HOW CAN WE CREATE VALUE FROM ENTERPRISE CONCENTRATIONS? A META-ANALYSIS OF THE SCIENTIFIC LITERATURE ON M&AS IN THE EUROPEAN UNION

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Abstract

The aim of this paper is to present, using a quantitative and qualitative analysis of the scientific literature published by authors from the European Union, regarding the concepts of value creation/destruction through mergers and acquisitions (M&As) and their quantification, the latter being made by measuring the abnormal returns and the performance of the concentration. The purpose of the paper is reached by conducting a meta-analysis of the scientific literature on mergers, acquisitions and synergy. The sample consists of 83 papers, published between 1999 and 2017, which approach the presented subjects from both a theoretical perspective and an empirical one. The analysis and classification of the literature made possible the identification of the main topics in the field and contributes to a future research agenda in the field. This analysis has, as main purpose, to draw attention on the preoccupation of the researchers and practitioners in the field, by pointing out the results and the main conclusions of the studies from the chosen sample of papers.

Keywords: synergy, post-merger integration, abnormal returns, domestic and cross-border mergers and acquisitions, meta-analysis

Introduction

Mergers and acquisitions (M&As) are a vast field of research for practitioners and researchers alike. These are some of the preferred growth strategies of the last decade (proof is the M&As waves worldwide). The complex phenomenon that M&As represent has attracted the interest of researchers of a broad range of disciplines: management, accounting, finance, encompassing the financial, strategic, behavioural, operational and cross-cultural aspects of this challenging and high-risk activity. While, in the recent years, research into the human and psychological aspects of M&A have increased in prominence, the literature continues to be dominated by financial and market studies (Cartwright and McCarthy, 2005).

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In this paper, we provide a meta-analytic synthesis of the findings of studies on synergy effect resulting from external growth operations, namely mergers and acquisitions. From an economic point of view, synergy is a phenomenon that typically occurs in the context of M&As. This effect refers to the likelihood of creating value as a consequence of these types of operations. In the scientific literature M&As are treated both separately and together. Few are those who have set out to make a conceptual delimitation from an economic, legislative or fiscal point of view. The two operations are so similar that, in many papers there is no difference between them, the authors preferring to treat them together.

Once, the only way in which the researchers were documenting their work was by going to the library. Nowadays, the information technology has brought the possibility of querying databases. If we were to understand how querying works, let us try and imagine a librarian who knows where to find, in optimal timing, the materials the researchers need, all in a very short time, like milliseconds. The query is usually based on keywords and time period. And, if the results of the search are not the expected ones, all the aforementioned steps have to be made all over again. So, online databases made research at only a few clicks away, and no librarian. The advantages of querying online scientific databases are obvious in this respect.

In order to establish the current state of knowledge, we carry out a quantitative and qualitative analysis of a number of research papers, regarding M&As, extracted from four scientific databases. This was possible through the Anelis Plus platform which operates with the purpose of "representing the information and documentation interests […], promoting knowledge and supporting the implementation of education and research policies through the acquisition of scientific electronic resources for education and research […] of the Romanian users". The selected databases are "Web of Science" (WOS), "SpringerLink", "Scopus", and "Taylor & Francis Online" (T&F). It is worth mentioning that the reason we only stopped at these scientific databases lies in the fact that, on the aforementioned platform, we have been granted access only to them. The principle behind these databases is that of querying, of advanced search in the online platform, through a variety of scientific papers dealing with various topics and belonging to various fields. Given the title of the conference, we extract only the papers with authors from the European Union, in order to establish which were the main topics of research, in the 28 member states.

1. Quantitative dimensions in analysing the papers regarding merger, acquisitions and synergy

In elaborating a research paper, the delimitation of the knowledge in the field is necessary. Thus, it is imperative to present, in the form of an inventory of ideas, the issues and topics regarding M&As that have been and still are discussed and analysed in the relevant scientific literature.

1.1. The selection of the sample of scientific papers

In order to reach the purpose of the paper, we choose a composed structure: "mergers and acquisitions" or "mergers" or "acquisitions" and "synergy". The reason we choose this structure was because we want to identify those papers which make references to the controverted synergy effect from M&As. On a simple search on any of the selected databases using the word synergy, there can be thousand results (i.e. 45.107 (WOS, 2018), 95.052 (SpringerLink, 2018), 56.855 (Scopus, 2018), 45.890 (T&F, 2018)). The explanation is simple: the synergy effect occurs not only in the context of merger and acquisition operations, but also in other fields such as chemistry, biology, psychology, IT etc.

In constructing the query structure, we have considered the idea that we want to identify those papers that address the synergy effect from both merger and acquisition operations, but also together, if it is the case. The "library" behind the previously listed databases gives us the opportunity to search for articles, not just by keywords, but also within a time frame chosen by each researcher. In order to carry out the study, both in quantitative and qualitative terms, we present, in Table 1, the number of articles extracted from each database, but also the followed steps, in order to keep, for the final analysis, only the papers that were published by European authors as sole, first or second author.

Table 1. Number of papers selected from the databases

| Selection criterion		Preliminary results	No. of paper duplicates	No. of irrelevant papers	No. of papers with authors out of EU	No. Of papers with authors within EU
		(1)	(2)	(3)	(4)	(5)
Databases	WOS	141	4	59	45	25
	SpringerLink	134	5	103	21	5
	Scopus	181	78	59	24	20
	T&F	330	9	271	25	33
	Total	786	96	492	115	83

Source: own representation

The first column of Table 1, respectively preliminary results, is the number of articles obtained by querying the databases using the aforementioned search expressions. We note that the total number of resulted papers is 786, divided in percentages between the selected databases as follows: WOS – 17,94%, SpringerLink – 17,05%, Scopus – 23,03%, T&F – 41,98%. The second column refers to the duplicate papers which were eliminated from one of the databases and kept in the one which is more notorious. The third column is dedicated to irrelevant papers, which discuss synergy from a perspective which do not represent our area of interest. The forth column refers to those papers that where published by authors outside the European Union. Because our study is focused only on papers written by European authors, we have excluded 115 papers. Thus, our final sample of papers consists of 83 scientific articles.

The distribution of the 83 papers between the four databases is graphically represented in Figure 1.

Figure 1. The sample of scientific papers divided between the four databases
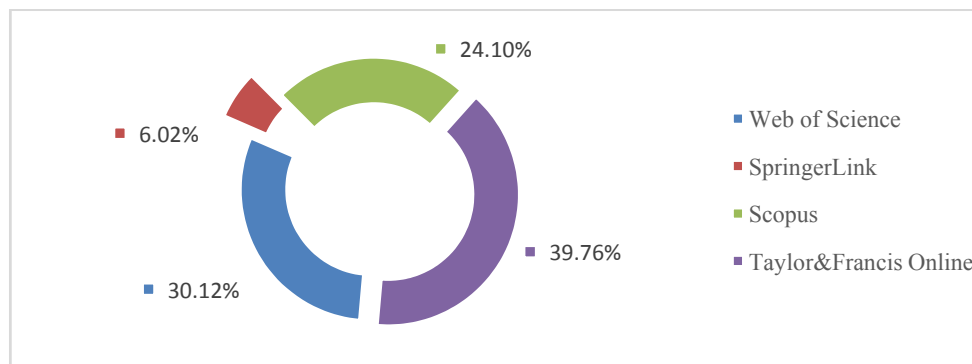
Source: own representation

In percentages, the majority share is held by T&F with 39,76%, followed by WOS, 30,12%; Scopus, 24,1% and SpringerLink, 6,02%, as can be seen in Figure 1.

Table 2. The distribution by years of the sample

Year	1999	2001	2002	2003	2004	2005	2006	2007	2008
No.of papers	1	1	1	1	1	3	2	6	5
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
No.of papers	3	7	4	8	4	3	11	12	10

Source: own representation

As presented in Table 2, the most papers were published in the last three years (2015, 2016, 2017), because of the increase in the volume and the value of the M&As in Europe (2015 – 1.161 billion EUR and 17.520 transactions; 2016 – 1.003 billion EUR and 18.100 transactions; 2017 – 976 billion EUR and 17.068 transactions) (Institute for Mergers, Acquisitions and Alliances – IMAA, 2018).

1.2. The analysis of the journals from a geographical perspective

In Figure 2, we graphically represent the country of residence of the researchers who published scientific papers as sole authors.

We note that most of the work in this category is from United Kingdom (6 scientific papers), followed by Finland (3 scientific papers) and, on equal terms, by France and Portugal (2 scientific papers). As can be seen in Table 3, the countries can be coded using the three-letter code assigned by the International Olympic Committee (IOC) to each participating nation and other groups competing in the Olympic Games. We prefer this coding system because of its notoriety since 1896,

when Pierre de Coubertin, a French historian, reopened the Olympic Games after a period of 1500 years. Thus, he is considered to be the founder of IOC and of the modern Olympic Games.

Figure 2. The number of papers with one author
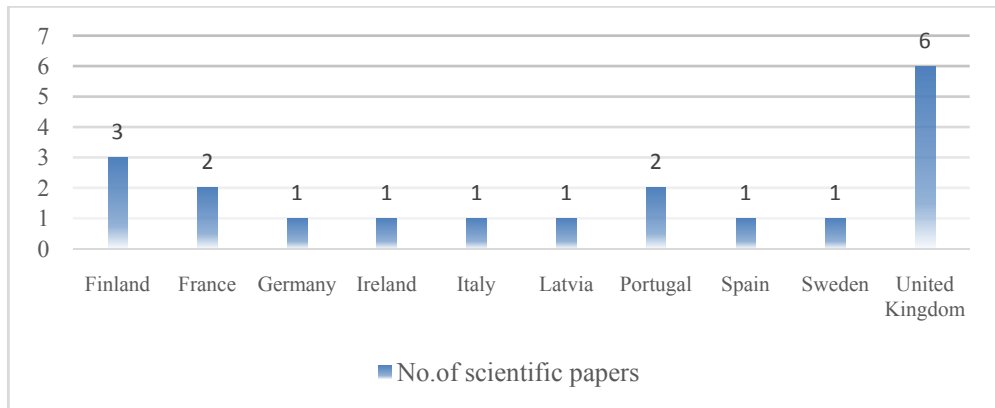
Source: own representation

Table 3. The country abbreviations using IOC code

Country	Abbreviation	Country	Abbreviation
Austria	AUT	Italy	ITA
Belgium	BEL	Latvia	LAT
Brasilia	BRA	United Kingdom	GBR
Canada	CAN	Pakistan	PAK
Popular Rep. of China	CHN	Poland	POL
South Korea	KOR	Spain	ESP
Finland	FIN	United States	USA
France	FRA	Of America	
Germany	GER	Sweden	SWE
Greece	GRE	Netherlands	NED

Source: Olympian Database[1]

In Table 4, as it can be seen, we made a correlation between the first and the second author's country. Starting from the idea of a cross-border merger, we consider that a phenomenon such as the synergy effect should not be studied only by authors from the same country of residence, but also may be the occasion for international collaborations. At least one author is from the European Union. At the intersection of the abscissa with the ordinate, we can identify whether there have been collaboration within the same country, as well as collaborations between

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[1] Data retreived from http://www.olympiandatabase.com/index.php?id=1670&L=1

authors from different countries. In this analysis, we eliminate the papers with a sole author (19 articles). Thus, the table is based on the rest of 64 scientific papers.

Table 4. The geographical correspondence of the first and second authors' country

	AUS	BEL	CAN	FIN	FRA	GER	GRE	ITA	LAT	NED	POL	CHN	KOR	ESP	SWE	UK	USA	Total
AUS	2																	2
BEL		1																1
BRA																1		1
FIN				5											1		1	7
FRA					2		1					1				2	1	7
GER						5							1					6
ITA								7								2		9
LAT									1									1
NED										2							1	3
PAK						1												1
POL											1							1
CHN																1		1
ESP														1				1
SWE				2											1			3
UK	1		1							2						10		14
USA					2			1		1						2		6
Total	3	1	1	7	4	6	1	8	1	5	1	1	1	1	2	18	3	64

Source: own representation

As shown in Table 4, the most collaborations within the same country are from United Kingdom (10 scientific papers), followed by Italy (7 scientific papers), and, on the same level, by Finland and Germany (5 scientific papers). If we make reference to collaborations between authors with residence in different countries, the image is pretty equilibrated, having at most two collaborations of this kind.

1.3. The analysis of the journals in the sample using elements of research quality

The principle according to which a database is comprised of some scientific journals in the detriment of others is a matter debated by each platform. The journals are usually classified according to some indicators, including the H index. This index reflects both the number of publications and the number of citations per publication. Its purpose is to improve and impose simpler measures to quantify the prestige of a journal. It should be noted that the use of this index is relevant only for the comparison of the quality of research per author who initiates scientific research in the same field, since citation conventions vary widely between different domains.

In Table 5 we represent a downward sorting of the first ten scientific journals, using the H index as sorting criterion for the year 2016, out of 59 journals that are in our database. The platform we extracted from the H index is the Scimago Journal and Country Rank (Scimagojr). This platform also uses an independent indicator, SJR, which also measures the prestige of the scientific journal. We note in Table 5, that the most relevant journal is Review of Financial

Studies because it has the highest SJR. In order to have a complete picture of the SJR index for the 10 selected journals, in Figure 3 we present the evolution of the SJR index for the 1999-2016 period of time.

Table 5. The first ten scientific journals, after H index and SJR

No.	The name of the journal	H index	SJR	No. of papers	Publishing period
1	Strategic Management Journal	219	7.651	2	2002-2016
2	Academy of Management Review	216	8.041	1	2017
3	Organization Science	186	5.87	1	2008
4	Research Policy	178	3.625	1	2016
5	Journal of International Business Studies	148	4.848	1	2016
6	Review of Financial Studies	135	12.989	1	2017
7	Journal of International Economics	108	4.657	1	2001
8	The International Journal of Human Resource Management	82	0.871	6	2006-2016
9	MIT Sloan Management Review	77	1.231	1	2012
10	Long Range Planning	76	2.697	2	2003-2007

Source: own representation

Figure 3. The evolution of the SJR Index for the selected journals
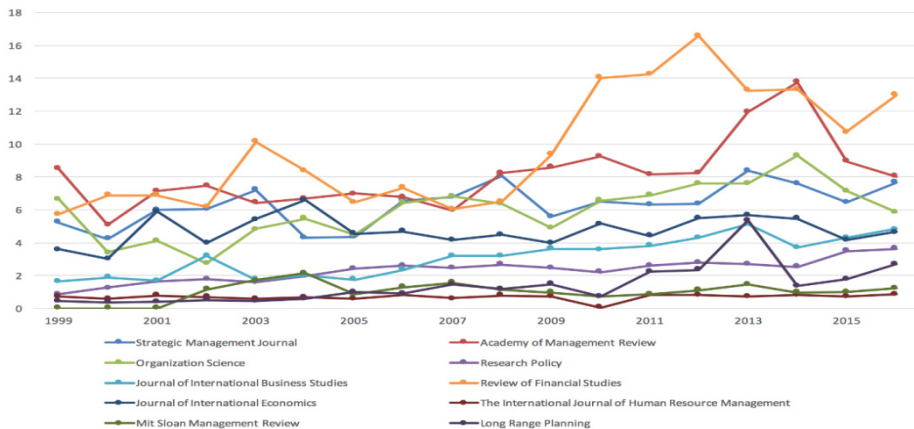
Source: own representation

This indicator is calculated on a yearly basis and Scimagojr generates it as early as 1999, having as reference point the Scopus database. In Figure 3, we represent the evolution of the selected journals per annum. As seen, the first position is held by Review of Financial Studies, followed by Academy of

Management Review and Journal of International Business Studies. The last position was chosen due to the evolution of the SJR for the year 2016.
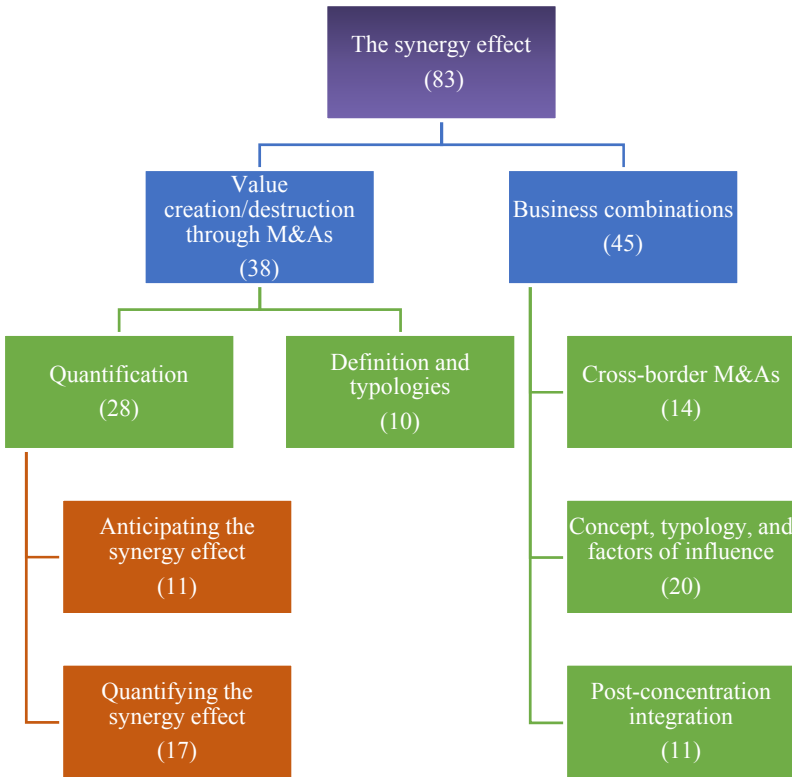
1.4. The analysis of key research directions in the field of mergers, acquisitions and synergies

The major aspects regarding M&As are presented in Figure 4, using a deductive reasoning from general issues to particularities, constituting as many possible research directions. The benchmark is represented by the synergy effect from M&As which breaks down into two subdomains of analysis namely: *the creation/destruction of value through M&As* and *business combinations*. These in turn are detailed into a tree structure. The first subdomain mentioned above splits into two levels: *defining the concept of value creation and its typologies* and, respectively, *the quantification of the value created by M&As*. For the second subdomain we identify the following levels*: cross-border M&As; concept, typology and factors of influence in M&As;* and *post integration-concentration*. Only within the subdomain creation/destruction of value through M&As we also resort to detailing a third level of analysis, as the purpose of our research is to elucidate the mystery underlying the concept of value creation, respectively the one of synergy.

The reason we have used this way of representation starts from the premise that our research topic addresses the issue of analysing the synergy effect through M&As. But we consider that we cannot discuss about synergy without referring to its features, this being the motive of why we detailed it at an interdisciplinary level. Thus, we observe that most of the papers gather around the concept of business combinations (45 scientific papers), and, within this topic, 20 papers detail the concept, typology and factors of influence. Regarding the topic of value creation/destruction through M&As, most of the papers (28 scientific articles) present, using theoretical or empirical models, ways of quantifying the value M&As are creating for the shareholders of the involved entities.

Before performing a qualitative analysis, we use the coding system for the first two levels of topics, the study type, the approach methods and the time period (for which we take into consideration the merger waves in Europe, as presented by the Institute for Mergers, Acquisitions and Alliances), detailed in Table 6. This method of coding and classification is similar to the one used by Silva *et al.* (2017), Jabbour (2013), Large Junior and Godinho-Filho (2010), and Seuring (2013). The classification system consists of five categories, coded with letters from A to E. For each category, a number between 1 and 5 is assigned. Thus, it can be said that this type of classification consists of an aggregation of letters and numbers that together represent an encoding for an item from a particular category.

Figure 4. The graphical representation of the main topics of research

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                    ┌─────────────────────┐
                    │  The synergy effect │
                    │        (83)         │
                    └─────────────────────┘
              ┌──────────────┴──────────────┐
   ┌──────────────────────┐      ┌──────────────────────┐
   │ Value                │      │ Business combinations│
   │ creation/destruction │      │        (45)          │
   │ through M&As (38)    │      └──────────────────────┘
   └──────────────────────┘
     ┌─────────┴─────────┐
┌──────────────┐ ┌──────────────┐   ┌──────────────────┐
│ Quantification│ │ Definition and│  │ Cross-border M&As│
│    (28)       │ │ typologies    │  │      (14)        │
└──────────────┘ │    (10)       │  └──────────────────┘
                 └──────────────┘
┌──────────────────┐                 ┌──────────────────────┐
│ Anticipating the │                 │ Concept, typology, and│
│ synergy effect   │                 │ factors of influence  │
│     (11)         │                 │        (20)           │
└──────────────────┘                 └──────────────────────┘
┌──────────────────┐                 ┌──────────────────┐
│ Quantifying the  │                 │ Post-concentration│
│ synergy effect   │                 │ integration       │
│     (17)         │                 │      (11)         │
└──────────────────┘                 └──────────────────┘
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Source: own representation

In Table 6, we propose a coding system which will be used from this point forward. The publication period is in the form of intervals, the latter referring to the waves of mergers and acquisitions that have taken place worldwide. The first wave of mergers and acquisitions took place between 1985 and 1992, the second was between 1993 and 2002, the third between 2003 and 2009, the fourth between 2010 and 2013, and the last one between 2014 and 2017. In our selected papers, we didn't identify any papers that were published during the first merger wave, so this period will be excluded from our coding system.

Table 7 shows that, for the first topic (A1), there is an equilibrated distribution between the last three merger waves (as noticed, the first merger wave wasn't taken into consideration because the first paper in our database was published in 1999). Regarding the second topic (A2), most of the papers were published between 2014 and 2017, which underlines the fact that the topic of value creation/destruction was a preoccupation for the researchers in the last years.

Table 6. The coding system

Main aspects of the analysis	Specific topics
A. Main topic	1. Business combinations 2. Value creation/destruction through M&As
B. Secondary topic	1. Cross-border mergers 2. Post-concentration integration 3. Quantification 4. Concept, typology, and factors of influence 5. Definition and typologies
C. Study type	1. Empirical 2. Theoretical 3. Both
D. Approach methods	1. Statistical study 2. Survey 3. Mathematical model 4. Case study 5. Theoretical model
E. Time period	1. 1993 – 2002 2. 2003 – 2009 3. 2010 – 2013 4. 2014 – 2017

Source: own representation

Table 7. Main topic – correspondence table

Main Topic	Year of publication				
	E1	E2	E3	E4	Active Margin
A1	2	15	13	15	45
A2	1	6	10	21	38
Active Margin	3	21	23	36	83

Source: own representation using SPSS 23.0

As represented in Tables 7-10, the columns are the same representing the time periods of the merger waves (E1-E4). Consequently, the totals from the columns remain constant but the content of the tables will change according to the variables considered, coded in Table 6.

Starting from the categories presented in Table 6, we realized the correspondence between the E category, the publishing period and the B category, the secondary topic, using Factorial Correspondence Analysis (FCA). According to Jaba and Robu (2011), the method refers to a wide range of statistical techniques used to represent a set of variables in accordance with a small number of factors, the role of which is to identify the existing relationship between two or more variables by establishing templates between them. This correspondence allowed us to see the time when some topics were dealt with at the expense of others.

Table 8. Secondary topic – correspondence table

Secondary Topic	Year of publication				
	E1	E2	E3	E4	Active Margin
B1	1	3	2	8	14
B2	0	5	3	3	11
B3	1	3	7	17	28
B4	1	7	8	4	20
B5	0	3	3	4	10
Active Margin	3	21	23	36	83

Source: own representation using SPSS 23.0

Regarding the secondary topic, Table 8 shows that, among all the second level topics, most of papers refer to quantification (B3), more precisely 28 scientific articles, the highest of which was recorded in the last wave of mergers, 2014-2017, respectively 17 scientific papers.

Figure 5. AFC regarding the correspondence between the secondary topic and the publication period
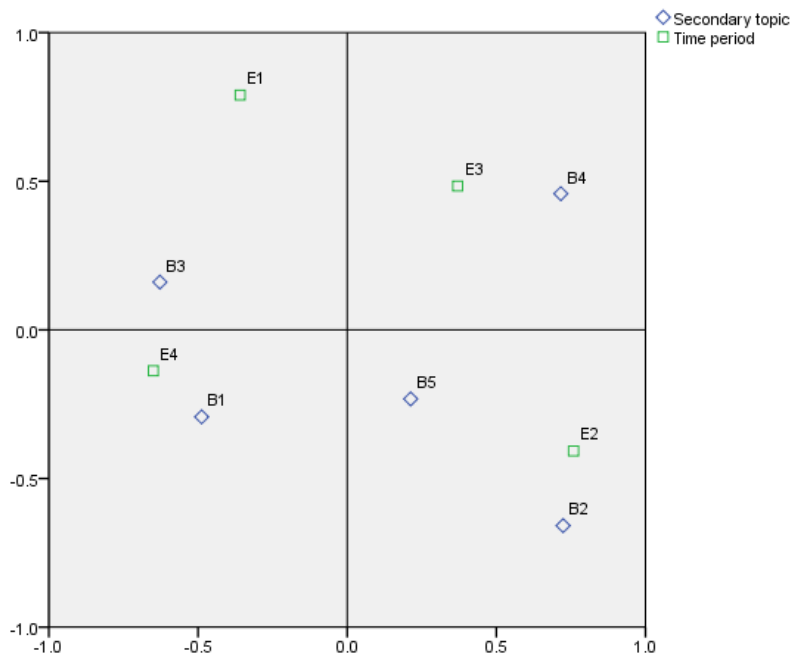
Source: own representation using SPSS 23.0

The first identified topic, cross-border mergers (B1), has shown interest for researchers between 2014 and 2017, given the evolution of global markets and the expansion of multinational companies. In addition, the business world was

recovering, in 2012-2013 period of time, after the financial crisis that has disrupted financial markets on all continents. The second topic we identified, the post-concentration integration, along with the fifth one, related to the definition of value creation concept and its typologies, were two major points of reference in the 2003-2009 period of time, as can be seen in Figure 5. The two are interrelated because, according to the specifics of M&As, in the period immediately following the conclusion of the transaction, the first signs of value creation are identified: anticipation of the synergy effect which will then be correlated with actual outputs, i.e. abnormal returns, which reflect the capital market's reaction either to the announcement of the merger or as a result of the conclusion of the transaction. During the period 2010-2013 (E3), the interest of researchers in mergers and acquisitions was attracted by the concept of business combinations, their typology and factors of influence. The last issue that we have addressed is of particular importance and is intended to quantify the synergy effect. According to the graphic representation, it was studied with priority during the period 1993-2002.

Because of the importance of M&As in today business world, the main focus of the researchers was on the quantification of the elements affecting or resulting from the business combinations: abnormal returns, performance, value creation or synergy. Thus, according to the information in Table 9, for the most prolific period (2014-2017), only 4 out of the 36 papers are theoretical, the rest of them being either empirical (14 papers) or mixt (18 papers). The same proportion can be applied to the whole sample (out of the 83 scientific papers, 14 are theoretical – 16,87%, 28 are empirical studies – 33,73%, and 41 are comprising both a consistent literature review of the topic and an empirical study – 49,40%).
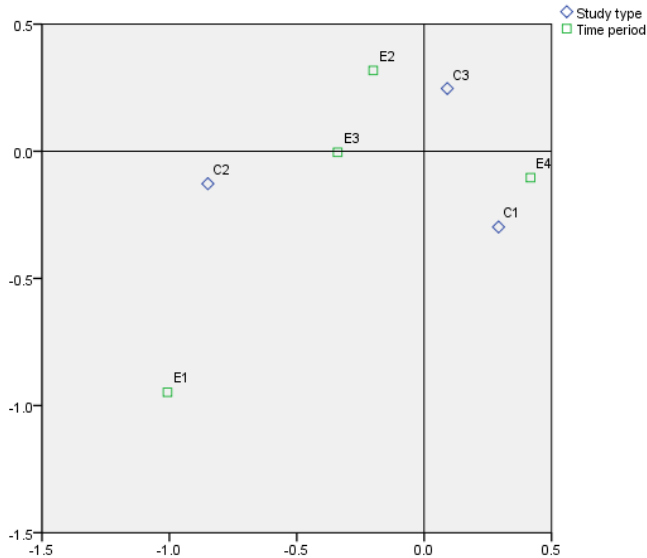
Table 9. Correspondence Table

Study type	Year of publication				
	E1	E2	E3	E4	Active Margin
C1	1	6	7	14	28
C2	1	4	5	4	14
C3	1	11	11	18	41
Active Margin	3	21	23	36	83

Source: own representation using SPSS 23.0

The graphical representation is presented in Figure 6.

Figure 6. AFC regarding the correspondence between the study type and the publication period

Source: own representation using SPSS 23.0

In Table 10, a correlation between the periods of the merger waves and the approach methods found in the papers from our sample can be found. Thereby, in the last 4 years (2014-2017), the main focus of the researchers was to use statistical studies (23 scientific papers), in order to issue conclusions regarding the main aspects affecting the closing, the performance, the success or the failure of the M&As.

Table 10. Approach methods – correspondence table

Approach methods	Time period				
	E1	E2	E3	E4	Active Margin
D1	1	8	8	23	40
D2	0	1	4	1	6
D3	1	4	2	1	8
D4	0	4	4	7	15
D5	1	4	5	4	14
Active Margin	3	21	23	36	83

Source: own representation using SPSS 23.0

The graphical representation of the Table 10 is found in Figure 7.

Figure 7. AFC regarding the correspondence between the approach methods and the publication period
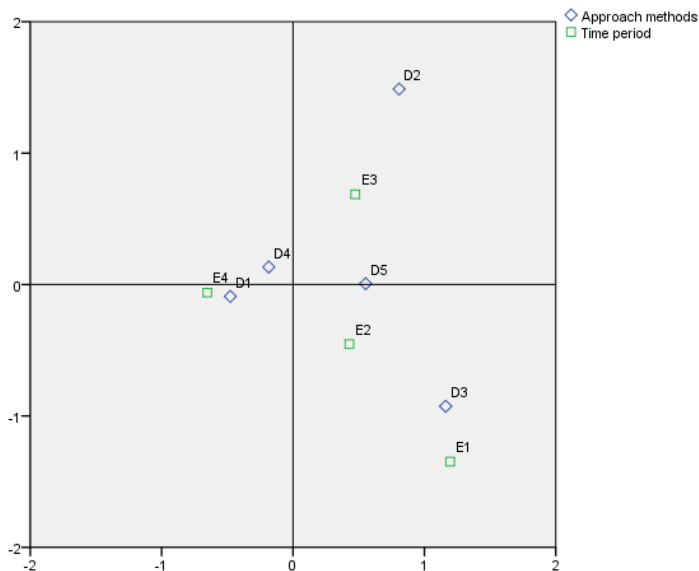
Source: own representation using SPSS 23.0

The purpose of the quantitative analysis is the presentation, using numbers and percentages, of the main trends in the research of the M&As in the scientific literature. As a result, we can notice an increase of the preoccupation of the researchers in the empirical analysis of the M&As and of their main topics (value creation, synergy, abnormal returns, etc.).

2. Qualitative approaches of the scientific literature: concepts and main research directions

The creation of value through mergers and acquisitions (M&As) is a major analysis theme. Given its complexity, in Figure 4, we identified a number of topics which will represent the starting point for the following analysis.

A first research direction identified in the study of the specialized literature is the one related to the creation/destruction of value through mergers and acquisitions, and, within it, we are considering the definition of the concept of value creation and its typologies.

Synergy is one of the key reasons underpinning strategic M&As. It is a benchmark in business combination research and plays an important role in the decision-making that determines these operations, but also in terms of their performance, seen from the perspective of both companies. According to Gaggiotti (2016), synergy is commonly used in the corporate world and in academia, particularly in business schools, to refer, always in positive terms, to a new status

or output created as a result of assembling things (capitals, brands, expertise, products, knowledge, people). Garzella and Fiorentino (2017) put forward two antagonistic theories: one that sees synergy as the main reason for M&As (the synergy hypothesis), and one that sees synergy as the most important cause of business combinations' failure (the synergy inflation).

With regard to successful acquisitions, their characteristics are detailed, starting from the fact that the main purpose is to achieve the synergy effect. Thus, it becomes necessary to identify the additional conditions that need to be fulfilled in order to increase the level of synergy or to optimize the processes leading to its achievement (Chadam and Pastuszak, 2013). Canina *et al.* (2010) analyzes the success of a merger or acquisition, focusing on the indicators that can be analysed at each stage of the combination: the pre-merger/acquisition period; the actual transaction and the post-merger/acquisition integration period.

As for the typology of synergies that may arise from M&A operations, usually the authors are referring to operational and/or financial synergies. Campos and Vazquez-Brust (2016) propose a new type of synergy, the lean and green one, which can be defined as the additional effects produced by the implementation of green and lean practices together. Simply stated, lean and green synergy results when the value added to environmental and financial performance by the whole (lean and green) is greater than the sum of the value added by the individual parts. In the case of horizontal M&As, the companies involved are able to benefit from cost-based synergies and revenue-based synergies, particularly through economies of scale, which reduce production costs but also increase revenues by increasing sales (Häkkinen *et al*., 2005).

In the post-M&A period, three sections are identified that can lead to positive or negative changes in the companies involved in the concentration operations, depending on how they are managed: work organization, industry relations and management systems (Thompson *et al.*, 2006). In this context, the importance of human resources must be presented in relation to the cultural integration of the organizations involved in the business combination.

By analysing the conceptual framework for M&As, Fiorentino and Garzella (2015) identified some dangers in the erroneous evaluation of possible synergy effects generated in a company. With the sole purpose of understanding the phenomenon of synergy, they draw attention to six mistakes that managers make in evaluating synergy: defining synergy too broad or too narrow; missing a possible opportunity; incorrect or insufficient use of incentives; involving the inadequate people in the process of achieving synergy; inconsistency in reaching compatibility between cultures and systems; the use of erroneous processes (Garzella and Fiorentino, 2017). The issue of the failure of business combinations has been concerned and continues to concern both the theoreticians and those directly involved in such processes.

A second major research direction refers to the creation/destruction of value through M&As, with reference to an issue of major importance in the development of synergy analysis, namely its quantification and of the value creation through M&As.

The main purpose of a business combination is to create value for those involved. Due to the financial motivation behind these transactions, they have raised the interest of practitioners and researchers, who have tried to identify, in their papers, the sources and how to quantify the value created by M&As, taking into account several elements related to this: synergy (which can embrace multiple forms, depending on its source), abnormal returns and value creation itself. Business combinations, such as M&As, are expected to generate synergies through economies of scale and of scope, but the involved entities must find ways to implement them.

In the current economic environment, the synergy has become a trend in business management, which explains the need to explore ways to evaluate it. In this context, Kräkel and Müller (2015) address one reason for involving in M&As: the managerial incentives, seen as a consequence of the agency relation between the CEO and the shareholders of the acquiring company. If a CEO identifies both a high- and a low-synergy target, he will tend to recommend the latter. In the context, authors discuss two more theories: the hubris hypothesis and the empire-building approach, according to which CEOs may make mediocre merger deals so that the acquiring firm's shareholders do not earn a positive merger premium.

Starting from a 1990 sample of M&As, of which 345 announced the estimated synergies, Dutordoir *et al.* (2014) analyse the reasons why the acquirers present these synergies at the time of the announcement. The authors concluded that the presentation of the expected synergies leads to a better market reaction, which in other circumstances would have generated negative profitability for the acquiring companies.

In the literature, there are studies proposing synergy calculation models. In the case of successful combinations, synergies are obtained only by the target company's shareholders, mainly due to the payment of oversized premiums. Surprisingly, these premiums are often presented as a first manifestation of synergy, which will later be reported to this initial value. Croci *et al.* (2012) propose patterns for managers of the acquiring entity which can lead to an informed decision about the premiums paid to the shareholders of the target company. Consequently, the premiums must be justified by reporting them to the operating synergies. Likewise, the capital market can offer important signals regarding the success of a M&A (Barnes, 2012; Betzer *et al.*, 2015).

Much of the literature on industrial organization, as well as managers, are focused on the fact that, compared to M&As between companies which activate in different fields of activity, the related M&As (vertical and horizontal) achieve higher performance, due to economies of scale and scope. Hagedoorn and Duyster (2010) expand this analysis on technology companies, stating that the revenue growth and the value creation are key issues in innovation-based M&As. Laabs and Schiereck (2008) analyse synergies in automotive industry by comparing mergers from the same industry/branch with mergers between companies in different branches.

Given the specificity of synergy, some authors highlight the potential for value creation of research, innovation and IT&C. The technological innovations

generate synergies that vary in terms of emerging speed and magnitude of impact, being considered, as appropriate, *additive synergies* (if built on existing technologies) or *multiplicative synergies* (resulting from the combination of existing resources so that new brands and patents can be registered) (Harrigan *et al.*, 2016). According to Chondrakis (2016), the acquisitions are instruments that outsource the R&D function of the acquiring entity, but the influence on the target company's resources is not sufficiently investigated. The author analyses how technology-based acquirers benefit of value growth by generating unique synergies, especially when the target company is similar in technology.

The synergy expectations are positively influenced by profitability at the time of the combination announcement, by the long-term performance, and by the market response to quarterly profit/loss statements. The information on synergy expectations, provided on the day of a merger announcement, may be of real use to investors. On the same line, Croci *et al.* (2012) suggest that the acquisition announcements reveal information about the values of the involved companies, through the abnormal returns. Analysing the fifth merger wave (2013-2017), Martynova and Renneboog (2011) note that M&As create synergies, announced by the profitability recorded at the time of the announcement, mentioning that the return of the target company is significantly higher than the one recorded by the acquirer.

Given the importance of the market reaction to measuring the success of a M&A, through the abnormal returns, some authors have sought to identify these values by taking specific examples from the life of economic entities. Thus, the study by Yoon and Lee (2015) is based on the creation of value in the technology-based M&As, which can be considered a specific domain with its own particularities. Capron and Pistre (2002) outline the conditions under which the acquiring entity registers abnormal returns and believe that these returns cannot be achieved simply by transferring resources from the target company to the acquirer.

The abnormal returns are affected by the extent to which companies involved in business combinations are registered with core activities that can be related. Thus, in this case, the return of the target company is lower than that of the acquiring company, and if the returns are compared in the case of related/unrelated M&As, the latter record higher returns (Holl *et al.*, 2011).

Aureli (2015) analyses the social and economic impact associated with the acquisitions of companies in Western Europe, located in countries with developed economies, by companies from the emerging economies, focusing on the influence on the performance and capabilities of the target company and how they influence the wealth of its investors.

M&As concluded during the financial crisis were more profitable and created more value than those concluded before and after this period (Rao-Nicholson *et al.*, 2016). In cross-border mergers, the emergence and measurement of financial synergy is important, taking into account the global financial risks (differentiated taxation system, bankruptcy costs, interest rate risk, exchange rate risk).

Despite the increasing popularity of acquisitions as strategies for penetrating the European market, experience shows that most of them did not generate positive returns for investors. In addition to the literature on operating synergy and value creation, Schoenberg (2008) analyses the types of knowledge transfer at entity level in Europe, taking into account the acquiring companies.

Globalization and rapid technological change have allowed the reorganization of some industries due to companies that have deemed necessary to increase their capabilities or reorganize them to meet the challenges of the business environment. Thus, waves of mergers have been generated in some industries (Häkkinen, 2005).

In some cases, the evolution of returns shows that the acquisitions are generating value destruction. The accounting data, on the other hand, reflects synergies and potential for value creation. Therefore, there is a market-based approach of the acquisitions and one approach based on financial-accounting information (Dargenidou *et al.*, 2016). Starting from the high failure rate of mergers and acquisitions, Rozen-Bakher (2017) analyzes the link between the types of business combinations and their success rates, considering the three types of mergers and acquisitions (horizontal, vertical and conglomerate) for the industrial and service sectors.

A third research direction concerns the topic of the **business concentrations** by detailing the particular case of **cross-border M&As**. From this point, we will consider the second main topic of our analysis, in which we will capture aspects that define the business combinations, and which have been the subject of concern for the researchers in the field.

The monetary and capital flows driven by cross-border M&As are part of foreign direct investment, alongside new investments (greenfield investments), the rehabilitated ones by non-resident companies (brownfield investments), as well as loans to companies from a country, other than the one initiating the transaction. Starting from the notion of foreign direct investment, Horn and Persson (2001) present M&As as the predominant form of these flows, stating that they have become a point of interest, by contributing to trade and investment worldwide. Although they could generate oligopolies, the large companies, involved in cross-border mergers, have low costs due to operating synergies, creating value in this way.

Lee (2017) examines the relationship between foreign direct investments and cross-border M&As, the latter being split between technology-based concentrations and market-based concentrations, analysing, in context, the issue of the investments in new assets (greenfield investments).

Another approach of the cross-border M&As relates to the type of economy in which the involved companies are operating. Given the characteristics of the developed economies, the need for strategic assets determines the participation of multinational companies in cross-border M&As in such economies. As focus points in the developed economies, Zheng *et al.* (2016) identify the needed assets, the integration process, and the idea of partnership that allows access to the desired assets. When the acquiring entity comes from a country that prioritizes the investor

(developed economies), then a significant synergy comes from imposing own governance principles in the target company (Martynova and Rooneboog, 2008). The companies in developed economies are willing to pay to acquire companies which activate in a similar economy, avoiding other economies (emerging or frontier).

Regarding the investments of the companies from emerging economies in companies located in developed countries, the former are looking for resources, classified in resources that increase production and resources which allow the expansion of the activities (Gubbi and Elango, 2016). Arslan and Dikova (2015) outline the investors 'strategies, materialized in cross-border M&As, initiated by multinational companies located in emerging economies and the role of institutional distance.

Within this topic, we identified scientific articles that address the issue of innovations in cross-border M&As. In this case, synergies result from mergers and acquisitions between a technology-oriented target company and an acquiring company willing to spend for R&D. Starting from the example of ten countries, Pyykkö (2009) concludes that investments in countries with permissive R&D legislation determine the highest synergies from the possession of intangible assets. On a related topic, Ojanen *et al.* (2008) empirically analyse a sample of acquisitions from the technical engineering sector, which belong to the knowledge intensive business services, concluding that product and market extensions are the most significant types of cross-border acquisitions, but, in spite of the increased significance of knowledge-intensity and innovativeness in many industries, knowledge acquisition for promoting innovation and R&D capabilities is not so apparent in the motives.

Srai *et al.* (2010) propose the issue of operational factors affecting successful integration in cross-border M&As, thus contributing to value creation. The ways to achieve operational synergy are shared between access to the network (market, products, know-how) and its efficiency (optimizing access to resources). One form of control to achieve synergies is given by the inclusion, in the contract between the parties, of a specification related to a performance-based payment method.

The next research direction comes to complement the information on the business combinations, by analysing the concept, typology and factors of influence in M&A operations.

The current frequency of M&As allows the identification of those issues that determine the success or the failure of these transactions. Because the success is an objective, but the failure is a miscalculation, many authors analysed this last case in the case of M&As. Thus, many concentrations do not reach the expected performance if managers fail to achieve the expected synergies either as a consequence of the over-valuation of the target company or as a result of a poor transaction negotiation. Calipha *et al.* (2010) draw attention to the failure of M&As to create value for investors, starting from the two phases of the M&As – pre-merger and post-merger, and from the factors influencing these stages (the size of the M&A partners, managerial involvement, culture, and organizational structural issues).

Starting from *the resource-based view* (RBV), the researchers increasingly focus on intangible resources, on knowledge and capabilities that lead to superior performance. Indeed, the companies in both developed and developing countries recognize the potential of the knowledge management (Chaturvedi *et al.*, 2007).

James (2002) considers that M&As play an important role in the transfer of non-tradable resources and of capabilities between the involved parties. In selecting the target company, the intangible assets are an essential component, the brands and the patents being the key elements in the decision-making process (Kumar, 1999). The resource-based view has to be complemented by corporate external control, that allows the transfer of resources to the target company, subject to optimal integration, so as to generate synergies for both companies. Starting from the strategic nature of M&As, Kleer (2011) analyses their impact on innovative business activities and market competition, while identifying new approaches to the innovation process.

In the case of horizontal and vertical M&As, Degbey and Pelto (2015) draw attention to customer networks. Although it appears that the takeover of the acquired company's market position is implicitly determined by the transaction itself, it actually depends on various factors and it is a separate process. Moreover, the diversification of activity on new customer segments, as well as the entry on new geographic markets, are two of the reasons behind the business combinations. These should be continued with the expansion of market share and the accelerated growth, materialized in value creation for investors (Kreitl and Oberndorfer, 2010).

Brito (2005) proposes an approach to the M&As in the light of the alternatives an absorbing company might propose to antitrust authorities, giving them the opportunity to set limits for both the gains from synergies, and for the market share that combination would generate. Luypaert and De Maeseneire (2015) draw attention to the pre-completion phase of a M&A, taking into account its planning, cultural differences, as well as the results of the negotiation, that materialize in the combination itself.

The last identified research direction is related to the post-concentration integration, one of the results of the business concentrations. Since M&As, as transactions, combine two entities that had no common points to date, the post-concentration integration may be the source of synergies, but also the period when they can be mistakenly assessed.

An effective post-merger integration requires the analysis of different integration methods, taking into account the synergistic potential of the merging companies and the cultural differences between them, especially in the case of cross-border M&As (Stahl and Voigt, 2008). The most accurate approach to post-acquisition integration is directly related to the reasons that led to this transaction. Also, other factors influencing integration are the practices and the core values of the target company, which furtherly lead to sociocultural integration and to task integration. The processes developed during post-merger integration are critical to achieving synergy effects and performance over time. Häkkinen *et al.* (2005) analyse a distinct aspect of post-merger integration, namely logistical issues in horizontal mergers and acquisitions, which must be corroborated with the problems

that may arise in the operating cycle. Referring also to operational synergies, Hernandez Barros and Lopez Dominguez (2013) draw attention to the integration process that should focus on revenues and customers. They assert that the scientific literature and the financial analysts focus on branding, cost reduction and human resource management.

Aklamanu *et al.* (2015) insist on the importance of social capital and human resources management, by providing an insight into the knowledge transfer (know-how) in the post-integration period, taking into account the employees' knowledge, skills and abilities. Related to the concept of human resource management, Vasilaki *et al.* (2016) believe that it is positively influenced by communication, employee involvement, teamwork, training and human capital development.

In the post-merger integration, a good understanding of the knowledge transfer key points is needed (Azan and Sutter, 2010). The acquiring entity improves its technological innovation when there is a similarity between the resources of the two companies, combined with a high degree of integration and a low degree of autonomy of the target company. There may also be a complementarity of resources that must correspond to a low degree of integration in cross-border mergers, in the case of the companies that produce IT technology (Piekkari *et al.*, 2007). A technology-driven acquirer will use the target company's resources to supplement or replace its own resources. Whatever the strategy of the acquirer, the combination of two companies will always be a challenge for the management. This entity must implement synergies to create value while managing problems to avoid loss of value (Gates and Very, 2003).

The analysis of the sample consisting of 83 articles allowed clarification of M&A related concepts, as well as an analysis of quantitative models and methods for calculating and interpreting value creation through business combinations.

Conclusions

Strategic relationships between organizations – taking the form of mergers, acquisitions, trade partnerships, alliances, and other forms of organizational networks and consortia – are now an important component of the business world. These inter-organizational connections are the companies' response to the ambiguities, risks and uncertainties they face in the economic environment. Consequently, their number has increased greatly in recent years, but it should be noted that their evolution has taken place in waves, being in fact sensitive to financial, economic or political crises affecting the economies in which companies operate. Starting from a sample of 83 scientific papers, using as a selection criterion the residence country of the first or second author (European Union), we performed both a quantitative and a qualitative analysis of the papers, in order to draw attention to the main topics that were subject of discussion and analysis from 1999 to 2017. For future research, we intend to find how the approaches evolved in time, or by methodology used by the authors.

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