matter of fact, in the presence of a skewed distribution, the share of positive AR can differ from 50% even under the null hypothesis.

- *Corrado Rank test*

The Corrado (1989) rank test assigns a rank to the AR at each event date and at each AR included in the estimation period. The t-statistic is computed as:

$$t_{rank\ (C)_{AAR}} = \frac{\sum_{i=1}^{N} \bar{K}_i - \widetilde{K}}{S_K} \qquad (21)$$

where:

- Ki = rank value of security *i* on the event date
- $\widetilde{K} = \frac{total\ number\ of\ days\ of\ event\ date\ and\ estimation\ period\ +1}{2}$
- S_K = standard deviation of the mean abnormal return ranks

- *Corrado and Zivney rank test*

The Corrado and Zivney (1992) aims at addressing the event-induced variance of rankings. According to this test, the t-statistic of AAR is:

$$t_{rank\ (Z)_{AAR}} = \frac{\bar{K} - 0.5}{S_{\bar{K}}} \qquad (22)$$

in which $\overline{K}$ is the average rank number of the returns of the sample, while at the denominator one can find its variance.

6.2.8. Conclusion

In this study, the following choices were made:

- **Expected Return Model**: a Global Market Model is used. The model uses as control parameters the stock indexes of each country as well as their local currency (Park, 2004 and Campbell *et al.,* 2010).
- **Abnormal Return Calculation**. As the study explores short-term time horizons, the ordinary abnormal return is used rather than a BHAR and the Jensen's alpha.
- **Frequency of stock returns**. Daily stock returns are used in the sample.
- **Time horizons**. The time horizon is a short one as it explores the effect of in the aftermath of a Cross-Border M&A announcement in the days afterwards. The main model uses a time frame of 61 days starting 30 trading days prior to the event and concluding 30 days after it.

6.3. M&A Performance

Despite the majority of M&A studies takes into consideration stock-based performance, the methodology to measure M&A performance is fragmented in the literature (King *et al.*, 2004), as there is not one single factor that can univocally capture every single aspect of the success of the operation (Zollo and Meier, 2008). As anticipated in the paragraph "Performance of M&A" of Section 3.3.2.2, two are the main economic and financial standpoints to measure the outcome of an M&A: capital markets and the acquiring firm.

6.3.1. Capital Markets' Perspective – the M&A performance

Scholars studying the capital markets perspective, with reference to M&A, are interested in the performance of the operation. Regardless of whether performance is measured on a short or long-term horizon, the methodology used is the "event study", which studies the effects of events on stock prices as hypothesized by Fama *et al.* (1969). The event study methodology investigates the behavior of a company's stock around a specific corporate event, such as an M&A announcement, executives' turnover, or earnings/dividends announcements. In addition, with specific reference to

the M&A, it is assumed that the trend of the stock around the announcement date can forecast the success or the failure of an operation (Craninckx *et al.,* 2011).

M&A are deals surrounded by a high level of information asymmetry between the two parties, where acquirers think that they are also paying for some "lemon" assets (Akerlof, 1970) and capital markets know this very well. In addition to this, the perception of capital markets is, the larger the institutional cultural difference between the target and the bidder, the higher the level of information asymmetry. This leads capital markets to react negatively to the announcement of Cross-Border M&A. (e.g., Datta and Puia, 1995; Mateev and Andonov, 2016).

6.3.2. Firm's Perspective – the Company performance

When studying M&A, Scholars interested in the firm's perspective want to capture not just the future performance, but they want to see whether the deal generated synergies. To do so, they usually adopt accounting measures.

The number of Scholars using accounting-based measures has increased over time (Thanos and Papadakis, 2012) and the most widely used accounting measures are: ratios, growth measures, and generation of cash flows. As for the first, the most used are: i) ROA; ii) ROS; iii) ROI; iv) ROE; and v) ROCE. Accounting metrics are observed before and after the M&A, excluding the year in which it occurs. As for the second category, this includes the rate of variation in sales, profits, and assets. Finally, concerning the last category, usually the operating cash flows are used as a parameter. When both target and bidder are listed, it is possible to value the accounting measures for both companies. According to a thorough literature review by Thanos and Papadakis (2012), ROA is by far the most common: around 50% of the papers they analyzed use it.

6.3.3. Case-based Perspective

In addition to the accounting and financial KPIs, researchers can also study the success or failure of an M&A by conducting surveys and clinical studies.

As per surveys, they can be conducted simply asking managers whether an acquisition created value. These provide executives with a standardized questionnaire, and aggregate across the results to yield generalizations from the sample. The drawback is that there could be a survivorship bias: only those that performed in a positive was may

be willing to share it. Another con of this methodology is the lack of objectivity in the response and the typical small number of observation.

Finally, clinical studies may be another final way to explore the level of performance of M&A and they can be conducted by interviews. Like the survey, clinical studies have the great advantage that they can go beyond numbers and they can deep dive in the arguments and the reason of the "what went wrong (or right)". However, like in the survey case, they present the big drawback of the missing subjectivity and the self-selection of the sample (either driven by the researcher, or driver by the respondents that accept to be in the study).

6.3.4. Conclusion

In his 2006 paper, Schoenberg underlines the utmost importance of adopting a holistic approach when measuring the performance of M&A and Cross-Border M&A. Despite adopting four different metrics and despite they all led to the same conclusion (i.e. 1 in 2 Cross-Border M&A is successful), he proves that there is very little statistical comparability among different metrics.

Thanos and Papadakis (2012) also think that more than one metric should be used in assessing the success of an M&A operation. In fact, a dual approach could corroborate results, as the capital markets' reaction on the announcement date is considered a predictor for the goodness of the deal (De Pamphilis, 2011; Craninckx *et al.,* 2011).

Each of the two approach, i.e. capital markets' perspective and firm's perspective, has their pros and cons. Accounting metrics measure *real* performance, as reported in financial statements, while the event study measure the expectations for the future (Thanos *et al.,* 2012; Zollo and Meier, 2008).

In addition, commonly accepted accounting ratios measure the firm's profitability and synergies. However, in the context of Cross-Border M&A, accounting standards may differ, thus the adoption of accounting-based measures should be treated with great attention if the companies involved do not adopt the same accounting standards (Schoenberg, 2006).

Moreover, accounting measures reflect the synergies that should be created with the operation. Regardless, Scholars have not quite reached an agreement on the time horizon that should be adopted to verify whether synergies have been created. Some

Scholars use performance ranging between 1 year and 10 years after the operation occurred (Thanos *et al.,* 2012). Time spans are different because the time in which synergies will occur is not defined and can change according to the industry, the company size or the country in which the target is headquartered.

Last, concerning the accounting-based measures it can be stated that inferences can change depending on the measure that is being adopted: studies analyzing the cash generated positive results, while studies analyzing the growth in the accounting measures showed that acquiring company underperformed with respect to comparable companies (Dickerson *et al.,* 1997; Thanos *et al.,* 2012).

As the focus of the research question is concentrated on the perception of capital markets and not on the synergies created, this study only adopts the capital markets' perspective.

6.4. Cultural Difference

> *"There is no consensus about [culture] definition, but most authors will probably agree on the following characteristics of the organizational/corporate culture construct: it is (1) holistic, (2) historically determined, (3) related to anthropological concepts, (4) socially constructed, (5) soft, and (6) difficult to change".*
>
> *Hofstede, Neuijen, Ohayv, and Sanders, 1990*

Before drilling down into the methodology used to measure culture and cultural differences, there is the need to highlight the kind of culture object of the analysis.

As presented in Chapter 2, there are many different typologies of culture.

In the first place, the perimeter that is used in this study is the *country*, as financial openness, fiscal policy, political and governance structure do not change within the same country, though they do across borders.

In addition, in this study the concept of institutional culture is introduced as a holistic definition that takes into consideration the "collective program of minds" like Hofstede (1980) states, but at the same time all the contextual factors that are a result of the cultural heritage and that affected the legal system (La Porta *et al.*, 1990) and the normative setting (Scott, 1995).

Generally speaking, in past research, Scholars used mainly two ways to capture the cultural difference existing between two countries:

a) By dividing the countries in cluster, where each cluster stands for one cultural area;
b) By assigning a number representing the cultural similarity (or distance) between a pair of countries.

Each of the two approaches has their pro and cons.

As for the clusterization process, the main pro is that it helps in understanding whether two countries have common cultural roots. Several Authors have created their own clusterization (here only the most important ones are reported):

- Hofstede (2001). This study involves 48 countries divided in 12 clusters;
- House, Hanges, Javidan, Dorfman, and Gupta (2004). This Group of Scholars founded the GLOBE research project. Their clusterization involves 52 countries, divided in 12 clusters. This study tries to reproduce Hofstede's model across many more countries (Hofstede et al., 2005)
- Ronen and Shenkar (1985 and 2013). The 1985 work of the two Authors concerns 41 countries, divided into 12 clusters; the 2013 study takes into consideration 68 countries, divided in 11 clusters.

Despite in being very useful to segment the areas of the world according to their cultural background, this approach does not help in assessing the magnitude of the similarity (or difference) between a pair of countries.

As anticipated in previous chapters, many are the definitions of cultural difference. The most important one is Hofstede's (1980) one.

Despite its popularity, this definition does not take into consideration the institutional aspects deriving from culture. For this reason, in this study the CAGE Comparator is used to express the difference between two countries at an institutional cultural level. The four C.A.G.E. components were presented in Table 1 and are presented again in Table 6. As anticipated before in the dissertation, this is used as a proxy for the institutional cultural difference, and "pure" national culture, i.e. the pure set of value and belief is one of the four components.

Table 6 Factors included in the CAGE Comparator ™ Framework (cf. Table 2)

Cultural	Administrative
• different languages • different ethnicities; lack of connective ethnic or social networks • different religions; • different social norms C	• absence of colonial ties • absence of shared monetary or political association • political hostility • government policies • institutional weakness A
Geographic	**Economic**
• physical remoteness • lack of a common border • lack of sea or river access • size of country • weak transportation or communication links • differences in climates G	• differences in consumer incomes • differences in costs and quality of: ✓ natural resources ✓ financial resources ✓ human resources ✓ Infrastructure ✓ intermediate inputs ✓ information or knowledge E

Source: Ghemawat (2001)

6.5. Variables used

6.5.1. Dependent Variable

- *Abnormal Return.* The focus of the study is the perception of capital markets towards the effectiveness of the cross-border operation. Due to cultural hurdles, meant under an institutional perspective, capital markets badly perceive the announcement of Cross-Border M&A. Given that the way in which markets react generates a decrease or an increase in the shareholders' value, the perception of the markets towards the announcement of a Cross-Border M&A is the independent variable, under the form of the Abnormal Return (AR). Scholars engaging in literature reviews of the M&A performance measures (Zollo *et al.*, 2008; Thanos and Papadakis, 2012; King *et al.*, 2004) suggest that that if a study aims at analyzing the performance of the operation, the best possible approach should integrate an event study with some operating unit of measures.

  In this study, it is the *capital markets perception* that is under investigation and not the company performance. For this, the event study methodology is used. As the sample is a multi-country one, the Global Market Model according to Park (2004) is used:

$$R_{ijt} = \alpha_i + \beta_i R_{mjt} + \gamma_i R_{wmt} + \delta_i X_{jt} + \varepsilon_{ijt} \quad (23)$$

where:

- R_{ijt} is firm i's stock return in its home country j on day t,
- R_{mjt} is the market index return in country j on day t,
- R_{wmt} is the world market index return on day t,
- X_{jt} is the change in the foreign currency exchange rates in country j on day t,
- α_i , β_i , γ_i, and δ_i are company-specific parameters,
- ε_{ijt} is a random-error term.

This way of proceeding is based on the assumption of the market efficiency hypothesis, according to which share prices reflect rapidly all publicly available and relevant information (Fama *et al.*, 1969). In this case, the market efficiency is assumed to be "semi-strong", in that it is the excess return (with reference to a specific benchmark, i.e. the price index) that is being tested, assessing whether the shareholders of the acquiring company are better off than shareholders investing in similar securities (i.e. securities of the same stock market). A literature review on Market efficiency is provided in Chapter 0 in Section 1.3.3

6.5.2. Independent Variable

- *Institutional cultural difference (CAGE Index).* According to Hofstede *et al.*'s definition (1991), culture is something historical, with anthropological and social roots and difficult to change. In addition, as presented in previous chapters, many legal institutional factors can be traced back to culture (La Porta *et al.,* 1998). In the light of these two reasons, this dissertation adopts a holistic approach to Culture with an institutional interpretation and measures it through the CAGE index by Ghemawat (2001). The CAGE index is retrievable from Ghemawat website, reporting the CAGE Comparator™ for the dual combination of each country of the world. This study uses an index expressing the strength or the weakness of a pairwise cultural difference, rather than just cultural area in that this helps in understanding whether the presence of moderators can play a more decisive role depending on its magnitude. In any case, the presence of the area clusterization can help in the model estimation. Even if the institutional cultural difference is measured

with the CAGE Comparator™ index, the clusterization of each country in each cultural area as presented by Ronen *et al.*, (2013) will also be taken into consideration as a control variable (cf. Section 6.5.3).

6.5.3. Control Variables

Here follows the list of control variables, classified in two categories: primary and secondary.

6.5.3.1. Primary control variables

These are the variables defined as “empirical solutions”. Their role in the models is necessary, as each model that will analyze their role towards abnormal return will have an interaction formed by one of these primary control variables. They will each be included in the model one at a time, and will not be common to other models.

- *Presence of a Private Equity Investor.* Data are retrievable from the Orbis databank (a Bureau Van Dijk tool) (see section "Empirical solutions to reduce capital markets perception” for the description of this moderating variable). This variable will be used only in the PE sub-model.
- *Non-financial Performance.* A composite index will be used as a moderator, the ESG Score (the score attributed by Thomson Reuters basing on the quality of the social information disclosed). Data are retrievable from Thomson Reuters databank (see section "Empirical solutions to reduce capital markets perception” for the description of this moderating variable). This variable will be used only in the ESG Score sub-model.
- *Track Record of the acquirer.* Data are retrievable from the Zephyr databank. The number of Cross-Border M&A carried out by the acquirer is measured from 01/01/2000 to 31/12/2018 (a Bureau Van Dijk tool) (see section "Empirical solutions to reduce capital markets perception” for the description of this moderating variable). This variable will be used only in the Track Record sub-model.
- *Consistency of accounting standards.* Data are retrievable from the IAS plus website, property of Deloitte as well as from the Zephyr databank (see section "Empirical solutions to reduce capital markets perception” for the description of this

moderating variable). This variable will be used only in the Consistency of Accounting Standards sub-model.

- *Level of internationalization of the Board.* Data are retrievable from the Orbis databank (see section "Empirical solutions to reduce capital markets perception" for the description of this moderating variable). This variable will be used only in the International BoD sub-model.

6.5.3.2. Secondary control variables

Their role is to control the model and they are common to every regression model, regardless of the empirical solution that is being investigated.

- *Cultural area.* This variable is categorical. It is a dichotomous variable assuming value 1 if the target company and the acquirer belong to the same cultural area and 0 otherwise. The dichotomy was built on the paper by Ronen and Shenkar (2013). In their work, the Authors take into consideration 68 countries of the world and they classify them in 11 cultural clusters (Arabic, Anglo, Confucian, East Europe, Far East, Germanic, Latin America, Latin Europe, Near East, Nordic).
- *Difference in the political stability.* Political stability has been proved to affect positively cross-border investments (Mohsin and Zurawicki, 2002). Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Data are retrievable from the World Bank website.
- *Legal Framework.* This is a dichotomous variable assuming value 1 when the target and the bidder have the same legal origin and 0 otherwise. Data are retrievable from the World Bank website and they are based on the classification of the legal origin in the paper by La Porta *et al.* (1998).
- *Payment method*. This variable represents the payment method: stock or cash (cash includes debts, liabilities and earnouts, as in Faccio and Masulis, 2005). The payment method strongly affects the stock prices after the announcement both of the acquiring and the target company (Martynova *et al.*, 2006). There is evidence that returns are higher in correspondence of cash payment (Walker, 2000). Data are retrievable from the Zephyr databank.

- *Difference in the Corruption Index between the countries of bidder and target.* The level of corruption has a negative effect on cross-border investments (Mohsin *et al.,* 2002). Data about the corruption level are retrievable from the Transparency International website. Transparency International publishes yearly an index expressing the level of corruption. The higher this item, the higher the corruption level in that country.
- *Turnover*. This variable is used as a proxy for the size of the acquirer. Boateng *et al.* (2019) state that the size of the acquirer can be positively related with abnormal return, and they use this variable as a moderator of national cultural distance. They claim that the larger the revenues, the larger the possibility and the resources for a company to grow externally. Data are retrievable from the Zephyr databank.
- *Industry*. This is a dichotomous variable assuming value 1 when the target and the bidder operate in the same industry and 0 otherwise. It is elaborated through the identification of the NACE codes, and helps defining whether the operation horizontal or not. The relatedness, i.e. the belonging of two companies is something that has been found to be significant by some Scholars (Boateng *et al.,* 2019), and non-significant by others (Lowinski *et al.,* 2004). Data are retrievable from the Zephyr databank.
- *Difference in the GDP level*. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. In the dissertation, this difference is expressed as a percentage of the absolute difference between the GDP of the acquirer's country and the one of the target country. Data are retrievable by the World Bank Databank.
- *Target is acquired at 100%.* This is a dichotomous variable assuming value 1 when the operation involves 100% of the target and 0 otherwise. Data are retrievable from the Zephyr databank.
- *Percentage of stake acquired.* This variable is continuous and it measures the stake acquired with the operation that is being announced. Data are retrievable from the Zephyr databank.

6.5.4. Moderating Variables

- *Interaction between Presence of a Private Equity Investor and CAGE index.* This interaction is made of the CAGE index and primary control variable "presence of a PE investor". This variable will be used only in the PE sub-model.
- *Interaction between Non-financial Performance and CAGE index.* This interaction is made of the CAGE index and primary control variable "ESG Score". This variable will be used only in the ESG Score sub-model.
- *Interaction between Track Record of the acquirer and CAGE index.* This interaction is made of the CAGE index and primary control variable "Track Record of the acquirer". This variable will be used only in the Track Record sub-model.
- *Interaction between Consistency of Accounting Standards and CAGE index.* This interaction is made of the CAGE index and primary control variable "Consistency of Accounting Standards". This variable will be used only in the Consistency of Accounting Standards sub-model.
- *Interaction between Level of internationalization of the Board and CAGE index.* This interaction is made of the CAGE index and primary control variable "Level of internationalization of the Board". This variable will be used only in the International BoD sub-model.

6.6. Sample

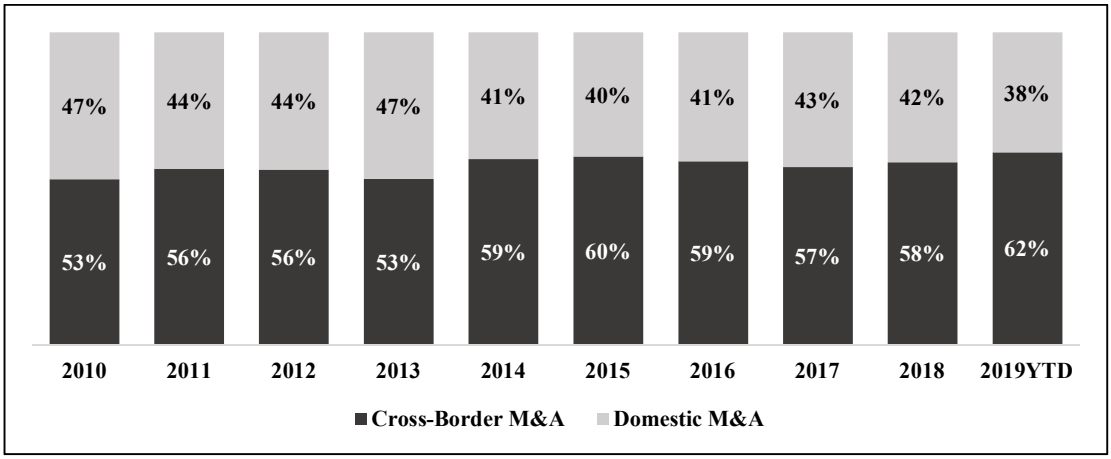
The sample includes Cross-Border M&A when the acquirer and the target have their headquarters in one of the following region:

- *European Union*

There are three main reasons why Europe, and in particular the EU, is part of the sample. The first one relates to one of the moderators, as the IFRS are mandatorily adopted by all listed companies in the EU. The second one relates to the dependent variable, as despite being often considered as one only region, the culture is very different among Member States. Finally, the third reason is related to the object of the study *per se*. The European Union is still considered as an ideal setting where to study Cross-Border M&A, as it is one of the biggest markets, in terms of numbers and in terms of value:

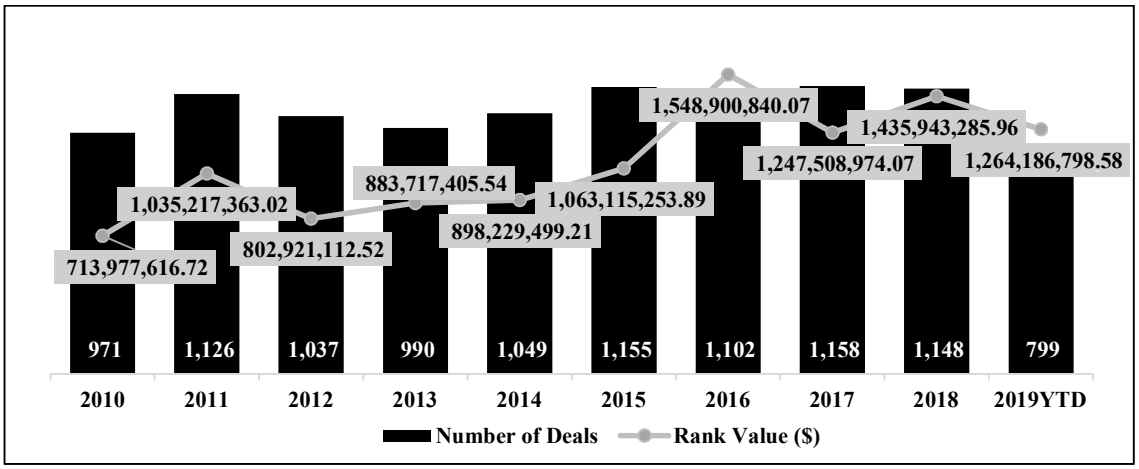
eight out of the 20 target companies' countries by volume and by deal belong to the EU (Zephyr, 2018). In addition, deals advised by the 10 largest investment banks per each bank focus (i.e. bulge-bracket, middle-market and specialists) in the European M&A business were mostly Cross-Border (Graph 3) and, in general, the number of M&A shows an overall increase in value in the last 10 years (Graph 4).

Graph 3 Cross-Border v. Domestic M&A from 01.01.2010 to 30.09.2019



Source: Author's elaboration from Thomson Reuters Eikon

Graph 4 Trend of Deal Size and number of deals from 01.01.2010 to 30.09.2019



Source: Author's elaboration from Thomson Reuters Eikon

- *United States*

The US are included in the sample, as it is the most competitive market when it comes to M&A, taken either at a domestic or at a cross-border level. Out of the 25 biggest deals of 2017, (Zephyr, 2018) 12 of them involved a company headquartered in the US

either on the sell side or on the buy side. Overall, United States are still the country where most deals are undertaken (22% in 2017 at a global level), even if both numbers and the aggregate value show a partial decline in 2016 and 2017, as it can be seen from Table 7 reported below.

Table 7 M&A in the US market

Year	Deals (Nr.)	Aggregate Value ($M)
2017	20,897	1,455,399
2016	23,316	1,738,158
2015	25,885	1,881,816
2014	26,391	1,732,547
2013	22,269	1,275,971
2012	21,570	950,570

Source: Zephyr, 2018

In addition, the US market is considered as one of the most efficient, due to greater agency costs and fewer regulatory/disclosure requirements (Conn *et al.,* 1990).
Last, with specific reference to the moderator "*Consistency of accounting standards",* the US have been chosen as in the US the IFRS are not allowed.

- *China*

Given the increasing interest for Asian Cross-Border M&A both inbound and outbound, China is being chosen as part of the sample as it is one of the largest Asian market, attracting a significant number of Cross-Border investments (Xie *et al.*, 2017) over the years. China is the Asian country that attracted most operations as a target both in volumes and in value: in 2017, China was targeted for 13,679 operations worth in total US$ 720,892 Million. Despite the number increased, the aggregate value showed an opposite deceasing trend: in China the number of targeted companies increase, despite their value is lower. When referring to an emerging market, careful is due with respect to the so-called State-Owned Enterprises, and China is one of the country in which they play one of the most decisive role (Zhou, Guo, Hua, and Doukas, 2015). Results concerning their role in company valuation are mixed, as some Scholars find them to have a positive relation with firm value, while others argue that they are related with lower market valuation.

Conclusion:

With reference to the characteristics of the operation, the following operations are included in the sample:

- The acquirer company at the end of the operation has at least 51% of the shares of the target company;
- The acquirer and the target have their headquarters in different countries;
- The operation is announced and completed;
- The operation is announced in the time span: January, 01st 2004 and December 31st 2018;
- In case the same bidding company undertook two or more Cross-Border M&A in the period considered, the operations must be at least one year apart. This caution is adopted to avoid that the average return, calculated in a one-year horizon, reflects other Cross-Border operations.

CHAPTER 7. EMPIRICAL RESULTS

The analysis of this dissertation, as anticipated in previous chapters, is made of three blocks:

i. the event study, that has the goal to calculate the abnormal return of the stocks of companies that announced Cross-Border M&A;
ii. the multiple regression, that has the twofold purpose of studying whether the institutional cultural difference *per se* impacts abnormal returns and the role that the five empirical solutions (namely, presence of a Private Equity Investor, ESG score, number of Cross-Border M&A undertaken in the period 2000-2018, Consistency of Accounting Standard between the bidder and the target, percentage of international directors in the Board) play in affecting such relationship when taken as its moderating variable;
iii. the time analysis, that has the goal to prove the fact that the passing of time does not have any consequence on the abnormal returns, as now capital markets witness these kind of operations on a regular basis.

7.1. Sample statistics

The event study of this dissertation implements a Global Market Model, as the sample involves many countries at the same time. In particular, the countries involved in the initial sample are presented in Table 8 below reported.

Table 8 Countries involved in Cross-Border M&A - initial sample

Country of the bidder	Cross-Border M&A (number)
Austria	42
Belgium	81
Bulgaria	1
China	85
Croatia	4
Cyprus	3
Czech Republic	4
Denmark	50
Estonia	4
Finland	88

France	250
Germany	164
Greece	22
Hungary	7
Ireland	88
Italy	106
Latvia	2
Lithuania	3
Luxembourg	26
Malta	3
Netherlands	105
Poland	60
Portugal	18
Slovenia	4
Spain	90
Sweden	239
United Kingdom	564
United States of America	903
TOTAL OPERATIONS	**3,016**

Source: Author's elaboration

From Table 8, it can be noted how the countries that are most represented in the initial sample are the US with 903 operations (30% of the sample), the UK with 564 operations (19% of the sample), and France with 250 operations (8% of the sample).

The adoption of a Global Market Model implies that abnormal returns are regressed against the index of the country in which the company is listed and against a global index. In addition, according to Park (2004), in case in which the companies are located in countries with different currencies, securities' return have to be regressed against the exchange ratio as well.

Concerning the first factor, the domestic stock index, the indices that were used are reported in Appendix 1.

Concerning the second factor, the global market index, Park (2004) suggests to use one among the following: MSCI index (Morgan Stanley Capital International), FT (Financial Times) Goldman Sachs World Index, or S&P 500 index. In this study, the MSCI was used.

As per the exchange ratio used, the list is reported in the Appendix section, in Appendix 2. Both indices data and exchange rates data were retrieved from Thomson Reuters Eikon.

As per the distribution of the operations over the period analyzed, 2004 through 2018, the trend is reported in Table 9 below.

Table 9 Number of Cross-Border M&A over time (2004-2018)

Year	Cross-Border M&A (number)
2004	171
2005	223
2006	232
2007	235
2008	208
2009	125
2010	158
2011	202
2012	182
2013	175
2014	236
2015	232
2016	224
2017	199
2018	214
TOTAL	**3,016**

Source: Author's elaboration

From Table 9, two are the main trends that can be noticed: the first is the increase between 2004 and 2007 followed by an abrupt decrease between 2008 and 2010 where the lowest point of the whole series can be found in 2009 with 125 operations. After 2012, the number start to increase again until 2017 when the figure arrest to 199, despite it seems to increase again in 2018 with 214 operations completed.

7.2. Event Study

The first of the three analytical parts is preparatory to the multiple regression as it estimates the CARs used as dependent variables.

7.2.1. Definition of event window and estimation window

The event window is the period of time around the event. Given that in this research, the Capital Markets reaction is at the center of the discussion, a short event window is chosen. At the same time, the event window should not be too short, as the purpose is surely to capture the reaction of financial market in the moment when the announcement is made, but is also to see what happens to the stock return in the weeks right before and after the event.

For this reason, the main model, used now and later on in the cross-sectional analysis, adopts an event window of **61 days**, starting 30 days before the event and terminating 30 days after; indicated as **[-30;+30]**.

The estimation window starts 280 trading days before the event days and stops 50 days before the event date, like in other studies involving a multi-country setting (*see* Park, 2004). This allows to have a wide estimation period (230 trading days) and, at the same time, to have a wide leakage period of 20 days set between day -50 and day -30. After the AR of the main models are commented, this section also includes some robustness tests that either use different estimation windows, different event windows, or both. All models are reported in Table 10, with Model A being the main model.

It ca be seen from Table 10 that all of them adopt the Global Market Model, with the only exception of Model D that adopts the Market Model, hence not using the MSCI and the exchange rates data. In addition, if Model B and C adopt more similar estimation data with Model A, Model E and F adopt a more stringent estimation window, in line with the robustness checks suggested by Park (2004).

For each of the six model, a graphical representation of the CAAR is presented as well as some comments.

Table 10 Models used in the Event Study

Name of the Model	Model Used	Estimation Window	Event Window
Model A	Global Market model	[-280;-50]	[-30;+30]

Model B	Global Market model	[-280;-30]	[-20;+20]
Model C	Global Market model	[-280;-20]	[-10;+10]
Model D	Market model	[-280;-50]	[-30;+30]
Model E	Global Market model	[-150;-50]	[-30;+30]
Model F	Global Market model	[-200;-50]	[-30;+30]

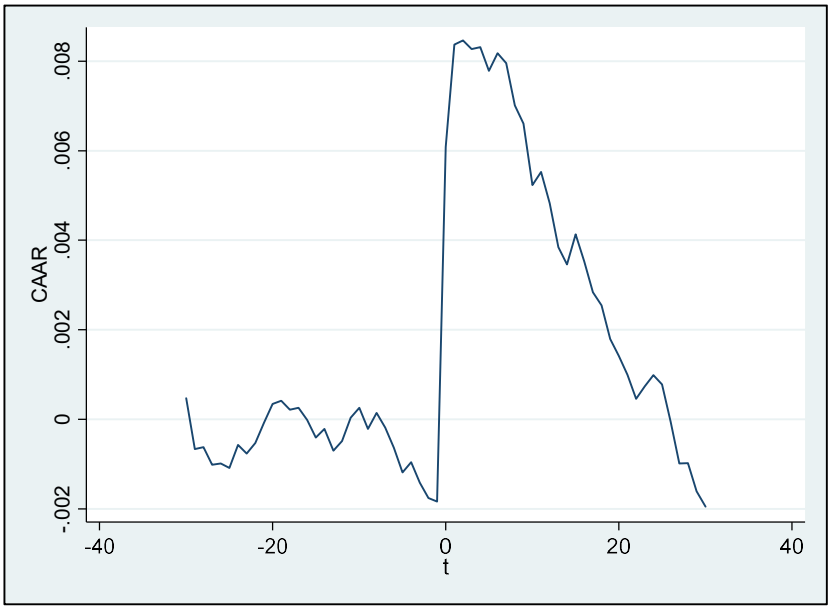
Source: Author's elaboration

7.2.2. Event study statistics

7.2.2.1. Main Model: Model A

The overall trend of the period is depicted in Graph 5, reporting the CAARs for every observation from day -30 through day +30.

Graph 5 Model A - CAARs of the Event Window [-30;+30] with Estimation of [-280;-50]



Source: Author's elaboration

From the Graph, two different trends can be spotted: before the event date, there are some waves of excitement surrounding the stock return that alternate with momenta of depression. The anticipation reaches its peak on the event date. Following the announcement, the Cumulative Average Abnormal Return drops abruptly a couple of days after the announcement.

To corroborate what can be guessed from *Graph 5*, for the 61-day event window, *Table 11* reports below a preliminary presentation of the ARs for each day in terms of number

of observations, mean, sign of the mean, as well as the standard deviation, the minimum value and the maximum level for each daily AR.

The first thing that is to be remarked is that the final sample is made of 2,537 companies. This is due to the long time horizon picked for the estimation window that eliminated the companies for which one of the time series among stock return, domestic market or exchange rate, was not complete. The countries represented in the final sample are reported in Table 12.

Table 11 Model A - Daily ARs in the Event Window

t	n.obs	Mean (%)	Sign of the AR	Std. Dev. (%)	Min (%)	Max (%)
before event date						
[-30;-30]	2,537	0.04739	+	2.61158	-32.6108	44.4439
[-29;-29]	2,537	-0.11338	-	2.15682	-24.5182	21.27666
[-28;-28]	2,537	0.00407	+	2.16091	-29.3392	20.34643
[-27;-27]	2,537	-0.03916	-	2.45763	-46.0176	28.13294
[-26;-26]	2,537	0.00296	+	3.02558	-25.9884	87.6744
[-25;-25]	2,537	-0.01035	-	2.23209	-24.0448	24.74339
[-24;-24]	2,537	0.05177	+	2.31484	-30.6506	23.69626
[-23;-23]	2,537	-0.01959	-	2.37351	-38.2175	28.33914
[-22;-22]	2,537	0.02364	+	2.38021	-22.287	31.22934
[-21;-21]	2,537	0.04496	+	2.53895	-70.1153	31.68181
[-20;-20]	2,537	0.04222	+	2.98918	-37.6732	81.6199
[-19;-19]	2,537	0.00675	+	2.49356	-67.1641	23.16952
[-18;-18]	2,537	-0.01949	-	2.8605	-81.2641	36.6785
[-17;-17]	2,537	0.00374	+	2.64671	-46.6564	46.44092
[-16;-16]	2,537	-0.02695	-	2.04156	-18.3125	16.10601
[-15;-15]	2,537	-0.03907	-	2.93002	-22.0616	83.83209
[-14;-14]	2,537	0.01895	+	2.05724	-11.7583	17.82177
[-13;-13]	2,537	-0.04829	-	2.17695	-23.0854	21.42984
[-12;-12]	2,537	0.02105	+	2.33732	-16.1058	45.8073
[-11;-11]	2,537	0.05251	+	2.2659	-24.7791	29.38451
[-10;-10]	2,537	0.02231	+	2.10548	-16.5759	23.90496
[-9;-9]	2,537	-0.04754	-	2.06778	-19.8629	18.26884
[-8;-8]	2,537	0.03584	+	2.52109	-18.7183	70.08915
[-7;-7]	2,537	-0.03243	-	2.15113	-20.8865	19.15425
[-6;-6]	2,537	-0.04572	-	2.48317	-46.9507	28.65008
[-5;-5]	2,537	-0.05468	-	2.14282	-26.2794	23.21361
[-4;-4]	2,537	0.02266	+	3.66704	-27.5757	142.1205
[-3;-3]	2,537	-0.04586	-	2.41109	-24.3529	32.96469

[-2;-2]	2,537	-0.03409	-	2.14768	-36.7081	17.10801
[-1;-1]	2,537	-0.00763	-	2.5241	-35.7934	27.49995
event date						
[0;0]	2,537	0.79192	+	5.49859	-43.2406	149.7437
after event date						
[1;1]	2,537	0.22837	+	3.66746	-69.8048	29.34857
[2;2]	2,537	0.00922	+	3.13641	-87.7796	32.76544
[3;3]	2,537	-0.01923	-	2.66903	-23.4124	56.66453
[4;4]	2,537	0.00443	+	2.33014	-21.8874	37.37856
[5;5]	2,537	-0.0528	-	2.37125	-30.116	20.01198
[6;6]	2,537	0.03924	+	3.00085	-44.4661	75.9662
[7;7]	2,537	-0.0223	-	2.19917	-18.4859	28.41256
[8;8]	2,537	-0.09401	-	2.31776	-32.3716	18.12201
[9;9]	2,537	-0.04076	-	2.17331	-14.0312	29.54343
[10;10]	2,537	-0.13704	-	2.4006	-45.4612	22.39417
[11;11]	2,537	0.02885	+	2.26034	-26.6111	21.87456
[12;12]	2,537	-0.06987	-	2.574	-38.1147	44.74871
[13;13]	2,537	-0.09805	-	2.8024	-50.4032	54.39978
[14;14]	2,537	-0.0386	-	2.74007	-54.8299	51.39841
[15;15]	2,537	0.06707	+	2.44873	-28.0775	33.77781
[16;16]	2,537	-0.06046	-	2.58703	-35.347	62.69243
[17;17]	2,537	-0.06864	-	2.35817	-23.1958	24.40579
[18;18]	2,537	-0.02926	-	2.66862	-40.4962	44.17602
[19;19]	2,537	-0.07487	-	3.48741	-93.3001	100.8269
[20;20]	2,537	-0.03838	-	2.73969	-68.2349	47.5364
[21;21]	2,537	-0.04217	-	2.38086	-45.3663	18.36467
[22;22]	2,537	-0.05304	-	2.3566	-39.9996	25.03676
[23;23]	2,537	0.02748	+	3.49252	-20.7045	132.943
[24;24]	2,537	0.02525	+	3.81862	-152.116	40.14713
[25;25]	2,537	-0.02107	-	3.09186	-26.4817	114.4159
[26;26]	2,537	-0.0835	-	2.62016	-35.7747	41.64812
[27;27]	2,537	-0.09306	-	2.11783	-17.4767	16.42081
[28;28]	2,537	0.000773	+	2.49703	-29.9773	42.22484
[29;29]	2,537	-0.06286	-	2.96518	-50.8285	70.12634
[30;30]	2,537	-0.03405	-	2.39205	-21.7707	31.7963

Source: Author's elaboration

Table 12 Countries involved in Cross-Border M&A - final sample

Country of the bidder	Cross-Border M&A (number)
Belgium	1
Bulgaria	1
Croatia	3
Cyprus	3
Denmark	38
Estonia	4
Finland	83
France	222
Germany	146
Greece	19
Hungary	7
Ireland	84
Italy	99
Luxembourg	23
Malta	3
Netherlands	95
Poland	54
Portugal	15
Slovenia	4
Spain	79
Sweden	207
United Kingdom	526
United States of America	821
TOTAL OPERATIONS	**2,537**

Source: Author's elaboration

Table 12 shows that Chinese acquirers are left out from the model, due to the lack of several data for the Shanghai Composite Index.

Going back to Table 11, it can be gathered that in the 30 days before the Cross-Border M&A announcement, the average of the daily AR across the whole period is negative and it is equal to -0.18%. By looking at the signs of the respective ARs reported in the column "Sign of the AR", it can be seen that there is a swing between positive and negative abnormal return, making it very difficult to spot a pattern. The only trend that is evident is that the closer the day of the announcement the larger the presence of negative ARs: in the 10 days prior the announcement, only 3 days display a positive ARs; in the three days prior to the announcement, none of them does. This is likely to be attributed to the leakage of information spread in the days before the news is made publicly available.

The fact that the sign of the mean value of the AR in the period before the event undergoes such a swing is a confirmation that the choice of the event window is adequate.

Concerning the day of the announcement, it can be seen that the AR recorded in [0;0] is positive with a mean of 0.79%.

Given that the day of the event brought with itself a positive AR of 0.79%, one may think that the capital markets accommodate this event.

However, as it was already clear from Graph 5, by broadening the picture it is in fact evident that capital markets perceive in a bad way the announcement of the Cross-Border M&A. Looking at the "Sign" column, it is possible to spot only 9 positive ARs in the 30 days after the announcement. Day +1 and Day +2 still benefit of the large excitement of the day of the event. Things start to change from Day +3, where there is the first signal of a decay in the AR. Expanding further the lenses, one can clearly see that the overall trend is declining.

After the event date, from Day +15 through Day +30, AR is continuously and always negative, with the exception of Day +23, +24 and +28. This can be referred to as an example of "*dead cat bounce*", a very strong yet correct metaphor used in financial news for a situation like this, in which *"even a dead cat will bounce if it falls from a*

great height"[33], where the "great height" is the AR of 0.79%, the maximum value of the whole 61-day data series, recorded on the event day.

Once ARs have been estimated, to correctly identify the event windows that will be used in the multiple regression models, a further step is necessary: understand the level of significance of the daily ARs.

Table 13 presents their level of significance, as well their significance for the tests described in Section 6.2.7.

Table 13 Model A - Significance of daily ARs [-30;+30][34]

t	N.obs	AR (t) (%)	T-test	Patell (1976)	BMP (1991)	Kolari et al. (2010)	Corrado Rank test (Cowan, 1992)	Corrado and Zivney rank test (1992)	Gen. Sign Test (Cowan, 1992)
[-30;-30]	2,537	0.0474							
[-29;-29]	2,537	-0.1134	**	***	***	***	***	***	**
[-28;-28]	2,537	0.0041							
[-27;-27]	2,537	-0.0392							
[-26;-26]	2,537	0.0030							
[-25;-25]	2,537	-0.0104							
[-24;-24]	2,537	0.0518							
[-23;-23]	2,537	-0.0196							
[-22;-22]	2,537	0.0236							
[-21;-21]	2,537	0.0450							
[-20;-20]	2,537	0.0422					**	**	***
[-19;-19]	2,537	0.0068							
[-18;-18]	2,537	-0.0195							
[-17;-17]	2,537	0.0037							
[-16;-16]	2,537	-0.0270							
[-15;-15]	2,537	-0.0391							
[-14;-14]	2,537	0.0190							
[-13;-13]	2,537	-0.0483							
[-12;-12]	2,537	0.0211							
[-11;-11]	2,537	0.0525							
[-10;-10]	2,537	0.0223							

[33] The term was first used in December 1985 to refer to the Singapore and Malaysian markets. The two markets surprisingly performed well after a period of severe recession.

[34] Legend:
* = statistically significant at 0.1 level;
**= statistically significant at least at a 0.05 level;
*** = statistically significant at least at a 0.01 level.
All consider a two-tail basis.

[-9;-9]	2,537	-0.0475							
[-8;-8]	2,537	0.0358							**
[-7;-7]	2,537	-0.0324							
[-6;-6]	2,537	-0.0457							
[-5;-5]	2,537	-0.0547							
[-4;-4]	2,537	0.0227							
[-3;-3]	2,537	-0.0459							
[-2;-2]	2,537	-0.0341							
[-1;-1]	2,537	-0.0076							
[0;0]	2,537	0.7919	***	***	***	***	***	***	***
[1;1]	2,537	0.2284	***				***	***	***
[2;2]	2,537	0.0092		*					
[3;3]	2,537	-0.0192							
[4;4]	2,537	0.0044							
[5;5]	2,537	-0.0528							
[6;6]	2,537	0.0392							
[7;7]	2,537	-0.0223							
[8;8]	2,537	-0.0940	*	*					
[9;9]	2,537	-0.0408							
[10;10]	2,537	-0.1370	**	**	**	*			
[11;11]	2,537	0.0289							
[12;12]	2,537	-0.0699		*	*				
[13;13]	2,537	-0.0981	*	*					
[14;14]	2,537	-0.0386							
[15;15]	2,537	0.0671							*
[16;16]	2,537	-0.0605							
[17;17]	2,537	-0.0686		***	***	*			
[18;18]	2,537	-0.0293							
[19;19]	2,537	-0.0749		*	*				
[20;20]	2,537	-0.0384							
[21;21]	2,537	-0.0422							
[22;22]	2,537	-0.0530							
[23;23]	2,537	0.0275							
[24;24]	2,537	0.0253					*	*	***
[25;25]	2,537	-0.0211							
[26;26]	2,537	-0.0835		*					
[27;27]	2,537	-0.0931	*	**	**	*	*		
[28;28]	2,537	0.0008							
[29;29]	2,537	-0.0629		**	**	*			
[30;30]	2,537	-0.0341		*	*				

Source: Author's elaboration

Looking at the table it can be seen that for the days surrounding the event date, single daily AR satisfy all tests. *Appendix 3* reports all the statistics on which the significance tests are based.

As a complementary comment to the main model, Model A, Table 14 below reports some intervals of Cumulative (Average) Abnormal Return in some specific event dates. For those event windows as well, the tests were conducted.

Table 14 Model A - CAR and Significance Level[35]

t	n.obs.	CAR (t) %	t-test	Patell (1976)	Corrado Rank test (Cowan, 1992)	Corrado and Zivney rank test (1992)	Generalized Sign Test (Cowan, 1992)
[-30;30]	2,537	-0.19480					***
[-20;20]	2,537	0.14911		*	*	*	***
[-10;10]	2,537	0.51989	**	**	**	**	***
[-5;5]	2,537	0.84229	***	***	***	***	***
[-2;10]	2,537	0.66530	***	***	***	***	***
[-2;3]	2,537	0.96855	***	***	***	***	***
[-2;7]	2,537	0.93711	***	***	***	***	***
[-3;3]	2,537	0.92269	***	***	***	***	***
[0;1]	2,537	1.02029	***	***	***	***	***
[0;2]	2,537	1.02950	***	***	***	***	***
[0;10]	2,537	0.70702	***	***	***	***	***
[1;2]	2,537	0.23758	***	***	***	***	***
[1;3]	2,537	0.21836	**	***	***	***	***
[1;15]	2,537	-0.19549					
[3;30]	2,537	-1.04090	***	***			
[3;10]	2,537	-0.32248	**				
[10;30]	2,537	-0.85546	***	***	*		

Source: Author's elaboration

Table 14 shows some event data intervals for the CARs and presents the level of significance for the tests described in Section 6.2.7, for which Appendix 4 reports all the standardized values. Looking at the first row of Table 14, a CAR of -0.20% is indicated in correspondence for the whole observation period, [-30;+30]. Despite not

[35] Legend:
* = statistically significant at 0.1 level;
**= statistically significant at least at a 0.05 level;
*** = statistically significant at least at a 0.01 level.
All consider a two-tail basis.

being significant for most tests, it is important to underline how an investor of a company that is announcing a Cross-Border M&A cumulatively will lose 0.20% over the 61-day period (-0.195).

These results have to be projected on each and every single company that is announcing a Cross-Border M&A.

In the remaining part of the Section, the practical consequences of what appears to be a small percentage will be explained.

Concerning the other CARs, the closer they are to the announcement date, the higher the number of tests for which they are significant. Despite not being significant, it is also worth mentioning that the CARs that includes a relatively long period after the announcement and that do not consider the highest point in the series (i.e. day 0) are all negative. This means that if an investor decided to place an order to buy a stock after Day +2 in the light of the positive perfomance, this stock will decrease its value.

What is then the best way to forbid that such thing happen? The answer is simple: the investor should sell the share.

However, what is the consequence on the stock price when the shareholders decide to sell? The answer is again very simple: the stock price decreases.

And this creates a vicious cycle, leading to Cross-Border M&A not to produce wealth for the acquiring company.

Time series analysis

The tables and the graph showed above present an aggregate situation.

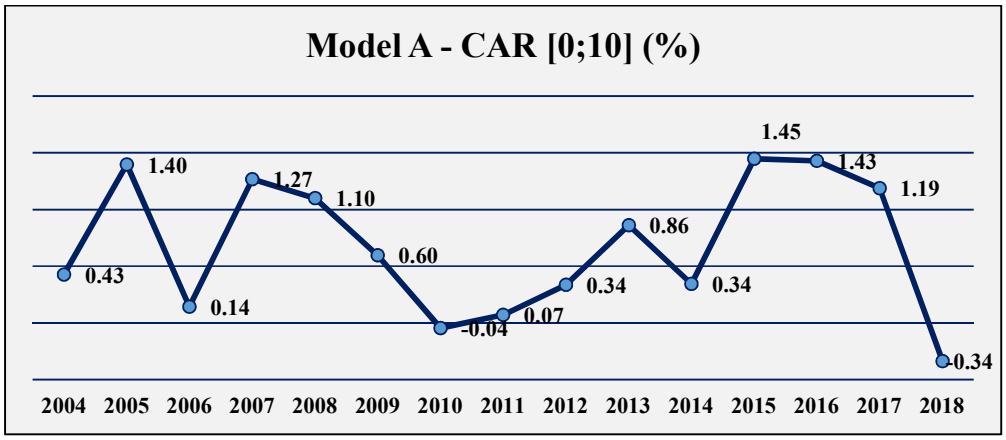
It would be interesting to see whether, in the period analyzed, there is a trend across the years. This additional analysis is done using the same estimation base of Model A. Graph 6 through Graph 8 illustrate the trend of the Cumulative Abnormal Return over three periods of interest: [0;+10], [+3;+30], and [-30;+30].

The first thing can be noted by looking at all graphs at the same time is that there seems to be a clear pattern making of 2015 typically the best year among those analyzed.

Graph 6 shows that there are only two years in which the CAR are negative: 2010 and 2018. 2010 shows the lowest level of CAR over the whole period until 2018. This is likely to be attributed at the global financial crisis aftermath. After 2010, the CAR improves again until 2014 where it is halved with reference to the previous year. 2018, the last year of the observation period is by far the worst one. Cumulatively, and on

average, shareholders of companies announcing Cross-Border M&A lost 0.34% in the first 10 trading days after the announcement, including the event day. The message conveyed by this number is even harder if read in accordance with the daily AR presented above according to which on Day 0, 1, and 2 the largest AR are recorded.

Graph 6 Model A - Distribution of average CAR [0;10] across the period 2004-2018



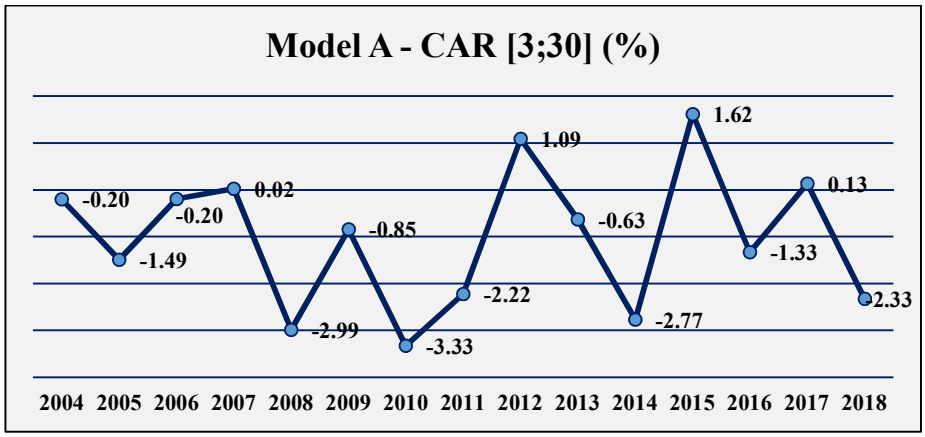
Source: Author's elaboration

Graph 7 shows the trend of the CAR over a longer period, from Day 3 through the end of the estimation period of the event, Day 30.

Looking at the graph, it can be seen how most of them are negative (10 years out of 15 record a CAR [+3;+30] with negative values).

Like in Graph 6 illustrated above, 2010 and 2018 do not record positive performance. 2010 is the worst year of the series and 2018 is the fourth worst year. Graph 7 shows a fluctuation that alternates years with slightly positive CAR to years with negative values.

Graph 7 Model A - Distribution of average CAR [3;30] across the period 2004-2018

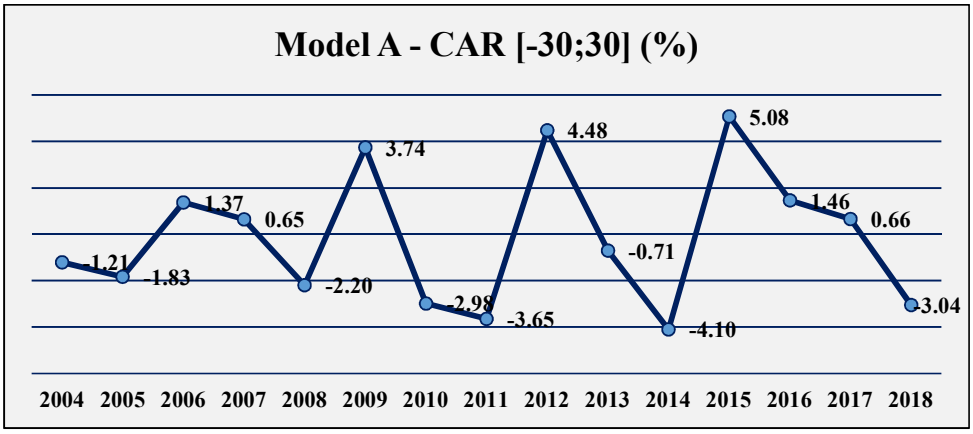


Source: Author's elaboration

Graph 7 shows a clear understanding and confirmation of the fact that Cross-Border M&A are badly perceived by capital markets, as it excludes the three outliers, Day 0, +1, and +2.

The swing between 2004 and 2018 can be found also in Graph 8, depicting the overall CAR for the entire 61-day event window. Overall, the instability is more pronounced, as the maximum value is 5.08% and it is recorded in 2015. 2015 is the best performing year in all three graphs presented. On the contrary, 2014 is the worst year with a -4.10% CAR for the whole period. The huge gap between the highest and the lowest point gives a glance of a high variation, confirmed by a standard deviation of 23% for CAR [-30;+30].

Graph 8 Model A - Distribution of average CAR [-30;+30] across the period 2004-2018



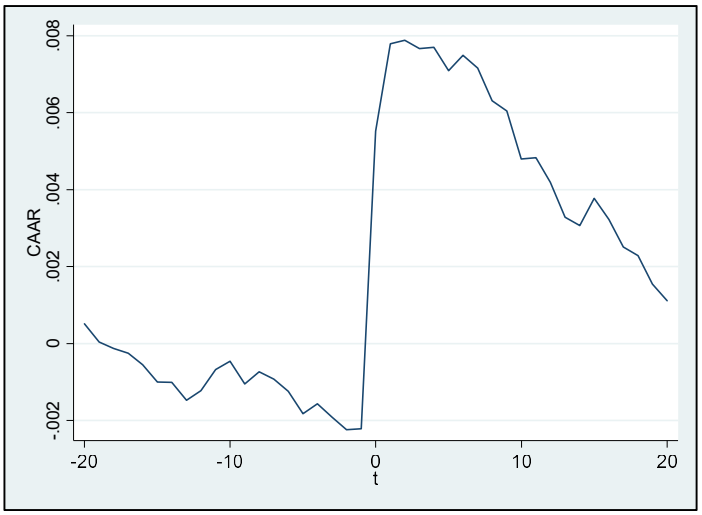
Source: Author's elaboration

7.2.2.2. Other Models

After presenting the evidence found in the main model, Model A, for the sake of completeness, the graphs concerning the robustness models (Model B through F) are reported in the following graphs, from Graph 9 through Graph 13.

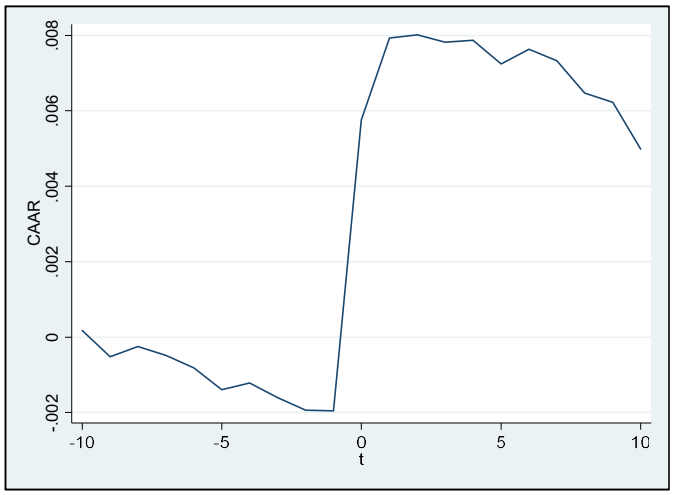
Graph 9 and Graph 10 propose the Global model with different estimation periods, leakage periods and event windows. Looking at their graphical representation of the CAARs, it can be further confirmed that a time horizon of [-10;+10] or [-20;+20] would have not be adequate, in that a "noise" is perceived in the abnormal return.

Graph 9 Model B - CAAR with- Event Window [-20;+20], with Estimation period of [-280;-30]



Source: Author's elaboration

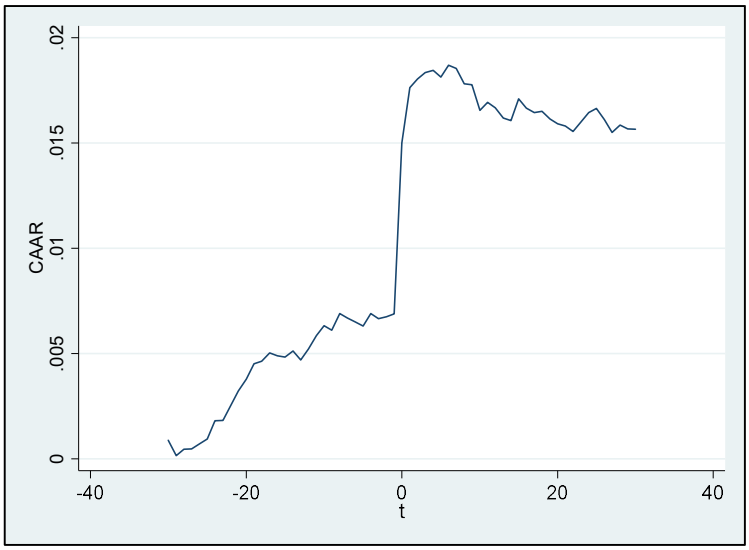
Graph 10 Model C - CAARs with Event Window [-10;+10] with Estimation period of [-280;-20]



Source: Author's elaboration

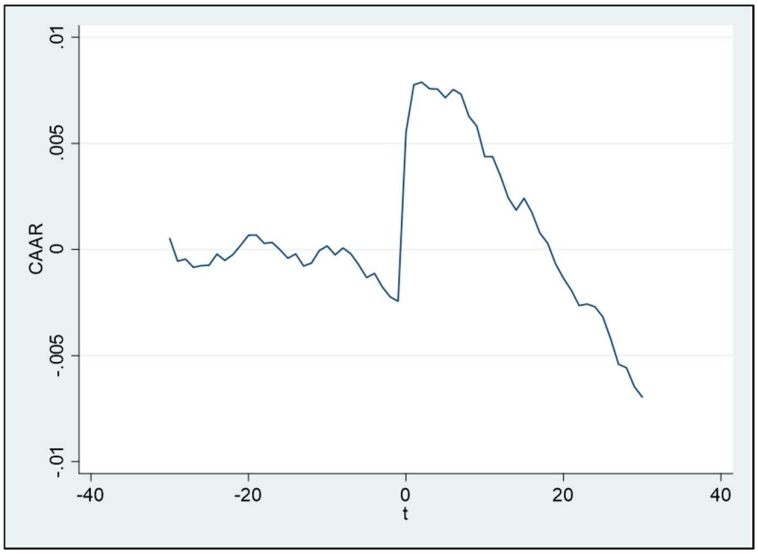
Graph 11 reports Model D and the CAAR for the estimation period and windows adopting the Market Model, hence not taking into consideration two important factors: the global market index (the MSCI) and the exchange rate trend. From a graphical point of view it is evident how the overall trend is similar to the one presented by the previous three Models (A, B, and C), but in a less sharp way, as the decline that is realized after the announcement day is not as abrupt as the one presented by the Global Market Models.

Graph 11 Model D – Market Model - CAARs with Event Window [-30;+30] with Estimation period of [-280;-50]



Source: Author's elaboration

Graph 12 Model E – Global Market Model - CAARs with Event Window [-30;+30] with Estimation period of [-150;-50]

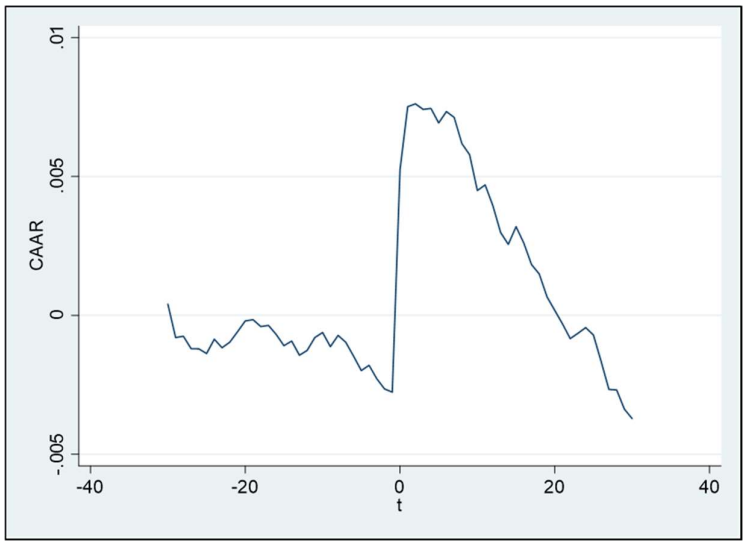


Source: Author's elaboration

Model E and Model F, despite adopting the same model and the same event window as Model A, are very different, as they use a narrower estimation window. Model E, represented graphically in Graph 12, is estimated with only 100 trading days. The graph shows that the decrease of the abnormal return after the announcement day is such that it erodes almost twice the positive yield generated on the event date.

Model F, represented graphically in Graph 13, is estimated with only 150 trading days. Also in Model F, the decrease is more prominent, albeit in a softer way with respect to Model E before described.

Graph 13 Model F – Global Model - CAARs with Event Window [-30;+30] with Estimation period of [-200;-50]



As it is has been done for Model A, the summary statistics for all models are reported in Table 15. For the analysis, all the tests illustrated above and reported for Model 1 have been carried out as well. Table 15 only reports the value for the AR for each of the day of the event window and the level of significance of the Patell test, as it is one of the most used. Appendix 5 through Appendix 9 report all the t-statistics and p-value for all the tests conducted.

Table 15 Daily AR and their significance of Models A through F[36]

AR	Global Model						Market Model		Global Model			
	Model A		Model B		Model C		Model D		Model E		Model F	
	Mean (%)	Patell (1976)	Mean (%)	Patell (1976)	Mean (%)	Patell (1976)	Mean (%)	Patell (1976)	Mean (%)	Patell (1976)	Mean (%)	Patell (1976)
before event date												
[-30;-30]	0.047						0.089	**	0.052		0.040	
[-29;-29]	-0.113	***					-0.073	**	-0.107	**	-0.120	**
[-28;-28]	0.004						0.030		0.010		0.005	
[-27;-27]	-0.039						0.001		-0.039		-0.045	
[-26;-26]	0.003						0.025		0.008		-0.001	
[-25;-25]	-0.010						0.023		0.002		-0.017	

[36] Legend:
* = statistically significant at 0.1 level;
**= statistically significant at least at a 0.05 level;
*** = statistically significant at least at a 0.01 level.
All consider a two-tail basis.

[-24;-24]	0.052						0.087		0.052		0.052	
[-23;-23]	-0.020						0.001		-0.030		-0.031	
[-22;-22]	0.024						0.069	**	0.027		0.020	
[-21;-21]	0.045						0.071	*	0.044		0.038	
[-20;-20]	0.042		0.051	*			0.056		0.048		0.039	
[-19;-19]	0.007		-0.047				0.073	**	0.001		0.005	
[-18;-18]	-0.019		-0.016	*			0.011		-0.039		-0.025	
[-17;-17]	0.004		-0.012				0.040		0.004		0.004	
[-16;-16]	-0.027		-0.030				-0.014		-0.034		-0.032	
[-15;-15]	-0.039		-0.045	*			-0.005		-0.040		-0.041	
[-14;-14]	0.019		-0.001				0.028		0.020		0.017	
[-13;-13]	-0.048		-0.047				-0.043		-0.057		-0.051	
[-12;-12]	0.021		0.024				0.052		0.014		0.017	
[-11;-11]	0.053		0.055				0.064		0.059		0.047	
[-10;-10]	0.022		0.022		0.017		0.046		0.021		0.018	
[-9;-9]	-0.048		-0.059		-0.069		-0.022		-0.042		-0.051	
[-8;-8]	0.036		0.032		0.026		0.080	**	0.033		0.041	
[-7;-7]	-0.032		-0.019		-0.023		-0.022		-0.028		-0.025	
[-6;-6]	-0.046		-0.032		-0.033		-0.017		-0.052		-0.050	
[-5;-5]	-0.055		-0.058		-0.057		-0.021		-0.060		-0.052	
[-4;-4]	0.023		0.026		0.017		0.060		0.020		0.019	
[-3;-3]	-0.046		-0.035		-0.039		-0.025		-0.064		-0.048	
[-2;-2]	-0.034		-0.032		-0.034		0.010		-0.047		-0.037	
[-1;-1]	-0.008		0.002		-0.001		0.013		-0.020		-0.012	
event date												
[0;0]	0.792	***	0.773	***	0.771	***	0.811	***	0.795	***	0.801	***
after event date												
[1;1]	0.228		0.227		0.217		0.264	***	0.224	***	0.227	***
[2;2]	0.009	*	0.009	*	0.008	*	0.041	**	0.013		0.010	
[3;3]	-0.019		-0.021		-0.019		0.030		-0.031		-0.020	
[4;4]	0.004		0.003		0.005		0.011		-0.001		0.004	
[5;5]	-0.053		-0.061		-0.062		-0.033		-0.041		-0.052	
[6;6]	0.039		0.040		0.038		0.057		0.039		0.041	
[7;7]	-0.022		-0.033		-0.031		-0.015		-0.022		-0.021	
[8;8]	-0.094	*	-0.085		-0.085	*	-0.074		-0.104	*	-0.095	*
[9;9]	-0.041		-0.027		-0.025		-0.004		-0.046		-0.040	
[10;10]	-0.137	**	-0.124	**	-0.124	**	-0.121	**	-0.143	***	-0.129	**
[11;11]	0.029		0.004				0.039		-0.001		0.020	
[12;12]	-0.070	*	-0.065	**			-0.026		-0.090	*	-0.075	
[13;13]	-0.098	*	-0.090	*			-0.049		-0.105	*	-0.097	*
[14;14]	-0.039		-0.022				-0.011		-0.057		-0.043	
[15;15]	0.067		0.071				0.102		0.056		0.064	
[16;16]	-0.060		-0.056				-0.043		-0.067		-0.059	
[17;17]	-0.069	***	-0.071	***			-0.021		-0.096	*	-0.078	
[18;18]	-0.029		-0.022				0.006		-0.049		-0.034	
[19;19]	-0.075	*	-0.074	**			-0.036		-0.097	*	-0.082	
[20;20]	-0.038		-0.043				-0.024		-0.067		-0.049	
[21;21]	-0.042						-0.010		-0.057		-0.048	
[22;22]	-0.053						-0.026		-0.072		-0.053	
[23;23]	0.027						0.045		0.007		0.019	
[24;24]	0.025						0.045	*	-0.013		0.020	
[25;25]	-0.021						0.019		-0.047		-0.027	
[26;26]	-0.084	*					-0.053		-0.104	*	-0.096	*
[27;27]	-0.093	**					-0.060		-0.120	**	-0.100	*
[28;28]	0.001						0.034		-0.016		-0.002	

[29;29]	-0.063	**		-0.018		-0.089		-0.069	
[30;30]	-0.034	*		-0.001		-0.049		-0.034	

Source: Author

7.2.2.3. Comparison among Models

Before event date

Before the event date, and specifically on Day -29, there is the lowest point of AR, for all models, where the worst one is recorded in Model F (-0.12%). Starting from the day -27, the pace changes between the Global Market Models and the Market Model: in the global model, positive ARs alternate to negative ones, while the ARs are always positive concerning the market one. Also in this case, the value of the AR of Model E and F are the worst.

Starting from Day -13 through Day -4, the tendency is perfectly aligned among all models, still again with a lower intensity for the Market Model that in general is always the smoothest among all six.

For the days immediately before the event, something changes among the models. In Global Market Models, Days -3 through -1 are all negative, while in Market models, only Day -3 is negative, while Days -2 and -1 are positive.

Event date

As per the event date, in all models, it is the moment in which the AR is at its highest level. The one with the highest AR is the market Model, with an AR of 0.81%. Among the Global Market Models, the best performing one is Model F, with a 0.801% abnormal return, while the least performing one is Model C, with a 0.771% abnormal return. Despite the trend is always smoother in Market Models, the event day is the only moment where the reaction is more pronounced.

According to the Patell test (1976), the AR on the day of the announcement is significant with a p-value lower than 1% in all six models.

After event date

After the event date, as illustrated in the graphs above, in Day 1 and in Day 2, the excitement for the news is still positive yet it is dramatically reduced with respect to Day 0. Looking at Day 1, it is possible to see that the AR is around one third than the one of Day 0. Looking at Day 2, the ratio further decreases and it becomes around one hundredth, if not less.

Concerning the significance according to the Patell test, it can be seen that Day 1 AR is significant at a 99% confidence level in Models D, E, and F and that Day 2 is significant with a 90% confidence level in Model A, B, and C and with a 95% confidence level in the market model.

Starting from Day 3, something changes in Table 15 and in the results among the models. According to the global models, Day 3 is the beginning of a long negative performance, while in the market model, the relentlessly negative performance starts from Day 5.

For all models, the lowest AR is recorded on Day 10. These results are significant at a 95% confidence level in all models.

Generally speaking, taking only the Models with an event window of [-30;+30], in Model A, the number of negative days after the event day are 21 out of 30, with a cumulated negative AR of -0.80%. In model D, there are "only" 18 days out of 30 with a negative abnormal return leading to a CAR that is slightly positive, +0.066%. Model E presents 25 negative days out of 30 and the cumulated AR for the days after the event is -1.25%. In the end, in Model F, there are 22 ARs in the period after the announcement with a negative sign and, cumulatively AR after the event day are -0.9%.

Lastly, commenting further on the main Model, Model A, after touching the lowest point on Day +10, results show a continuous decrease of AR. This decrease is significant on Day +12, +13, +19, +26, and +30 under a 90% confidence internal; on Day +27 and +29 it is confident under a 95% confidence internal; finally, on Day +17 it is significant under a 99% confidence internal.

As anticipated in Graph 7, the daily average of the ARs of the period after the announcement excluding Day 0, +1, and +2, i.e. [+3;+30] is -0.037%.

This percentage may look relatively small if one does not look at the overall picture.

The World Bank publishes yearly the "market capitalization of listed domestic companies", that corresponds to the aggregate market value of the share price times the number of shares outstanding. Following the presentation of the final sample of observations included in the sample and reported in Table 12, data for Frances,

Germany, and the United States were retrieved[37]. Findings are reported in Table 16 below.

Table 16 Market capitalization of listed domestic companies (current US$ billion)

Year	France	Germany	United States
2004	1,559.11	1,194.52	16,323.73
2005	1,758.51	1,202.14	17,000.86
2006	2,428.25	1,637.61	19,568.97
2007	2,740.34	2,105.20	19,922.28
2008	1,472.41	1,110.58	11,590.28
2009	1,946.19	1,292.36	15,077.29
2010	1,911.52	1,429.72	17,283.45
2011	1,553.96	1,184.50	15,640.71
2012	1,808.19	1,486.31	18,668.33
2013	2,301.09	1,936.11	24,034.85
2014	2,085.90	1,738.54	26,330.59
2015	2,088.32	1,715.80	25,067.54
2016	2,159.05	1,716.04	27,352.20
2017	2,749.31	2,262.22	32,120.70
2018	2,365.95	1,755.17	30,436.31

Source: World Bank

From the table, it can be seen that the trend is overall increased. The peak is for all three countries represented by year 2017, which doubles the values of the beginning of the series, 2004.

For the three countries, the time series concludes in 2018 with a value of around US$ 2,400 billion for France, of around US$ 1,800 in Germany and of around US$ 30,000 billion in the United States. Taking the average daily ARs of period [+3;+30] of 0.037% of such numbers, it can be seen that in France this would mean to lose on average, and every day, for every Cross-Border M&A announced, US$ 900 million, in Germany that would mean to lose US$ 650 million, and in the US, this would stand for US$ 11.26 billion.

[37] These three countries are selected as the US represent the area where most operations are concentrated in general, while France and Germany are the two countries where most operations are concentrated when talking about Continental Europe.

7.2.3. Conclusion on Event Study Analysis

In the light of the results of the event study reported in this Section, three are the inferences:

i. Over an event window of 61 days going from 30 days prior to the event to 30 days after it, shareholders of companies doing Cross-Border M&A lose cumulatively 0.20% (cf. Table 14). This negative overall performance does not exclude the best performance of the day of the event, a positive outlier of the data series.
ii. When the Cross-Border M&A is announced, the Abnormal Return reaches its maximum level. Should this maximum level be excluded as an outlier, the Cumulative Abnormal Return that is lost over the whole 61-day period is -1%, whereas the average AR lost every day is 0.02%.
iii. After the announcement, Day 1 and 2 still yield positive, yet much lower, ARs but the values get more and more negative over the rest of the time series, where the lowest point is reached on Day 10.

The results presented so far set some clear points for the event windows that will serve as dependent variables in the cross-sectional analysis. CAAR resulting from Models A to F will be used as a baseline of Regression Model 1 through 6. In addition, other robustness checks will be used.
With reference to the event period, two are the event windows that are used in the cross-sectional analyses:

- CARs for the period [+1;+3]. This is the main event window and it is chosen as it captures the immediate aftermath of the announcement and the change in the sign of the AR, from positive to negative. Day +3 is the day in which the decay starts.
- CARs for the period [0;+10]. This window is selected as Day 0 and Day +10 are, respectively, the highest and the lowest AR of the whole series. The purpose of using it as a secondary event window is to see whether the relations valid for the primary interval also apply to this case.

In addition, to provide further a full picture of the phenomenon, other CAR will be used to interpret the results as ancillary models.

The purpose of the multiple regression is to explain if the institutional cultural difference and/or the moderators have some role in affecting the abnormal returns.

7.3. Multiple linear Regression

7.3.1. Definition of the models

The purpose of the first part of the empirical analyses was to set the tone in understanding whether the announcements of Cross-Border M&A have a positive or negative effect over the ARs of acquiring companies. The purpose of the second part of the research is to understand the (most important) determinants of the abnormal returns. This is done setting the CAAR as the dependent variable in a cross-sectional analysis to explain what affected the abnormal returns themselves (McWilliams and Siegel, 1997). Cross-sectional samples are composed of observations taken at a given point in time (Woolridge, 2016)[38] and they are very frequent in event studies to analyze the exogenous variables that affect the event observed (Eckbo, Maksimovic, and Williams, 1990), as theory often suggests that there could be an association between the magnitude of AR and some specific features in the sample observed (Campbell *et al.*, 1997)

With specific reference to the work presented here, the goal is to check whether the five empirical solutions identified in this research affect the institutional cultural difference and, if so, if they reduce the negative impact that this difference has on the abnormal return.

Here follows a table with the names of the models involved by this analysis. Model 1 to Model 6 follow the same estimation way as Model A through 6, respectively; while Model 7 through Model 10 constitute further tests.

Table 17 Models for the multiple regression analyses

Name of the Model	CAR	Event Study model used	Estimation Window
Model 1	[+1;+3]	Global Market model	[-280;-50]
Model 2	[+1;+3]	Global Market model	[-280;-30]
Model 3	[+1;+3]	Global Market model	[-280;-20]
Model 4	[+1;+3]	Market model	[-280;-50]
Model 5	[+1;+3]	Global Market model	[-150;-50]
Model 6	[+1;+3]	Global Market model	[-200;-50]

[38] Woolridge (2016), p. 5

Model 7	[0;+10]	Global Market model	[-280;-50]
Model 8	[+1;+3]	Global Market model – only country fixed effects	[-280;-50]
Model 9	[+1;+3]	Global Market model - only year fixed effects	[-280;-50]
Model 10	[+1;+3]	Global Market model – winsorized variables	[-280;-50]

Source: Author's elaboration

In the next pages, when the results are described, by the word "Model" it is meant the aggregate set of Base sub-model (i.e. without moderators), PE sub-model, ESG sub-model, Track Record sub-model Accounting Standards sub-model, and International Board sub-model.

7.3.2. Sample adjustments

As described in the first chapters of this work, the purpose of the analysis is to understand whether the five moderators related with the event study CARs. Cross-matching the CAR generated with the sample selection and in the light of the missing data[39], the sample used from this moment on in the research is composed of **2,202 observations** (cf. Appendix 10 for the sample composition of regression models).
In addition, two moderators have each a specific adjustment to the original sample.
Concerning the ESG Score, this value is not available for all observations, but only for 1,100, as the remaining part of the sample refers to companies that are non-ESG mapped. The missing data are distributed over the whole period. So, for the sub-model with the ESG Score as moderator, the sample is made of 1,100 observations.
With reference to the International Board of Directors rate, the database used reports reliably only current directors of company. Hence, with reference to the last moderator, there is the possibility that in the regression models, the mandate of directors that decided to pursue the Cross-Border M&A of the sample expired in the meantime. With reference to this potential issue and to ensure time consistency within observations, a cutoff has been made in the sample used to explore the force of this moderator. This

[39] It was possible to match the data of CAR for 2,537 observations. 335 observations did not show data about either the percentage of stake bought in the M&A or about the revenues. For this, they were eliminated from the sample.

decision was based on the 2018 publication of Spencer Stuart[40], the US world-wide executive scouting firm, according to which the average for independent directors in the S&P 500 companies was 8.1 years in 2018, 8.6 years in 2013 and 8.4 in 2009. In addition, on more than a half (64%) of S&P 500 Boards, the average tenure of independent directors ranges from 6 to 10 years (Spencer Stuart, 2018).

For this reason, the cutoff for the whole sample is set starting from 2010. This means that the sample that is used to assess whether the rate of internationalization of the Board plays a positive role in affecting the abnormal return of the acquiring company goes from year 2010 to year 2018. Thus, the final sample for the sub-model with the International Board as a moderator is made of 1,331 observations.

7.3.3. Hypotheses verified with Multiple Regressions

With the means of the multiple regression models, the following hypotheses are to be verified:

Hypothesis 1 (H1): *The higher the institutional cultural difference, the lower the abnormal return of the bidder company in the period following the announcement of a Cross-Border M&A.*

Hypothesis 2a (H2a): *The higher the level of institutional cultural difference, the lower the negative perception by capital markets of a Cross-Border M&A announcement in case a Private Equity Investor is a shareholder of the acquiring company.*

Hypothesis 2b (H2b): *The higher the level of institutional cultural difference, the lower the negative perception by capital markets of a Cross-Border M&A announcement in the presence of a higher ESG score.*

Hypothesis 2c (H2c): *The higher the level of institutional cultural difference, the lower the negative perception by capital markets of a Cross-Border M&A announcement in the presence of a larger experience of the acquirer in undertaking Cross-Border M&A.*

[40] The year of the publication used for this decision is the same as the end of the sample end year. The 2019 report was also consulted and findings do not change.

Hypothesis 2d (H2d): *The higher the level of institutional cultural difference, the lower the negative perception by capital markets of a Cross-Border M&A announcement in case the companies involved adopt the same Accounting Standards.*

Hypothesis 2e (H2e): *The higher the level of institutional cultural difference, the lower the negative perception by capital markets of a Cross-Border M&A announcement in the presence of a higher internationalization rate of the Board of Directors.*

The six sub-models are each proposed in Section 7.3.4 under the main model hypothesis, that is the Global Market Model with CAR [+1;+3] as well as according to the other event windows proposed to provide a full and comprehensive picture of the phenomenon in Section 7.3.5. Finally, in Section 7.3.6 robustness checks are presented according to Models 2 to 10 as anticipated in Table 17.

7.3.4. Main Model: Model 1

Concerning the first six sub-models, here follow their relative equations:

Base

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Differenc\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \varepsilon$$

Rationale. The Base sub-model has the aim to test **H1** and specifically to test that:

$H_0 : \beta_1 = 0$

$H_1 : \beta_1 \neq 0$

Private Equity – this sub-model uses the same variables as the Base one. The only difference is that the variable "presence of a Private Equity investor" is added, together with the moderator elaborated with the interaction between the "PE presence" and the CAGE index. The equation is:

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Differenc\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} Presence\ of\ a\ PE + \beta_{13} Interaction\ PE\ and\ CAGE + \varepsilon$$

Rationale. The PE sub-model has the aim to test **H1** and **H2a**, namely:

$H_0 : \beta_1 = 0$

$H_1 : \beta_1 \neq 0$

and

$H_0 : \beta_{13} = 0$

$H_1 : \beta_{13} \neq 0$

ESG Score – this sub-model uses the same variables as the Base one. The only difference is that the variable "ESG Score" is added, together with the moderator elaborated with the interaction between ESG Score and the CAGE index. The equation is:

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Differenc\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} ESG\ Score + \beta_{13} Interaction\ ESG\ Score\ and\ CAGE + \varepsilon$$

Rationale. The ESG score sub-model has the aim to test **H1** and **H2b**, namely:

$H_0 : \beta_1 = 0$

$H_1 : \beta_1 \neq 0$

and

$H_0 : \beta_{13} = 0$

$H_1 : \beta_{13} \neq 0$

Track Record – this sub-model uses the same variables as the Base one. The only difference is that the variable "Track Record", measuring the number of Cross-Border

M&A made by the acquirer from 2000 to 2018, is added, together with the moderator elaborated with the interaction between the "track record" and the CAGE index. The equation is:

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Differenc\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} Track\ Record + \beta_{13} Interaction\ Track\ Record\ and\ CAGE + \varepsilon$$

Rationale. The Track record sub-model has the aim to test **H1** and **H2c**, namely:

$H_0 : \beta_1 = 0$

$H_1 : \beta_1 \neq 0$

and

$H_0 : \beta_{13} = 0$

$H_1 : \beta_{13} \neq 0$

Consistency of Accounting Standard – this sub-model uses the same variables as the Base one. The only difference is that the variable "Consistency of Accounting Standard" is added, together with the moderator elaborated with the interaction between this variable and the CAGE index. The equation is:

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Differenc\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} Cons.Acc.Std. + \beta_{13} Interaction\ Cons.Acc.Std.\ and\ CAGE + \varepsilon$$

Rationale. This sub-model has the aim to test **H1** and **H2d**, namely:

$H_0 : \beta_1 = 0$

$H_1 : \beta_1 \neq 0$

and

$H_0 : \beta_{13} = 0$

$H_1 : \beta_{13} \neq 0$

International Rate of Directors – this sub-model uses the same variables as the Base one. The only difference is that the variable "Rate of International Board Members", expressed as a percentage of the total, is added, together with the moderator elaborated with the interaction between this variable and the CAGE index. The equation is:

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Differenc\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} International\ BoD\ rate + \beta_{13} Interaction\ Int.BoD\ Rate\ and\ CAGE + \varepsilon$$

Rationale. This sub-model has the aim to test **H1** and **H2e**, namely:

$H_0 : \beta_1 = 0$

$H_1 : \beta_1 \neq 0$

and

$H_0 : \beta_{13} = 0$

$H_1 : \beta_{13} \neq 0$

- ✓ *Summary statistics and variables units of measure*

Before presenting the results of Model 1, the basic sample statistics are presented in Table 18.

Table 18 Multiple Regression Summary Statistics

Variable	TYPOLOGY	Obs	Mean	Std. Dev.	Min	Max
CAR [+1;+3]	Dependent Variable	2,202	0.003	0.05	-0.47	0.52
Cage	Independent Variable	2,202	6.441	1.99	0.26	9.73
PE	Control Variable	2,202	0.636	0.48	0.00	1.00
PExCage	Moderator	2,202	4.291	3.57	0.00	9.73
ESG score	Control Variable	1,100	56.726	16.61	10.10	95.03
ESG ScorexCage	Moderator	1,100	376.674	157.10	10.19	840.66
Track Record	Control Variable	2,202	3.915	3.77	1.00	33.00
TrackRecxCage	Moderator	2,202	25.232	26.17	0.26	292.91
Acc.Std.Con	Control Variable	2,202	0.081	0.27	0.00	1.00
Acc.Std.ConsxCage	Moderator	2,202	0.353	1.25	0.00	6.78
Int. BoD	Control Variable	2,202	0.332	0.29	0.00	1.00

Int.BoDxCage	Moderator	2,202	2.146	2.09	0.00	9.56
M&A_100%	Control Variable	2,202	0.826	0.38	0.00	1.00
Stake	Control Variable	2,202	91.185	22.78	0.08	100.00
Cultural Area	Control Variable	2,202	0.375	0.48	0.00	1.00
Cash Payment	Control Variable	2,202	0.580	0.49	0.00	1.00
Political Stability	Control Variable	2,202	0.233	0.22	0.01	1.69
Difference in CPI	Control Variable	2,202	1.392	4.22	0.00	71.00
Legal Framework	Control Variable	2,202	0.391	0.49	0.00	1.00
Difference in GDP	Control Variable	2,202	4.336	15.29	0.00	311.69
Industry (Relatedness)	Control Variable	2,202	0.528	0.50	0.00	1.00
Revenues of Acquirer	Control Variable	2,202	12.834	2.84	0.87	19.81

Source: Author's elaboration

For each of the variable, the unit of measure is the following:

- CAR – number;
- CAGE – this variable is expressed as a natural logarithm;
- PE – this variable is expressed as a dummy variable, assuming value of 1 when one or more PE investors are shareholders of the acquiring company and 0 otherwise;
- PExCage – interaction between PE and CAGE index
- ESG Score – this variable is expressed in natural numbers;
- ESG ScorexCage – interaction between ESG Score and CAGE index
- Track Record – this variable is expressed in natural numbers;
- TrackRecxCage – interaction between Track Record and CAGE index
- Accounting Standard Consistency (Acc.Std.Con)– this variable is expressed as a dummy variable, assuming value of 1 when both the acquiring company and the target are using IFRS and 0 otherwise;
- Acc.Std.ConsxCage– interaction between Accounting Standards Consistency and CAGE index
- International Board of Directors (Int. Bod)– this variable is expressed in percentage;
- Int.BoDxCage – interaction between International Board of Directors and CAGE index
- M&A 100% - this variable is expressed as a dummy variable, assuming value of 1 if the target was bought at 100% and 0 otherwise;
- Stake – this variable is expressed as a percentage

- Cultural Area – this variable is expressed as a dummy variable assuming value of 1 in case the countries of the target and the acquirer belong to the same Cultural Area described in Ronen and Shenkar (2013) and 0 otherwise
- Cash Payment – this variable is expressed as a dummy variable assuming value of 1 in case the payment of the target was made in cash and 0 otherwise
- Difference in the Political Stability - this variable is expressed as a percentage of the absolute difference between the political stability of the countries of the acquirer and the target;
- Difference in CPI – this variable is expressed as a percentage of the absolute difference between the corruption positioning of the countries of the acquirer and the target;
- Legal Framework – this variable is expressed as a dummy variable assuming value of 1 in case the countries of the target and the acquirer belong to the same Legal Framework described in La Porta *et al.* (1998) and 0 otherwise;
- Difference in GDP – this variable is expressed as a percentage of the absolute difference in the GDPs of the countries of the acquirer and the target;
- Industry (Relatedness) – this variable is expressed as a dummy variable assuming value of 1 in case the companies belong to the same industry and 0 otherwise;
- Revenues of Acquirer – this variable is expressed as a natural logarithm and it refers to the fiscal year closing after the announcement of the Cross-Border M&A.

Table 19 reported below illustrates the pairwise correlation. In the table, the Pearson's coefficient is reported as well as the level of significance of the correlation. Starting from these figures, a preliminary idea about the relation amid the variables and what can impact the CAR can be inferred.

Table 19 Pairwise Correlation and Significance Level

VARIABLE	*CAR [+1;+3]*	*CAGE*	*PE*	*ESG Score*	*Track Record*	*Acc.Std. Cons.*	*Int.Bod*	*M&A 100%*	*Stake*	*Cultural Area*	*Cash*	*Diff in pol.stab.*	*Diff in CPI*	*Legal Framew.*	*Diff in GDP*	*Industry*	*Rev.*
CAR [+1;+3]	1.0000																
CAGE	-0.0447	1.0000															
	0.0781																
PE	0.0326	0.1993	1.0000														
	0.1994	0.0000															
ESG Score	-0.0298	-0.0672	-0.1529	1.0000													
	0.3941	0.0445	0.0000														
Track Record	0.0147	-0.0394	0.0731	0.2102	1.0000												
	0.5628	0.0926	0.0018	0.0000													
Acc.Std.Cons.	-0.0155	-0.3001	-0.1012	0.1328	0.0475	1.0000											
	0.5420	0.0000	0.0000	0.0001	0.0425												
Int.Bod	-0.0101	-0.0434	0.0608	0.1353	0.1334	0.0400	1.0000										
	0.6897	0.0642	0.0094	0.0000	0.0000	0.0874											
M&A_100%	-0.0010	0.1476	0.1565	-0.0513	0.0405	-0.2579	0.0381	1.0000									
	0.9690	0.0000	0.0000	0.1295	0.0873	0.0000	0.1079										
Stake	-0.0027	0.1519	0.1389	-0.0700	0.0127	-0.2970	0.0357	0.8369	1.0000								
	0.9144	0.0000	0.0000	0.0382	0.5926	0.0000	0.1320	0.0000									
Cult. Area	0.0067	-0.1763	0.0934	-0.0900	0.0552	-0.0234	0.0490	0.0679	0.0549	1.0000							
	0.7904	0.0000	0.0001	0.0071	0.0184	0.3181	0.0367	0.0041	0.0203								
Cash	0.0235	0.0828	0.1078	-0.0400	0.1425	-0.0538	0.0151	0.0601	0.0662	0.0454	1.0000						
	0.3537	0.0004	0.0000	0.2325	0.0000	0.0217	0.5186	0.0112	0.0052	0.0524							
Diff in pol.stab.	-0.0095	0.1712	-0.1177	0.0044	-0.1176	-0.0010	-0.1281	-0.1227	-0.0849	-0.3164	-0.0915	1.0000					
	0.7094	0.0000	0.0000	0.8948	0.0000	0.9672	0.0000	0.0000	0.0003	0.0000	0.0001						
Diff in CPI	-0.0414	0.0066	-0.1458	0.0194	0.0811	0.0450	-0.0170	-0.0238	-0.0281	-0.2123	-0.0583	0.0418	1.0000				
	0.1026	0.7798	0.0000	0.5620	0.0005	0.0550	0.4690	0.3152	0.2352	0.0000	0.0128	0.0748					
Legal Framew.	0.0050	-0.1760	0.0667	-0.0783	0.0326	0.0043	0.0256	0.0191	0.0032	0.8466	0.0200	-0.1709	-0.2044	1.0000			
	0.8430	0.0000	0.0044	0.0192	0.1645	0.8540	0.2742	0.4211	0.8917	0.0000	0.3939	0.0000	0.0000				
Diff in GDP	0.0027	0.1163	-0.0202	0.0363	0.0673	-0.0364	0.1687	0.0341	0.0271	0.0083	0.0109	0.0092	0.0237	0.0013	1.0000		
	0.9150	0.0000	0.3885	0.2785	0.0041	0.1201	0.0000	0.1498	0.2531	0.7222	0.6418	0.6945	0.3126	0.9556			
Industry	-0.0104	-0.0502	-0.0335	-0.0117	-0.0116	0.0738	-0.0105	-0.0767	-0.0756	-0.0046	-0.0287	-0.0001	0.0147	0.0165	0.0203	1.0000	
	0.6816	0.0322	0.1524	0.7259	0.6209	0.0016	0.6556	0.0012	0.0014	0.8445	0.2209	0.9952	0.5300	0.4826	0.3856		
Revenues	-0.0148	0.2994	0.3260	0.1543	0.1999	-0.0602	0.0458	-0.0001	-0.0150	0.0411	0.1300	-0.0304	-0.1654	0.0754	-0.1442	0.0057	1.0000
	0.5863	0.0000	0.0000	0.0000	0.0000	0.0172	0.0700	0.9962	0.5581	0.1043	0.0000	0.2286	0.0000	0.0028	0.0000	0.8207	

Source: Author's elaboration

In reading the pieces of information provided by the above table, it is important to bear in mind that this correlation is only valid if two single variables are taken together. In a multiple regression model, more than one variable will be included in the equation and the coefficient value is related to the overall relation existing with reference to every variable included in the model, hence the pairwise correlation will vary accordingly.
Continuing with the comment on Table 19, with reference to the moderators, it can be seen that:

- The CAGE index is negatively associated with the CAR and this association is significant;
- The presence of a Private Equity Investor is positively related with the CAR and this association is not significant;
- The ESG Score is negatively related with the CAR and this association it is not significant;
- The Track Record is positively related with the CAR and this association is not significant;
- The Consistency of Accounting Standards is negatively associated with the CAR and this association is not significant;
- The Rate of International Board member is negatively associated with the CAR and this association is not significant.

✓ *Results*

Before analyzing the results of Model 1, a last preliminary analysis is necessary. Model 1 uses moderator factors made of interactions between different variables. Hence, before presenting the complete Model, Table 20 presents the same results including only the six sub-models (the base one and the one per each empirical solutions), setting aside for the moment the different interactions.

Table 20 Model 1 - Regression Parameters without interaction factors

CAR [+1;+3]	Base Model	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0012 *	-0.0012 *	-0.0013 *	-0.0012	-0.0013 *	-0.0017 *
M&A_100%	0.0012	0.0009	-0.0035	0.0013	0.0014	0.0011
Stake	0.0001	0.0001	0.0001	0.0001	0.0000	0.0000
Area	-0.0014	-0.0013	0.0007	-0.0014	-0.0013	-0.0053
Cash	0.0042 *	0.0040 *	0.0023	0.0043 *	0.0043 **	0.0034
PolStab	-0.0034	-0.0031	0.0017	-0.0034	-0.0034	-0.0042
CPI	-0.0002	-0.0002	0.0002	-0.0002	-0.0002	-0.0014 **

Legal	0.0004	0.0005	-0.0032	0.0004	0.0003	0.0048
GDP_diff	0.0001 *	0.0001 *	0.0001 *	0.0001 *	0.0001 *	0.0001 *
industry	-0.0027	-0.0027	0.0001	-0.0027	-0.0026	-0.0028
Rev	0.0002	0.0001	-0.0014 *	0.0002	0.0002	0.0000
PE		0.0051				
ESG score			-0.0001			
Record				-0.0001		
Acc.std					-0.0033	
Int_BoD						0.0007
constant	-0.0660 ***	-0.0670 ***	0.0174	-0.0664 ***	-0.0653 ***	-0.0508 ***
N. of obs. =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0169	0.0185	0.0420	0.0169	0.0171	0.0230
Root MSE[41] =	0.0500	0.0499	0.0314	0.0500	0.0500	0.0512

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Table 20 shows that none of the solutions thought to enhance the reaction of capital markets is significant. In addition, **H1**, that is the negative relation between abnormal returns and institutional cultural difference would be satisfied only at a 10% significance level and not in all sub-models (in the Track record one, it would not be significant).

After these preliminary considerations, the reader should look at Table 21, which presents the results of Model 1, composed of the six sub-models (the Base one and the 5 with the moderators) including all the moderators' factors generated with the interaction of the institutional cultural difference and each of the five variables.

Table 21 Model 1: Global Market Model [-280;-50] with CAR [+1;+3]

CAR [+1;+3]	Base Model	Private Equity	ESG Score	Track record	Acc Std Cons.	Int. Bod Rate
Cage	-0.0012 *	-0.0028 **	-0.0061 ***	-0.0025 ***	-0.0015 *	-0.0024 *
M&A_100%	0.0012	0.0012	-0.0040	0.0015	0.0014	0.0010
Stake	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
Area	-0.0014	-0.0013	0.0013	-0.0011	-0.0011	-0.0054
Cash	0.0042 *	0.0040 *	0.0023	0.0043 **	0.0044 **	0.0034
PolStab	-0.0034	-0.0020	0.0021	-0.0035	-0.0035	-0.0041
CPI	-0.0002	-0.0002	0.0002	-0.0002	-0.0002	-0.0014 **
Legal	0.0004	0.0005	-0.0038	-0.0002	0.0003	0.0047
GDP_diff	0.0001 *	0.0002 **	0.0001 *	0.0001 *	0.0001 *	0.0001
industry	-0.0027	-0.0028	0.0000	-0.0027	-0.0026	-0.0028
Rev	0.0002	-0.0060	-0.0013 *	0.0002	0.0002	0.0000
PE		-0.0117				
PExCAGE		0.0027 **				
ESG score			-0.0006 ***			

[41] Root MSE = Root Mean Squared Error is the standard deviation of the regression. The closer to zero, the better the fit

ESGxCAGE			0.0001 ***			
Record				-0.0021 ***		
RecordxCAGE				0.0003 ***		
Acc.std					-0.0220 **	
AccStdxCAGE					0.0042 *	
Int_BoD						-0.0134
IntBoDxCAGE						0.0021
constant	-0.0660 ***	-0.0530 ***	0.0502 ***	-0.0593 ***	-0.0646 ***	-0.0471 ***
N. of obs. =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0169	0.0193	0.0171	0.0180	0.0230	0.0235
Root MSE =	0.0500	0.0499	0.0500	0.0500	0.0512	0.0513

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

In this section, only the pure statistical inferences will be commented, as the practical and concrete consequences of the results are commented in Chapter 8 that presents the findings of the overall study.

Base

Results: Looking at the table and at the Base sub-model it is possible to see that the larger the institutional cultural difference between the target and the acquirer, the lower the CAR for the period [+1;+3]. This finding is significant under a 90% significance difference.

As per the control variables, both the payment in cash and the difference in the GDP of the acquirer's country and target's one are positively related with the abnormal return. These effects are both significant at a 10% level.

Inference: From the Base sub-model, it can be inferred that **H1 is verified**: The higher the institutional cultural difference, the lower the abnormal return of the bidder company in the case of a Cross-Border M&A.

Concerning the comparison between the parameters with and without the interaction factors, it can be seen that there is not difference, as the base sub-model is the one without any moderator.

Private Equity

Results: From Table 21, it is possible to see that the larger the institutional cultural difference between the target and the acquirer, the lower the CAR for the period [+1;+3]. This finding is significant under a 95% confidence interval. In this model, the

first moderator is introduced. In addition, the payment in cash is positively and significantly related with the abnormal return at a 10% level, while the GDP difference is positively and significantly related with the abnormal return at a 5% significance level.

Inference: From the Private Equity sub-model, it can be inferred that **H1 is verified**: The higher the institutional cultural difference, the lower the abnormal return of the bidder company when a Cross-Border M&A is announced. At the same time, **H2a is verified**: the higher the level of institutional cultural difference, the lower the negative perception by capital markets in case the Private Equity Investor has a stake in the company. According to this result, when there is a Private Equity Investor, the abnormal return will be relatively larger for companies located in countries where the institutional cultural difference is larger with respect to those countries where it is lower. This inference should be interpreted by comparing Table 20 (Model 1 without moderators) and Table 21 (Model 1 with moderators). When the PE moderator is not included in the model, the variable "Private Equity Investor" is positive and not significant, while when the moderator is included, the variable changes sign. Thanks to this very important change, the interaction is positive and it is significant, meaning that the presence of a private equity investor in the share capital moderates the negative significant link between the institutional cultural difference and the abnormal return. It can be said that the presence of a private equity investor interacts with the institutional cultural difference to create value for the shareholders and that the abnormal return generated from companies located in institutionally culturally different country depends on the presence of a private equity investor. For every marginal increase in the institutional cultural difference, a company without a private equity investor should expect to lose abnormally a 5.3% in its stock price (the constant of the sub-model), while a company backed by a PE should expect to lose only 5% (-5.3% + 0.27%).

ESG Score

Results: In the third sub-model, the institutional cultural difference affects the Abnormal return at a 0.01 level, so the significance level increases with respect to the sub-model where no interaction was presented (Table 20). Concerning the control variables, the only ones that are significant at a 90% confidence level are the difference

between the GDP of acquirer and target's respective countries and the level of the acquirer's revenues. As per the ESG moderator, the ESG score per se has a negative effect on the Abnormal Return, that is significant at level of 0.01. This means that if taken on a standalone basis, the ESG score is negatively significantly affecting the AR. However, in this study, the ESG Score can not be taken on a stand-alone basis, as there is an interaction term composed by this variable. This moderator, made of the ESG Score and the institutional cultural difference, is positively related with the AR at a 1% significance level. The only model in which the ESG Score could have played a stand-alone role is the one of Table 20, without interaction. However, in that model, this variable is not significant.

Inference: From the ESG model, it can be inferred that **H1 is verified**: the higher the cultural difference, the lower the abnormal return of the bidder company in the case of a Cross-Border M&A. At the same time, **H2b is verified**: the higher the level of institutional cultural difference, the lower the negative perception by capital markets, the higher the level of the ESG score. It can be said that when the ESG score for the acquiring company increases, the abnormal return will be relatively larger for companies located in countries where the institutional cultural difference is larger with respect to those where it is lower. It can be said that the ESG Score interacts with the institutional cultural difference to create value for the shareholders and that the abnormal return generated from companies located in institutionally culturally different country depend on the magnitude of the ESG score. For every marginal increase in the institutional cultural difference, a company with the ESG score lower than one point should expect to lose abnormally a 5.02% in their stock price (the constant of the sub-model), while a company with an ESG score larger than one point would lose only 5.01% (-5.02% + 0.01%).

Track Record

Results: In the fourth sub-model, from Table 21, it can be seen that the CAGE index is negatively related to the CAR with a 99% confidence. Also in this model, the payment in cash positively and significantly affects the abnormal return and so does the difference in the GDP level, at a 5% and 10% significance level respectively. Concerning the moderator that measures the numbers of Cross-Border M&A completed

between 2000 and 2018, if it is taken by itself, it has a negative impact on the dependent variable with a p-value lower than 1%. This means that if the experience in taking over other foreign companies is taken by itself as a stand-alone variable, this would have a significant and negative effect on AR. However, as the track record is used in an interaction term, it can not be interpreted independently. The only model in which one could look at the Track Record as an independent variable is the one presented in Table 20 without interaction, but in that model the variable is not significant. On the contrary, the interaction between Track Record and institutional cultural difference is positively affecting the AR under a 99% confidence level.

Inference: Also from this model, it can be gathered that **H1** is verified: the higher the institutional cultural difference, the lower the abnormal return of the bidder company in the case of a Cross-Border M&A. At the same time, **H2c is verified**: the higher the level of institutional cultural difference, the lower the negative perception by capital markets in the presence of a longer track record in carrying on Cross-Border M&A. It can be said that when the experience is wider, the abnormal return will be relatively larger for companies located in countries where the cultural distance is larger with respect to those located in countries where the cultural difference level is lower. It can be said that the Track Record interacts with the institutional cultural difference to create value for the shareholders and that the abnormal return generated from companies located in institutionally culturally different country depend on its magnitude. For every marginal increase in the institutional cultural difference, for every foreign company acquired in the past, the bidder will abnormally lose 5.90% (-5.93% + 0.03%) instead of 5.93% (the constant of the sub-model).

Consistency of Accounting Standard

Results: Also in this fifth model, Table 21 shows that the institutional cultural difference plays a negative role in influencing the abnormal return. This relation is true in a 90% confidence interval. As per the control variables, the choice to pay in cash the price of the target is positively related with the abnormal return at a 0.05 significant level and so does the difference between the GDPs of the countries of the acquirer and the target, but with a p-value lower than 10%. The consistency of accounting standards taken by itself significantly and negatively affects the AR. This means that if it is taken as a

stand-alone variable this would have a significant and negative effect on AR. However, as the consistency of accounting standards is used in an interaction term, it can not be interpreted independently. The only model in which one could look at it independently is the one presented in Table 20 without interaction; but in that model the variable is not significant. On the contrary, the interaction between "Consistency in Accounting Standards" and institutional cultural difference is positively affecting the AR under a 90% confidence level.

Inference: Also from this model, it can be proved that **H1** is verified and that the higher the cultural difference, the lower the abnormal return of the bidder company in the case of a Cross-Border M&A. At the same time, **H2d is verified**: the higher the level of institutional cultural difference, the lower the negative perception by capital markets in the presence of accounting standards' consistency. It can be said that when there is consistency of accounting standards, the abnormal return will be relatively larger for companies located in countries where the cultural distance is larger with respect to those located in countries where the cultural difference level is lower. The Consistency of Accounting Standards interacts with the institutional cultural difference to create value for the shareholders and the abnormal return generated from companies located in institutionally culturally different country depends on the fact that there is accounting standards consistency. For every marginal increase in the institutional cultural difference, a company without consistency of accounting standards should expect to lose abnormally a 6.5% in their stock price (the constant of the sub-model), while a company acquiring a target using the same accounting standards should expect to lose only 6.08% (-6.5% + 0.42%).

International Board of Directors

Results: in the final regression model estimated with CAR [+1;+3] in a Global Market Model scenario, it is important to bear in mind that the sample has been reduced and that a cutoff has been created after 2010. The sample for this regression model is made of 1,331 observations. Despite the sample has been reduced, the institutional cultural difference is still found to be significant with a p-value lower than 5%. As per the control variables, the difference in the corruption level as well as the difference between GDPs of the countries where the companies are located are found to impact significantly

the cumulative abnormal return. The former impacts negatively the abnormal return under a 95% confidence interval, while the latter impacts positively the CAR under a 90% one. As per the moderator, rate of international members in the Board of Directors, itself and the interaction with the CAGE index are found to be non-significant.

Inference: Also from this model, it can be gathered that **H1** is verified: the higher the institutional cultural difference, the lower the abnormal return of the bidder company in the case of a Cross-Border M&A. On the contrary, **H2e** can not be verified and it can neither be confirmed nor denied that the rate of internationalization of the Board of Directors impact the abnormal return of a company announcing a Cross-Border M&A.

Econometric issues.

This paragraph is dedicated to mention some econometric issues and to provide further details about the estimation process.

The regressors of all models presented in the dissertation have been estimated checking for heteroscedasticity, hence the errors generated for the regression are all robust. All models are also controlled both for the year and the country fixed effects, with the exception for the two models used as robustness tests where two effects are not controlled for and that will be introduced later on (Model 8 and 9).

In addition, to tackle multicollinearity problems, the Variance Inflation Factor has been computed for all variables. VIFs is not computed for the interactions, as by definition they are strongly related to the variables that generated them. Results are reported in Table 22 below.

Table 22 - VIF

Variable	Base	PE	ESG Score	Track Record	Acc.Std. Cons.	Int. BoD
Cage	1.92	1.92	1.82	1.93	1.97	1.94
PE		1.44				
ESG Score			1.31			
Track Record				1.29		
Acc.Std. Cons.					1.33	
Int. BoD						1.19
M&A_100%	3.60	3.60	3.78	3.61	3.61	3.61
Stake	3.66	3.66	4.02	3.67	3.83	3.68
Area	5.46	5.46	5.85	5.46	5.46	6.03
Cash	1.06	1.07	1.08	1.07	1.07	1.07

PolStab	1.42	1.42	1.45	1.42	1.42	1.36
CPI	1.36	1.36	1.38	1.36	1.36	1.56
Legal	5.22	5.22	5.55	5.22	5.22	5.56
GDP_diff	2.04	2.04	1.77	2.04	2.04	2.18
industry	1.04	1.04	1.07	1.04	1.04	1.03
Rev	1.46	1.47	2.02	1.63	1.46	1.59
Average	**2.57**	**2.48**	**2.59**	**2.48**	**2.48**	**2.57**

Source: Author's elaboration

As all values and average are below 10, it can be stated that there is not a problem of multicollinearity (Hair, Black, Babin, Anderson, & Tatham, 2006).

In this work, robustness tests consist of two main categories: the first robustness test is composed by all six sub-models themselves: as a matter of fact, it is always the same regression models that have been proposed where one variable was changing at a time. The fact that the CAGE index is always negatively and significantly related to the dependent variable in all six sub-models presented before gives a preliminary sign of robustness of the negative relation between institutional cultural difference and abnormal return.

Secondly, other secondary models are run as robustness test to test the strength of the single interaction of the moderators. This is done towards two directions: both by changing the estimation windows and event dates and by changing the models underlying the estimation itself. Concerning this last point, the "plain" market model and not the global market model will be used.

7.3.5. Other models

Before deep diving into the robustness checks of Section 7.3.6 and to have a full and comprehensive picture of the effect of the announcement of a Cross-Border M&A, the same regressions have been run for other CARs that cover different moments of the event window. The CAR used in these further models have been estimated with the longest estimation window [-280;-50] with the Global Market Model. These CAR intervals are:

- [-2;+10]
- [-2;+7]
- [-3;+3]
- [1;+15]

As these models are necessary to provide a full and final picture but are not considered as robustness checks, all their estimates are reported in Appendix 11, while below a synthetic table explain the main takeaways for each of them.

Table 23 Effects of the moderators on different level of CAR

Moderator	CAR [-2;+10]	CAR [-2;+7]	CAR [-3;+3]	CAR [1;+15]
Private Equity x CAGE	✓	✓	n.s.	n.s.
ESG Score x CAGE	n.s.	n.s.	✓	n.s.
Track record x CAGE	✓	✓	✓	✓
Acc Std Consistency x CAGE	n.s.	n.s.	n.s.	n.s.
Int. Bod x CAGE	n.s.	n.s.	n.s.	n.s.

Legend:

✓ = the interaction has a positive and significant effect on the CAR

n.s. = the interaction has a non-significant effect on the CAR

It can be seen from Table 23 that regardless of the CAR that it is used as a dependent variable, the interaction "Track record and CAGE index" is always positively significant with respect to the CAR. In addition, the interaction "Private Equity and CAGE" is positive also in two of the three contexts that take into consideration the days before the announcement and the Day 0. Finally, the interaction that uses the ESG score moderator is positively significant only for CAR [-3;+3].

7.3.6. Robustness checks

In this paragraph, the same six regression sub-models (Base, PE, ESG Score, Track Record, Accounting Standard Consistency, and International Board of Directors) are proposed by using different ways to estimate the CAR. These robustness tests wants to test whether the model proves that hypothesis are true by following different directions in the model structure by:

- ✓ Changing the estimation window
- ✓ Changing the Model used
- ✓ Changing the CAR used as a dependent variable

- ✓ Not controlling for the year fixed effect
- ✓ Not controlling for the country fixed effect
- ✓ Winsorizing the largest variable in the same with a cutoff of 99%.

In this way, the models that are used as Robustness checks are:

- Model 2 uses a Global Market Model with an estimation window of [-280;-30] and uses CAR [+1;+3] as a dependent variable;
- Model 3 uses a Global Market Model with an estimation window of [-280;-20] and uses CAR [+1;+3] as a dependent variable;
- Model 4 uses a Market Model with an estimation window of [-280;-50] and uses CAR [+1;+3] as a dependent variable;
- Model 5 uses a Global Market Model with a very narrow estimation window of [-150;-50] and uses CAR [+1;+3] as a dependent variable;
- Model 6 uses a Global Market Model with a narrow estimation window of [-200;-50] and uses CAR [+1;+3] as a dependent variable;
- Model 7 uses a Global Market Model with an estimation window of [-280;-50] and a CAR of [0;+10] as a dependent variable;
- Model 8 uses a Global Model with an estimation window of [-280;-50] and uses CAR [+1;+3] as a dependent variable without the year fixed effect;
- Model 9 uses a Global Market Model with an estimation window of [-280;-50] and uses CAR [+1;+3] as a dependent variable without the country fixed effect;
- Model 10 uses a Global Market Model with an estimation window of [-280;-50] and uses CAR [+1;+3] as a dependent variable winsorizing the "secondary" control variables with a standard deviation that was larger than 1.

Model 2

The parameters for Model 2 are reported in Table 24. It can be seen that the institutional cultural difference plays a significant and negative role towards the abnormal and this is proved by all sub-models. **H1** is verified in every sub-model and **H2a**, **H2b**, **H2c**, and **H2d** are also verified. Like in the main model, **H2e** can not be verified.

Table 24 Model 2 - Regression Parameters

CAR [+1;+3]	Base Model	Private Equity	ESG Score	Track record	Acc Std Cons.	Int. Bod Rate
Cage	-0.0012 *	-0.0028 **	-0.0063 ***	-0.0025 ***	-0.0015 **	-0.0026 **
M&A_100%	0.0013	0.0012	-0.0038	0.0015	0.0014	0.0000
Stake	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000
Area	-0.0017	-0.0016	0.0004	-0.0014	-0.0014	-0.0061
Cash	0.0045 **	0.0043 **	0.0024	0.0046 **	0.0047 **	0.0035
PolStab	-0.0032	-0.0019	0.0026	-0.0033	-0.0033	-0.0025
CPI	-0.0002	-0.0002	0.0002	-0.0002	-0.0002	-0.0014 **
Legal	0.0003	0.0004	-0.0028	-0.0003	0.0001	0.0056
GDP_diff	0.0002 **	0.0002 **	0.0001 **	0.0002 *	0.0002 **	0.0001 *
industry	-0.0022	-0.0023	0.0002	-0.0022	-0.0021	-0.0026
Rev	0.0000	-0.0002	-0.0015 **	0.0000	0.0000	-0.0001
PE		-0.0115				
PExCAGE		0.0027 **				
ESG score			-0.0006 ***			
ESGxCAGE			0.0001 ***			
Record				-0.0020 ***		
RecordxCAGE				0.0003 ***		
Acc.std					-0.0230 **	
AccStdxCAGE					0.0044 **	
Int_BoD						-0.0180
IntBoDxCAGE						0.0027
constant	-0.0428 ***	-0.0299 **	0.0547 ***	-0.0365 ***	-0.0414 ***	-0.0253 *
N. of obs. =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0170	0.0220	0.0490	0.0190	0.0180	0.0250
Root MSE =	0.0486	0.0486	0.0310	0.0486	0.0486	0.0508

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 3

As Table 25 reports, results do not change with respect to Model 1 and 2 with the only exception for the PE variable, that is negatively and significantly related to the CAR of its respective model. Like explained for the factors that turned out to be significant and negative if taken on a stand-alone basis, it is worth remarking that the PE variable can not be taken independently as it forms an interaction term in Model 3. Also in Model 3, the interaction term of PE and institutional cultural difference is positively and significantly related to the abnormal return. The other hypotheses, previously verified, are also confirmed by Model 3.

Table 25 Model 3 - Regression Parameters

CAR [+1;+3]	Base Model	Private Equity	ESG Score	Track record	Acc Std Cons.	Int. Bod Rate
Cage	-0.0012 *	-0.0028 **	-0.0065 ***	-0.0024 **	-0.0015 *	-0.0026 **
M&A_100%	0.0013	0.0012	-0.0039	0.0015	0.0014	-0.0005
Stake	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000
Area	-0.0025	-0.0024	-0.0008	-0.0022	-0.0021	-0.0071
Cash	0.0045 **	0.0043 **	0.0024	0.0046 **	0.0046 **	0.0033
PolStab	-0.0035	-0.0021	0.0025	-0.0036	-0.0036	-0.0031
CPI	-0.0002	-0.0002	0.0002	-0.0002	-0.0002	-0.0014 **
Legal	0.0008	0.0009	-0.0016	0.0002	0.0007	0.0064
GDP_diff	0.0002 **	0.0002 **	0.0001 **	0.0001 *	0.0002 **	0.0001 *
industry	-0.0020	-0.0021	0.0003	-0.0020	-0.0019	-0.0023
Rev	0.0000	-0.0002	-0.0015 **	0.0000	0.0000	0.0000
PE		-0.0115				
PExCAGE		0.0028 **				
ESG score			-0.0007 ***			
ESGxCAGE			0.0001 ***			
Record				-0.0019 ***		
RecordxCAGE				0.0003 ***		
Acc.std					-0.0223 **	
AccStdxCAGE					0.0044 **	
Int_BoD						-0.0177
IntBoDxCAGE						0.0026
constant	-0.0329 ***	-0.0199 *	0.0556 ***	-0.0267 **	-0.0316 ***	-0.0165
N. of obs. =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0170	0.0220	0.0510	0.0190	0.0180	0.0240
Root MSE =	0.0486	0.0485	0.0311	0.0485	0.0486	0.0508

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 4

Model 4 is estimated according to the Market Model, hence pretending that all companies used the same exchange rate and ignoring the global market index. Concerning H1, the negative relation between the institutional cultural difference is verified in all the sub-models that have a moderator, but it is not verified by the base model. As per the moderator and the interaction, there are in fact some differences. Concerning the Accounting Standard stand-alone variable, in the previous elaborations, it was significant, while this is not verified in Table 26.

Concerning the Hypothesis testing, all the Hypotheses found to be true in the global market model are also true in the plain market model.

Table 26 Model 4 - Regression Parameters

CAR [+1;+3]	Base Model	Private Equity	ESG Score	Track record	Acc Std Cons.	Int. Bod Rate
Cage	-0.0010	-0.0026 **	-0.0061 ***	-0.0023 **	-0.0013 *	-0.0021 *
M&A_100%	0.0011	0.0010	-0.0036	0.0014	0.0011	-0.0005
Stake	0.0001	0.0001	0.0001	0.0000	0.0001	0.0000
Area	-0.0008	-0.0007	-0.0005	-0.0005	-0.0004	-0.0057
Cash	0.0044 **	0.0041 **	0.0022	0.0045 **	0.0045 **	0.0033
PolStab	-0.0045	-0.0031	0.0032	-0.0046	-0.0046	-0.0077
CPI	0.0000	0.0000	0.0003	0.0000	0.0000	-0.0011 **
Legal	-0.0005	-0.0004	-0.0007	-0.0012	-0.0006	0.0047
GDP_diff	0.0001	0.0001 *	0.0001	0.0001	0.0001 *	0.0001
industry	-0.0020	-0.0021	0.0007	-0.0021	-0.0020	-0.0021
Rev	-0.0002	-0.0004	-0.0017 **	-0.0001	-0.0001	-0.0001
PE		-0.0099				
PExCAGE		0.0027 **				
ESG score			-0.0006 ***			
ESGxCAGE			0.0001 ***			
Record				-0.0020 ***		
RecordxCAGE				0.0003 ***		
Acc.std					-0.0245	
AccStdxCAGE					0.0050 **	
Int_BoD						-0.0090
IntBoDxCAGE						0.0014
constant	-0.0254 **	-0.0131	0.0554 ***	-0.0195 *	-0.0242 **	-0.0097
N. of obs. =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0160	0.0210	0.0590	0.0180	0.0170	0.0220
Root MSE =	0.0485	0.0483	0.0319	0.0484	0.0484	0.0511

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 5

If some of the models presented above were elaborated by enlarging the estimation window, on the contrary, Model 5 reduces it drastically.

Most findings can be confirmed by this model as well and are reported in Table 27 below. This short estimation period was chosen following the approach of Park (2004). It can be seen that despite the estimation period is reduced to 100 days, the institutional cultural difference is negatively and significantly related with the CAR in all sub-models. Concerning **H1**, it is verified in all sub-models. As per the moderators, the hypotheses concerning the presence of a Private Equity, the ESG Score and the track record can all be confirmed by this model.

Table 27 Model 5 - Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Cons.	Int. Bod Rate
Cage	-0.0014 *	-0.0027 **	-0.0054 ***	-0.0027 ***	-0.0016 **	-0.0028 **
M&A_100%	0.0025	0.0026	-0.0032	0.0027	0.0027	0.0001
Stake	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
Area	-0.0056	-0.0056	0.0017	-0.0054	-0.0054	-0.0061
Cash	0.0040 *	0.0038 *	0.0022	0.0040 *	0.0041 *	0.0028
PolStab	-0.0043	-0.0032	0.0012	-0.0043	-0.0043	-0.0005
CPI	-0.0006	-0.0006	-0.0005	-0.0006	-0.0006	-0.0013 **
Legal	0.0032	0.0033	-0.0051	0.0026	0.0031	0.0067
GDP_diff	0.0001 *	0.0002 **	0.0001	0.0001	0.0001 *	0.0001
industry	-0.0021	-0.0022	-0.0006	-0.0022	-0.0021	-0.0040
Rev	0.0002	0.0000	-0.0012	0.0001	0.0002	0.0001
PE		-0.0111				
PExCAGE		0.0024 *				
ESG score			-0.0006 ***			
ESGxCAGE			0.0001 **			
Record				-0.0020 **		
RecordxCAGE				0.0003 **		
Acc.std					-0.0137	
AccStdxCAGE					0.0023	
Int_BoD						-0.0204
IntBoDxCAGE						0.0029
constant	-0.0607 ***	-0.0492 ***	0.0464 ***	-0.0537	-0.0595 ***	-0.0484 ***
N. of obs. =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0206	0.0231	0.0395	0.0228	0.0211	0.0238
Root MSE =	0.0519	0.0518	0.0338	0.0518	0.0519	0.0530

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 6

Proceeding further with another robustness test indicated by Park (2004), the CAR was computed basing on an estimation window starting 200 days prior to the announcement date.

Results are reported in Table 28 illustrated below.

Also in Model 6, **H1** is met and confirmed in every sub-model, according to which the institutional cultural difference affects negatively and significantly the abnormal return. As per the other sub-models, results are totally aligned with the main model: the only variable for which it is not possible to find a significant relation is again the internationalization rate of the Board of Directors.

Table 28 Model 6 - Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0012 *	-0.0026 **	-0.0061 ***	-0.0027 ***	-0.0015 **	-0.0025 *
M&A_100%	0.0006	0.0005	-0.0047	0.0009	0.0007	-0.0005
Stake	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000
Area	-0.0020	-0.0019	0.0017	-0.0017	-0.0016	-0.0053
Cash	0.0039 *	0.0037 *	0.0021	0.0040 *	0.0041 *	0.0028
PolStab	-0.0032	-0.0020	0.0011	-0.0033	-0.0033	-0.0020
CPI	-0.0003	-0.0003	0.0001	-0.0003	-0.0003	-0.0014 **
Legal	0.0008	0.0009	-0.0049	0.0001	0.0007	0.0055
GDP_diff	0.0001	0.0001 *	0.0001	0.0001	0.0001 *	0.0001
industry	-0.0033	-0.0034	-0.0005	-0.0034	-0.0033	-0.0038
Rev	0.0002	0.0000	-0.0014 *	0.0002	0.0002	-0.0001
PE		-0.0094				
PE		0.0024 *				
PExCAGE			-0.0006 ***			
ESG score			0.0001 ***			
ESGxCAGE				-0.0024 ***		
Record				0.0004 ***		
RecordxCAGE					-0.0228 **	
Acc.std					0.0045 **	
AccStdxCAGE						-0.0155
Int_BoD						0.0024
constant	-0.0657 ***	-0.0546 ***	0.0534 ***	-0.0581 ***	-0.0644 ***	-0.0477 ***
N. of obs. =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0174	0.0208	0.0451	0.0204	0.0185	0.0227
Root MSE =	0.0506	0.0505	0.0316	0.0505	0.0506	0.0520

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 7

Model 7 uses the same model and the same estimation windows of the main model, Global Market Model and [-280;-50], but it changes dependent variable, as it uses a CAR of [0;+10]. **H1** is not verified in the period set as dependent variable, while the hypotheses concerning the PE and the Track Record moderators are met also in Model 7, represented in Table 29.

Table 29 Model 7 - Regression Parameters

CAR [+0;+10]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	0.0000	-0.0027	-0.0061	-0.0017	0.0000	-0.0003
M&A_100%	0.0000	0.0005	-0.0135	0.0006	-0.0005	0.0086
Stake	0.0001	0.0001	0.0003 **	0.0001	0.0002	0.0001
Area	0.0028	0.0028	0.0075	0.0033	0.0029	-0.0048
Cash	0.0077 *	0.0078 *	0.0102 **	0.0080 *	0.0077 *	0.0064
PolStab	-0.0019	-0.0001	0.0089	-0.0021	-0.0020	-0.0002
CPI	-0.0004	-0.0004	0.0000	-0.0003	-0.0003	-0.0020 **

Legal	0.0013	0.0013	-0.0085	0.0004	0.0015	0.0071
GDP_diff	0.0001	0.0001	-0.0001	0.0001	0.0001	0.0001
industry	-0.0051	-0.0052	-0.0002	-0.0052	-0.0052	-0.0062
Rev	-0.0011	-0.0012	-0.0006	-0.0010	-0.0011	-0.0015
PE		-0.0287 **				
PExCAGE		0.0046 **				
ESG score			-0.0008			
ESGxCAGE			0.0001			
Record				-0.0030 **		
RecordxCAGE				0.0004 **		
Acc.std					-0.0110	
AccStdxCAGE					0.0039	
Int_BoD						-0.0169
IntBoDxCAGE						0.0007
constant	-0.2198 ***	-0.1962 ***	-0.0034	-0.2122 ***	-0.2208 ***	-0.2118 ***
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0217	0.0236	0.0496	0.0229	0.0222	0.0293
Root MSE =	0.0991	0.0990	0.0663	0.0991	0.0991	0.0967

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 8

Model 8 is run without the year fixed effect. Like in the main model, **H1** is always verified as well as the hypothesis concerning the moderators (with the only exception for the international board rate).

Table 30 Model 8 - Global Model without year fixed effect - Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0012 *	-0.0028 **	-0.0058 ***	-0.0026 ***	-0.0015 **	-0.0023 *
M&A_100%	0.0013	0.0013	-0.0043	0.0016	0.0015	0.0011
Stake	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000
Area	-0.0008	-0.0005	0.0013	-0.0006	-0.0005	-0.0037
Cash	0.0039 *	0.0037 *	0.0017	0.0040 *	0.0040 *	0.0029
PolStab	-0.0047	-0.0018	0.0001	-0.0047	-0.0048	-0.0034
CPI	-0.0002	-0.0002	0.0002	-0.0002	-0.0002	-0.0013 **
Legal	-0.0006	-0.0005	-0.0040	-0.0012	-0.0007	0.0027
GDP_diff	0.0001 *	0.0001 **	0.0001 *	0.0001	0.0001 *	0.0001
industry	-0.0027	-0.0028	0.0002	-0.0028	-0.0026	-0.0030
Rev	0.0002	0.0000	-0.0013	0.0002	0.0002	0.0001
PE		-0.0115				
PE_CAGE		0.0027 **				
ESG score			-0.0006 ***			
ESG_CAGE			0.0001 ***			
Record				-0.0022 ***		
Record_CAGE				0.0003 ***		
Acc.std					-0.0204 *	
AS_CAGE					0.0038 *	
Int_BoD						-0.0107
Int_CAGE						0.0017
constant	-0.0688 ***	-0.0593 ***	0.0552 ***	-0.0617 ***	-0.0671 ***	-0.0568 ***
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331

R-squared =	0.0121	0.0166	0.0395	0.0148	0.0131	0.0158
Root MSE =	0.0499	0.0498	0.0313	0.0499	0.0499	0.0513

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 9

Also according to Model 9, illustrated in Table 31, the hypothesis concerning the moderators are consistent with the other models. There are two differences with respect to the variables of interest. In the first place, **H1** can note be verified in the Base sub-model and in the PE sub-model, the moderator "Private Equity" is significantly and negatively related with the dependent variable, the CAR [+1;+3].

Table 31 Model 9 - Global Model without country fixed effect - Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0011	-0.0029 **	-0.0036 '**	-0.0022 **	-0.0013 *	-0.0024 *
M&A_100%	0.0011	0.0009	-0.0017	0.0015	0.0011	0.0016
Stake	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
Area	0.0002	-0.0002	-0.0017	0.0006	0.0004	-0.0033
Cash	0.0039 *	0.0037 *	0.0022	0.0040 *	0.0040 *	0.0033
PolStab	-0.0027	-0.0018	0.0002	-0.0026	-0.0029	-0.0024
CPI	-0.0002	-0.0002	0.0001	-0.0002	-0.0002	-0.0011 **
Legal	-0.0013	-0.0012	-0.0004	-0.0020	-0.0015	0.0030
GDP_diff	0.0001	0.0001 *	0.0001	0.0001	0.0001	0.0001
industry	-0.0026	-0.0028	-0.0001	-0.0027	-0.0026	-0.0029
Rev	0.0000	-0.0002	-0.0008	0.0000	0.0000	-0.0002
PE		-0.0125 *				
PExCAGE		0.0028 **				
ESG score			-0.0004 **			
ESGxCAGE			0.0001 **			
Record				-0.0020 ***		
RecordxCAGE				0.0003 ***		
Acc.std					-0.0226 **	
AccStdxCAGE					0.0045 **	
Int_BoD						-0.0157
IntBoDxCAGE						0.0023
constant	0.0043	0.0178 *	0.0306 **	0.0126	0.0064	0.0256 **
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0098	0.0141	0.0211	0.0120	0.0110	0.0171
Root MSE =	0.0499	0.0498	0.0316	0.0499	0.0499	0.0510

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 10

The last robustness test consists in using the CAR [+1;+3] with all control variables that have a standard deviation larger than 1 winsorized at 99%.

Results are reported in Table 32 below. From the Table, it is possible to see that the Hypotheses concerning the moderators and their interactions do not change their interpretation with respect to the main model. As per **H1**, the negative relation between the institutional cultural difference and the abnormal returns is only confirmed in the Private Equity, in the ESG, and in the Track Record sub-models.

Table 32 Model 10 - Regression parameters after winsorization

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0008	-0.0023 **	-0.0059 ***	-0.0021 **	-0.0009	-0.0021
M&A_100%	0.0013	0.0012	-0.0040	0.0016	0.0014	0.0007
Stake	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000
Area	-0.0027	-0.0025	0.0017	-0.0024	0.0024	-0.0070
Cash	0.0040 *	0.0038 *	0.0024	0.0041 *	0.0042 *	0.0032
PolStab	-0.0032	-0.0019	0.0022	-0.0033	-0.0033	-0.0033
CPI	-0.0010 **	-0.0010 **	0.0005	-0.0009 **	-0.0010 **	-0.0025 ***
Legal	0.0013	0.0013	-0.0039	0.0006	0.0011	0.0057
GDP_diff	0.0000	0.0001	0.0001	0.0000	0.0000	0.0001
industry	-0.0026	-0.0027	0.0000	-0.0027	-0.0025	-0.0028
Rev	0.0002	0.0000	-0.0014 *	0.0002	0.0002	0.0000
PE		-0.0110				
PExCAGE		0.0026 **				
ESG score			-0.0006 ***			
ESGxCAGE			0.0001 ***			
Record				-0.0021 ***		
RecordxCAGE				0.0003 ***		
Acc.std					0.0215 **	
AccStdxCAGE					0.0040 *	
Int_BoD						-0.0155
IntBoDxCAGE						0.0025
constant	-0.0668 ***	-0.0544 ***	0.0497 ***	-0.0603 ***	0.0654 ***	-0.0477 ***
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0173	0.0212	0.0469	0.0196	0.0183	0.0248
Root MSE =	0.0500	0.0499	0.0314	0.0499	0.0500	0.0512

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

7.4. Time analysis

7.4.1. Definition of the models

The third and final part of the empirical analysis is the "time analysis" and it is aimed at finding out whether the passing of time affects the Abnormal Return or if capital markets become more and more used to the announcement of Cross-Border M&A. The hypothesis underlying this part is **H3**.

H3: *The passing of time does not affect the Abnormal Return.*

This is done by adding a so-called "trend variable" to each model in order to track the passing of time. In addition to being the conclusive part of the research, the models that are below reported can be considered as further robustness checks, as they are the same as the ones illustrated above only with an additional "Year" variable (i.e. trend variable). Hence, the expectation for the this variable is that its coefficient will not be significant. Below the models for the Time analysis are illustrated:

Base

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Difference\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} Trend + \varepsilon$$

Rationale. The Base sub-model has the aim to test **H3** and to prove that $\beta_{12} = 0$, verified if its p-value is larger than 10%.

Private Equity – The equation is:

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Difference\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} Presence\ of\ a\ PE + \beta_{13} Interaction\ PE\ and\ CAGE + \beta_{14} Year + \varepsilon$$

Rationale. The PE sub-model has the aim to test **H3** and to prove that $\beta_{14} = 0$, verified if its p-value is larger than 10%.

ESG Score – The equation is:

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Differenc\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} ESG\ Score + \beta_{13} Interaction\ ESG\ Score\ and\ CAGE + \beta_{14} Year + \varepsilon$$

Rationale. The ESG score sub-model has the aim to test **H3** and to prove that $\beta_{14} = 0$, verified if its p-value is larger than 10%.

Track Record – The equation is:

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Differenc\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} Track\ Record + \beta_{13} Interaction\ Track\ Record\ and\ CAGE + \beta_{14} Year + \varepsilon$$

Rationale. This sub-model has the aim to test **H3** and to prove that $\beta_{14} = 0$, verified if its p-value is larger than 10%.

Consistency of Accounting Standard – The equation is:

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Differenc\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} Cons.Acc.Std. + \beta_{13} Interaction\ Cons.Acc.Std.\ and\ CAGE + \beta_{14} Year + \varepsilon$$

Rationale. This sub-model has the aim to test **H3** and to prove that $\beta_{14} = 0$, verified if its p-value is larger than 10%.

International Rate of Directors – The equation is:

$$AR = \alpha + \beta_1 CAGE + \beta_2 Target\ Acquired\ at\ 100\% + \beta_3 Acquired\ Stake + \beta_4 Same\ Cultural\ Area + \beta_5 Payment\ in\ Cash + \beta_6 Difference\ in\ Political\ Stability + \beta_7 Differenc\ in\ the\ Corruption\ Level + \beta_8 Same\ Legal\ Framework + \beta_9 Difference\ in\ GDP\ of\ Acquirer\ and\ target + \beta_{10} Industry\ relatedness + \beta_{11} Acquirer's\ Revenues + \beta_{12} International\ BoD\ rate + \beta_{13} Interaction\ Int.BoD\ Rate\ and\ CAGE + \beta_{14} Year + \varepsilon$$

Rationale. This sub-model has the aim to test **H3** and to prove that $\beta_{14} = 0$, verified if its p-value is larger than 10%.

Despite not being the strict focus of the third part, also in these models the relation among institutional cultural difference, AR, and the moderators will be observed.
The sample is the same as the one observed in the multiple linear regression models, hence it will not be described further. The time analysis is carried on for the Main Model, Model 1, as well as for the other time frames selected and presented in the previous part of the chapter, and following the same structural flow. After the main model is presented, the time analysis is carried out for other CARs window to provide a broader view of the phenomenon. Finally, the section presents the results with the time analysis with reference to the robustness tests.

7.4.2. Results: Main Model

Table 33 below presents the parameters for the main model, with a period of estimation of [-280;-50] and using a CAR of [+1;+3] as a dependent variable. The level of significance of each moderator and of their interaction is the same. In addition, the control variables that were found to be significant in the model without the trend variable maintain show the same level of significance in the time analysis model.
As per the hypotheses tested in these sub-models, it can be said that in none of them the year variable is significant. This leads to the conclusion that the passing of time does not affect in any way the abnormal returns and that results are robust across time. As **β_{12}** in Base sub-Model and **β_{14}** in all other sub-models present a p-value larger than 10%, it can be said that there is no relation between the passing of time and the abnormal return.

Table 33 Time analysis - Main model Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0012 *	-0.0028 **	-0.0061 ***	-0.0025 ***	-0.0015 *	-0.0024 *
M&A 100%	0.0012	0.0012	-0.0040	0.0015	0.0014	0.0010
Stake	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
Area	-0.0014	-0.0013	0.0013	-0.0011	-0.0011	-0.0054
Cash	0.0042 *	0.0040 *	0.0023	0.0043 **	0.0044 **	0.0034
PolStab	-0.0034	-0.0020	0.0021	-0.0035	-0.0035	-0.0041
CPI	-0.0002	-0.0002	0.0002	-0.0002	-0.0002	-0.0014 **
Legal	0.0004	0.0005	-0.0038	-0.0002	0.0003	0.0047
GDP_diff	0.0001 *	0.0002 **	0.0001 *	0.0001 *	0.0001 *	0.0001
industry	-0.0027	-0.0028	0.0000	-0.0027	-0.0026	-0.0028
Rev	0.0002	0.0000	-0.0013 *	0.0002	0.0002	0.0000
Year	0.0003	0.0001	0.0007	0.0003	0.0003	-0.0002
PE		-0.0117				
PExCAGE		0.0027 **				
ESG score			-0.0006 ***			
ESGxCAGE			0.0001 ***			
Record				-0.0021 ***		
RecordxCAGE				0.0003 ***		
Acc.std					-0.0220 **	
AccStdxCAGE					0.0042 *	
Int_BoD						-0.0134
IntBoDxCAGE						0.0021
constant	-0.7195	-0.2188	-1.2537	-0.6754	-0.7612	0.4529
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0169	0.0211	0.0476	0.0193	0.018	0.0235
Root MSE =	0.0500	0.0499	0.0314	0.0499	0.04996	0.05125

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

7.4.3. Other models

Consistently with what was made in the multiple regression part, regression parameters were estimated for other time frames of CAR:

- [-2;+10]
- [-2;+7]
- [-3;+3]
- [+1;+15]

The main inferences are reported in Table 34 (regression parameters are reported in Appendix 12). It can be seen that the inference does not change: the interaction with the Private Equity Presence moderator is positively significant when CARs [-2;+10]

and [-2;+7] are used as a dependent variable and the track record always positively and significantly affects the CAR.

Table 34 Time analysis - Effects of the moderators on different level of CAR

Moderator	CAR [-2;+10]	CAR [-2;+7]	CAR [-3;+3]	CAR [+1;+15]
Private Equity x CAGE	✓	✓	n.s.	n.s.
ESG Score x CAGE	n.s.	n.s.	✓	n.s.
Track record x CAGE	✓	✓	✓	✓
Acc Std Consistency x CAGE	n.s.	n.s.	n.s.	n.s.
Int. Bod x CAGE	n.s.	n.s.	n.s.	n.s.

Legend:
✓ = the interaction has a positive and significant effect on the CAR
n.s. = the interaction has a non significant effect on the CAR

7.4.4. Robustness checks

Model 2

Model 2 uses an estimation period of [-280;-30] and Table 35 presents the regression parameters for all sub-models. Results are robust across time also for Model 2 and the significance of all moderators is unvaried with respect to Model 2 estimated without a time analysis.

Table 35 Time analysis - Model 2 Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0012 *	-0.0028 **	-0.0063 ***	-0.0025 ***	-0.0015 **	-0.0026 **
M&A_100%	0.0013	0.0012	-0.0038	0.0015	0.0014	0.0000
Stake	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000
Area	-0.0017	-0.0016	0.0004	-0.0014	-0.0014	-0.0061
Cash	0.0045 **	0.0043 **	0.0024	0.0046 **	0.0047 **	0.0035
PolStab	-0.0032	-0.0019	0.0026	-0.0033	-0.0033	-0.0025
CPI	-0.0002	-0.0002	0.0002	-0.0002	-0.0002	-0.0014 **
Legal	0.0003	0.0004	-0.0028	-0.0003	0.0001	0.0056
GDP_diff	0.0002 **	0.0002 **	0.0001 **	0.0002	0.0002 **	0.0001
industry	-0.0022	-0.0023	0.0002	-0.0022	-0.0021	-0.0026
Rev	0.0000	-0.0002	-0.0015 **	0.0000	0.0000	-0.0001
Year	0.0003	0.0000	0.0006	0.0002	0.0003	-0.0003
PE		-0.0115				

PExCAGE		0.0027 **				
ESG score			-0.0006 ***			
ESGxCAGE			0.0001 ***			
Record				-0.0020 ***		
RecordxCAGE				0.0003 ***		
Acc.std					-0.0230 **	
AccStdxCAGE					0.0044 **	
Int_BoD						-0.0180
IntBoDxCAGE						0.0027
constant	-0.5552	-0.0490	-1.0566	-0.5125	-0.5968	0.5935
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0172	0.0216	0.0489	0.0195	0.0184	0.025
Root MSE =	0.0486	0.0486	0.0310	0.0486	0.04863	0.05083

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 3

The parameters for the third model, elaborated with an estimation period of [-280;-20], are reported in Table 36. The inferences that can be gathered from this third model do not change as results are not sensitive to the change of time and the moderators keep their level of significance.

Table 36 Time analysis - Model 3 Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0012 *	-0.0028 **	-0.0065 ***	-0.0024 **	-0.0015 *	-0.0026 **
M&A_100%	0.0013	0.0012	-0.0039	0.0015	0.0014	-0.0005
Stake	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000
Area	-0.0025	-0.0024	-0.0008	-0.0022	-0.0021	-0.0071
Cash	0.0045 **	0.0043 **	0.0024	0.0046 **	0.0046 **	0.0033
PolStab	-0.0035	-0.0021	0.0025	-0.0036	-0.0036	-0.0031
CPI	-0.0002	-0.0002	0.0002	-0.0002	-0.0002	-0.0014 **
Legal	0.0008	0.0009	-0.0016	0.0002	0.0007	0.0064
GDP_diff	0.0002 **	0.0002 **	0.0001 **	0.0001 *	0.0002 **	0.0001 *
industry	-0.0020	-0.0021	0.0003	-0.0020	-0.0019	-0.0023
Rev	0.0000	-0.0002	-0.0015 **	0.0000	0.0000	0.0000
Year	0.0003	0.0000	0.0006	0.0003	0.0003	-0.0003
PE		-0.0115				
PE_CAGE		0.0028 **				
ESG score			-0.0007 ***			
ESG_CAGE			0.0001 ***			
Record				-0.0019 ***		
Record_CAGE				0.0003 ***		
Acc.std					-0.0223 **	

AS_CAGE					0.0044 **	
Int_BoD						-0.0177
Int_CAGE						0.0026
constant	-0.5908	-0.0683	-1.1293	-0.5546	-0.6286	0.5281
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0169	0.0217	0.0506	0.0191	0.0182	0.0244
Root MSE =	0.0486	0.0485	0.0311	0.0486	0.04857	0.0508

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 4

Differently from the three previous models, Model 4 adopts the Market Model instead of the Global Market Model. In Model 4, some differences concerning the secondary control variables can be spotted with reference to the previous version. In the first place, the GDP is not significant in any of the sub-models, while in the previous version of Model 4, the difference in GDP was significant in the PE and in the Accounting Standards Consistency sub-models. In addition, the variable "payment in cash" was significant at a 5% level in the PE sub-model in the version not including the time, while the significance is decreased at a 10% level in the version presented in Table 37 that includes the time variable. The last control variable that is changing from this version of Model 4 and the previous one is the Revenues of the acquirer in the ESG Score sub-model that was significant at a 5% level in the previous version of the model and that is significant at 1% level in the version that includes the time factor.

As per the moderators, they all maintain the significance level reached in the previous version of Model 4, even if both in the ESG Score and in the Track record sub-models, their significance decrease from a 1% level to a 5% level. As per the sub-model testing the moderating effect of the Accounting Standard Consistency, the moderator is significant at a 10% in the output presented in Table 37, while in the model without the time analysis, it was significant at a 5% level.

Table 37 Time analysis - Model 4 Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0010	-0.0026 ***	-0.0061 ***	-0.0023 **	-0.0013 *	-0.0021
M&A_100%	0.0011	0.0010	-0.0036	0.0014	0.0011	-0.0005
Stake	0.0001	0.0001	0.0001	0.0000	0.0001	0.0000

Area	-0.0008	-0.0007	-0.0005	-0.0005	-0.0004	-0.0057
Cash	0.0044 **	0.0041 *	0.0022	0.0045 **	0.0045 **	0.0033
PolStab	-0.0045	-0.0031	0.0032	-0.0046	-0.0046	-0.0077
CPI	0.0000	0.0000	0.0003	0.0000	0.0000	-0.0011 *
Legal	-0.0005	-0.0004	-0.0007	-0.0012	-0.0006	0.0047
GDP_diff	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
industry	-0.0020	-0.0021	0.0007	-0.0021	-0.0020	-0.0021
Rev	-0.0002	-0.0004	-0.0017 ***	-0.0001	-0.0001	-0.0001
Year	0.0002	-0.0001	0.0004	0.0002	0.0002	-0.0005
PE		-0.0099				
PExCAGE		0.0027 **				
ESG score			-0.0006 **			
ESGxCAGE			0.0001 **			
Record				-0.0020 **		
RecordxCAGE				0.0003 **		
Acc.std					-0.0245 *	
AccStdxCAGE					0.0050 *	
Int_BoD						-0.0090
IntBoDxCAGE						0.0014
constant	-0.4692	0.1345	-0.7683	-0.4177	-0.4979	1.0537
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0156	0.0210	0.0587	0.0179	0.0171	0.0221
Root MSE =	0.0485	0.0483	0.0319	0.0484	0.04844	0.05109

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 5

Model 5 parameters are computed with a very short estimation period [-150;-50], and Table 38 proposes the parameters in the presence of the trend variable "Year". The results concerning the moderators are unvaried in terms of significance level and interpretation: according to Model 5 only the presence of a PE, a high ESG Score and the track record of the acquirer moderates significantly moderate a high level of institutional cultural difference with reference to the abnormal return.

Table 38 Time analysis - Model 5 Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0014 *	-0.0027 **	-0.0054 ***	-0.0027 ***	-0.0016 **	-0.0028 **
M&A_100%	0.0025	0.0026	-0.0032	0.0027	0.0027	0.0001
Stake	0.0001	0.0001	0.0001	0.0000	0.0000	0.0000
Area	-0.0056	-0.0056	0.0017	-0.0054	-0.0054	-0.0061
Cash	0.0040 *	0.0038 *	0.0022	0.0040	0.0041 *	0.0028

PolStab	-0.0043	-0.0032	0.0012	-0.0043	-0.0043	-0.0005
CPI	-0.0006	-0.0006	-0.0005	-0.0006	-0.0006	-0.0013 **
Legal	0.0032	0.0033	-0.0051	0.0026	0.0031	0.0067
GDP_diff	0.0001 *	0.0002 **	0.0001	0.0001	0.0001 *	0.0001
industry	-0.0021	-0.0022	-0.0006	-0.0022	-0.0021	-0.0040
Rev	0.0002	0.0000	-0.0012	0.0001	0.0002	0.0001
Year	-0.0001	-0.0003	0.0005	-0.0001	-0.0001	-0.0001
PE		-0.0111				
PExCAGE		0.0024 *				
ESG score			-0.0006 ***			
ESGxCAGE			0.0001 **			
Record				-0.0020 **		
RecordxCAGE				0.0003 **		
Acc.std					-0.0137	
AccStdxCAGE					0.0023	
Int_BoD						-0.0204
IntBoDxCAGE						0.0029
constant	0.1532	0.5092	-0.9150	0.1790	0.1131	0.1675
N. of obs. =	2,202	2,202	1,100	2202	2,202	1,331
R-squared =	0.0206	0.0231	0.0395	0.0228	0.0211	0.0238
Root MSE =	0.0519	0.0518	0.0338	0.018	0.0519	0.0530

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 6

Model 6 still adopts a narrow estimation period, [-200;-50]. Also in this Model, results are insensitive to the passing of time as the Year variable is not significant in any sub-models. In addition, the inclusion of the trend factor does not change any of the significance level either for the control variables, or for the moderators.

Table 39 Time analysis - Model 6 Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0012 *	-0.0026 **	-0.0061 ***	-0.0027 ***	-0.0015 **	-0.0025 *
M&A_100%	0.0006	0.0005	-0.0047	0.0009	0.0007	-0.0005
Stake	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000
Area	-0.0020	-0.0019	0.0017	-0.0017	-0.0016	-0.0053
Cash	0.0039 *	0.0037 *	0.0021	0.0040 *	0.0041 *	0.0028
PolStab	-0.0032	-0.0020	0.0011	-0.0033	-0.0033	-0.0020
CPI	-0.0003	-0.0003	0.0001	-0.0003	-0.0003	-0.0014 **

Legal	0.0008	0.0009	-0.0049	0.0001	0.0007	0.0055
GDP_diff	0.0001	0.0001 *	0.0001	0.0001	0.0001 *	0.0001
industry	-0.0033	-0.0034	-0.0005	-0.0034	-0.0033	-0.0038
Rev	0.0002	0.0000	-0.0014 *	0.0002	0.0002	-0.0001
Year	0.0002	0.0000	0.0005	0.0002	0.0003	-0.0001
PE		-0.0094				
PExCAGE		0.0024 *				
ESG score			-0.0006 ***			
ESGxCAGE			0.0001 ***			
Record				-0.0024 ***		
RecordxCAGE				0.0004 ***		
Acc.std					-0.0228 **	
AccStdxCAGE					0.0045 **	
Int_BoD						-0.0155
IntBoDxCAGE						0.0024
constant	-0.5346	-0.0520	-1.0244	-0.4883	-0.5688	0.2064
N. of obs. =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0174	0.0208	0.0451	0.0204	0.0185	0.0227
Root MSE =	0.0506	0.0505	0.0316	0.0505	0.0506	0.0520

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 7

Model 7 takes into consideration a different CAR [0;+10] as a dependent variable. Table 40 reports the outcome with the inclusion of the trend variable. Interpretation of the moderators and their significance remain unchanged. Like seen for the previous version of the model, where time was not a variable, the only moderators that prove to smooth the institutional cultural difference are the presence of a private equity investor and the track record of the acquirer.

Table 40 Time analysis - Model 7 Regression Parameters

CAR [0;+10]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	0.0000	-0.0027	-0.0061	-0.0017	0.0000	-0.0003
M&A 100%	0.0000	0.0005	-0.0135	0.0006	-0.0005	0.0086
Stake	0.0001	0.0001	0.0003 **	0.0001	0.0002	0.0001
Area	0.0028	0.0028	0.0075	0.0033	0.0029	-0.0048
Cash	0.0077 *	0.0078 *	0.0102 **	0.0080 *	0.0077 *	0.0064
PolStab	-0.0019	-0.0001	0.0089	-0.0021	-0.0020	-0.0002
CPI	-0.0004	-0.0004	0.0000	-0.0003	-0.0003	-0.0020 **

Legal	0.0013	0.0013	-0.0085	0.0004	0.0015	0.0071
GDP_diff	0.0001	0.0001	-0.0001	0.0001	0.0001	0.0001
industry	-0.0051	-0.0052	-0.0002	-0.0052	-0.0052	-0.0062
Rev	-0.0011	-0.0012	-0.0006	-0.0010	-0.0011	-0.0015
Year	0.0001	0.0000	0.0010	0.0000	0.0000	-0.0004
PE		-0.0287 **				
PExCAGE		0.0046 **				
ESG score			-0.0008			
ESGxCAGE			0.0001			
Record				-0.0030 **		
RecordxCAGE				0.0004 **		
Acc.std					-0.0110	
AccStdxCAGE					0.0039	
Int_BoD						-0.0169
IntBoDxCAGE						0.0007
constant	-0.3608	-0.2594	-2.0713	-0.2583	-0.2889	0.5897
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0217	0.0236	0.0496	0.0229	0.0222	0.0293
Root MSE =	0.0991	0.0990	0.0663	0.0991	0.09912	0.0967

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 8

Model 8 tests the robustness of the results with a model that does not include the year fixed effect, but only country one. Table 41 presents this version adding the time factor. Moderators keep the same level of significance that they did in the model without it. This means that, even after the inclusion of the trend variable, all moderators, with the exception of the rate of internationalization of the Board, have a positive effect towards the abnormal return in offsetting the institutional cultural difference.

Table 41 Time analysis - Model 8 Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0012 *	-0.0028 **	-0.0058 ***	-0.0026 ***	-0.0015 **	-0.0024 *
M&A_100%	0.0013	0.0012	-0.0043	0.0016	0.0015	0.0012
Stake	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000
Area	-0.0008	-0.0007	0.0014	-0.0006	-0.0005	-0.0043
Cash	0.0039 *	0.0037 *	0.0017	0.0040 *	0.0040 *	0.0032
PolStab	-0.0045	-0.0026	0.0003	-0.0045	-0.0047	-0.0041
CPI	-0.0002	-0.0002	0.0002	-0.0002	-0.0002	-0.0014 **

Legal	-0.0006	-0.0004	-0.0040	-0.0012	-0.0007	0.0029
GDP_diff	0.0001 *	0.0001 **	0.0001 *	0.0001	0.0001 *	0.0001
industry	-0.0027	-0.0028	0.0002	-0.0028	-0.0026	-0.0030
Rev	0.0002	0.0000	-0.0013 *	0.0002	0.0002	0.0000
Year	0.0000	-0.0002	0.0000	0.0000	0.0000	-0.0006
PE		-0.0112				
PExCAGE		0.0027 **				
ESG score			-0.0006 ***			
ESGxCAGE			0.0001 ***			
Record				-0.0022 ***		
RecordxCAGE				0.0003 ***		
Acc.std					-0.0204 *	
AccStdxCAGE					0.0038 *	
Int_BoD						-0.0114
IntBoDxCAGE						0.0018
constant	-0.1370	0.2850	-0.0052	-0.1367	-0.1111	1.1948
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0121	0.0167	0.0395	0.0148	0.0131	0.0167
Root MSE =	0.0499	0.0498	0.0313	0.0499	0.04994	0.05128

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 9

Model 9 is carried out with only year fixed effect, setting aside the country fixed effect. Table 42 presents this model with the "year" variable. Also in this case, results are time-wise robust and they do not change when the trend variable is included.

Table 42 Time analysis - Model 9 Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0011	-0.0029 **	-0.0036 **	-0.0022 **	-0.0013 *	-0.0024 *
M&A_100%	0.0011	0.0009	-0.0017	0.0015	0.0011	0.0016
Stake	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
Area	0.0002	-0.0002	-0.0017	0.0006	0.0004	-0.0033
Cash	0.0039 *	0.0037 *	0.0022	0.0040 *	0.0040 *	0.0033
PolStab	-0.0027	-0.0018	0.0002	-0.0026	-0.0029	-0.0024
CPI	-0.0002	-0.0002	0.0001	-0.0002	-0.0002	-0.0011 **
Legal	-0.0013	-0.0012	-0.0004	-0.0020	-0.0015	0.0030
GDP_diff	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
industry	-0.0026	-0.0028	-0.0001	-0.0027	-0.0026	-0.0029
Rev	0.0000	-0.0002	-0.0008	0.0000	0.0000	-0.0002

Year	0.0004	0.0001	0.0006	0.0003	0.0004	-0.0002
PE		-0.0125 *				
PExCAGE		0.0028 **				
ESG score			-0.0004 **			
ESGxCAGE			0.0001 **			
Record				-0.0020 ***		
RecordxCAGE				0.0003 ***		
Acc.std					-0.0226 **	
AccStdxCAGE					0.0045 **	
Int_BoD						-0.0157
IntBoDxCAGE						0.0023
constant	-0.7023	-0.2368	-1.2183	-0.6760	-0.7366	0.3717
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0098	0.0141	0.0211	0.0120	0.011	0.0171
Root MSE =	0.0499	0.0498	0.0316	0.0499	0.04989	0.05102

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Model 10

The last model, Model 10, elaborates the results starting from winsorized data. Table 43 proposes the same model with the inclusion of the passing of time. Also in this final case, the Year variable is not significant. Hence, it can be stated that also in this case the passing of time does not affect the abnormal return.

Table 43 Time analysis - Model 10 Regression Parameters

CAR [+1;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0008	-0.0023 **	-0.0059 ***	-0.0021 **	-0.0011	-0.0021
M&A_100%	0.0013	0.0012	-0.0040	0.0016	0.0014	0.0007
Stake	0.0001	0.0000	0.0001	0.0000	0.0000	0.0000
Area	-0.0027	-0.0025	0.0017	-0.0024	-0.0024	-0.0070
Cash	0.0040 *	0.0038 *	0.0024	0.0041 *	0.0042 *	0.0032
PolStab	-0.0032	-0.0019	0.0022	-0.0033	-0.0033	-0.0033
CPI	-0.0010 **	-0.0010 **	0.0005	-0.0009 **	-0.0010 **	-0.0025 ***
Legal	0.0013	0.0013	-0.0039	0.0006	0.0011	0.0057
GDP_diff	0.0000	0.0001	0.0001	0.0000	0.0000	0.0001
industry	-0.0026	-0.0027	0.0000	-0.0027	-0.0025	-0.0028
Rev	0.0002	0.0000	-0.0014 *	0.0002	0.0002	0.0000
Year	0.0003	0.0001	0.0006	0.0003	0.0003	-0.0003
PE		-0.0110				
PExCAGE		0.0026 **				

ESG score			-0.0006 ***			
ESGxCAGE			0.0001 ***			
Record				-0.0021 ***		
RecordxCAGE				0.0003 ***		
Acc.std					-0.0215 **	
AccStdxCAGE					0.0040 *	
Int_BoD						-0.0155
IntBoDxCAGE						0.0025
constant	-0.6737	-0.1879	-1.2408	-0.6377	-0.7185	0.5228
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0173	0.0212	0.0469	0.0196	0.0183	0.0248
Root MSE =	0.0500	0.0499	0.0314	0.0499	0.04995	0.05121

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

PART FOUR: FINAL REMARKS

Abstract

Part Four has the aim of concluding the dissertation by presenting the limits of the research and the potential further developments of the work.

Chapter 8 has the purpose of discussing the findings of all models.

Chapter 9 has the goal to present an overall conclusion of the whole research and highlight some space for future investigations, as well as presenting the limitations of the research.

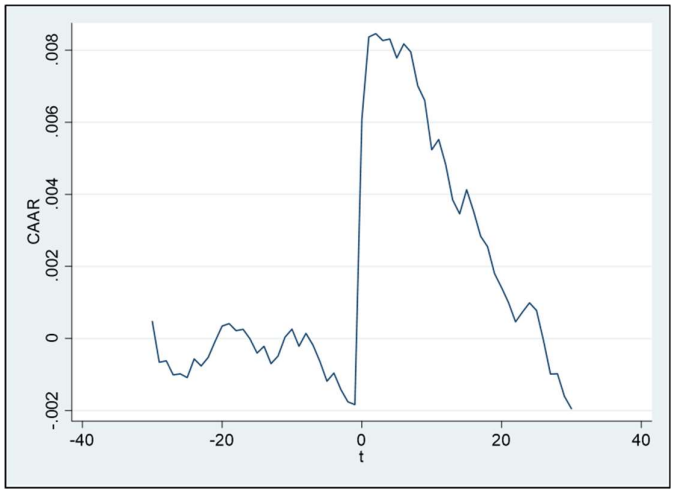
CHAPTER 8. DISCUSSION OF FINDINGS

Chapter 8 discusses the main findings on the basis of the analyses presented before. For both the event study and the multiple regression analyses, it presents a brief wrap-up and the practical consequences for the statistical evidence.

8.1. Event study

The first remarks concern the event study. Graph 14 proposes the main model, Model A, elaborated with an estimation period of [-280;-50] and analyzing a CAR of [-30;+30].

Graph 14 Model A - CAARs of the Event Window [-30;+30] with Estimation of [-280;-50] – cf. Graph 5



Source: Author's elaboration

Matching the graphical representation of the CAAR for this period along with the statistical significance showed in the previous chapter, it is possible to draw the following conclusions:

- There is statistical evidence that on the day in which Cross-Border M&A are announced the abnormal return is positive, regardless of the model that is adopted. This inference is robust as it is found to be true under a 99% confidence interval.
- In the days immediately after the announcement (i.e. Day +1 and Day +2), the performance is still positive, despite being much lower than the one recorded on Day 0.

- Starting from Day +3, the trend of the abnormal returns follows a strong decay that leads to a relentless deterioration of the shareholders' wealth.

These results are consistent with past research, according to which Cross-Border M&A entail a negative performance for the stock of the acquiring company (*inter alia*, Conn *et al.*, 1990; Cakici *et al.*, 1996; Aw *et al*., 2004; Lowinski *et al.,* 2004; Conn *et al.*, 2005).

What does this mean from a *practical* point of view?

- On average, in Model A, two thirds of the abnormal return after the event are negative, with Day +10 as the worst one with -0.14%.
- Looking at the overall picture, the moment in which results change and start to present negative abnormal returns is Day +3.
- Day 0, as anticipated above, is the best performing day, with a +0.79%. This positive performance is not enough to compensate the negative trend of the 30 following days. The aggregate abnormal return of [+1;+30] is -0.803%. Hence, the positive increase in the market capitalization reached on Day 0 is destroyed by the negative performance of the days after the announcement.
- Concerning other time frames, there is one CAR that deserves a deeper interpretation, the one for the period [+3;+30]. It shows a cumulative and significant result of -1.04%. This means that, in the immediate aftermath of the announcement, the investors that placed a buying order for the stock after the enthusiasm of Day 0 will have generated only negative returns for the newly owned security.

In the light of what said above, the interval chosen for the main regression model was [+1;+3]. This CAR was used as the dependent variable in the cross-sectional analysis.

8.2. Multiple regression models

The sample used in the multiple linear regression is a way to explain the unusual (i.e. "abnormal") performance of the stock return (Karatafiah, 1994) of the companies announcing Cross-Border M&A. As per the multiple regression findings, it is important to understand the role of each of the variables that were included in the model:

8.2.1. Control Variables

Looking at the main model, Model 1, these are the significant secondary control variables[42]:

- *Payment in Cash.* It positively and significantly affects the abnormal return for Base, PE, Track Record, and Accounting Standard Consistency sub-models. This is consistent with Walker (2000) and Faccio *et al.* (2005).
- *Difference in the Corruption Perception Index.* The difference in the CPI negatively and significantly affects the abnormal return in the International BoD sub-model. This is consistent with past research that affirms that the larger the corruption spread in a country, the more difficult it is to take over companies in that country (Mohsil *et al.,* 2002).
- *Difference in GDP.* The difference in the GDP positively and significantly affects the abnormal return in all sub-models, with the exception of the International BoD one. The larger the GDP of a country, the larger the market and the resources that a local company can deploy to, among others, perform Cross-Border M&A.
- *Acquirer's revenues*. As per revenues, a proxy for the acquirer's size, they positively and significantly affect the abnormal return in the ESG Score sub-model, consistent with the findings of Boateng *et al.* (2019).

8.2.2. Moderating Variables

As per the moderating factors, their impact on the abnormal return in the multiple regression analysis is reported in Table 44 that indicates if the moderator object of the sub-model proved to be positively significant. In addition, the last column "Time analysis" indicates whether the findings are 100% consistent with the time analysis illustrated in Section 0.

[42] The interpretation of the primary control variables (i.e. PE presence, ESG Score, Track Record, Accounting Standards Consistency and International rate of Board of Directors) is not commented here, as their interpretation can not be cleaved by the interpretation of the moderating variables. Comments on the primary control variables as stand-alone variables can be found in correspondence of Table 20 that presents Model 1 without the interactions in which they are found to be non-significant.

Table 44 Wrap up of results of multiple regression models

Model	Model	Estimation Window	CAR	PE	ESG	Track Record	Acc.Std Cons.	Int.BoD	Time analysis
M1	GM	[-280;-50]	[+1;+3]	✓	✓	✓	✓	n.s.	✓
	GM	[-280;-50]	[-2;+10]	✓	n.s.	✓	n.s.	n.s.	✓
	GM	[-280;-50]	[-2;+7]	✓	n.s.	✓	n.s.	n.s.	✓
	GM	[-280;-50]	[-3;+3]	n.s.	✓	✓	n.s.	n.s.	✓
	GM	[-280;-50]	[1;+15]	n.s.	n.s.	✓	n.s.	n.s.	✓
M2	GM	[-280;-30]	[+1;+3]	✓	✓	✓	✓	n.s.	✓
M3	GM	[-280;-20]	[+1;+3]	✓	✓	✓	✓	n.s.	✓
M4	MM	[-280;-50]	[+1;+3]	✓	✓	✓	✓	n.s.	✓
M5	GM	[-150;-50]	[+1;+3]	✓	✓	✓	✓	n.s.	✓
M6	GM	[-200;-50]	[+1;+3]	✓	✓	✓	✓	n.s.	✓
M7	GM	[-280;-50]	[0;+10]	✓	n.s.	✓	n.s.	n.s.	✓
M8	GM – only country f.e.	[-280;-50]	[+1;+3]	✓	✓	✓	✓	n.s.	✓
M9	GM – only year f.e.	[-280;-50]	[+1;+3]	✓	✓	✓	✓	n.s.	✓
M10	GM winsorized	[-280;-50]	[+1;+3]	✓	✓	✓	✓	n.s.	✓

Legend:
GM = Global Market Model
MM = Market Model
f.e. = fixed effects
✓ *= the interaction has a positive and significant effect on the CAR*
n.s. = the interaction has a non-significant effect on the CAR

Source: Author's elaboration

Table 44 shows that concerning the moderating interaction factors, there are no differences between the models that include a "trend" variable and those that do not. Hence, it can be confidently affirmed that time does not impact the abnormal returns and that results are robust across time.

Like it has been done for the event study findings, in the rest of this section, the practical consequences of the research are illustrated.

Private Equity

In the main model, Model 1, as well in the robustness checks, the interaction between the Presence of a PE and the institutional cultural difference has proved to be positive and significant. Concerning the other models using the same estimation window of Model 1, but different CARs, this moderator is found to be significant in two out of four. In the light of these findings, it can be concluded that the presence of a PE

moderates the institutional cultural difference and enhances the abnormal return. By reprising the specific numbers of Model 1, it can be seen that the abnormal return is enhanced by around 0.3% in case a Private Equity is among the shareholders.

Looking at the practical consequences of this number, one question may arise spontaneously: is it worth having a PE as an investor for *just* an increase in the abnormal return of 0.3%?

The answer is multifaceted. The first consideration deals with the percentage itself. In a listed company with a market capitalization of € 1bn, 0.3% equals to € 3 million, hence small percentages in big companies can lead to impactful consequences.

The second consideration is the following: the top management team that has chosen to have a PE by their side has a long-term strategic development plan. In this plan, the Cross-Border M&A is likely just one step to pursue an international path, so it is not the only goal of the PE firm.

The third and last aspect is a matter intrinsic in the nature of PE firms investing in a company. In the moment in which they invest through a PIPE[43], the stake that it is bought is no longer publicly tradeable and will likely be exchanged in the private market. Still, because this is the only context where there can be a benchmark price in a PE operation, the stock price will likely be the floor price in the negotiation. Hence, the interests of the management team and the shareholders here are perfectly aligned as they coincide and the PE firm has every interest in marking the stock price higher.

So the real question that should be asked here is: *ceteris paribus*, is the PE presence conveying a positive message to capital markets when the companies are located in institutionally culturally different countries? Yes, as the abnormal return is larger.

ESG Score

In the main model, Model 1, as well as in the robustness checks, the interaction between the ESG Score and the institutional cultural difference has proved to be positive and significant. The only robustness check in which the ESG Score interaction is found to be non-significant is the Model 7, that uses a CAR of [0;+10]. Concerning the other CARs of Model 1, this moderator is found to be significant in one out of four.

[43] Private Investment in Public Equity

In the light of these findings, it can be said that a higher level of ESG Score enhances the level of abnormal return when a Cross-Border M&A is announced.

To interpret concretely these findings, the coefficients of that regression are considered. For an increase in one point of the ESG Score, the abnormal return increases by 0.01%. As done for the PE moderator, the question that should be asked is: is it worth to implement ESG policies to have the abnormal return better by 0.01%? Also in this case, the answer is particularly complex.

Friedman said: *"the only social responsibility of a company is to increase profit"*.

It is not the intention of this dissertation to contradict such an enlightened Scholar, but in a provocative way, one could reply that the fact that a company complies with social requirements and is pursuing a sustainable growth does not mean that that company is not increasing profit.

In fact, past research proved that ESG compliance encourages companies actually to adopt socially responsible policies and there is a positive association between high ESG performance and M&A.

As the sample for the ESG Score moderator sub-model was trimmed, to give a broader view at the analysis, the average of the AR of the ESG-mapped companies was compared to the one of the non-ESG-mapped. Despite not being significant, the average abnormal return for companies that adopt ESG measure is larger than the one for companies that do not (see Appendix 13 for more details on the t-test).

So the real question that should be asked here is: ceteris paribus, is a higher ESG Score conveying a positive message to capital markets when the companies are located in institutionally culturally different countries? Yes, as the abnormal return is larger.

Track Record

The Track Record, i.e. the experience of the acquirer in carrying out Cross-Border M&A is the only one, among all five solutions, that always significantly positively affects the abnormal return, despite the model used, the estimation window and the CAR set as a dependent variable.

In the light of these findings, it can be inferred that past experience conveys a positive message and offsets the institutional cultural difference between acquirer and target.

Results show that per each cross-border transaction undertaken in the past, when two companies are located in institutionally culturally different countries there is an increase on the abnormal return of +0.03%.

Despite the results for this moderators are the most convincing ones, as they hold in every model proposed, the questions that needs to be asked is: is it worth doing Cross-Border M&A so that the next time round the company will have abnormal returns better by 0.03%? Also in this case, the answer is multilayered.

In the first place, results of the event study of the first part of this work show that when an acquirer announces a Cross-Border M&A, after an immediate positive reaction, the performance of its stock worsens considerably. This means that every time that an international M&A is announced, there are two strengths pulling: the fact that *that very* transaction is making lose money and, on the other side, the fact that past experience is contrasting the institutional cultural difference and enhancing the value of the abnormal return.

On the other hand, a company does not do M&A to have positive returns on capital markets, rather they are driven by many other different reason[44]. So, despite the abnormal return is not the primary goal when a company undertakes international M&A, the fact that other operations were made in the past will create a virtuous cycle in enhancing following transaction performances in capital markets.

So the real question that should be asked here is: *ceteris paribus*, is a larger experience in acquiring cross-border targets conveying a positive message to capital markets when the companies are located in institutionally culturally different countries? Yes, as the abnormal return is larger.

Consistency of Accounting Standards

The fourth factor that has the aim to offset the institutional cultural difference is the consistency between the accounting standards of the target and of the acquirer company. This factor is found to be positively and significantly correlated with the abnormal return in decreasing the institutional cultural difference. The significance is verified in all robustness checks, with the exception of Model 7, that analyses CAR

[44] See Section 3.3.2.1

[0;+10]. In addition, among all the CAR tested for M1, results to be significant only in the main estimation model.

Despite not being significant in one of the robustness tests, its significance level is strong, as for all other eight checks the relation holds.

Looking at the concrete interpretation of this, it can be seen that the enhancement on the abnormal return is by 0.42% in case both acquirer and target use the IFRS.

This is the only one among the empirical solutions that, in the sample, is adopted by law. Hence, in this context the question is slightly different: was it worth for all the companies that adopted IFRS in the EU to shift towards them for *just* an increase in the abnormal return of 0.42% in case they announce an international M&A to buy a European Union target that adopts the same accounting standards?

For starters, when analyzing the performance of highly capitalized companies, e.g. a company with a market capitalization of $b 1, such a narrow percentage stands for €m 4.2.

In addition, what is the purpose of the implementation of a commonly adoption set of accounting standards? The website of the European Commission states that: "*[IFRS] make company accounts understandable and comparable across international boundaries*[45]". Hence, the purpose of an accounting standard harmonization process was to signaling economic information.

So the real question that should be asked here is: *ceteris paribus*, is the consistency of accounting standards between target and acquirer conveying a positive message to capital markets when the companies are located in institutionally culturally different countries? Yes, as the abnormal return is larger.

Finally, it is worth noting that this positive signal may stand for a current competitiveness in the EU market for international M&A, confirmed by the fact that for a EU acquirer, the average CAR [+1;+3] is larger than the one of a US one (0.33% versus 0.27%), despite this difference is not significant. Appendix 14 provides further details on the t-test.

[45] https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/financial-reporting_en#ifrs-financial-statements

International rate of Directors

In any model considered in the analysis, the International Rate of the BoD is non-significant with respect to the abnormal return. Previous Section of this work highlighted the difficulties in obtaining a complete sample, due to the lack of full data. It is to be noted that if no cutoff had been made to the sample, the moderator would have affected positively the abnormal return. This leaves space for further research commented in Section 9.1.

8.3. Final comments and final contribution

Considering the main results, the main takeaways of this doctoral thesis are that capital markets still look at Cross-Border M&A as something that can trigger shareholders' wealth in future, hence penalizing them in the very short period.

This perception is linked to the institution cultural difference. As the level of cultural difference, national or institutional, cannot be changed in a short period, but takes century to be shaped and changed, this thesis proposes moderators that financial analysts and investors should consider when there a Cross-Border M&A is announced. These empirical solutions adopted by acquirers can make the effects of this perception less harsh and can increase the level of trust by capital markets for the company. All the solutions here identified should not be looked on a stand-alone basis, but as means to signal a confident message, as the company's features are something that can not be set aside (Boateng *et al.,* 2019) when evaluating a strategic decision announcement, like a Cross-Border M&A.

The ultimate goal of this doctoral dissertation was not the one to prove or deny a positive or a bad reaction from capital markets in the occasion of the announcement of a Cross-Border M&A.

The first contribution that this research made was the introduction to a new approach to culture and the introduction of "*institutional culture*" as "*shared beliefs, values, and competences that formed the regulatory, normative, and cognitive setting of a country*"

Secondly, it aims at shifting the focus on how Cross-Border M&A are looked at.

Capital markets will always penalize international M&A (and the results of the event study part are further and modern proof of that) due to a bad perception of the

institutional cultural difference between target and bidder. Hence, this thesis aims at identifying some empirical solutions that convey a trustful message to capital markets. However, the research has proved that, the fact that companies adopt or not empirical solutions, does not keep the abnormal return from being negative as in the presence of some moderators it is just *less* negative.

Institutional investors as well as retail investors should be educated not to look at the operation, but (also) at the acquirer and trust the past strategic and financial choices, as the evidence provided that these choices can communicate positive messages to the financial community.

In an ideal world, the more actions and efforts a company does to differentiate from peers and that can show to capital markets that:

- a private investor decided to back it;
- it is keen on being open-minded to adopt non-financial metrics;
- it believes in the strategic growth via external means; and
- its numbers are reported trustfully;

the more positive (and not less negative) the abnormal return should be.

CHAPTER 9. LIMITATIONS AND FUTURE RESEARCH

After presenting the contribution and the main findings, this chapter highlights the limitations of the study and how they were handled in the research, if possible, and gives space to possible future works, based on the results achieved.

9.1. Sample

As per the final sample that was used in the overall study, two are the limitations that arise. The first one is related to the event study methodology and the level of robustness and confidence that was targeted. The utilization of a very long estimation period in the main model [-280;+50] excluded the observations of Chinese acquirers. Further research could shorten the estimation window in order to include some countries that could be of interest. On the other hand, the longer the estimation window, the more solid the results of the cross-sectional analysis. The fact that Chinese acquirers are excluded from the sample leaves room for some potential interesting inferences, as in being a former communist country (Boateng *et al.,* 2019), China has a strong cultural difference with respect to EU and USA.

The second limitation that concerned the sample construction was the cutoff with reference to the international Board of Directors moderator. As only current data are strongly reliable[46], the sample for such moderator was reduced to a time horizon of 2010-2018. In the analysis, in none of the model used, the interaction of institutional cultural difference and the rate of internationalization was never significant. Further research could hand-collect this piece of information to make sure that they are consistent across the sample as cutting it off can be subject to criticism.

However, assuming that the rate of internationalization is unvaried over time, so that no cutoff was necessary, the main model was in fact run "off the record" for the whole period.

[46] Data on past Directors are available, but they are very fragmented. The risk is that data are only partly reported for past Directors.

In the case in which the sample is not subject to an arbitrary trimming, **H2e** is verified and the larger the rate of internationalization, the better the abnormal return in the presence of a high institutional cultural difference.

Despite the inclusion of all years in the analysis would have verified also H2e, results would not have been robust and would have been subject to potential misinterpretation of the outcomes.

Finally, it is worth noting that, even in the presence of reliable data telling whether a Director is a beholder of the position when a Cross-Border M&A is announced, there could still be room for large criticism as the Board of Directors that approves the *decision* to take over *a* foreign company may not be the one that actually announces the *deed* of acquisition of *that* target. Cross-Border M&A are typically part of a strategy that is carefully elaborated by the top management team. For this reason, some time may pass between the moment in which management decides on the strategy and the screening, the valuation, the negotiation of the price, and the announcement of the acquisition of the target.

This suggests that this moderator should be studied in a hand-selected sample, where the researcher is sure that the Directors did not change from the *decision* moment to the *action* moment.

9.2. Econometrics remarks

The event analyzed in this research has a strong pro: the fact that the event date, and all consequent intervals, can be derived with certainty. In Global Market Models, one of the main hurdles is the difficulty in accessing the correct information in a timely manner. This may be the case when event studies are carried out in multi-country settings enquiring the effect of a new legislation; on the contrary, Cross-Border M&A are univocally announced on the market. On the other side, the drawback of the announcement of such a huge operation may be the leak of information, that is addressed with a leakage period in the estimation of the abnormal returns.

However, by their nature, an event study may suffer of another bias. Sample events do not occur on the same day, hence for some period of time, some securities may be subject to thin trading, while others may not. On the other hand, the fact that the events

do not occur on the same day avoids that cumulative average abnormal returns are cross-correlated among each other (Kotari *et al.,* 2010).

Finally, the announcement of a Cross-Border M&A are pieces of information "*obviously*" (Fama, 1991) available to the public. This characteristic makes it possible for stocks to react promptly to the news in a semi-strong efficient context (Fama, 1970).

9.3. Further research

At the end of January 2020, we witnessed the exit from the UK from the EU, and the first thing that one researcher should wonder is: "*What would change in general in the Cross-Border M&A market in Europe?" "Will UK companies buy EU targets to overcome heavy tariffs and/or vice versa?".*

It can not be denied that the UK has always been one of the main character of the M&A market in Europe, and this research is no exception. In the sample used in the event study and in the whole regression analysis, around 21% and 18% of the observations pertain to UK bidders, respectively (cf. Table 12 and Appendix 10). Further research could explore if the exit of the UK from the EU affects or will influence the dynamics of the European international M&A market.

This piece of research analyses Cross-Border M&A and the effect that its announcement has on the abnormal return. This dissertation mentions the "principal-agent" theory in Chapter 1, as it is management that decides to take over another company. However, the (bad) effects of the announcement of an international acquisition are reflected on the stock return. Further research may study whether the abnormal return is less negative in case management holds stock-option plans in their remuneration packages. Provided that stock options typically can not be exercised in periods in which companies release sensitive information, as announcements of M&A, it would be interesting to study the long term trend to see whether in the moment in which top management is allowed to exercise the options, the stock recovered from the bad performance. Such analysis should use the BHAR, as it is the long-term perspective that would be under investigation.

In addition, past research has investigated if the role of investment banks as advisors is important in Cross-Border M&A (Lowinski *et al.*, 2004). Lowinski *et al.* (2004), with a sample of domestic and international M&A of Swiss acquirers, find that the inclusion of a top-tier investment bank[47] is not significant in bringing further wealth to the acquirers' shareholders. Starting from these results, further research could use the nationality of the advisor as a factor in understanding whether the fact that the acquirer and the lead advisor are of two different nationalities enhances the performance of the stock after the announcement of a Cross-Border M&A.

Last, as discussed before, further research could narrow the sample and collect punctually the data about the international rate of Board of Directors, as there might be evidence that it enhances the performance of a stock during a Cross-Border M&A announcement.
However, when samples are hand-picked or self-selected there may be a survivorship bias and the objectivity may be at risk.

This leads to the evergreen question of every research: are non-significant but objective results better than significant but subjective results?

As Prof. Tim McDaniel said during a GSERM class: "non-significant results are results, too".

[47] As included in Thomson Reuters League Tables

APPENDICES

Appendix 1 List of Domestic Stock Indices

Country	**Domestic Stock Index**
Austria	ATX (AUSTRIAN TRADE INDEX)
Belgium	BEL20
Bulgaria	SOFIX
China	SHANGHAI STOCK EXCHANGE COMPOSITE INDEX
Croatia	CROBEX
Cyprus	CSE All-Share Index
Czech Republic	PX (PRAGUE STOCK INDEX)
Denmark	OMX Copenhagen Index
Estonia	OMX Tallin
Finland	OMX HEX25
France	CAC 40
Germany	DAX
Greece	ASE Athen's Stock Exchange
Hungary	BUX
Ireland	ISEQ
Italy	FTSE MIB
Latvia	OMX Riga
Lithuania	OMX Vilnius
Luxembourg	LUXX
Malta	MALTEX
Netherlands	AEX
Poland	WIG index
Portugal	PSI 20
Slovenia	SBITOP
Spain	IBEX 35
Sweden	OMX Stockholm 30
United Kingdom	FTSE 100
United States of America	S&P 500

Appendix 2 List of Currencies

Country	**Currency**
Austria	Euro
Belgium	Euro
Bulgaria	Bulgarian Lev
China	Yuan
Croatia	Croatian Kuna
Cyprus	Euro
Czech Republic	Czech koruna
Denmark	Danish krone
Estonia	Euro
Finland	Euro
France	Euro
Germany	Euro
Greece	Euro
Hungary	Hungarian forint
Ireland	Euro
Italy	Euro
Latvia	Euro
Lithuania	Euro
Luxembourg	Euro
Malta	Euro
Netherlands	Euro
Poland	Polish Złoty
Portugal	Euro
Slovenia	Euro
Spain	Euro
Sweden	Swedish krona
United Kingdom	British Pound
United States of America	USD

Appendix 3 Model A - Standardized Value of ARs presented in Table 13

t	T-test		Patell (1976)		BMP (1991)		Kolari et al. (2010)		Corrado Rank test (Cowan, 1992)		Corrado and Zivney rank test (1992)		Generalized Sign Test (Cowan, 1992)	
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value
[-30;-30]	0.8865	0.3764	1.3521	0.1763	1.2470	0.2138	1.0732	0.2844	0.1954	0.8451	0.4897	0.6244	0.2852	0.7755
[-29;-29]	-2.1219	0.0350	-3.4932	0.0005	-3.2591	0.0013	-2.8048	0.0055	-2.6308	0.0085	-2.6870	0.0072	-1.9797	0.0477
[-28;-28]	0.0762	0.9394	-0.2034	0.8388	-0.2033	0.8391	-0.1750	0.8613	0.0625	0.9502	0.0350	0.9721	0.0070	0.9944
[-27;-27]	-0.7327	0.4646	-0.4454	0.6561	-0.4389	0.6612	-0.3777	0.7060	-0.7358	0.4619	-0.6983	0.4850	-0.3108	0.7559
[-26;-26]	0.0554	0.9559	0.1056	0.9159	0.0812	0.9353	0.0699	0.9443	-0.3986	0.6902	0.2224	0.8240	-0.3108	0.7559
[-25;-25]	-0.1935	0.8468	0.1755	0.8607	0.1701	0.8651	0.1464	0.8838	0.2557	0.7982	0.1107	0.9119	0.6428	0.5204
[-24;-24]	0.9673	0.3345	0.8443	0.3985	0.7511	0.4534	0.6464	0.5187	1.3565	0.1749	1.4744	0.1404	1.5169	0.1293
[-23;-23]	-0.3663	0.7145	0.2396	0.8107	0.2359	0.8137	0.2030	0.8393	0.8894	0.3738	0.7847	0.4327	0.9607	0.3367
[-22;-22]	0.4422	0.6588	0.6232	0.5331	0.5976	0.5507	0.5143	0.6076	-0.3455	0.7297	-0.3835	0.7014	-0.1122	0.9107
[-21;-21]	0.8414	0.4011	1.0506	0.2935	0.9704	0.3330	0.8351	0.4046	1.2975	0.1945	1.5375	0.1242	1.3183	0.1874
[-20;-20]	0.7889	0.4311	1.3888	0.1649	1.2619	0.2084	1.0860	0.2788	2.0596	0.0394	2.2079	0.0273	2.8282	0.0047
[-19;-19]	0.1262	0.8997	1.1302	0.2584	1.0112	0.3131	0.8702	0.3852	0.9114	0.3621	1.2166	0.2237	1.5964	0.1104
[-18;-18]	-0.3644	0.7159	-1.5703	0.1163	-1.4213	0.1567	-1.2232	0.2227	-0.7762	0.4376	-0.6227	0.5335	-0.0724	0.9423
[-17;-17]	0.0699	0.9443	0.4812	0.6304	0.4194	0.6754	0.3610	0.7185	0.7937	0.4274	0.9988	0.3179	0.8812	0.3782
[-16;-16]	-0.5043	0.6146	0.0023	0.9982	0.0022	0.9983	0.0019	0.9985	0.5610	0.5748	0.5331	0.5940	1.0799	0.2802
[-15;-15]	-0.7297	0.4664	-1.5285	0.1264	-1.3893	0.1662	-1.1957	0.2332	-1.5792	0.1143	-1.1830	0.2368	-0.1916	0.8480
[-14;-14]	0.3542	0.7236	-0.3173	0.7510	-0.3108	0.7563	-0.2675	0.7894	-0.0080	0.9936	-0.0514	0.9590	0.6428	0.5204
[-13;-13]	-0.9021	0.3681	-1.3807	0.1674	-1.3435	0.1806	-1.1562	0.2489	0.6523	0.5142	0.5318	0.5949	1.1593	0.2463
[-12;-12]	0.3928	0.6949	1.0668	0.2860	1.0359	0.3014	0.8915	0.3737	1.1884	0.2347	1.0249	0.3054	1.2388	0.2154
[-11;-11]	0.9823	0.3271	0.2534	0.8000	0.2090	0.8346	0.1799	0.8574	0.9201	0.3575	1.2327	0.2177	1.5964	0.1104
[-10;-10]	0.4171	0.6771	0.4006	0.6887	0.4055	0.6855	0.3490	0.7275	-0.0631	0.9497	-0.1813	0.8561	0.4839	0.6285
[-9;-9]	-0.8896	0.3747	-0.9538	0.3402	-0.9158	0.3608	-0.7882	0.4315	-1.0804	0.2799	-1.0237	0.3060	-1.3439	0.1790
[-8;-8]	0.6697	0.5038	1.0945	0.2737	1.0227	0.3077	0.8801	0.3798	1.5289	0.1263	1.4689	0.1418	2.1527	0.0313
[-7;-7]	-0.6054	0.5456	-1.0338	0.3012	-0.8568	0.3925	-0.7374	0.4617	-0.1125	0.9104	0.1958	0.8448	-0.2711	0.7863
[-6;-6]	-0.8545	0.3938	-0.1317	0.8952	-0.1162	0.9076	-0.1000	0.9204	0.5100	0.6101	0.4844	0.6281	0.7620	0.4461
[-5;-5]	-1.0231	0.3075	-0.8962	0.3701	-0.8447	0.3993	-0.7269	0.4681	-0.5509	0.5817	-0.4606	0.6451	-0.1122	0.9107
[-4;-4]	0.4238	0.6721	-1.1707	0.2417	-1.0317	0.3034	-0.8879	0.3756	0.0051	0.9959	0.1361	0.8918	1.3580	0.1745
[-3;-3]	-0.8582	0.3918	-0.3102	0.7564	-0.2467	0.8054	-0.2123	0.8321	-1.5074	0.1317	-0.7572	0.4489	-0.7876	0.4309

[-2;-2]	-0.6378	0.5243	-1.1657	0.2437	-1.0934	0.2755	-0.9410	0.3478	-0.2535	0.7999	-0.4502	0.6525	1.0004	0.3171
[-1;-1]	-0.1427	0.8867	-0.1392	0.8893	-0.1245	0.9010	-0.1072	0.9147	0.0778	0.9380	0.2282	0.8195	0.9607	0.3367
[0;0]	14.8156	0.0000	14.6238	0.0000	3.1737	0.0017	2.7313	0.0069	8.4837	0.0000	6.7159	0.0000	7.9936	0.0000
[1;1]	4.2671	0.0000	1.5428	0.1229	0.2106	0.8334	0.1812	0.8564	5.3043	0.0000	4.3289	0.0000	4.7354	0.0000
[2;2]	0.1725	0.8632	1.9247	0.0543	1.5861	0.1142	1.3650	0.1737	1.0345	0.3009	1.0627	0.2879	1.0004	0.3171
[3;3]	-0.3597	0.7194	0.2134	0.8310	0.1905	0.8491	0.1640	0.8699	0.1758	0.8605	0.3193	0.7495	0.7223	0.4701
[4;4]	0.0828	0.9341	0.5601	0.5754	0.5179	0.6051	0.4457	0.6563	0.2195	0.8262	0.2902	0.7717	0.5633	0.5732
[5;5]	-0.9875	0.3245	-0.0505	0.9597	-0.0384	0.9694	-0.0330	0.9737	0.4269	0.6694	0.8290	0.4071	1.0799	0.2802
[6;6]	0.7340	0.4638	-0.1006	0.9199	-0.0940	0.9252	-0.0809	0.9356	-0.0035	0.9972	0.2541	0.7994	0.6428	0.5204
[7;7]	-0.4173	0.6769	-0.3544	0.7230	-0.3449	0.7305	-0.2968	0.7669	-0.2345	0.8146	-0.0310	0.9753	0.1262	0.8995
[8;8]	-1.7580	0.0802	-1.6683	0.0953	-1.5747	0.1168	-1.3552	0.1768	0.0595	0.9525	-0.0370	0.9705	1.0004	0.3171
[9;9]	-0.7627	0.4465	-1.0118	0.3116	-0.9498	0.3433	-0.8174	0.4146	-0.3271	0.7436	-0.4151	0.6780	0.2455	0.8061
[10;10]	-2.5633	0.0111	-2.3377	0.0194	-2.1739	0.0308	-1.8709	0.0628	-1.1930	0.2329	-1.3347	0.1820	-1.1452	0.2521
[11;11]	0.5399	0.5898	0.7751	0.4383	0.7872	0.4321	0.6775	0.4989	0.6346	0.5257	0.6116	0.5408	0.1660	0.8682
[12;12]	-1.3067	0.1928	-1.9160	0.0554	-1.6894	0.0926	-1.4539	0.1475	-1.5626	0.1182	-1.1364	0.2558	-0.7876	0.4309
[13;13]	-1.8346	0.0680	-1.7549	0.0793	-1.6035	0.1103	-1.3800	0.1691	-1.2507	0.2110	-1.1722	0.2411	-0.2711	0.7863
[14;14]	-0.7219	0.4712	0.8616	0.3889	0.8053	0.4216	0.6930	0.4891	0.6839	0.4940	0.7762	0.4376	1.0401	0.2983
[15;15]	1.2542	0.2112	0.7999	0.4238	0.7596	0.4484	0.6537	0.5140	1.4247	0.1543	1.3916	0.1640	1.7951	0.0726
[16;16]	-1.1307	0.2595	-0.1736	0.8622	-0.1632	0.8705	-0.1405	0.8884	-0.1470	0.8831	-0.1929	0.8470	0.0468	0.9627
[17;17]	-1.2834	0.2008	-2.8767	0.0040	-2.2605	0.0248	-1.9454	0.0531	-1.6121	0.1069	-1.1830	0.2368	-0.4698	0.6385
[18;18]	-0.5474	0.5847	-1.3350	0.1819	-1.1483	0.2522	-0.9882	0.3242	-1.3420	0.1796	-0.8907	0.3731	-0.8671	0.3859
[19;19]	-1.3996	0.1631	-1.7951	0.0726	-1.7136	0.0881	-1.4747	0.1418	-1.2462	0.2127	-1.2495	0.2115	0.0070	0.9944
[20;20]	-0.7175	0.4739	0.9724	0.3309	0.9488	0.3438	0.8166	0.4151	0.9427	0.3458	0.7638	0.4450	1.4375	0.1506
[21;21]	-0.7878	0.4317	-0.3758	0.7071	-0.3646	0.7158	-0.3138	0.7540	-0.0572	0.9544	0.1421	0.8870	0.0468	0.9627
[22;22]	-0.9917	0.3225	-1.5785	0.1145	-1.5052	0.1338	-1.2954	0.1966	-0.9799	0.3271	-1.1116	0.2663	-0.1916	0.8480
[23;23]	0.5141	0.6077	0.2548	0.7989	0.1570	0.8754	0.1352	0.8926	-0.5571	0.5775	0.4703	0.6381	0.3647	0.7154
[24;24]	0.4722	0.6373	1.5167	0.1293	1.3693	0.1724	1.1784	0.2400	1.8990	0.0576	1.8811	0.0600	2.8282	0.0047
[25;25]	-0.3939	0.6940	-1.1070	0.2683	-1.1091	0.2687	-0.9545	0.3409	-0.3237	0.7462	-0.4480	0.6541	0.0468	0.9627
[26;26]	-1.5625	0.1197	-1.7087	0.0875	-1.5027	0.1344	-1.2933	0.1974	-0.6339	0.5262	-0.4218	0.6732	0.1262	0.8995
[27;27]	-1.7414	0.0831	-2.1848	0.0289	-2.0263	0.0440	-1.7439	0.0827	-1.7201	0.0854	-1.5349	0.1248	-0.5095	0.6104
[28;28]	0.0144	0.9885	0.3587	0.7198	0.3324	0.7399	0.2860	0.7751	0.8903	0.3733	0.8917	0.3726	1.1991	0.2305
[29;29]	-1.1754	0.2412	-2.0505	0.0403	-1.9904	0.0479	-1.7129	0.0882	-1.1860	0.2356	-1.2002	0.2301	-0.8274	0.4080
[30;30]	-0.6367	0.5250	-1.9543	0.0507	-1.7574	0.0803	-1.5124	0.1320	-1.4000	0.1615	-1.2194	0.2227	-0.6287	0.5295

Source: Author's elaboration

Appendix 4 Model A - Standardized Value of CARs presented in Table 14

t	n.obs.	CAR (t) %	T-test		Patell (1976)		BMP (1991)		Kolari et al. (2010)		Corrado Rank test (Cowan, 1992)		Corrado and Zivney rank test (1992)		Generalized Sign Test (Cowan, 1992)	
			t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value
[-30;30]	2,537	-0.1948	-0.2297	0.8186	-0.8744	0.3819	-0.2491	0.8035	-0.2144	0.8305	0.9405	0.3470	1.1412	0.2538	2.9871	0.0028
[-20;20]	2,537	0.1491	0.3119	0.7555	1.6926	0.0905	0.4595	0.6464	0.3954	0.6929	1.7043	0.0883	1.8139	0.0697	4.8546	0.0000
[-10;10]	2,537	0.5199	1.9992	0.0469	2.7821	0.0054	0.7134	0.4764	0.6140	0.5399	2.3473	0.0189	2.2087	0.0272	4.5367	0.0000
[-5;5]	2,537	0.8423	4.7055	0.0000	4.9185	0.0000	1.0603	0.2903	0.9125	0.3626	3.5788	0.0003	3.3186	0.0009	8.2718	0.0000
[-2;10]	2,537	0.6653	3.3965	0.0008	7.5030	0.0000	1.2293	0.2204	1.0579	0.2913	3.3414	0.0008	2.9280	0.0034	5.4109	0.0000
[-2;3]	2,537	0.9686	7.3875	0.0000	8.8982	0.0000	1.4156	0.1584	1.2183	0.2245	5.3313	0.0000	4.5509	0.0000	9.1856	0.0000
[-2;7]	2,537	0.9371	5.5029	0.0000	8.9465	0.0000	1.4877	0.1384	1.2803	0.2019	4.2141	0.0000	3.8264	0.0001	8.3512	0.0000
[-3;3]	2,537	0.9227	6.5109	0.0000	7.6534	0.0000	1.3526	0.1777	1.1641	0.2457	4.4724	0.0000	3.9565	0.0001	9.0664	0.0000
[0;1]	2,537	1.0203	13.4937	0.0000	15.7147	0.0000	1.6615	0.0981	1.4299	0.1543	8.8106	0.0000	7.2756	0.0000	10.8147	0.0000
[0;2]	2,537	1.0295	11.1218	0.0000	16.8260	0.0000	1.7740	0.0775	1.5267	0.1284	7.6035	0.0000	6.4309	0.0000	10.3379	0.0000
[0;10]	2,537	0.7070	3.9500	0.0001	15.4183	0.0000	1.6651	0.0974	1.4330	0.1534	3.6529	0.0003	3.2461	0.0012	5.6493	0.0000
[1;2]	2,537	0.2376	3.1427	0.0019	2.9037	0.0037	0.3933	0.6945	0.3385	0.7354	4.3659	0.0000	3.7589	0.0002	4.6559	0.0000
[1;3]	2,537	0.2184	2.3579	0.0193	3.0269	0.0025	0.4082	0.6836	0.3513	0.7257	3.6150	0.0003	3.2362	0.0012	4.8546	0.0000
[1;15]	2,537	-0.1955	-0.9223	0.3574	1.0737	0.2829	0.1486	0.8820	0.1279	0.8984	1.2907	0.1968	1.3813	0.1672	1.5567	0.1195
[3;30]	2,537	-1.0409	-3.2074	0.0016	-5.0240	0.0000	-1.9233	0.0558	-1.6552	0.0994	-1.3960	0.1627	-0.8613	0.3891	-1.2644	0.2061
[3;10]	2,537	-0.3225	-2.1230	0.0349	-1.5185	0.1289	-0.7823	0.4349	-0.6732	0.5015	-0.2789	0.7803	-0.0391	0.9688	-0.7479	0.4545
[10;30]	2,537	-0.8555	-3.2805	0.0012	-6.9589	0.0000	-3.0134	0.0029	-2.5934	0.0102	-1.7185	0.0857	-1.2342	0.2171	0.3249	0.7452

Source: Author's elaboration

Appendix 5 Model B – Standardized Value of ARs

t	T-test		Patell (1976)		BMP (1991)		Kolari et al. (2010)		Corrado Rank test (Cowan, 1992)		Corrado and Zivney rank test (1992)		Generalized Sign Test (Cowan, 1992)	
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value
[-20;-20]	0.9879	0.3243	1.7509	0.0800	1.5869	0.1139	1.3206	0.1880	1.6301	0.1031	2.1276	0.0334	1.7878	0.0738
[-19;-19]	-0.9143	0.3615	0.3174	0.7510	0.2719	0.7859	0.2263	0.8212	0.4253	0.6707	0.7493	0.4537	1.3202	0.1868
[-18;-18]	-0.3169	0.7516	-1.7555	0.0792	-1.6004	0.1109	-1.3318	0.1843	-1.0204	0.3075	-0.9063	0.3648	-0.7841	0.4330
[-17;-17]	-0.2346	0.8148	0.0108	0.9914	0.0090	0.9928	0.0075	0.9940	0.6497	0.5159	0.9521	0.3410	0.1512	0.8799
[-16;-16]	-0.5813	0.5616	-0.2811	0.7786	-0.2721	0.7858	-0.2264	0.8211	0.1202	0.9043	0.1878	0.8510	0.3070	0.7588
[-15;-15]	-0.8591	0.3912	-1.8737	0.0610	-1.7392	0.0834	-1.4473	0.1492	-1.3794	0.1678	-1.1903	0.2339	-0.7061	0.4801
[-14;-14]	-0.0182	0.9855	-1.0123	0.3114	-1.0071	0.3149	-0.8381	0.4029	-0.2334	0.8155	-0.2202	0.8257	0.5408	0.5886
[-13;-13]	-0.8951	0.3717	-1.4104	0.1584	-1.3768	0.1699	-1.1457	0.2531	0.3260	0.7444	0.3595	0.7192	1.1643	0.2443
[-12;-12]	0.4681	0.6401	1.0039	0.3154	0.9804	0.3279	0.8158	0.4155	0.6457	0.5185	0.7389	0.4600	1.0084	0.3132
[-11;-11]	1.0672	0.2870	0.2635	0.7922	0.2192	0.8267	0.1824	0.8554	0.6515	0.5147	1.1576	0.2470	1.8268	0.0677
[-10;-10]	0.4169	0.6771	0.4474	0.6546	0.4572	0.6480	0.3804	0.7040	-0.2530	0.8003	-0.2543	0.7992	0.2291	0.8188
[-9;-9]	-1.1419	0.2547	-1.4108	0.1583	-1.3718	0.1715	-1.1415	0.2549	-1.2979	0.1943	-1.3407	0.1800	-1.3296	0.1836
[-8;-8]	0.6062	0.5450	0.8095	0.4182	0.7628	0.4463	0.6348	0.5262	0.8843	0.3766	1.0598	0.2892	1.9047	0.0568
[-7;-7]	-0.3636	0.7165	-1.0537	0.2920	-0.8764	0.3817	-0.7293	0.4666	-0.2528	0.8005	0.2079	0.8353	0.5019	0.6158
[-6;-6]	-0.6117	0.5414	0.0261	0.9791	0.0234	0.9814	0.0194	0.9845	0.5692	0.5692	0.7452	0.4561	1.3202	0.1868
[-5;-5]	-1.1233	0.2625	-1.0858	0.2776	-1.0345	0.3020	-0.8609	0.3902	-0.7056	0.4805	-0.6541	0.5131	-0.1606	0.8724
[-4;-4]	0.5064	0.6130	-1.1195	0.2629	-0.9844	0.3260	-0.8192	0.4135	-0.0649	0.9483	0.1775	0.8591	1.3591	0.1741
[-3;-3]	-0.6792	0.4977	-0.0685	0.9454	-0.0545	0.9565	-0.0454	0.9638	-1.2378	0.2158	-0.5783	0.5630	-0.8620	0.3887
[-2;-2]	-0.6216	0.5348	-1.0419	0.2974	-0.9770	0.3296	-0.8130	0.4171	-0.2456	0.8060	-0.1929	0.8470	1.4371	0.1507
[-1;-1]	0.0436	0.9652	0.1050	0.9164	0.0928	0.9262	0.0772	0.9385	-0.0527	0.9580	0.2585	0.7960	0.7357	0.4619
[0;0]	14.8706	0.0000	14.5757	0.0000	3.2638	0.0013	2.7160	0.0071	8.6558	0.0000	6.9723	0.0000	8.4123	0.0000

[1;1]	4.3684	0.0000	1.7465	0.0807	0.2473	0.8049	0.2058	0.8371	4.6479	0.0000	4.2158	0.0000	4.5155	0.0000
[2;2]	0.1671	0.8674	1.8179	0.0691	1.5052	0.1337	1.2526	0.2116	0.6728	0.5011	0.9894	0.3225	0.6188	0.5361
[3;3]	-0.4103	0.6820	0.1454	0.8844	0.1311	0.8958	0.1091	0.9132	-0.0096	0.9924	0.1954	0.8451	0.5798	0.5621
[4;4]	0.0573	0.9544	0.4489	0.6535	0.4170	0.6771	0.3470	0.7289	-0.0044	0.9965	0.0722	0.9425	0.3460	0.7294
[5;5]	-1.1635	0.2458	-0.2399	0.8104	-0.1849	0.8535	-0.1539	0.8778	0.0853	0.9321	0.6041	0.5458	0.8526	0.3939
[6;6]	0.7782	0.4372	0.0156	0.9875	0.0147	0.9883	0.0122	0.9902	-0.1759	0.8604	0.1859	0.8526	0.6577	0.5107
[7;7]	-0.6402	0.5227	-0.6918	0.4891	-0.6736	0.5013	-0.5605	0.5757	-0.4041	0.6861	-0.2951	0.7679	0.4239	0.6716
[8;8]	-1.6350	0.1034	-1.6283	0.1035	-1.5530	0.1218	-1.2923	0.1976	-0.0801	0.9362	-0.0654	0.9479	1.2422	0.2141
[9;9]	-0.5142	0.6076	-0.4386	0.6609	-0.4052	0.6857	-0.3372	0.7363	-0.3146	0.7530	-0.2208	0.8252	0.4239	0.6716
[10;10]	-2.3914	0.0176	-2.0251	0.0429	-1.8707	0.0627	-1.5567	0.1209	-1.0733	0.2831	-1.1364	0.2558	-0.6672	0.5047
[11;11]	0.0690	0.9451	0.2687	0.7882	0.2740	0.7843	0.2280	0.8198	0.1282	0.8980	0.0411	0.9672	-0.3944	0.6933
[12;12]	-1.2400	0.2162	-2.0585	0.0395	-1.8040	0.0726	-1.5012	0.1347	-1.4754	0.1401	-1.1590	0.2464	-0.7841	0.4330
[13;13]	-1.7351	0.0841	-1.7628	0.0779	-1.6405	0.1023	-1.3651	0.1736	-1.2766	0.2018	-1.1266	0.2599	-0.1606	0.8724
[14;14]	-0.4146	0.6788	1.2850	0.1988	1.1869	0.2365	0.9877	0.3244	0.5540	0.5796	0.7983	0.4247	0.3850	0.7003
[15;15]	1.3578	0.1759	0.7107	0.4773	0.6751	0.5003	0.5618	0.5748	0.9410	0.3467	1.0308	0.3026	1.5150	0.1298
[16;16]	-1.0675	0.2869	-0.1683	0.8664	-0.1601	0.8730	-0.1332	0.8942	-0.3558	0.7220	-0.3148	0.7529	0.2681	0.7887
[17;17]	-1.3592	0.1754	-3.0188	0.0025	-2.3255	0.0209	-1.9352	0.0542	-1.5106	0.1309	-1.1559	0.2477	-0.6282	0.5299
[18;18]	-0.4322	0.6660	-1.5478	0.1217	-1.3359	0.1829	-1.1117	0.2675	-1.2576	0.2085	-1.0045	0.3151	-1.2127	0.2252
[19;19]	-1.4256	0.1554	-2.0629	0.0391	-2.0036	0.0463	-1.6673	0.0968	-1.1853	0.2359	-1.3482	0.1776	-0.3944	0.6933
[20;20]	-0.8302	0.4073	0.8480	0.3965	0.8319	0.4064	0.6923	0.4895	0.5958	0.5513	0.6443	0.5194	1.5150	0.1298

Source: Author's elaboration

Appendix 6 Model C - Standardized Value of ARs

t	T-test		Patell (1976)		BMP (1991)		Kolari et al. (2010)		Corrado Rank test (Cowan, 1992)		Corrado and Zivney rank test (1992)		Generalized Sign Test (Cowan, 1992)	
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value
[-10;-10]	0.3265	0.7443	0.3747	0.7079	0.3883	0.6982	0.3168	0.7516	-0.3803	0.7038	-0.4458	0.6557	-0.1794	0.8576
[-9;-9]	-1.3065	0.1927	-1.5469	0.1219	-1.5146	0.1312	-1.2360	0.2177	-1.3820	0.1670	-1.4857	0.1374	-1.5788	0.1144
[-8;-8]	0.5022	0.6160	0.7864	0.4316	0.7556	0.4507	0.6166	0.5381	0.8496	0.3955	1.0162	0.3095	2.0363	0.0417
[-7;-7]	-0.4438	0.6576	-1.0225	0.3066	-0.8830	0.3782	-0.7205	0.4719	-0.2114	0.8326	0.1839	0.8541	0.2870	0.7741
[-6;-6]	-0.6303	0.5291	-0.0080	0.9936	-0.0072	0.9942	-0.0059	0.9953	0.5855	0.5582	0.7668	0.4432	1.2200	0.2225
[-5;-5]	-1.0916	0.2761	-1.0448	0.2961	-1.0002	0.3183	-0.8162	0.4152	-0.5816	0.5608	-0.5113	0.6092	0.1316	0.8953
[-4;-4]	0.3311	0.7409	-1.2270	0.2198	-1.0859	0.2786	-0.8861	0.3764	-0.1312	0.8956	0.0519	0.9586	1.2977	0.1944
[-3;-3]	-0.7376	0.4615	-0.1897	0.8495	-0.1508	0.8802	-0.1231	0.9021	-1.2035	0.2288	-0.6389	0.5229	-1.1901	0.2340
[-2;-2]	-0.6373	0.5245	-1.0814	0.2795	-1.0196	0.3090	-0.8320	0.4062	-0.1963	0.8444	-0.1435	0.8859	0.9090	0.3633
[-1;-1]	-0.0244	0.9806	-0.0099	0.9921	-0.0088	0.9930	-0.0072	0.9943	-0.1793	0.8577	0.2093	0.8342	0.5592	0.5761
[0;0]	14.6378	0.0000	14.2210	0.0000	3.0644	0.0024	2.5006	0.0131	8.4606	0.0000	6.8432	0.0000	8.1782	0.0000
[1;1]	4.1281	0.0001	1.1838	0.2365	0.1598	0.8732	0.1304	0.8964	4.6211	0.0000	4.1346	0.0000	4.6408	0.0000
[2;2]	0.1597	0.8733	1.8629	0.0625	1.5530	0.1217	1.2673	0.2063	0.7037	0.4816	1.0243	0.3057	0.5203	0.6029
[3;3]	-0.3616	0.7180	0.0716	0.9430	0.0650	0.9482	0.0530	0.9577	0.0014	0.9989	0.1321	0.8949	0.5592	0.5761
[4;4]	0.0889	0.9293	0.4310	0.6665	0.4030	0.6873	0.3288	0.7426	-0.0871	0.9306	0.0808	0.9356	0.7146	0.4748
[5;5]	-1.1797	0.2393	-0.2160	0.8290	-0.1650	0.8691	-0.1346	0.8930	0.0286	0.9772	0.5710	0.5680	0.7924	0.4281
[6;6]	0.7293	0.4665	-0.0585	0.9533	-0.0556	0.9557	-0.0453	0.9639	-0.2251	0.8219	0.0878	0.9300	0.6369	0.5242
[7;7]	-0.5803	0.5623	-0.5504	0.5820	-0.5388	0.5905	-0.4397	0.6606	-0.3167	0.7515	-0.1396	0.8890	-0.0628	0.9499
[8;8]	-1.6204	0.1065	-1.6494	0.0991	-1.5787	0.1157	-1.2882	0.1989	-0.0090	0.9928	-0.0622	0.9504	0.8701	0.3842
[9;9]	-0.4695	0.6391	-0.4370	0.6621	-0.4056	0.6854	-0.3309	0.7410	-0.3475	0.7282	-0.1933	0.8467	0.2870	0.7741
[10;10]	-2.3468	0.0198	-2.0329	0.0421	-1.8759	0.0619	-1.5308	0.1271	-1.1573	0.2471	-1.1451	0.2522	-0.7625	0.4458

Source: Author's elaboration

Appendix 7 Model D - Standardized Value of ARs

t	T-test		Patell (1976)		BMP (1991)		Kolari et al. (2010)		Corrado Rank test (Cowan, 1992)		Corrado and Zivney rank test (1992)		Generalized Sign Test (Cowan, 1992)	
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value
[-30;-30]	1.6278	0.1051	2.4394	0.0147	2.3298	0.0208	1.9704	0.0501	0.6024	0.5469	0.8077	0.4192	2.4394	0.0147
[-29;-29]	-1.3369	0.1827	-2.4217	0.0154	-2.2805	0.0236	-1.9287	0.0551	-2.2506	0.0244	-2.4325	0.0150	-1.5714	0.1161
[-28;-28]	0.5563	0.5786	0.3749	0.7077	0.3848	0.7007	0.3255	0.7451	-0.0140	0.9888	-0.0389	0.9690	0.7318	0.4643
[-27;-27]	0.0211	0.9831	0.6741	0.5003	0.6802	0.4971	0.5753	0.5657	-0.4683	0.6396	-0.4784	0.6323	1.2878	0.1978
[-26;-26]	0.4574	0.6478	0.3755	0.7073	0.3025	0.7626	0.2558	0.7983	-0.4717	0.6371	-0.2495	0.8030	1.2481	0.2120
[-25;-25]	0.4178	0.6765	0.9095	0.3631	0.8993	0.3695	0.7606	0.4478	0.1531	0.8783	0.0968	0.9229	1.0892	0.2761
[-24;-24]	1.6006	0.1110	1.5736	0.1156	1.4361	0.1525	1.2145	0.2259	1.2438	0.2136	1.4758	0.1400	2.4394	0.0147
[-23;-23]	0.0262	0.9791	0.7106	0.4773	0.7189	0.4730	0.6080	0.5439	0.1788	0.8581	0.0557	0.9556	1.4863	0.1372
[-22;-22]	1.2666	0.2067	2.3480	0.0189	1.8336	0.0681	1.5508	0.1225	-0.2934	0.7692	-0.0679	0.9459	1.7246	0.0846
[-21;-21]	1.2970	0.1961	1.6530	0.0983	1.6143	0.1080	1.3653	0.1736	1.2729	0.2031	1.4862	0.1372	3.8690	0.0001
[-20;-20]	1.0225	0.3077	1.2903	0.1970	1.1960	0.2331	1.0115	0.3129	0.7955	0.4264	0.9938	0.3203	2.9556	0.0031
[-19;-19]	1.3432	0.1807	2.2507	0.0244	2.1337	0.0340	1.8045	0.0726	0.9225	0.3563	1.1150	0.2648	2.2806	0.0226
[-18;-18]	0.2103	0.8336	-0.5257	0.5991	-0.4876	0.6263	-0.4124	0.6805	-0.5395	0.5895	-0.5832	0.5597	1.2878	0.1978
[-17;-17]	0.7332	0.4642	1.4706	0.1414	1.3174	0.1891	1.1142	0.2665	0.7053	0.4806	0.8054	0.4206	2.1217	0.0339
[-16;-16]	-0.2656	0.7908	0.6587	0.5101	0.6387	0.5237	0.5401	0.5897	0.3504	0.7260	0.3562	0.7217	2.5188	0.0118
[-15;-15]	-0.0861	0.9314	-0.8013	0.4229	-0.7405	0.4598	-0.6262	0.5318	-0.8928	0.3720	-0.7383	0.4603	1.6055	0.1084
[-14;-14]	0.5228	0.6016	-0.1707	0.8645	-0.1717	0.8638	-0.1452	0.8847	-0.4911	0.6234	-0.4865	0.6266	0.8510	0.3948
[-13;-13]	-0.7824	0.4349	-1.0447	0.2962	-1.0372	0.3008	-0.8772	0.3814	-0.3427	0.7319	-0.4227	0.6725	0.8907	0.3731
[-12;-12]	0.9562	0.3401	1.6121	0.1069	1.5764	0.1164	1.3332	0.1839	0.6026	0.5467	0.5210	0.6024	1.5260	0.1270
[-11;-11]	1.1723	0.2424	0.6233	0.5331	0.5593	0.5766	0.4730	0.6367	0.6208	0.5348	0.7583	0.4483	2.0820	0.0373
[-10;-10]	0.8531	0.3946	1.5283	0.1264	1.5660	0.1189	1.3244	0.1868	0.0916	0.9270	0.1066	0.9151	1.7246	0.0846
[-9;-9]	-0.4026	0.6877	-0.2152	0.8296	-0.2117	0.8325	-0.1791	0.8580	-0.8828	0.3773	-0.8932	0.3718	1.1289	0.2589
[-8;-8]	1.4609	0.1455	2.0153	0.0439	1.9233	0.0558	1.6266	0.1053	1.6913	0.0908	1.7781	0.0754	3.5116	0.0004
[-7;-7]	-0.4020	0.6881	-0.6452	0.5188	-0.6110	0.5419	-0.5167	0.6059	-0.4734	0.6360	-0.4055	0.6851	1.0892	0.2761
[-6;-6]	-0.3111	0.7560	0.4941	0.6213	0.4433	0.6580	0.3749	0.7081	0.3253	0.7449	0.3712	0.7105	1.8437	0.0652
[-5;-5]	-0.3849	0.7007	-0.1453	0.8845	-0.1396	0.8891	-0.1181	0.9061	-0.3062	0.7594	-0.2233	0.8233	1.8834	0.0596
[-4;-4]	1.1017	0.2718	-0.3215	0.7478	-0.2878	0.7738	-0.2434	0.8079	0.2457	0.8059	0.3117	0.7553	2.5188	0.0118
[-3;-3]	-0.4581	0.6474	-0.1680	0.8666	-0.1501	0.8808	-0.1270	0.8991	-0.9015	0.3673	-0.7218	0.4704	0.8907	0.3731
[-2;-2]	0.1821	0.8557	-0.0716	0.9429	-0.0704	0.9440	-0.0595	0.9526	0.1810	0.8564	0.0383	0.9694	1.6055	0.1084

[-1;-1]	0.2443	0.8073	0.1325	0.8946	0.1204	0.9043	0.1018	0.9190	-0.5894	0.5556	-0.4112	0.6809	1.1289	0.2589
[0;0]	14.8786	0.0000	17.3311	0.0000	7.6065	0.0000	6.4331	0.0000	8.2870	0.0000	7.4972	0.0000	7.4033	0.0000
[1;1]	4.8377	0.0000	7.4387	0.0000	3.3754	0.0009	2.8547	0.0047	4.8081	0.0000	4.2609	0.0000	6.3311	0.0000
[2;2]	0.7565	0.4502	2.1397	0.0324	1.8028	0.0729	1.5247	0.1288	0.7124	0.4762	0.7752	0.4382	2.8762	0.0040
[3;3]	0.5554	0.5792	1.2517	0.2107	1.1500	0.2515	0.9726	0.3319	0.2372	0.8125	0.3024	0.7624	2.4394	0.0147
[4;4]	0.1952	0.8454	0.4294	0.6676	0.4158	0.6780	0.3517	0.7255	-0.4105	0.6815	-0.3494	0.7268	2.2011	0.0277
[5;5]	-0.6042	0.5463	-0.2596	0.7951	-0.2348	0.8146	-0.1986	0.8428	0.1472	0.8830	0.2223	0.8240	2.4791	0.0132
[6;6]	1.0469	0.2964	0.2719	0.7857	0.2625	0.7932	0.2220	0.8245	-0.1818	0.8557	0.1152	0.9083	1.1686	0.2425
[7;7]	-0.2769	0.7822	0.0368	0.9706	0.0360	0.9713	0.0305	0.9757	-0.4404	0.6597	-0.3456	0.7296	1.3672	0.1716
[8;8]	-1.3568	0.1763	-0.9608	0.3367	-0.9368	0.3499	-0.7923	0.4291	-0.3885	0.6977	-0.4473	0.6547	2.0026	0.0452
[9;9]	-0.0764	0.9392	-0.5575	0.5772	-0.5273	0.5985	-0.4460	0.6561	-0.4487	0.6536	-0.4800	0.6312	1.8834	0.0596
[10;10]	-2.2288	0.0269	-2.0066	0.0448	-1.8781	0.0618	-1.5884	0.1137	-1.7308	0.0835	-1.7898	0.0735	0.0567	0.9548
[11;11]	0.7093	0.4789	0.7324	0.4639	0.7615	0.4472	0.6441	0.5202	-0.0179	0.9857	-0.0623	0.9503	1.5260	0.1270
[12;12]	-0.4683	0.6400	-0.9579	0.3381	-0.8611	0.3902	-0.7283	0.4673	-0.9439	0.3452	-0.7529	0.4515	0.4141	0.6788
[13;13]	-0.9083	0.3648	-0.6899	0.4902	-0.6443	0.5201	-0.5449	0.5864	-0.8934	0.3717	-0.8966	0.3699	0.6524	0.5141
[14;14]	-0.2066	0.8365	1.1975	0.2311	1.1299	0.2598	0.9556	0.3404	0.4689	0.6392	0.5240	0.6003	1.9232	0.0545
[15;15]	1.8724	0.0626	1.6082	0.1078	1.5495	0.1228	1.3105	0.1915	1.0312	0.3024	1.1118	0.2662	3.3131	0.0009
[16;16]	-0.7920	0.4293	-0.0286	0.9772	-0.0274	0.9781	-0.0232	0.9815	-0.4235	0.6719	-0.4146	0.6784	0.4538	0.6499
[17;17]	-0.3874	0.6989	-1.4202	0.1555	-1.2840	0.2006	-1.0859	0.2788	-0.8659	0.3865	-0.8178	0.4135	1.1686	0.2425
[18;18]	0.1032	0.9179	-0.0701	0.9441	-0.0628	0.9500	-0.0531	0.9577	-0.9251	0.3549	-0.7162	0.4739	0.0964	0.9232
[19;19]	-0.6692	0.5041	-0.9776	0.3282	-0.9356	0.3506	-0.7912	0.4297	-0.8913	0.3727	-0.9105	0.3625	1.0495	0.2939
[20;20]	-0.4316	0.6665	1.0312	0.3025	1.0213	0.3083	0.8637	0.3887	0.3207	0.7485	0.3419	0.7325	2.0820	0.0373
[21;21]	-0.1845	0.8538	0.3077	0.7583	0.3020	0.7630	0.2554	0.7987	0.0519	0.9586	0.1432	0.8861	1.3275	0.1843
[22;22]	-0.4719	0.6375	-0.9238	0.3556	-0.8898	0.3746	-0.7526	0.4526	-0.7977	0.4250	-0.8838	0.3768	0.8510	0.3948
[23;23]	0.8323	0.4062	-0.0072	0.9942	-0.0064	0.9949	-0.0054	0.9957	-0.8742	0.3820	-0.7355	0.4621	0.4141	0.6788
[24;24]	0.8238	0.4110	1.7671	0.0772	1.6721	0.0960	1.4142	0.1588	1.1627	0.2449	1.2452	0.2130	3.7102	0.0002
[25;25]	0.3545	0.7233	-0.4889	0.6249	-0.4903	0.6245	-0.4146	0.6788	-0.2337	0.8152	-0.4009	0.6885	1.2878	0.1978
[26;26]	-0.9775	0.3294	-1.1272	0.2597	-1.0187	0.3095	-0.8615	0.3899	-0.7478	0.4546	-0.6443	0.5194	0.4936	0.6216
[27;27]	-1.1066	0.2697	-1.5056	0.1322	-1.4036	0.1619	-1.1871	0.2365	-1.2572	0.2087	-1.2489	0.2117	0.6127	0.5401
[28;28]	0.6236	0.5336	1.4287	0.1531	1.3465	0.1796	1.1388	0.2561	0.9144	0.3605	0.8994	0.3684	1.8040	0.0712
[29;29]	-0.3286	0.7428	-1.0874	0.2769	-1.0926	0.2758	-0.9241	0.3565	-0.7494	0.4536	-0.7689	0.4419	1.1289	0.2589
[30;30]	-0.0159	0.9873	-1.0262	0.3048	-0.9471	0.3447	-0.8010	0.4240	-1.1045	0.2694	-1.0580	0.2901	0.3744	0.7081

Source: Author's elaboration

Appendix 8 Model E - Standardized Value of ARs

t	T-test		Patell (1976)		BMP (1991)		Kolari et al. (2010)		Corrado Rank test (Cowan, 1992)		Corrado and Zivney rank test (1992)		Generalized Sign Test (Cowan, 1992)	
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value
[-30;-30]	0.9829	0.3281	0.8903	0.3733	0.8178	0.4155	0.6704	0.5042	-0.0212	0.9831	0.2261	0.8211	0.1742	0.8617
[-29;-29]	-2.0290	0.0452	-3.4829	0.0005	-3.1487	0.0022	-2.5810	0.0113	-1.9905	0.0465	-2.1404	0.0323	-2.4477	0.0144
[-28;-28]	0.1878	0.8514	-0.2828	0.7773	-0.2637	0.7926	-0.2161	0.8294	-0.0792	0.9368	-0.0185	0.9852	-0.2230	0.8235
[-27;-27]	-0.7331	0.4652	-0.7046	0.4811	-0.6695	0.5047	-0.5488	0.5844	-0.6055	0.5448	-0.6548	0.5126	-0.4614	0.6445
[-26;-26]	0.1429	0.8867	-0.2477	0.8044	-0.1983	0.8432	-0.1626	0.8712	-0.4476	0.6544	-0.1717	0.8637	-0.4216	0.6733
[-25;-25]	0.0454	0.9639	0.1829	0.8549	0.1651	0.8692	0.1353	0.8926	0.3254	0.7449	0.4917	0.6229	0.7701	0.4412
[-24;-24]	0.9929	0.3232	0.1289	0.8974	0.1117	0.9113	0.0916	0.9272	1.0566	0.2907	1.3925	0.1638	1.4852	0.1375
[-23;-23]	-0.5682	0.5712	-0.4047	0.6857	-0.3792	0.7053	-0.3109	0.7566	-0.0168	0.9866	0.0256	0.9796	0.8099	0.4180
[-22;-22]	0.5078	0.6127	0.1509	0.8800	0.1415	0.8878	0.1160	0.9079	-0.4029	0.6870	-0.3447	0.7303	-0.8586	0.3905
[-21;-21]	0.8312	0.4079	1.1015	0.2707	0.9818	0.3286	0.8048	0.4229	0.9222	0.3564	1.2548	0.2095	0.5715	0.5677
[-20;-20]	0.9030	0.3688	1.2809	0.2002	1.0724	0.2862	0.8791	0.3815	1.2816	0.2000	1.7225	0.0850	1.4852	0.1375
[-19;-19]	0.0202	0.9840	0.8027	0.4222	0.6468	0.5193	0.5302	0.5972	0.1689	0.8658	0.5711	0.5679	0.9688	0.3327
[-18;-18]	-0.7427	0.4594	-2.2441	0.0248	-1.9785	0.0507	-1.6217	0.1081	-1.1159	0.2645	-1.0086	0.3132	-1.0573	0.2904
[-17;-17]	0.0833	0.9338	0.4070	0.6840	0.3479	0.7287	0.2852	0.7761	0.7141	0.4752	0.9595	0.3373	1.0879	0.2766
[-16;-16]	-0.6426	0.5220	-0.4858	0.6271	-0.4398	0.6611	-0.3605	0.7193	-0.1678	0.8668	-0.0730	0.9418	-0.4614	0.6445
[-15;-15]	-0.7580	0.4503	-1.9284	0.0538	-1.7058	0.0913	-1.3982	0.1652	-1.3420	0.1796	-1.1676	0.2430	-1.0970	0.2726
[-14;-14]	0.3816	0.7036	-0.7591	0.4478	-0.7234	0.4712	-0.5930	0.5546	-0.2584	0.7961	-0.1793	0.8577	0.6112	0.5410
[-13;-13]	-1.0757	0.2847	-1.8217	0.0685	-1.7195	0.0887	-1.4095	0.1619	-0.0282	0.9775	0.0041	0.9967	0.4523	0.6510
[-12;-12]	0.2637	0.7925	0.6894	0.4906	0.6485	0.5182	0.5316	0.5962	0.4299	0.6673	0.4952	0.6204	0.7701	0.4412
[-11;-11]	1.1117	0.2690	-0.0818	0.9348	-0.0640	0.9491	-0.0524	0.9583	0.5431	0.5870	0.9221	0.3565	1.1674	0.2431
[-10;-10]	0.4045	0.6867	0.1330	0.8942	0.1316	0.8955	0.1079	0.9143	-0.3591	0.7195	-0.3328	0.7393	-0.2230	0.8235
[-9;-9]	-0.7936	0.4294	-1.3708	0.1704	-1.2605	0.2105	-1.0332	0.3041	-0.8833	0.3771	-0.9082	0.3638	-1.2559	0.2092
[-8;-8]	0.6155	0.5396	0.6632	0.5072	0.6100	0.5433	0.5000	0.6182	0.6082	0.5431	0.8105	0.4176	1.2866	0.1982
[-7;-7]	-0.5180	0.6056	-1.5066	0.1319	-1.1817	0.2402	-0.9687	0.3351	-0.1251	0.9004	0.1491	0.8814	0.2537	0.7997
[-6;-6]	-0.9740	0.3325	-0.9868	0.3237	-0.8491	0.3979	-0.6960	0.4881	0.0778	0.9380	0.1996	0.8418	0.9688	0.3327
[-5;-5]	-1.1339	0.2596	-1.3848	0.1661	-1.2845	0.2020	-1.0529	0.2950	-0.8546	0.3928	-0.9242	0.3554	-1.1764	0.2394
[-4;-4]	0.3707	0.7117	0.8499	0.3954	0.3062	0.7601	0.2510	0.8023	-0.1405	0.8883	1.1063	0.2686	0.3332	0.7390
[-3;-3]	-1.2049	0.2312	-0.5022	0.6155	-0.3521	0.7255	-0.2886	0.7735	-0.9115	0.3620	-0.3617	0.7176	-0.9778	0.3282
[-2;-2]	-0.8899	0.3757	-1.4820	0.1384	-1.3057	0.1947	-1.0703	0.2871	-0.5759	0.5647	-0.4865	0.6266	0.0551	0.9561

[-1;-1]	-0.3727	0.7102	-0.6662	0.5053	-0.5410	0.5898	-0.4435	0.6584	-0.2827	0.7774	0.0195	0.9845	0.3332	0.7390
[0;0]	14.9292	0.0000	15.3278	0.0000	3.3338	0.0012	2.7327	0.0075	7.4830	0.0000	6.1634	0.0000	7.6427	0.0000
[1;1]	4.1877	0.0001	0.9833	0.3255	0.1344	0.8933	0.1102	0.9125	4.0565	0.0000	3.5345	0.0004	4.8619	0.0000
[2;2]	0.2375	0.8128	1.1200	0.2627	0.9111	0.3645	0.7469	0.4570	0.4067	0.6842	0.6852	0.4932	0.2140	0.8306
[3;3]	-0.5819	0.5620	-0.3435	0.7312	-0.2938	0.7695	-0.2408	0.8102	-0.3716	0.7102	-0.2121	0.8320	-0.8586	0.3905
[4;4]	-0.0265	0.9789	0.1423	0.8869	0.1275	0.8988	0.1045	0.9170	-0.1068	0.9149	-0.0016	0.9987	0.0948	0.9245
[5;5]	-0.7649	0.4462	-0.1127	0.9102	-0.0832	0.9339	-0.0682	0.9458	0.3362	0.7368	0.6691	0.5034	0.9290	0.3529
[6;6]	0.7247	0.4704	-0.3560	0.7218	-0.3120	0.7557	-0.2557	0.7987	-0.0473	0.9623	0.3407	0.7333	0.0551	0.9561
[7;7]	-0.4195	0.6758	-0.6193	0.5357	-0.5788	0.5641	-0.4744	0.6363	-0.2090	0.8344	-0.1398	0.8888	-1.6134	0.1067
[8;8]	-1.9523	0.0538	-1.9106	0.0561	-1.7473	0.0837	-1.4323	0.1553	-0.6227	0.5335	-0.6320	0.5274	-0.9778	0.3282
[9;9]	-0.8618	0.3909	-0.7934	0.4276	-0.7126	0.4778	-0.5841	0.5605	-0.3878	0.6981	-0.4026	0.6873	-0.2627	0.7928
[10;10]	-2.6675	0.0090	-2.5192	0.0118	-2.3438	0.0211	-1.9212	0.0576	-1.4384	0.1503	-1.5211	0.1282	-1.7723	0.0763
[11;11]	-0.0230	0.9817	0.1660	0.8681	0.1616	0.8720	0.1325	0.8949	-0.0328	0.9738	0.0616	0.9509	-0.3819	0.7025
[12;12]	-1.6696	0.0982	-1.9692	0.0489	-1.6499	0.1022	-1.3524	0.1794	-1.3551	0.1754	-1.0869	0.2771	-1.5340	0.1250
[13;13]	-1.9502	0.0540	-1.7175	0.0859	-1.5394	0.1270	-1.2619	0.2100	-1.1725	0.2410	-1.1203	0.2626	-1.2956	0.1951
[14;14]	-1.0686	0.2879	0.1673	0.8671	0.1527	0.8789	0.1252	0.9006	-0.0897	0.9285	0.0950	0.9243	0.6510	0.5151
[15;15]	1.0361	0.3027	0.2356	0.8138	0.2196	0.8267	0.1800	0.8575	0.6970	0.4858	0.8200	0.4122	0.7304	0.4651
[16;16]	-1.2528	0.2133	-0.5142	0.6071	-0.4578	0.6481	-0.3753	0.7083	-0.3518	0.7250	-0.2391	0.8110	0.2140	0.8306
[17;17]	-1.7864	0.0772	-3.6474	0.0003	-2.8465	0.0054	-2.3333	0.0217	-1.6157	0.1062	-1.2506	0.2111	-1.3353	0.1818
[18;18]	-0.9086	0.3658	-1.8489	0.0645	-1.5377	0.1274	-1.2604	0.2105	-1.1228	0.2615	-0.9253	0.3548	-1.4942	0.1351
[19;19]	-1.8030	0.0745	-2.1222	0.0338	-1.9486	0.0542	-1.5972	0.1135	-1.2027	0.2291	-1.2036	0.2287	-0.7394	0.4596
[20;20]	-1.2494	0.2145	0.3285	0.7425	0.3056	0.7605	0.2505	0.8027	0.3295	0.7418	0.4465	0.6552	0.9688	0.3327
[21;21]	-1.0524	0.2952	-0.7941	0.4271	-0.7273	0.4688	-0.5962	0.5525	-0.2801	0.7794	-0.1378	0.8904	0.0948	0.9245
[22;22]	-1.3447	0.1819	-1.6774	0.0935	-1.5343	0.1282	-1.2577	0.2115	-1.1275	0.2595	-1.1380	0.2551	-0.6997	0.4841
[23;23]	0.1334	0.8941	-0.0363	0.9711	-0.0218	0.9827	-0.0179	0.9858	-0.8491	0.3958	0.0255	0.9797	-1.2559	0.2092
[24;24]	-0.2373	0.8129	0.7058	0.4803	0.6030	0.5479	0.4943	0.6222	0.7455	0.4560	1.0132	0.3110	1.0879	0.2766
[25;25]	-0.8792	0.3815	-1.4498	0.1471	-1.4234	0.1578	-1.1668	0.2462	-0.8746	0.3818	-1.0008	0.3169	-0.9778	0.3282
[26;26]	-1.9302	0.0565	-2.5013	0.0124	-2.1316	0.0356	-1.7473	0.0838	-0.9617	0.3362	-0.8975	0.3695	-1.3353	0.1818
[27;27]	-2.2191	0.0288	-2.7368	0.0062	-2.3899	0.0188	-1.9590	0.0530	-1.8166	0.0693	-1.7560	0.0791	-0.8984	0.3690
[28;28]	-0.3032	0.7624	-0.6890	0.4908	-0.5970	0.5519	-0.4893	0.6257	-0.1196	0.9048	0.1022	0.9186	-0.7792	0.4359
[29;29]	-1.6434	0.1035	-3.0998	0.0019	-2.9438	0.0041	-2.4130	0.0177	-1.5437	0.1227	-1.6445	0.1001	-1.4545	0.1458
[30;30]	-0.9112	0.3644	-1.9917	0.0464	-1.7000	0.0923	-1.3935	0.1667	-1.3411	0.1799	-1.1428	0.2531	-1.7723	0.0763

Source: Author's elaboration

Appendix 9 Model F - Standardized Value of ARs

t	T-test		Patell (1976)		BMP (1991)		Kolari et al. (2010)		Corrado Rank test (Cowan, 1992)		Corrado and Zivney rank test (1992)		Generalized Sign Test (Cowan, 1992)	
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value
[-30;-30]	0.7423	0.4591	1.0943	0.2738	1.0002	0.3188	0.8844	0.3779	-0.0005	0.9996	0.2021	0.8398	-0.6319	0.5274
[-29;-29]	-2.2170	0.0282	-3.6804	0.0002	-3.3964	0.0009	-3.0029	0.0031	-2.3610	0.0182	-2.5340	0.0113	-2.1020	0.0356
[-28;-28]	0.0888	0.9293	-0.1912	0.8484	-0.1866	0.8523	-0.1649	0.8692	-0.1083	0.9138	-0.0694	0.9446	-0.0360	0.9713
[-27;-27]	-0.8204	0.4133	-0.4001	0.6891	-0.3895	0.6975	-0.3444	0.7311	-0.6713	0.5020	-0.7088	0.4784	-0.6717	0.5018
[-26;-26]	-0.0160	0.9873	0.0645	0.9486	0.0508	0.9595	0.0449	0.9642	-0.4168	0.6769	0.0442	0.9647	-0.1154	0.9081
[-25;-25]	-0.3105	0.7566	0.1666	0.8677	0.1582	0.8745	0.1399	0.8889	0.1340	0.8934	0.1857	0.8527	0.4011	0.6884
[-24;-24]	0.9468	0.3453	0.6461	0.5182	0.5726	0.5678	0.5062	0.6135	0.9907	0.3219	1.3248	0.1852	1.4738	0.1405
[-23;-23]	-0.5645	0.5733	-0.1630	0.8705	-0.1562	0.8761	-0.1381	0.8903	0.3280	0.7429	0.3405	0.7335	1.5135	0.1301
[-22;-22]	0.3676	0.7137	0.3710	0.7106	0.3530	0.7246	0.3121	0.7554	-0.3754	0.7074	-0.3771	0.7061	-0.2346	0.8145
[-21;-21]	0.6910	0.4906	1.0544	0.2917	0.9572	0.3400	0.8463	0.3988	0.9428	0.3458	1.3264	0.1847	0.8778	0.3800
[-20;-20]	0.7155	0.4755	1.3767	0.1686	1.2372	0.2180	1.0939	0.2758	1.4130	0.1577	1.7346	0.0828	2.3479	0.0189
[-19;-19]	0.0868	0.9310	0.9630	0.3355	0.8657	0.3881	0.7654	0.4452	0.5152	0.6064	0.8646	0.3873	1.4738	0.1405
[-18;-18]	-0.4540	0.6505	-1.6025	0.1090	-1.4323	0.1542	-1.2664	0.2074	-0.7209	0.4710	-0.6162	0.5378	-0.3538	0.7235
[-17;-17]	0.0712	0.9433	0.6500	0.5157	0.5630	0.5743	0.4978	0.6194	0.7390	0.4599	0.8965	0.3700	0.9573	0.3384
[-16;-16]	-0.5960	0.5521	-0.0252	0.9799	-0.0235	0.9813	-0.0208	0.9835	0.1656	0.8685	0.2758	0.7827	-0.0360	0.9713
[-15;-15]	-0.7425	0.4590	-1.6168	0.1059	-1.4495	0.1493	-1.2816	0.2020	-1.2756	0.2021	-1.0501	0.2937	-0.5525	0.5806
[-14;-14]	0.3044	0.7612	-0.1950	0.8454	-0.1887	0.8506	-0.1669	0.8677	-0.0751	0.9402	0.0601	0.9521	0.9176	0.3588
[-13;-13]	-0.9351	0.3513	-1.3862	0.1657	-1.3281	0.1862	-1.1743	0.2422	0.4276	0.6689	0.4273	0.6692	1.2354	0.2167
[-12;-12]	0.3172	0.7515	0.8902	0.3734	0.8567	0.3930	0.7575	0.4500	0.6235	0.5330	0.6606	0.5089	0.4408	0.6594
[-11;-11]	0.8552	0.3938	0.1218	0.9031	0.0976	0.9224	0.0863	0.9313	0.7269	0.4673	1.1158	0.2645	2.1890	0.0286
[-10;-10]	0.3267	0.7444	0.5650	0.5721	0.5673	0.5714	0.5016	0.6167	-0.1641	0.8696	-0.0963	0.9233	0.6792	0.4970
[-9;-9]	-0.9342	0.3517	-0.9285	0.3531	-0.8774	0.3817	-0.7758	0.4391	-0.8689	0.3849	-0.8659	0.3865	-0.7908	0.4290
[-8;-8]	0.7427	0.4589	1.1789	0.2384	1.1032	0.2717	0.9754	0.3309	0.8747	0.3818	1.0739	0.2829	1.5135	0.1301
[-7;-7]	-0.4575	0.6480	-1.1952	0.2320	-0.9996	0.3191	-0.8838	0.3782	0.1465	0.8835	0.4107	0.6813	0.6792	0.4970
[-6;-6]	-0.9121	0.3632	-0.1684	0.8663	-0.1486	0.8820	-0.1314	0.8956	0.1771	0.8594	0.3153	0.7525	0.9176	0.3588
[-5;-5]	-0.9524	0.3425	-0.8368	0.4027	-0.7878	0.4321	-0.6965	0.4872	-0.5575	0.5772	-0.5281	0.5974	-0.5525	0.5806
[-4;-4]	0.3476	0.7286	-1.1685	0.2426	-1.0310	0.3043	-0.9115	0.3635	0.0438	0.9651	0.1795	0.8575	0.9970	0.3187
[-3;-3]	-0.8840	0.3781	-0.3654	0.7148	-0.3001	0.7646	-0.2653	0.7911	-0.8586	0.3906	-0.4931	0.6219	-1.1484	0.2508
[-2;-2]	-0.6743	0.5012	-1.0846	0.2781	-1.0098	0.3142	-0.8928	0.3734	-0.3157	0.7522	-0.3957	0.6924	0.9176	0.3588

[-1;-1]	-0.2144	0.8305	0.0020	0.9984	0.0018	0.9986	0.0016	0.9987	0.0847	0.9325	0.2964	0.7669	0.6792	0.4970
[0;0]	14.6749	0.0000	15.1604	0.0000	3.2870	0.0013	2.9062	0.0042	8.2554	0.0000	6.5245	0.0000	8.3869	0.0000
[1;1]	4.1504	0.0001	1.5855	0.1129	0.2163	0.8291	0.1912	0.8486	4.4111	0.0000	3.8384	0.0001	4.8509	0.0000
[2;2]	0.1832	0.8549	1.7425	0.0814	1.4256	0.1561	1.2605	0.2095	0.6413	0.5213	0.9561	0.3390	0.8778	0.3800
[3;3]	-0.3645	0.7160	0.3611	0.7180	0.3165	0.7521	0.2798	0.7800	-0.0448	0.9643	0.1391	0.8894	0.0435	0.9653
[4;4]	0.0641	0.9489	0.5070	0.6122	0.4645	0.6430	0.4107	0.6819	0.1032	0.9178	0.2151	0.8297	0.7189	0.4722
[5;5]	-0.9577	0.3398	-0.0638	0.9491	-0.0483	0.9615	-0.0427	0.9660	0.2517	0.8013	0.5829	0.5599	1.1162	0.2643
[6;6]	0.7520	0.4532	-0.0520	0.9585	-0.0482	0.9616	-0.0426	0.9661	-0.0359	0.9714	0.2182	0.8273	0.4011	0.6884
[7;7]	-0.3796	0.7048	-0.1666	0.8677	-0.1599	0.8732	-0.1414	0.8878	-0.2592	0.7955	-0.1115	0.9112	-0.3538	0.7235
[8;8]	-1.7324	0.0853	-1.6734	0.0943	-1.5526	0.1227	-1.3727	0.1719	-0.2611	0.7940	-0.2962	0.7671	0.8778	0.3800
[9;9]	-0.7352	0.4634	-0.8701	0.3843	-0.8061	0.4215	-0.7127	0.4772	-0.2969	0.7665	-0.3420	0.7323	0.6792	0.4970
[10;10]	-2.3583	0.0197	-2.3428	0.0191	-2.1666	0.0319	-1.9156	0.0574	-1.1646	0.2442	-1.2158	0.2241	-1.1087	0.2676
[11;11]	0.3707	0.7114	0.7485	0.4541	0.7450	0.4575	0.6587	0.5111	0.3840	0.7010	0.5014	0.6161	0.3613	0.7178
[12;12]	-1.3636	0.1748	-1.8028	0.0714	-1.5748	0.1175	-1.3924	0.1659	-1.2676	0.2049	-1.0169	0.3092	-0.5525	0.5806
[13;13]	-1.7660	0.0795	-1.5362	0.1245	-1.3957	0.1649	-1.2340	0.2192	-1.0073	0.3138	-0.9691	0.3325	-1.0292	0.3034
[14;14]	-0.7872	0.4324	0.8483	0.3963	0.7756	0.4393	0.6857	0.4940	0.4755	0.6344	0.6572	0.5111	0.9176	0.3588
[15;15]	1.1665	0.2453	0.7067	0.4797	0.6648	0.5072	0.5878	0.5576	1.0354	0.3005	1.2093	0.2265	2.2287	0.0258
[16;16]	-1.0746	0.2843	-0.1037	0.9174	-0.0957	0.9239	-0.0846	0.9327	-0.1894	0.8498	-0.1182	0.9059	0.4805	0.6308
[17;17]	-1.4208	0.1575	-3.0468	0.0023	-2.5195	0.0128	-2.2276	0.0274	-1.5710	0.1162	-1.3090	0.1905	-1.0292	0.3034
[18;18]	-0.6230	0.5343	-1.2561	0.2091	-1.0833	0.2805	-0.9578	0.3398	-0.9502	0.3420	-0.7694	0.4417	-0.9100	0.3628
[19;19]	-1.5024	0.1351	-1.9066	0.0566	-1.7928	0.0751	-1.5851	0.1151	-1.0113	0.3118	-1.0404	0.2981	-0.9498	0.3422
[20;20]	-0.8892	0.3754	0.8031	0.4219	0.7809	0.4361	0.6904	0.4910	0.6223	0.5338	0.7972	0.4253	1.7519	0.0798
[21;21]	-0.8832	0.3786	-0.2759	0.7826	-0.2629	0.7930	-0.2324	0.8165	0.0108	0.9914	0.1902	0.8491	0.2422	0.8087
[22;22]	-0.9745	0.3314	-1.5291	0.1262	-1.4408	0.1518	-1.2739	0.2047	-1.0005	0.3171	-1.1259	0.2602	-0.1949	0.8455
[23;23]	0.3520	0.7254	0.2181	0.8274	0.1329	0.8945	0.1175	0.9066	-0.6398	0.5223	0.2395	0.8107	0.7587	0.4481
[24;24]	0.3734	0.7094	1.4758	0.1400	1.3052	0.1939	1.1540	0.2504	1.6144	0.1065	1.7603	0.0784	2.3081	0.0210
[25;25]	-0.4874	0.6267	-1.1267	0.2599	-1.1231	0.2632	-0.9930	0.3223	-0.3335	0.7388	-0.4741	0.6354	0.5203	0.6029
[26;26]	-1.7477	0.0826	-1.9689	0.0490	-1.6986	0.0915	-1.5018	0.1353	-0.7763	0.4376	-0.6138	0.5394	-0.7114	0.4768
[27;27]	-1.8341	0.0687	-2.3350	0.0195	-2.1247	0.0353	-1.8785	0.0623	-1.5176	0.1291	-1.4715	0.1411	-0.5127	0.6081
[28;28]	-0.0322	0.9744	0.3164	0.7517	0.2875	0.7741	0.2542	0.7997	0.5638	0.5729	0.6871	0.4920	0.3216	0.7477
[29;29]	-1.2588	0.2101	-2.1911	0.0284	-2.0799	0.0393	-1.8389	0.0679	-1.0879	0.2767	-1.1718	0.2413	-1.0292	0.3034
[30;30]	-0.6207	0.5358	-1.8032	0.0714	-1.5883	0.1144	-1.4043	0.1624	-1.1216	0.2621	-0.9781	0.3280	-1.1882	0.2348

Source: Author's elaboration

Appendix 10 Regression models - sample composition

Country of the bidder	**n. obs.**
Belgium	1
Bulgaria	1
Croatia	3
Cyprus	3
Denmark	30
Estonia	4
Finland	81
France	216
Germany	122
Greece	16
Hungary	6
Ireland	32
Italy	97
Luxembourg	13
Malta	2
Netherlands	63
Poland	46
Portugal	15
Slovenia	3
Spain	71
Sweden	192
United Kingdom	397
United States of America	788
TOTAL OBS.	**2,202**

Source: Author's elaboration

Appendix 11 Estimates of Models presented in Section 7.3.5 "Other Models"

Part 1

CAR [-3;+3]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0014	-0.0028	-0.0069 *	-0.0036 **	-0.0016	-0.0026
M&A_100%	-0.0011	-0.0009	-0.0094	-0.0004	-0.0007	0.0085
Stake	0.0001	0.0001	0.0002	0.0000	0.0000	0.0000
Area	0.0078	0.0078	0.0132 *	0.0084	0.0080	0.0016
Cash	0.0092 **	0.0092 **	0.0093 ***	0.0095 ***	0.0094 **	0.0060
PolStab	-0.0070	-0.0059	0.0031	-0.0071	-0.0070	-0.0198
CPI	-0.0007 **	-0.0007 **	-0.0006	-0.0007 **	-0.0007 **	-0.0019 **
Legal	-0.0100	-0.0100	-0.0170 **	-0.0112	-0.0103	-0.0069
GDP_diff	0.0000	0.0001	-0.0001	0.0000	0.0000	0.0000
industry	-0.0042	-0.0043	0.0056	-0.0044	-0.0041	-0.0044
Rev	-0.0022 *	-0.0023 *	-0.0012	-0.0020	-0.0021	-0.0020
PE		-0.0143				
PE_CAGE		0.0025				
ESG score			-0.0009 **			
ESG_CAGE			0.0001 *			
Record				-0.0039 ***		
Record_CAGE				0.0006 ***		
Acc.std					-0.0109	
AS_CAGE					0.0007	
Int_BoD						-0.0345
Int_CAGE						0.0025
constant	-0.1541 ***	-0.1416 ***	0.0402	-0.1438 ***	-0.1522 ***	-0.1433 ***
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0295	0.0302	0.0661	0.0323	0.0299	0.0270
Root MSE =	0.0840	0.0840	0.0523	0.0839	0.0840	0.0871

Part 2

CAR [-2;+10]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0007	-0.0036 *	-0.0059	-0.0028	-0.0008	-0.0012
M&A_100%	-0.0023	-0.0020	-0.0157	-0.0016	-0.0026	0.0058
Stake	0.0002	0.0002	0.0003 **	0.0001	0.0002	0.0001
Area	0.0025	0.0025	0.0107	0.0030	0.0026	-0.0089
Cash	0.0105 **	0.0104 **	0.0136 ***	0.0108 **	0.0105 **	0.0105 *
PolStab	-0.0044	-0.0022	0.0087	-0.0045	-0.0044	-0.0087
CPI	-0.0004	-0.0004	-0.0001	-0.0004	-0.0004	-0.0022 **
Legal	0.0008	0.0008	-0.0129	-0.0004	0.0009	0.0073
GDP_diff	0.0001	0.0001	-0.0001	0.0001	0.0001	0.0000
industry	-0.0058	-0.0060	0.0005	-0.0060	-0.0059	-0.0065

Rev	-0.0009	-0.0011	-0.0003	-0.0007	-0.0009	-0.0011
PE		-0.0278 **				
PE_CAGE		0.0050 **				
ESG score			-0.0008			
ESG_CAGE			0.0001			
Record				-0.0038 **		
Record_CAGE				0.0005 **		
Acc.std					-0.0135	
AS_CAGE					0.0041	
Int_BoD						-0.0381
Int_CAGE						0.0035
constant	-0.3088 ***	-0.2836 ***	-0.0120	-0.2991 ***	-0.3093 ***	-0.3044 ***
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0253	0.0274	0.0471	0.0270	0.0256	0.0352
Root MSE =	0.1047	0.1047	0.0706	0.1047	0.1048	0.1003

Part 3

CAR [-2;+7]	**Base**	**Private Equity**	**ESG Score**	**Track record**	**Acc Std Consistency**	**Int. Bod Rate**
Cage	-0.0011	-0.0032 *	-0.0053	-0.0036 **	-0.0013	-0.0019
M&A_100%	-0.0049	-0.0046	-0.0111	-0.0041	-0.0051	0.0004
Stake	0.0002	0.0002	0.0003 **	0.0002	0.0002	0.0002
Area	0.0022	0.0022	0.0098	0.0029	0.0025	-0.0082
Cash	0.0084 **	0.0084 **	0.0108 ***	0.0087 **	0.0085 **	0.0065
PolStab	0.0015	0.0030	0.0103	0.0013	0.0014	-0.0093
CPI	-0.0004	-0.0004	-0.0002	-0.0004	-0.0004	-0.0018 **
Legal	-0.0019	-0.0019	-0.0124	-0.0033	-0.0019	0.0037
GDP_diff	0.0001	0.0001	-0.0001	0.0001	0.0001	0.0001
industry	-0.0065	-0.0067	0.0011	-0.0068	-0.0066	-0.0076
Rev	-0.0021	-0.0022	-0.0008	-0.0018	-0.0021	-0.0023
PE		-0.0210 *				
PE_CAGE		0.0036 *				
ESG score			-0.0006			
ESG_CAGE			0.0001			
Record				-0.0043 ***		
Record_CAGE				0.0006 ***		
Acc.std					-0.0212	
AS_CAGE					0.0053	
Int_BoD						-0.0370
Int_CAGE						0.0034
constant	-0.1379 ***	-0.1197 ***	-0.0016	-0.1270 ***	-0.1376 ***	-0.1280 ***
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0265	0.0279	0.0495	0.0293	0.0270	0.0323
Root MSE	0.0924	0.0924	0.0619	0.0923	0.0924	0.0912

Part 4

CAR [1;+15]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0007	-0.0031	-0.0042	-0.0024	-0.0008	-0.0019
M&A_100%	-0.0037	-0.0038	-0.0175 *	-0.0032	-0.0045	0.0030
Stake	0.0003 *	0.0003	0.0003 **	0.0003	0.0003 *	0.0002
Area	0.0002	0.0003	0.0066	0.0006	0.0005	-0.0063
Cash	0.0079	0.0076	0.0109 **	0.0081	0.0079	0.0119 **
PolStab	0.0047	0.0067	0.0095	0.0046	0.0046	0.0130
CPI	-0.0005	-0.0005	0.0001	-0.0005	-0.0005	-0.0021 **
Legal	0.0034	0.0036	-0.0090	0.0025	0.0037	0.0076
GDP_diff	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001
industry	-0.0052	-0.0054	-0.0046	-0.0054	-0.0054	-0.0073
Rev	0.0024	0.0021	0.0010	0.0025	0.0023	0.0020
PE		-0.0171				
PE_CAGE		0.0040				
ESG score			-0.0003			
ESG_CAGE			0.0001			
Record				-0.0030 *		
Record_CAGE				0.0004 *		
Acc.std					-0.0262	
AS_CAGE					0.0081	
Int_BoD						-0.0110
Int_CAGE						0.0031
constant	-0.2533 ***	-0.2342 ***	-0.0462	-0.2457 ***	-0.2544 ***	-0.2482 ***
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0205	0.0223	0.0295	0.0213	0.0215	0.0323
Root MSE =	0.1137	0.1137	0.0719	0.1137	0.1137	0.1004

*Legend: * p<0.1; ** p<0.05; *** p<0.01*

Source: Author's elaboration

Appendix 12 Regressors for Models presented in Section 7.4.3 "Other Models"

Part 1

CAR [-2;+10]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0007	-0.0036 *	-0.0059	-0.0028	-0.0008	-0.0012
M&A_100%	-0.0023	-0.0020	-0.0157	-0.0016	-0.0026	0.0058
Stake	0.0002	0.0002	0.0003 **	0.0001	0.0002	0.0001
Area	0.0025	0.0025	0.0107	0.0030	0.0026	-0.0089
Cash	0.0105 **	0.0104 **	0.0136 ***	0.0108 **	0.0105 **	0.0105 *
PolStab	-0.0044	-0.0022	0.0087	-0.0045	-0.0044	-0.0087
CPI	-0.0004	-0.0004	-0.0001	-0.0004	-0.0004	-0.0022 **
Legal	0.0008	0.0008	-0.0129	-0.0004	0.0009	0.0073
GDP_diff	0.0001	0.0001	-0.0001	0.0001	0.0001	0.0000
industry	-0.0058	-0.0060	0.0005	-0.0060	-0.0059	-0.0065
Rev	-0.0009	-0.0011	-0.0003	-0.0007	-0.0009	-0.0011
Year	0.0000	-0.0002	0.0007	0.0000	0.0000	-0.0004
PE		-0.0278 **				
PE_CAGE		0.0050 **				
ESG score			-0.0008			
ESG_CAGE			0.0001			
Record				-0.0038 **		
Record_CAGE				0.0005 **		
Acc.std					-0.0135	
AS_CAGE					0.0041	
Int_BoD						-0.0381
Int_CAGE						0.0035
constant	-0.3525	0.0448	-1.5105	-0.2206	-0.3007	0.5256
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0253	0.0274	0.0471	0.0270	0.0256	0.0352
Root MSE =	0.1047	0.1047	0.0706	0.1047	0.10475	0.10026

Part 2

CAR [-2;+7]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0011	-0.0032 *	-0.0053	-0.0036 **	-0.0013	-0.0019
M&A_100%	-0.0049	-0.0046	-0.0111	-0.0041	-0.0051	0.0004
Stake	0.0002	0.0002	0.0003 **	0.0002	0.0002	0.0002
Area	0.0022	0.0022	0.0098	0.0029	0.0025	-0.0082
Cash	0.0084 **	0.0084 **	0.0108 ***	0.0087 **	0.0085 **	0.0065
PolStab	0.0015	0.0030	0.0103	0.0013	0.0014	-0.0093
CPI	-0.0004	-0.0004	-0.0002	-0.0004	-0.0004	-0.0018 **
Legal	-0.0019	-0.0019	-0.0124	-0.0033	-0.0019	0.0037
GDP_diff	0.0001	0.0001	-0.0001	0.0001	0.0001	0.0001
industry	-0.0065	-0.0067	0.0011	-0.0068	-0.0066	-0.0076

Rev	-0.0021	-0.0022	-0.0008	-0.0018	-0.0021	-0.0023
Year	0.0001	0.0000	0.0005	0.0000	0.0001	-0.0006
PE		-0.0210 *				
PE_CAGE		0.0036 *				
ESG score			-0.0006			
ESG_CAGE			0.0001			
Record				-0.0043 ***		
Record_CAGE				0.0006 ***		
Acc.std					-0.0212	
AS_CAGE					0.0053	
Int_BoD						-0.0370
Int_CAGE						0.0034
constant	-0.3431	-0.1362	-0.9280	-0.1948	-0.3219	1.0411
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0265	0.0279	0.0495	0.0293	0.027	0.0323
Root MSE =	0.0924	0.0924	0.0619	0.0923	0.09242	0.09122

Part 3

CAR [-3;+3]	**Base**	**Private Equity**	**ESG Score**	**Track record**	**Acc Std Consistency**	**Int. Bod Rate**
Cage	-0.0014	-0.0028	-0.0069 *	-0.0036 **	-0.0016	-0.0026
M&A_100%	-0.0011	-0.0009	-0.0094	-0.0004	-0.0007	0.0085
Stake	0.0001	0.0001	0.0002	0.0000	0.0000	0.0000
Area	0.0078	0.0078	0.0132 *	0.0084	0.0080	0.0016
Cash	0.0092 **	0.0092 **	0.0093 ***	0.0095 ***	0.0094 **	0.0060
PolStab	-0.0070	-0.0059	0.0031	-0.0071	-0.0070	-0.0198
CPI	-0.0007 **	-0.0007 **	-0.0006	-0.0007 **	-0.0007 **	-0.0019 **
Legal	-0.0100	-0.0100	-0.0170 **	-0.0112	-0.0103	-0.0069
GDP_diff	0.0000	0.0001	-0.0001	0.0000	0.0000	0.0000
industry	-0.0042	-0.0043	0.0056	-0.0044	-0.0041	-0.0044
Rev	-0.0022 *	-0.0023 *	-0.0012	-0.0020	-0.0021	-0.0020
Year	0.0001	0.0000	0.0007	0.0000	0.0001	-0.0004
PE		-0.0143				
PE_CAGE		0.0025				
ESG score			-0.0009 **			
ESG_CAGE			0.0001 *			
Record				-0.0039 ***		
Record_CAGE				0.0006 ***		
Acc.std					-0.0109	
AS_CAGE					0.0007	
Int_BoD						-0.0345
Int_CAGE						0.0025
constant	-0.3217	-0.1658	-1.4112	-0.1909	-0.4120	0.7307
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0295	0.0302	0.0661	0.0323	0.0299	0.027
Root MSE =	0.0840	0.0840	0.0532	0.0839	0.084	0.08714

Part 4

CAR [+1;+15]	Base	Private Equity	ESG Score	Track record	Acc Std Consistency	Int. Bod Rate
Cage	-0.0007	-0.0031	-0.0042	-0.0024	-0.0008	-0.0019
M&A_100%	-0.0037	-0.0038	-0.0175 *	-0.0032	-0.0045	0.0030
Stake	0.0003 *	0.0003	0.0003 **	0.0003	0.0003 *	0.0002
Area	0.0002	0.0003	0.0066	0.0006	0.0005	-0.0063
Cash	0.0079	0.0076	0.0109 **	0.0081	0.0079	0.0119 **
PolStab	0.0047	0.0067	0.0095	0.0046	0.0046	0.0130
CPI	-0.0005	-0.0005	0.0001	-0.0005	-0.0005	-0.0021 **
Legal	0.0034	0.0036	-0.0090	0.0025	0.0037	0.0076
GDP_diff	0.0001	0.0001	0.0000	0.0001	0.0001	0.0001
industry	-0.0052	-0.0054	-0.0046	-0.0054	-0.0054	-0.0073
Rev	0.0024	0.0021	0.0010	0.0025	0.0023	0.0020
Year	0.0001	-0.0003	0.0004	0.0000	0.0000	-0.0001
PE		-0.0171				
PE_CAGE		0.0040				
ESG score			-0.0003			
ESG_CAGE			0.0001			
Record				-0.0030 *		
Record_CAGE				0.0004 *		
Acc.std					-0.0262	
AS_CAGE					0.0081	
Int_BoD						-0.0110
Int_CAGE						0.0031
constant	-0.4068	0.3392	-0.9175	-0.3033	-0.3015	-0.1176
Number of obs =	2,202	2,202	1,100	2,202	2,202	1,331
R-squared =	0.0205	0.0223	0.0295	0.0213	0.0215	0.0323
Root MSE =	0.1137	0.1137	0.0719	0.1137	0.11372	0.10035

Appendix 13 T-test for ESG-mapped and non ESG-mapped companies

	ESG-mapped	*non ESG-mapped*
Average	0.32%	0.29%
Variance	0.10%	0.40%
n. obs	1,100	1,102
t-stat	0.127	
P(T<=t) one tail	0.449	
t-value	1.646	
P(T<=t) two tails	0.899	
t-value	1.961	

Source: Author's elaboration

Appendix 14 T-test for EU and US companies

	EU	*USA*
Average	0.33%	0.27%
Variance	0.24%	0.27%
n. obs	1,414	788
t-stat	0.275	
P(T<=t) one tail	0.392	
t-value	1.646	
P(T<=t) two tails	0.784	
t-value	1.961	

Source: Author's elaboration

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LIST OF PUBLICATIONS:

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- Caselli, S., Negri G., Private Equity and Venture Capital in Europe: Markets, Techniques, and Deals, Second Edition, Elsevier, 2018

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