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Strategic planning research through fifty years of Long Range Planning: a bibliometric overview

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Abstract
Long Range Planning (LRP) is the first journal focused on strategic planning. It was created in 1968 by the Long Range Planning Society, and it celebrated its 50th anniversary in 2018. This event led to the presentation of a complete bibliometric study aimed at identifying the most significant results that occurred in the journal during this period. For this purpose, bibliometric data were collected from the Web of Science Core Collection database, and two bibliometric approaches were used to analyze the journal's publications: a performance analysis and a graphical mapping of the literature. The first of these uses a wide range of productivity and influence indicators that include the number of publications and citations, the h-index, and citations by paper, among others. The second approach uses the VOSviewer software to deliver a graphical view of the various intellectual connections within LRP. The results of both bibliometric approaches are consistent and confirm LRP as a leading journal in strategic planning and management, with increasing participation of authors and universities from countries around the world.

Keywords
Bibliometrics; Web of Science; citations; h-index; VOS viewer

Introduction

Long Range Planning (LRP hereafter), established in 1968, is a pioneering journal in the field of strategic management. According to Stiles (2000), the name of the journal was chosen to coincide with the Long Range Planning Society, which emerged in Paris during 1964 as the vision of 12 British researchers concerned about an emerging issue at the time: long-term planning. LRP was successfully led during its first 32 years by Cofounder and Editor in Chief Bernard Taylor. Its subsequent editors, namely, Charles Baden-Fuller, James Robins, and Tomi Laamanen, maintained the mission of its founders. This mission is to help improve the understanding of strategic planning systems and continue to develop the various strategic practices used by the actors who contribute to the strategy of their countries, regions or organizations (Laamanen, 2017). During its 50 years in existence, LRP has covered different topics at the intersection of strategic management across diverse disciplines, publishing articles by the best academics and professionals (Stiles, 2000). This has enabled LRP to build a solid reputation and lead academic research in the

field of strategic management. LRP currently has an impact factor of 3.221 and is among the top 50 Management journals in the Social Science Citation Index.

LRP celebrated its 50th anniversary in 2017, and in honor of that, this document analyzes and shows the main trends that occurred during the journal's five decades. By doing so, we can identify some of the leading trends in strategic planning research. To do this, we use several techniques and bibliometric tools to analyze all of the literature of the journal quantitatively and qualitatively. Bibliometrics involves two main methods, performance analysis and a mapping of science (Cobo et al., 2011a; Noyons et al., 1999). Performance analysis aims to assess the impact of scientific production citations made by different scientific actors including countries, universities or individuals. Science mapping seeks to show the structural and dynamic aspects of scientific research. This approach enriches performance analysis by highlighting issues that have received the most attention from a scientific community. Given their complementarity, both approaches are often developed in combination to validate and enrich the results obtained (Cobo et al., 2011b). Therefore, this study shows the results of combining both approaches with the ultimate aim of identifying the most significant aspects of the various scientific actors who have contributed to the development of LRP since 1968.

Currently, it is quite common for scientific journals to celebrate their most significant anniversaries with important issues or special publications, such as reviews, special issues, or editorial notes. The bibliometric study of a journal is important because through its combined methods – performance analysis and scientific mapping – it is possible to capture general and historical results and retrospectively evaluate the scientific trends and actors that have most impacted the journal. Thus, some of the journals that have published these analyses include Information Sciences in celebration of its 50th anniversary (Merigó et al., 2018), European Journal of Marketing in recognition of its 50th anniversary (Martínez-López et al., 2018), International Journal of Intelligent Systems in its thirties (Merigó et al., 2017), Knowledge-Based Systems in its twenty-fifth year (Cobo et al., 2015), Journal of Product Innovation Management, and more recently, Journal of Knowledge Management in its twenty-first year (Gaviria-Marin et al., 2018). Finally, note that many other journals have already developed a bibliometric description to celebrate a special anniversary (Merigó et al., 2018).

This document is organized as follows. Section 2 describes the methodological aspects of the work. Specifically, aspects relevant to the main approaches involved in bibliometrics are described. Section 3 presents the results of the performance analysis and science mapping of all literature published in the 50 years of LRP. Finally, Section 4 provides a brief description of the main findings and conclusions of the analysis.

1. Bibliometric methods

Bibliometrics is a technique that explores literature quantitatively using bibliographic references obtained from different reference databases. In this document, the Web of Science (WoS hereafter), belonging to Clarivate Analytics, is used to compile LRP references. The WoS gathers several reference databases, among which the Science Citation Index Expanded (SCIE), the Social Sciences Citation Index (SSCI) and the Emerging Sources Citation Index (ESCI), are included. WoS currently covers more than 18,000 high-impact journals, making it the world's leading reference database (Baier-Fuentes et al., 2019; Gaviria-Marin et al., 2019). Note, however, that there are several other reference databases, such as Scopus, Scielo, and EconLit, among others.

There are many techniques and methodologies that have been used to develop bibliometric analyses. Some studies indicate that bibliometric methodologies include a quantitative analysis of the literature, also known as performance analysis (Noyons et al., 1999). In recent years, science mapping has also been considered an important technique within bibliometrics (Cobo et al., 2011b). The aim of both approaches is to analyze bibliographic material and provide an overview of a set of documents that are limited to a particular field of research, or even, as in our case, to a journal. In order to analyze all the literature published in the journal thoroughly, this study develops both bibliometric approaches, i.e., a performance analysis and a science mapping of all LRP bibliographic records.

Performance analysis uses a series of bibliometric indicators, with the number of publications and the number of citations being the most popular. However, several other indicators that have recently been used provide a more representative and informative view of the data.

This has led to uncertainty as to which is the optimal indicator to best represent the information (Podsakoff et al., 2008). Therefore, in order to reduce that uncertainty, this study includes several indicators that are generally considered to be the most popular. Among them, we use the total number of documents, the paper citations and the h-index. The latter integrates the number of publications and the number of citations into a single measure (Hirsch, 2005). The h-index is an indicator of influence, which indicates the number h of studies of a total N, which have received at least h citations. Note that other indicators can be found in the literature, such as the g-index (Egghe, 2006) or the hg-index (Alonso et al., 2009). However, the methodology used in this study aims to measure the productivity and influence of all the scientific actors involved in LRP and to act in this sense as a valuable, informative resource to the readers of the journal. Other indicators used in performance analyses are citation thresholds that measure the number of documents that are above a specific number of citations and thus allow the journal's references to be ranked according to their level of influence. In addition, other more general indicators, such as university rankings and the number of documents per person, are shown, allowing a broader perspective of the research published in LRP.

Science mapping is an important bibliometric technique that is used to generate a representation of the intellectual connections of a dynamically changing scientific knowledge system (Small, 1999, 1997). In other words, it analyzes the structure of the relationships between all scientific actors interacting in a particular field of research (Cobo et al., 2011b). It is important to mention that the use of science mapping has been strengthened thanks to the development of software that allows the analysis of bibliographic information (Cobo et al., 2011b). Some of the most popular software used in the literature includes, for example, Bibexcel (Persson et al., 2009), CiteSpace II (Chen, 2006), IN-SPIRE (Wise, 1999), VantagePoint (Porter and Cunningham, 2005), and VOSviewer (van Eck and Waltman, 2010). In this study, we used VOSviewer software, which visualizes the results of analysis using indicators such as bibliographic coupling (Kessler, 1963), co-citation (Small, 1973), co-authorship (Glänzel, 2001; Peters and van Raan, 1991), and co-words (Callon et al., 1983). Bibliographic coupling occurs when two documents cite the same third article. Co-citation measures the most cited documents and occurs when two documents receive a citation from the same third paper. Co-authorship measures the degree of co-authors among the most productive sources. Co-word analysis uses the most important keywords in documents and is used to study the conceptual structure of a field of research. Another interesting function that can be performed with this technique is a temporal analysis of the research field, allowing the analysis and observation of the evolution of the cognitive structure of a field (Noyons et al., 1999).

Finally, it is important to clarify that the results obtained from performance analysis and science mapping give a current but retrospective overview of the last 50 years of LRP. Therefore, it is logical to think that these results will change over time, especially for more recent publications that have yet to significantly improve their indicators.

2. Results

2.1. LRP Bibliometric performance analysis

2.1.1. Publication and citation structure of LRP

LRP published its first issue in September 1968. In the following years it continued to publish four issues per year, until 1974, when it began to publish six issues per year. Figure 1 shows the evolution and number of articles published in LRP.

It is observed from this figure that the average number of publications in LRP increased in 1974, although there was also an important decrease in the number of articles in 2000. It is important to highlight some years in which a large number of publications were produced. For example, the most articles were published in 1989, totalling 93. In contrast, 2012 saw the lowest number of articles published (17), second only to 1968. To analyze the number of publications and the citation structure of LRP, Table 1 shows the number of articles published in the journal annually as well as the total number of citations received by them.

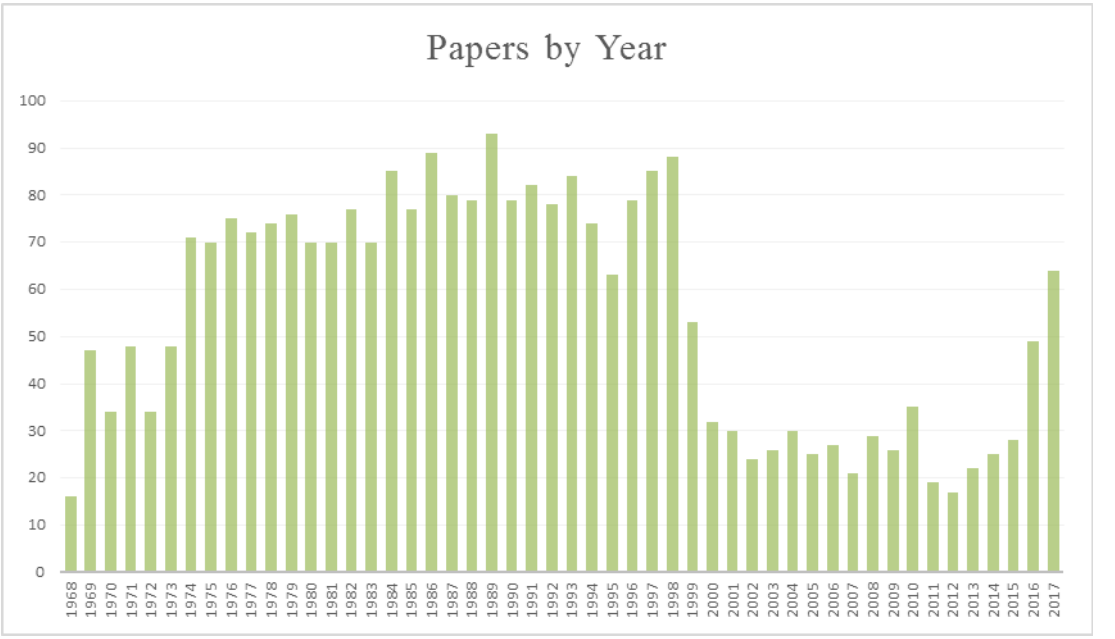

Figure 1 Annual number of papers published in LRP
Source: The authors

This table confirms what was previously described. Between 1974 and 1998, LRP averaged 78 articles per year. In the following years, its average number of published papers decreased to 27 articles per year. The journal's citation structure shows us quite interesting data. For example, 1998 is the year in which articles have accumulated the most citations. However, other years such as 1997 and 2002 have been equally important in terms of the accumulation of citations. Some of the most cited authors in these years are, for example, Edvinsson L., Gray ER., Balmer JMT., and Grant RM., among several others. Also note that 2010 is especially relevant, as several of the articles published during that year have been especially influential.

2.1.2. Influential papers in LRP

LRP has published several documents that have led different lines of research in the field of strategic management. Therefore, these documents have been cited by a wide range of articles published in different Business and Management journals. In this sense, it is important to analyze the most cited articles in the journal. Table 2 presents the fifty most cited LRP articles. The indicators presented are the year in which the article was published, total citations (TC) and the ratio of citations per year (C/Y).

Teece D.J. is the author who published the most cited article in LRP, with 1,290 citations. The early success of this article lies in its goal, which is to help understand the importance of business models and explore their connections to business strategy, innovation management, and economic theory. Another very influential article from LRP by Nonaka, Toyama and Konno has received 1,195 citations. This article helps to understand the dynamic process in which an organization creates, maintains, and exploits knowledge. An interesting aspect to highlight is the repeated appearance of some authors in this ranking, which coincide with two of the recently mentioned authors, namely, Teece and Nonaka, with two documents each. Finally, it is important to highlight the articles that have the ratio with the highest citations per year. In this context, we highlight the document published in 2010 by Teece, which receives approximately 161 citations per year.

Table 1 Annual citation structure of LRP

Year	TP	TC	>200	>150	>100	>50	>20	>10	>5	>1
1968	16	17	0	0	0	0	0	0	1	3
1969	47	51	0	0	0	0	0	1	3	11
1970	34	109	0	0	0	1	1	1	3	8
1971	48	42	0	0	0	0	0	1	1	7
1972	34	79	0	0	0	0	0	1	4	15
1973	48	72	0	0	0	0	0	1	3	14
1974	71	115	0	0	0	0	1	1	2	20
1975	70	200	0	0	0	1	2	6	7	18
1976	75	157	0	0	0	0	0	3	9	25
1977	72	236	0	0	0	1	1	4	13	30
1978	74	211	0	0	0	0	3	6	7	22
1979	76	241	0	0	0	0	3	7	11	31
1980	70	179	0	0	0	0	1	3	9	24
1981	70	286	0	0	0	2	3	6	12	28
1982	77	436	0	0	1	1	4	9	10	27
1983	70	320	0	0	0	0	3	9	15	34
1984	85	557	0	0	1	3	4	7	13	50
1985	77	399	0	0	0	1	4	11	23	42
1986	89	326	0	0	0	0	3	8	12	43
1987	80	879	1	2	2	4	7	11	22	47
1988	79	733	0	0	1	4	7	9	22	44
1989	93	488	0	0	0	1	2	11	19	59
1990	79	1028	0	0	1	4	11	19	31	56
1991	82	961	0	0	0	5	12	27	40	57
1992	78	840	0	0	1	1	10	19	32	55
1993	84	1078	0	0	0	4	16	29	40	67
1994	74	1218	0	0	0	7	15	30	41	61
1995	63	965	0	0	1	4	14	18	30	49
1996	79	1245	2	2	3	7	16	30	45	69
1997	85	1747	5	7	8	13	30	47	60	77
1998	88	2491	1	1	2	8	23	35	50	72
1999	53	748	0	0	0	1	9	20	33	43
2000	32	952	2	2	2	7	15	23	26	30
2001	30	1012	1	3	5	9	14	21	27	29
2002	24	1850	0	0	3	6	18	23	24	24
2003	26	1149	0	0	2	5	15	19	23	26
2004	30	1242	0	0	1	6	17	24	26	30
2005	25	1323	0	0	2	7	12	21	25	25
2006	27	1073	0	0	1	7	15	21	23	26
2007	21	953	0	0	1	4	10	14	19	20
2008	29	1036	0	0	0	2	15	22	27	29
2009	26	739	0	0	0	3	10	18	21	26
2010	35	928	8	11	14	18	29	32	35	35
2011	19	588	0	0	0	4	9	13	18	18
2012	17	334	0	2	2	3	5	10	13	17
2013	22	558	0	0	1	3	8	16	19	22
2014	25	481	0	0	0	1	7	11	17	25
2015	28	222	0	0	0	0	2	7	10	24
2016	49	276	0	0	0	1	1	1	6	27
2017	64	136	0	0	0	0	0	0	1	14
Total	2749	33306	20	30	55	159	407	686	983	1655
Percentage	100%		0.73%	1.09%	2.00%	5.78%	14.81%	24.95%	35.76%	60.20%

Abbreviations: TP and TC = Total papers and citations; ≥100, ≥50, ≥20, ≥10, ≥5, ≥1 = Number of papers with equal or more than 100, 50, 20, 10, 5 and 1 citations.

Source: The authors

2.1.3. The documents most frequently cited in LRP publications

Knowing the references most cited by documents published in LRP makes it possible to identify the most influential authors and documents among those who publish in LRP. Table 3 presents the 30 most cited documents in the journal's publications. Note that these documents may be of different types, which are distinguished in the table by an A or a B depending on whether it is an article or a book, respectively.

Table 2 The 50 most cited documents in LRP

R	Title	Author/s	Year	TC	C/Y
1	Business Models, Business Strategy and Innovation	Teece, DJ	2010	1290	161,25
2	SECI, ba and leadership: a unified model of dynamic knowledge creation	Nonaka, I; Toyama, R; Konno, N	2000	1195	66,39
3	Business Model Innovation: Opportunities and Barriers	Chesbrough, H	2010	699	87,38
4	Business Model Design: An Activity System Perspective	Zott, C; Amit, R	2010	564	70,50
5	From Strategy to Business Models and onto Tactics	Casadesus-Masanell, R; Ricart, JE	2010	424	53,00
6	Developing intellectual capital at Skandia	Edvinsson, L	1997	409	20,45
7	How corporate social responsibility pays off	Burke, L; Logsdon, JM	1996	400	19,05
8	Strategies for managing knowledge assets: the role of firm structure and industrial context	Teece, DJ	2000	369	20,50
9	Project success: A multidimensional strategic concept	Shenhar, AJ; Dvir, D; Levy, O; Maltz, AC	2001	362	21,30
10	Measuring your company's intellectual performance	Roos, G; Roos, J	1997	356	17,80
11	Business Model Evolution: In Search of Dynamic Consistency	Demil, B; Lecocq, X	2010	345	43,13
12	Business Models as Models	Baden-Fuller, C; Morgan, MS;	2010	312	39,00
13	The new marketing - Developing long-term interactive relationships	Gummesson, E	1987	305	10,17
14	Managing corporate image and corporate reputation	Gray, ER; Balmer, JMT	1998	282	14,84
15	Strategy as practice	Whittington, R	1996	280	13,33
16	SWOT analysis: It's time for a product recall	Hill, T; Westbrook, R	1997	274	13,70
17	Partial Least Squares Structural Equation Modeling: Rigorous Applications, Better Results and Higher Acceptance	Hair, JF., Jr.; Ringle, CM.; Sarstedt, M	2013	272	54,50
18	Building Social Business Models: Lessons from the Grameen Experience	Yunus, M; Moingeon, B; Lehmann-Ortega, L	2010	272	34,00
19	Business Models: A Discovery Driven Approach	McGrath, RG	2010	267	33,34
20	The Use of Partial Least Squares Structural Equation Modeling in Strategic Management Research: A Review of Past Practices and Recommendations for Future Applications	Hair, JF.; Sarstedt, M; Pieper, TM; Ringle, CM	2012	254	43,33
21	Hierarchical Latent Variable Models in PLS-SEM: Guidelines for Using Reflective-Formative Type Models	Becker, JM; Klein, K; Wetzels, M	2012	236	28,67
22	The knowledge based view of the firm: Implications for management practice	Grant, RM	1997	233	39,33
23	Understanding knowledge management	Demarest, M	1997	230	11,50
24	Sustainability in action: Identifying and measuring the key performance drivers	Epstein, MJ; Roy, MJ	2001	226	13,30
25	Business Model Innovation through Trial-and-Error Learning The Naturhouse Case	Sosna, M; Trevinyo-Rodriguez, RN; Velamuri, SR	2010	225	28,13
26	Integrating intellectual capital and knowledge management	Wiig, KM	1997	214	10,70
27	5 stages of growth in small business	Scott, M; Bruce, R	1987	209	6,97
28	Embedding Strategic Agility A Leadership Agenda for Accelerating Business Model Renewal	Doz, YL; Kosonen, M	2010	198	24,75
29	Success factors of strategic alliances in small and medium-sized enterprises - An empirical survey	Hoffmann, WH; Schlosser, R	2001	174	10,23
30	Business Models and Technological Innovation	Baden-Fuller, C; Haefliger, S	2013	172	34,40
31	Strategic Development of Business Models Implications of the Web 2.0 for Creating Value on the Internet	Wirtz, BW; Schilke, O; Ullrich, S	2010	171	21,38
32	Knowledge management: A strategic agenda	Quintas, P; Lefrere, P; Jones, G	1997	168	7,62
33	The tows matrix - A tool for situational analysis	Weihrich, H	1982	167	4,64
34	Making the most of your company's knowledge: A strategic framework	von Krogh, G; Nonaka, I; Aben, M	2001	162	9,60
35	Business-Model Innovation: General Purpose Technologies and their Implications for Industry Structure	Gambardella, A; McGahan, AM	2010	158	19,75
36	Core competence: What does it mean in practice?	Javidan, M	1998	157	8,26
37	Failing to learn and learning to fail (Intelligently): How great organizations put failure to work to innovate and improve	Cannon, MD; Edmondson, AC	2005	151	11,62
38	Building alliance capability: Management techniques for superior alliance performance	Draulans, J; deMan, AP; Volberda, HW	2003	150	10,00
39	Corporate-NGO Collaboration: Co-creating New Business Models for Developing Markets	Dahan, NM; Doh, JP; Oetzel, J; Yaziji, M	2010	149	18,63
40	Proactive corporate environmental strategies: Myths and misunderstandings	Aragon-Correa, JA; Rubio-Lopez, EA	2007	145	14,50
41	Strategic corporate social responsibility and value creation among large firms - Lessons from the Spanish experience	Husted, BW; Allen, DB	2007	142	12,90

42	Tacit knowledge and environmental management	Boiral, O	2002	142	8,88
43	Offshoring work: Business hype or the onset of fundamental transformation?	Lewin, AY; Peeters, C	2006	141	11,75
44	Complex Business Models: Managing Strategic Paradoxes Simultaneously	Smith, WK; Binns, A; Tushman, ML	2010	139	17,38
45	Identifying and using critical success factors	Leidecker, JK; Bruno, AV	1984	138	4,06
46	The management of innovation in project-based firms	Keegan, A; Turner, JR	2002	137	8,56
47	Managing strategic change - Strategy, culture and action	Johnson, G	1992	128	4,92
48	Creating the future: The use and misuse of scenarios	Godet, M; Roubelat, F	1996	126	5,72
49	Deciding on ISO 14001: Economics, institutions, and context	Bansal, P; Bogner, WC	2002	123	7,70
50	Strategic alliances - Choose your partners	Brouthers, KD; Brouthers, LE; Wilkinson, TJ	1995	120	5,22

Abbreviations: R = Rank; TC = Total citations; C/Y Cites per years.

Source: The authors

Table 3 Top 30 most cited documents in LRP publications

Rank	Year	First author	Source Title	Vol.	Page	Type	TC	Co-cit
1	1980	Porter ME	Competitive Strategy			B	148	80
2	1985	Porter ME	Competitive Advantag			B	86	59
3	1991	Barney J	J Manage	V17	P99	A	73	71
4	1965	Ansoff HI	Corporate Strategy			B	59	32
5	1989	Eisenhardt KM	Acad Manage Rev	V14	P532	A	59	56
6	1982	Peters T	Search Of Excellence			B	57	31
7	1994	Hamel G	Competing Future			B	48	33
8	1982	Nelson RR	Evolutionary Theory			B	48	43
9	1990	Cohen WM	Admin Sci Quart	V35	P128	A	47	41
10	1997	Teece DJ	Strategic Manage J	V18	P509	A	47	44
11	1991	March JG	Organ Sci	V2	P71	A	46	45
12	1963	March JG	Behav Theory Firm			B	44	39
13	1984	Wernerfelt B	Strategic Manage J	V5	P171	A	41	40
14	1995	Nonaka I	Knowledge Creating C			B	36	32
15	1993	Levinthal DA	Strategic Manage J	V14	P95	A	33	30
16	2003	Podsakoff PM	J Appl Psychol	V88	P879	A	33	30
17	1967	Thompson J	Org Action			B	33	24
18	1959	Penrose ET	Theory Growth Firm			B	32	30
19	1992	Kogut B	Organ Sci	V3	P383	A	31	31
20	1970	Ackoff RL	Concept Corporate Pl			B	30	13
21	1990	Prahalad CK	Harvard Bus Rev	V68	P79	A	30	29
22	1962	Chandler AD	Strategy Structure C			B	29	20
23	2000	Eisenhardt KM	Strategic Manage J	V21	P1105	A	29	29
24	1994	Miles MB	Qualitative Data Ana			B	29	28
25	1994	Mintzberg H	Rise Fall Strategic			B	29	18
26	1975	Williamson OE	Markets Hierarchies			B	29	22
27	1978	Hofer C	Strategy Formulation			B	28	13
28	1992	Leonardbarton D	Strategic Manage J	V13	P111	A	28	27
29	1969	Steiner G	Top Management Plann			B	28	16
30	1962	Chandler A	Strategy structure			B	26	17

Abbreviations: Vol. = Volume; TC = Total citations; Co-cit = Co-citations; B = Book; A = Article.

Source: The authors

Porter is the most cited author among LRP publications. In fact, his books "Competitive Strategy" and "Competitive Advantage" occupy the top positions in this list. March, J.G. and Eisenhardt, K.M. are other authors that appear more than once in this list. Also interesting is that 60% of the documents most cited in LRP are books and not articles, unlike other journals.

2.1.4. Leading authors in LRP

LRP has published a large number of articles by authors from different countries. Several of them have led and influenced not only the field of strategic management but also the publications produced by LRP. In this regard, Table 4 presents a list of the 50 most productive authors in the journal. To obtain an overall picture of each author's results, Table 4 considers several bibliometric indicators including the number of articles (TP), number of citations (TC), h-index (H) and citations per article (TC/TP). Please also note that only the last/current affiliation of the corresponding author is included.

Table 4 Top 50 leading authors in LRP

R	Authors	Organization	Country	TP	TC	H	C/P	>100	>50	>10
1	Andrew Campbell	Ashridge Strat Manage Cent	UK	32	312	10	9,75	0	1	8
2	David E Hussey	Nottingham Trent U	UK	30	37	3	1,23	0	0	1
3	Michaek Goold	Ashridge Strat Manage Cent	UK	24	168	8	7	0	0	6
4	Bernard Taylor	U Reading	UK	20	131	7	6,55	0	0	5
5	Henk W. Volberda	Erasmus U	Nether	11	439	9	39,91	1	3	9
6	Carol Kennedy	Director Magazine	UK	11	41	4	3,73	0	0	3
7	Brian Burrows	Futures Associates	UK	10	14	2	1,4	0	0	0
8	William R. King	U Pittsburgh, Pennsylvania	USA	9	227	6	25,22	0	3	5
9	Philippe Lasserre	INSEAD Fontainebleau	France	9	92	4	10,22	0	1	2
10	Christopher J. Clarke	Henley Management College	UK	9	60	3	6,67	0	0	1
11	Harvey Kahalas	State U New York at Albany	USA	9	8	2	0,89	0	0	0
12	Charles Baden-Fuller	City U	UK	8	626	8	78,25	2	4	8
13	Frans AJ van den Bosch	Erasmus U	Nether	8	239	7	29,88	0	1	7
14	Alexander McKelvie	Syracuse U	USA	8	118	4	14,75	0	0	4
15	Merlin Stone	Kingston Polytech	UK	8	86	4	10,75	0	1	1
16	Roland Calori	Inst Rech l'Enterprise	France	8	36	3	4,5	0	0	1
17	André Van Dam	Bedford Construction Co	Argen	8	7	2	0,88	0	0	0
18	Sandra Vandermerwe	U Pretoria	S Africa	7	126	5	18	0	1	2
19	Loizos Heracleous	Warwick Business School	USA	7	116	4	16,57	0	1	3
20	D. Jan Eppink	Free U	Nether	7	69	4	9,86	0	0	1
21	Toyohiro Kono	Gakushuin U	Japan	7	46	5	6,57	0	0	2
22	Giorgio Petroni	Padua U	Italy	7	28	3	4	0	0	1
23	Richard Whittington	U Oxford	UK	6	426	4	71	1	3	3
24	Keith D. Brouthers	U East London	UK	6	232	6	38,67	1	2	4
25	Howard Thomas	Warwick Business School	USA	6	46	4	7,67	0	0	1
26	Sypros Makridakis	INSEAD Fontainebleau	France	6	25	3	4,17	0	0	0
27	Clark Holloway	U South Carolina	USA	6	20	3	3,33	0	0	0
28	Graham Turner	Nestlé S.A	Switz	6	4	1	0,67	0	0	0
29	Johan Roos	Imagination Lab Foundation	Switz	5	480	5	96	1	2	5
30	Bern W. Wirtz	German U Adm Sci Speyer	Germany	5	312	4	62,4	1	3	4
31	Georg von Krogh	ETH Zurich	Switz	5	290	4	58	1	2	4
32	Leif Melin	Jönköping U	Sweden	5	107	4	21,4	0	1	3
33	Ian Wilson	Wolf Enterprises	USA	5	89	5	17,8	0	0	2
34	Philip Stiles	U Cambridge	UK	5	79	4	15,8	0	0	2
35	Peter Lorange	Nestlé S.A	Switz	5	70	3	14	0	0	2
36	Peter H Grinyer	U St Andrews	UK	5	60	4	12	0	0	2
37	Sue Birley	Imperial College	UK	5	52	3	10,4	0	0	1
38	Mike Wright	Nottingham U	UK	5	41	3	8,2	0	0	2
39	Johan G. Wissema	Wissema Group	Nether	5	31	2	6,2	0	0	1
40	Richard B. Higgins	Northeastern U	USA	5	26	3	5,2	0	0	1
41	Tony Grundy	City U Business School	USA	5	20	3	4	0	0	0
42	Brian T. Houlden	Warwick Business School	USA	5	15	2	3	0	0	0
43	George F. Ray	National Inst Econ Social Res	UK	5	9	1	1,8	0	0	0
44	Roger W. Mills	Henley Management College	UK	5	5	1	1	0	0	0
45	Siegfried Höhn	Volkswagen AG	Germany	5	3	1	0,6	0	0	0
46	Robert M. Grant	Bocconi U	Italy	4	245	3	61.25	1	1	2
47	Keith W. Glaister	U Leeds	UK	4	112	4	28	0	1	3
48	Colin Eden	Strathclyde U	UK	4	110	4	27.5	0	1	2
49	Stephen Cummings	Victoria U Wellington	N Zealand	4	102	4	25.5	0	0	4
50	H. Igor Ansoff	US Int U in San Diego	USA	4	58	3	14,5	0	0	2

Abbreviations are available in Tables 1 and 2 except for: H = *h*-index; C/P = Cites per paper.

Source: The authors

Note that Andrew Campbell is the most productive author in the magazine with 32 papers and an h-index of 10. David Hussey follows with 30 papers. However, other authors have achieved remarkable indicators of productivity and influence. Such is the case of Charles Baden-

Fuller, who has 8 published papers and 626 citations. Note also that this author's h-index is 8. In other words, all of this author's papers have been cited at least 8 times. It is also interesting to note that this author has the highest level of citations per article. Finally, keep in mind that a significant proportion of the authors who publish in LRP are European, with a large presence of authors from the UK.

2.1.5. The most productive and influential institutions in LRP

Another issue similar to the previous point, which is interesting to analyze, is to identify the institutions that have published the most and that have a great influence on LRP. These institutions are, in general, those in which the authors collaborate and develop their research. Table 5 shows the 50 most productive and influential institutions of the journal's 50 years. This table considers different performance indicators including total papers (TP), total citations (TC), h-index (H) and the ratio of citations per papers (TC/TP). It also contains the number of papers per citation threshold of 100, 50 and 10. The Table also presents the current world ranking of these institutions according to the Academic Ranking of World Universities (ARWU) and the Quacquarelli Symonds World University Ranking (QS). The objective of using the last two indicators is to see the world ranking of the main universities publishing in LRP.

University of Warwick, Erasmus University Rotterdam and the University of Reading are the institutions leading productivity in LRP. However, the University of California at Berkeley is by far the journal's most influential institution. Other institutions that stand out in this line are the University of Pennsylvania and Harvard University, with more than one thousand citations each. It is important to point out that 40% of the universities on this list are from the UK. However, universities from the USA and European countries such as Netherlands, France, Denmark and Switzerland also appear. Institutions from other continental regions are rarely listed. It is also of note that many of the best universities have published in this journal. In fact, 21 of the 50 institutions appear among the top 100 universities in the world rankings. Nine of them, led by Harvard University and the University of Cambridge, are in the Top 20. From this perspective, LRP is a quite diverse and influential journal in the field of strategic management.

It is also interesting to follow and analyze temporally the productivity of the institutions during the fifty years of LRP. Table 6 shows a temporal analysis of the 30 institutions that have contributed the most to the development and positioning of the journal.

During the first decade of its existence, it is clear that contributions to LRP were mainly concentrated in three institutions. Of these, the University of Bradford has maintained an important level of contribution. It is also noted that over the last three decades, Erasmus University Rotterdam has led journal productivity. Finally, it can be observed that he University of Warwick has maintained a strong presence during the last four decades, which has allowed it to lead productivity during LRP's fifty years.

2.1.6. The most productive and influential countries in LRP

LRP has published works from a large number of countries, making it an internationally diverse magazine. Table 7 presents the 50 most productive and influential LRP countries. Please note that the country refers to the country in which the authors worked at the time their manuscript was published. In this list, the countries are classified according to their productivity, although influence indicators are also shown in Table 5. In addition, productivity indicators and citations are incorporated for each million inhabitants of the country.

The results in Table 7 confirm an increase in the multinationality of LRP. It can be seen that more than 50 countries have managed to publish in the magazine. The UK leads in productivity, with more than 870 documents published. However, the USA is the most influential country, with more than 14,000 citations and an h-index of 58. It should be noted, however, that countries such as the Netherlands or Canada, with considerably fewer publications, obtain a high level of citations in LRP compared to other countries. The citation thresholds also show that the USA has published most of the journal's most influential articles. In terms of productivity per person, small countries such as San Marino and

Table 5 The most productive and influential institutions in LRP

R	Organization	Country	TP	TC	H	TC/TP	>100	>50	>10	ARWU	QS
1	U Warwick	UK	40	515	14	12,88	0	0	18	101-150	57
2	Erasmus U Rotterdam	Netherlands	38	865	16	22,76	2	5	20	73	147
3	U Reading	UK	37	407	12	11	0	2	14	201-300	188
4	Ashridge Strat Manag	UK	36	214	8	5,94	0	0	7	-	-
5	City U London	UK	34	865	14	25,44	2	4	15	-	343
6	U Bradford	UK	34	540	12	15,88	0	3	14	-	601-650
7	U Manchester	UK	29	174	7	6	0	0	7	38	34
8	London Business School	UK	27	445	9	16,48	1	1	6	-	308
9	Int Inst Manag Devel	Switzerland	25	823	10	32,92	2	3	10	-	-
10	U Cambridge	UK	24	388	12	16,17	0	1	13	3	5
11	Cranfield U	UK	23	416	9	18,09	1	2	9	-	-
12	INSEAD Business School	France	23	321	8	13,96	1	2	4	-	-
13	National U Singapore	Singapore	22	247	8	11,23	0	1	8	91	15
14	U Pennsylvania	USA	21	1299	12	61,86	3	5	13	17	19
15	Cardiff U	UK	21	301	10	14,33	0	2	8	99	137
16	Bocconi U	Italy	20	493	12	24,65	1	2	12	-	-
17	Harvard U	USA	18	1057	11	58,72	4	5	11	1	3
18	U Bath	UK	18	271	5	15,06	1	2	5	501-600	160
19	U Nottingham	UK	18	243	10	13,5	0	1	8	101-150	84
20	U Oxford	UK	17	598	10	35,18	1	4	10	7	6
21	U Pittsburgh	USA	17	282	8	16,59	0	3	6	68	142
22	Northeastern U	USA	17	126	6	7,41	0	0	4	201-300	346
23	Vrije U Amsterdam	Netherlands	16	371	10	23,19	1	2	5	101-150	218
24	Copenhagen Bus School	Denmark	16	330	7	20,63	0	2	10	601-700	-
25	Open U UK	UK	14	319	7	22,79	1	2	6	601-700	-
26	U St Gallen	Switzerland	14	236	8	16,86	0	0	8	-	372
27	Temple U	USA	14	184	9	13,14	0	0	6	301-400	651-700
28	Baruch College CUNY	USA	13	323	8	24,85	0	3	7	-	-
29	Lancaster U	UK	13	198	5	15,23	0	2	3	301-400	135
30	Virginia Polytech Inst St U	USA	13	104	5	8	0	1	3	301-400	367
31	Loughborough U	UK	13	71	4	5,46	0	0	1	601-700	234
32	U Strathclyde	UK	12	466	7	38,83	1	3	5	-	277
33	Columbia U	USA	12	299	4	24,92	1	1	4	8	18
34	Int Bus Machines (IBM)	USA	12	20	3	1,67	0	0	0	-	-
35	U California Berkeley	USA	11	2416	8	219,64	5	6	8	5	27
36	U Western Ontario	Canada	11	375	8	34,09	1	3	8	-	210
37	U Leeds	UK	11	352	8	32	0	3	8	101-150	101
38	Imperial College London	UK	11	230	5	20,91	0	1	5	27	8
39	U Birmingham	UK	11	92	5	8,36	0	0	3	101-150	84
40	U Innsbruck	Austria	11	70	3	6,36	0	0	2	151-200	286
41	U California Los Angeles	USA	10	223	5	22,3	1	1	5	12	33
42	Duke U	USA	10	218	5	21,8	1	1	2	26	21
43	Boston U	USA	10	158	7	15,8	0	0	6	80	81
44	U Hong Kong	PR China	10	126	4	12,6	0	1	3	101-150	26
45	Sri International	USA	10	71	5	7,1	0	0	2	-	-
46	U Illinois Urbana Champ	USA	10	56	4	5,6	0	0	2	37	69
47	BI Norwegian Bus Sch	Norway	9	424	5	47,11	1	1	5	-	-
48	Polytechnic U Milan	Italy	9	339	9	37.67	0	1	9	201-300	170
49	Ohio State University	USA	9	203	5	22.56	0	1	4	80	86
50	Aston U	UK	9	153	5	17	0	1	4	-	373

Abbreviations are available in Tables 1, 2 and 4 except for: ARWU = Academic Ranking of World Universities; QS = Quacquarelli Symonds University Ranking.

Source: The authors

Table 6 Temporal analysis of 30 most contributing institutions

	University	TP	TC		R	University	TP	TC
1968-1978					1999-2008			
1	U Bradford	11	30		1	Erasmus U Rotterdam	16	621
2	U Manchester	9	10		2	U Warwick	12	323
3	Virginia Polytechnic Inst St U	9	4		3	City U London	9	272
1979-1988					4	U Nottingham	8	179
1	Harbridge House Europe	16	5		5	Harvard U	7	502
2	U Reading	13	80		6	U Western Ontario	7	304
3	U Manchester	10	29		7	U Bradford	7	277
4	Loughborough U	9	20		8	U Pennsylvania	7	249
5	U Bath	8	149		9	Bocconi U	7	170
6	U Pittsburgh	7	154		10	U Cambridge	7	153
7	U Bradford	7	2		11	U Reading	6	180
8	U Minnesota Twin Cities	6	88		12	Cardiff U	6	121
9	Cranfield U	6	31		2009-2017			
10	Sri International	6	26		1	Erasmus U Rotterdam	13	130
11	U Warwick	6	24		2	City U London	12	496
1989-1998					3	Bocconi U	12	316
1	Erasmus U Rotterdam	16	615		4	Copenhagen Business School	12	259
2	U Warwick	12	319		5	U Cambridge	10	176
3	City U London	9	272		6	U St Gallen	9	81
4	U Nottingham	8	177		7	U Oxford	9	50
5	Harvard U	7	492		8	U Pennsylvania	8	972
6	U Western Ontario	7	301		9	Esade Business School	8	137
7	U Bradford	7	274		10	Universitat Ramon Llull	8	137
8	U Pennsylvania	7	246		11	ETH Zurich	7	152
9	Bocconi U	7	169		12	U Warwick	7	46
10	U Cambridge	7	152		13	U Innsbruck	7	15
11	U Reading	6	177		14	U Reading	6	97
12	Cardiff U	6	120		15	Lancaster U	6	84

Abbreviations are available in the previous tables. **Source:** The authors

Switzerland are the most productive. Similarly, the citation per person indicator again indicates that San Marino and Switzerland receive the best indicators. Other countries, such as the UK, the Netherlands and Norway, obtain outstanding results.

Table 8 shows the bibliometric indicators of LRP from a regional perspective. This table shows that European countries, led mainly by the UK, broadly dominate LRP productivity. European countries also obtain outstanding results in terms of influence, with indicators such as total citations or h-indexes higher than North America.

2.1.7. Actors who most cite LRP

Finally, in this performance analysis, we believe that it is valuable to identify the scientific actors who cite LRP publications most. Table 9 shows the authors, institutions, countries and journals that most frequently cite LRP.

From the table above, Henry W. Volberda is the most cited author of LRP publications. It should also be noted that this author is one of the ten most productive LRP authors. Along the same lines, the University of Manchester is the institution that cites the journal most. It is followed by the University of Warwick and Erasmus University Rotterdam. Curiously enough, the USA is the country that has cited LRP's work the most. However, one must keep in mind that the journal's work has been cited by very diverse countries, confirming the journal's growing multinationality and influence. Note that a large number of LRP articles cite articles published in the same magazine. LRP is a pioneer journal in strategic management, and has become consolidated and quite influential during these five decades, so it is normal that it has a high level of self-citation. Finally, an important aspect that validates and reinforces LRP is that journals from different areas and disciplines have cited its articles.

Table 7 The most productive and influential countries in LRP

R	Country	TP	TC	H	TC/TP	>100	>50	>10	Population	TP/POP	TC/POP
1	UK	873	9.123	46	10,45	9	39	210	65640000	13,30	138,99
2	USA	754	14.916	58	19,78	29	68	237	324118787	2,33	46,02
3	Netherlands	125	2.538	25	20,3	7	14	48	16979729	7,36	149,47
4	Canada	107	2.062	22	19,27	5	15	37	36286378	2,95	56,83
5	Switzerland	89	1.664	22	18,7	2	7	35	8379477	10,62	198,58
6	France	78	1.472	15	18,87	5	7	21	64668129	1,21	22,76
7	Germany	68	1.513	21	22,25	4	9	29	80682351	0,84	18,75
8	Italy	61	1.005	17	16,48	1	4	24	59801004	1,02	16,81
9	Japan	50	1.464	11	29,28	1	2	11	126323715	0,40	11,59
10	Australia	49	563	12	11,49	0	4	12	24309330	2,02	23,16
11	PR China	45	621	13	13,8	1	2	9	1382323332	0,03	0,45
12	India	44	159	6	3,61	0	0	5	1326801576	0,03	0,12
13	Belgium	34	511	12	15,03	1	3	13	11371928	2,99	44,94
14	Singapore	32	347	12	10,84	0	1	12	5696506	5,62	60,91
15	Spain	31	1.435	11	46,29	4	5	13	46064604	0,67	31,15
16	Austria	26	452	9	17,38	1	2	7	8747000	2,97	51,67
17	Sweden	25	534	7	21,36	1	3	5	9851852	2,54	54,20
18	Denmark	24	411	11	17,13	0	2	11	5690750	4,22	72,22
19	New Zealand	22	193	9	8,77	0	0	6	4565185	4,82	42,28
20	Norway	19	539	9	28,37	1	2	9	5271958	3,60	102,24
21	South Korea	19	129	7	6,79	0	0	2	50503933	0,38	2,55
22	South Africa	18	304	6	16,89	1	2	2	54978907	0,33	5,53
23	Israel	17	584	7	34,35	1	3	6	8192463	2,08	71,29
24	Ireland	17	172	7	10,12	0	1	5	4713993	3,61	36,49
25	Finland	14	377	8	26,93	1	1	8	5523904	2,53	68,25
26	Greece	9	194	7	21,56	0	1	5	10919459	0,82	17,77
27	Taiwan	9	103	5	11,44	0	0	3	23395600	0,38	4,40
28	Portugal	7	77	5	11	0	0	3	10304434	0,68	7,47
29	Brazil	7	65	3	9,29	0	0	2	209567920	0,03	0,31
30	Mexico	5	407	4	81,4	2	3	3	128632004	0,04	3,16
31	Slovenia	4	104	3	26	0	1	3	2065000	1,94	50,36
32	Cyprus	4	59	4	14,75	0	0	3	1170000	3,42	50,43
33	Thailand	3	22	2	7,33	0	0	1	68860000	0,04	0,32
34	Nigeria	3	7	2	2,33	0	0	0	186000000	0,02	0,04
35	Bangladesh	2	236	2	118	1	1	1	162910864	0,01	1,45
36	Tanzania	2	6	1	3	0	0	0	55570000	0,04	0,11
37	Hungary	2	3	1	1,5	0	0	0	9818000	0,20	0,31
38	Russia	2	1	1	0,5	0	0	0	143439832	0,01	0,01
39	Serbia	2	0	0	0	0	0	0	7057000	0,28	0,00
40	Chile	1	32	1	32	0	0	1	18131850	0,06	1,76
41	San Marino	1	27	1	27	0	0	1	33203	30,12	813,18
42	Iceland	1	2	1	2	0	0	0	334252	2,99	5,98
43	Lebanon	1	2	1	2	0	0	0	6007000	0,17	0,33
44	Colombia	1	1	1	1	0	0	0	48654392	0,02	0,02
45	Egypt	1	1	1	1	0	0	0	95690000	0,01	0,01
46	Rhodesia	1	1	1	1	0	0	0	6930000	0,14	0,14
47	Saudi Arabia	1	1	1	1	0	0	0	32157974	0,03	0,03
48	Argentina	1	0	0	0	0	0	0	43847277	0,02	0,00
49	Czech Republic	1	0	0	0	0	0	0	10560000	0,09	0,00
50	Libya	1	0	0	0	0	0	0	6293000	0,16	0,00

Abbreviations are available in the previous tables except for: TP/POP = Total publications per million inhabitants; TC/POP = Total citations per million inhabitants; Population is in thousands.

Source: The authors

Table 8 Publications classified by continents

R	SUPRAREGIONS	TP	TC	H	TC/TP	POPULATION	TP/POP	TC/POP
1	Europe	1,514	22,164	240	14.64	667,539,921	2.27	33.20
2	North America	861	16,978	80	19.72	360,405,165	2.39	47.11
3	Asia	228	3,749	72	16.44	3,203,612,963	0.07	1.17
4	Oceania	71	756	21	10.65	28,874,515	2.46	26.18
5	Africa	26	319	11	12.27	405,461,907	0.06	0.79
6	Latin America	15	529	7	35.27	18,131,850	0.83	29.18

Abbreviations are available in the previous tables.

Source: The authors

Table 9 Citing articles of LRP: Authors, universities, countries and journals

R	Author	TP	University	TP	Country	TP	Journal	TP
1	Volberda HW	47	U Manchester	228	USA	4275	Long Range Planning	772
2	Buckley PJ	34	U Warwick	218	UK	3720	Industrial Marketing Manag	266
3	Wright M	32	Erasmus U Rotterdam	210	Australia	1150	Tech Forecast Social Change	254
4	Van Den Bosch F	31	U Cambridge	194	Spain	1059	J Business Research	245
5	Das TK	28	Cranfield U	186	Germany	1046	J Business Ethics	231
6	Lee S	28	Copenhagen Bus Sch	179	Netherlands	1003	Strategic Management Journal	228
7	Carmeli A	27	Aalto U	178	Canada	950	J Cleaner Production	216
8	Hitt MA	24	U North Carolina	157	PR China	840	Int J Technology Management	200
9	Boiral O	23	U St Gallen	152	Italy	786	J Management Studies	198
10	Jarzabkowski P	22	U Leeds	146	Taiwan	688	Management Decision	192
11	King WR	22	U Nottingham	143	France	634	Int J Oper Prod Management	190
12	Kodama M	22	National U Singapore	142	Finland	629	Technovation	167
13	Liu Y	22	Cardiff U	132	Sweden	582	Int J Production Economics	166
14	Matthyssens P	22	U Strathclyde	127	Switzerland	458	R D Management	144
15	Cunha MPE	21	Tilburg U	125	Denmark	439	Int J Project Management	135
16	Elbanna S	21	Lappeenranta U Tech	110	South Korea	351	J Knowledge Management	127
17	Gassmann O	21	Polytech U Milan	110	Belgium	306	Int Business Review	123
18	Jabbour CJC	21	Delft U Techn	108	India	301	Service industries Journal	122
19	Kumar V	21	U Oxford	106	Norway	289	J Product Innov Management	118
20	Lederer AL	20	U Bath	104	Brazil	277	British J Management	112
21	Lichtenthaler U	20	Bl Norwegian Bus Sch	103	New Zealand	265	Int J Production Research	110
22	Lin CH	20	Loughborough U	99	Portugal	244	Indust Management Data Syst	109
23	Sarstedt M	20	U Sheffield	97	Malaysia	232	J World Business	108
24	Depablos PO	19	Vrije U Amsterdam	97	Singapore	227	J Int Business Studies	105
25	Teo TSH	19	ETH Zurich	96	Turkey	226	Expert Systems with Applic	99
26	Lee H	18	Hong Kong Poly U	96	Austria	218	Techn Analysis Strat Manag	99
27	Park Y	18	U Birmingham	96	Japan	184	European J Marketing	98
28	Ringle CM	18	U Queensland	96	South Africa	176	Futures	97
29	Ritala P	18	City U London	95	Iran	165	Organization Studies	97
30	Westhead P	18	Lancaster U	95	Greece	164	Research Policy	96
31	Duysters G	17	U NSW Sydney	95	Israel	159	J Management	94
32	Henseler J	17	U Twente	93	Ireland	156	Omega Int J Manag Sci	90
33	Kraus S	17	Arizona State U	92	Slovenia	109	Total Quality Manag Bus Excel	90
34	Sadler-Smith E	17	U Groningen	92	Poland	97	Int J Management Reviews	89
35	Von Krogh G	17	Aarhus U	91	Mexico	86	Sustainability	88
36	Beamish PW	16	Aston U	90	UAE	86	Eur J Oper Res	87
37	Bessant J	16	Bocconi U	90	Thailand	73	Knowledge Manag Res Pract	86
38	Greenley GE	16	RMIT Melbourne	89	Russia	64	Organization Science	85
39	Grover V	16	U Reading	89	Chile	57	IEEE Trans Eng Manag	80
40	Heracleous L	16	U Montreal	88	Saudi Arabia	53	Int J Human Resource Manag	80

Abbreviations are available in the previous tables.

Source: The authors

2.2. Science mapping of LRP

As mentioned above, science mapping or bibliometric mapping has become an important methodology in the field of bibliometrics (Cobo et al., 2015; van Eck and Waltman, 2010). This methodology attempts to show a spatial representation of the relationships between the different scientific actors in a field of knowledge that is dynamically changing (Small, 1997). In short, science mapping shows the structural and dynamic aspects of scientific research (Börner et al., 2003; Cobo et al., 2011b) and can be used as a complementary approach to bibliometric performance indicators (Cobo et al., 2012). Therefore, in order to obtain a more complete and complementary image of the results previously shown, this section presents science mapping of the main actors who publish in LRP. This analysis is performed using VOSviewer software, which visualizes bibliographic material through bibliographic coupling (Kessler, 1963) and analysis of citations and co-citations (Small, 1973). Bibliographic coupling analyzes documents cited (Cobo et al., 2011b) and occurs when two documents published in a journal cite the same third document. In the figure, the two documents are connected, but not the third, unless it also has a significant degree of bibliographic linkage by means of other documents. Therefore, for the purposes of this research, bibliographic coupling represents the highest productivity in LRP and shows how this research is connected to others (Merigó et al., 2016). Shared citations or co-citations study cited documents and occur when two documents receive a citation for a third document that has been published. The figure shows the two documents that have been cited by the article published in the journal, but not the latter. In this way, co-citation shows the research most cited in LRP and its connections (Merigó et al., 2017). Finally, the analysis of citations represents the sum of the citations that one scientific actor gives to another, and vice versa.

To carry out science mapping, the co-citation indicator of the most cited journals in LRP was analyzed first. Keep in mind that in this case, co-citation occurs when two documents published in different journals receive a citation from the same third document from another journal. Figure 2 presents the results with a threshold of 20 documents and the 100 strongest co-citation connections.

Note in Figure 2 that management journals such as the Strategic Management Journal, Academy of Management Journal and Academy of Management Review are very influential in LRP. This makes sense given the importance of these journals in the field of strategic management. Additionally, note that LRP dominates the central part of the graph, as it is very influential in its own articles. These results should not be surprising given that they are frequent in the analysis of co-citations of journals. One explanation for this is that authors often cite articles from the same source. It is also evident that LRP has a strong connection with journals in many areas but especially with Business and Management journals. Note that journals from other areas of business, such as marketing, are also frequently cited and clustered together. This denotes the interest of the different areas of business in the field of strategic management, and also highlights the breadth of topics published and cited in LRP.

To observe how citations evolve over time, Figures 3, 4 and 5 present a temporal analysis of co-citations of journals from the last three decades.

Note that in the last three decades, LRP appears quite influenced by itself. However, there is also a strong connection to and influence from several management journals mentioned above. All these journals are leaders in the field of strategic management and therefore logically influence LRP's publications. It is also interesting to note the appearance of many other journals in the last decade. One explanation is that in the 1980s, there were not as many journals, and fewer articles were published than today, so the map of the decade 1988-1997 is less dense than that of the decade 2008-2017. The emergence of the Internet has also had a great impact on this phenomenon. Specifically, the digitalization of knowledge has made it easier for researchers to access different editorial platforms and articles in general.

To summarize these results, Table 10 presents a global report of the 30 most cited journals in LRP as well as a temporal analysis of the last three decades.

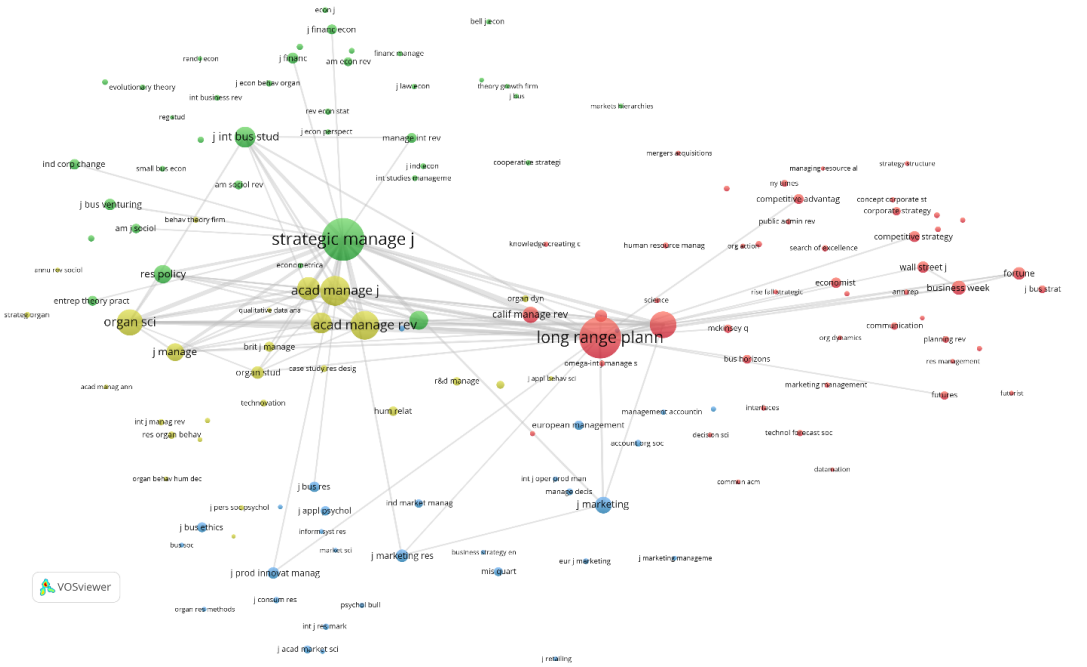

Figure 2 Co-citation of journals in LRP
Source: The authors

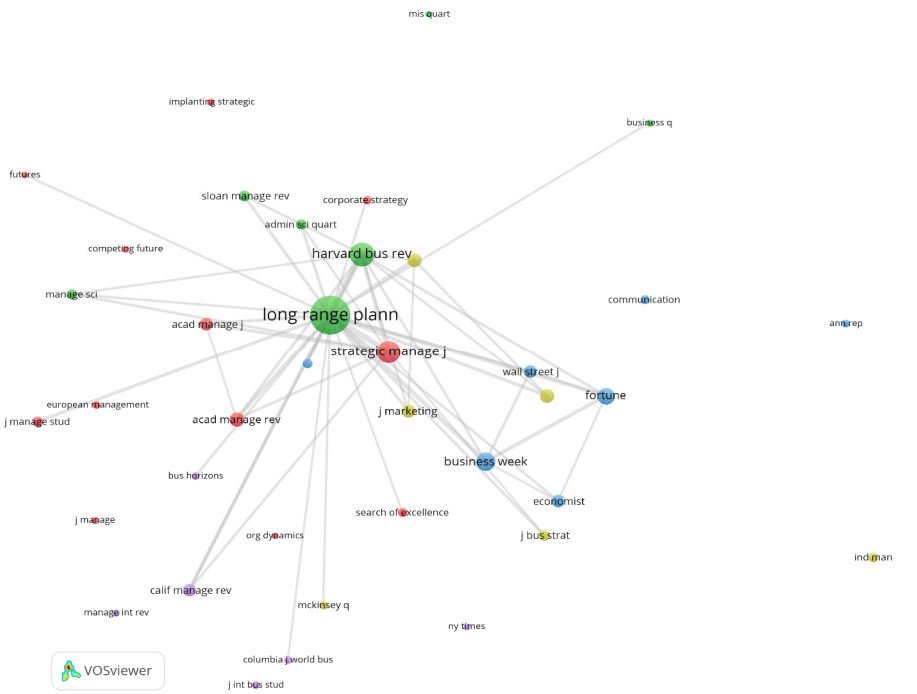

Figure 3 Co-citation of journals in LRP: 1988-1997
Source: The authors

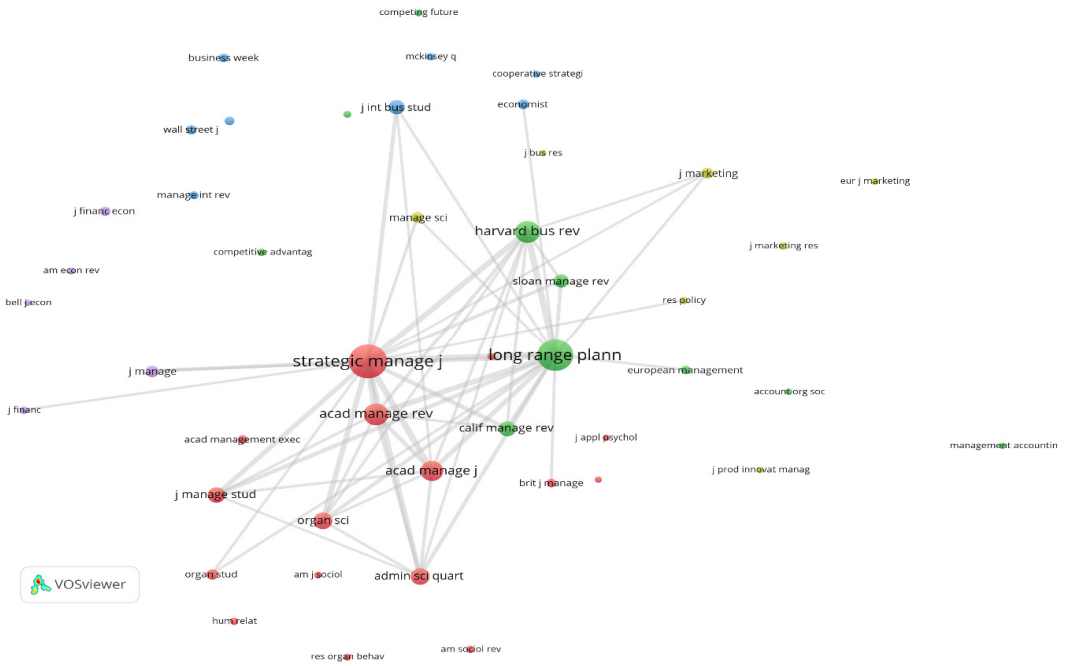

Figure 4 Co-citation of journals in LRP: 1998-2007
Source: The authors

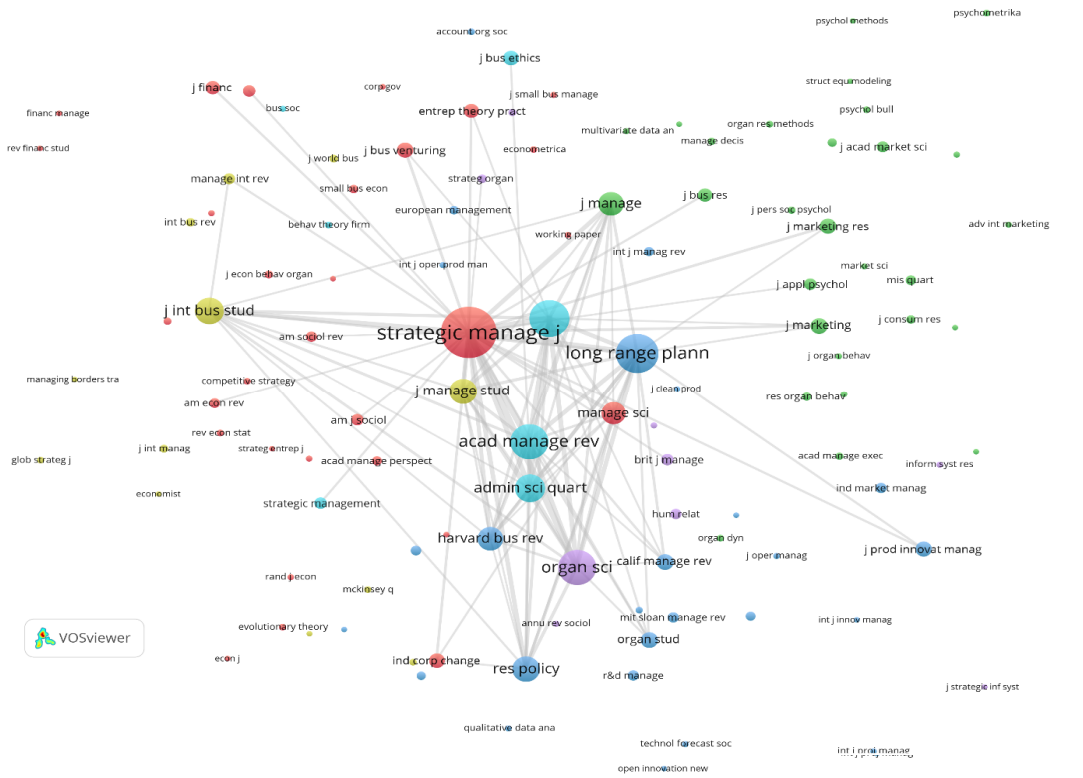

Figure 5 Co-citation of journals in LRP: 2008-2017
Source: The authors

Table 10 Co-citation of journals in LRP: Global and temporal analysis

	Global			1988-1997			1998-2007			2008-2017		
R	Journal	Cit	CLS	Journal	Cit	CLS	Journal	Cit	CLS	Journal	Cit	CLS
1	Strategic Manage J	2602	2179.62	Long Range Plann	602	394.46	Strategic Manage J	587	465.27	Strategic Manage J	1778	1489.17
2	Long Range Plann	2477	1897.4	Harvard Bus Rev	228	187.72	Long Range Plann	516	399.53	Long Range Plann	1027	856.88
3	Acad Manage J	1245	1136.04	Strategic Manage J	211	173.16	Acad Manage Rev	241	219.6	Acad Manage J	926	843.9
4	Acad Manage Rev	1187	1095.84	Business Week	134	111.57	Harvard Bus Rev	241	211.69	Acad Manage Rev	832	764.96
5	Harvard Bus Rev	1002	893.29	Fortune	114	100.59	Acad Manage J	213	188.42	Organ Sci	818	743.99
6	Organ Sci	978	892.4	Acad Manage Rev	82	75.31	Admin Sci Quart	147	135.3	Admin Sci Quart	527	499.02
7	Admin Sci Quart	751	708.9	J Marketing	69	58.71	Organ Sci	147	133.81	J Int Bus Stud	480	407.7
8	J Manage Stud	616	584.5	Calif Manage Rev	67	60.76	J Manage Stud	128	117.3	Res Policy	435	390.1
9	J Int Bus Stud	614	524.46	Wall Street J	65	56.38	Calif Manage Rev	120	112.27	J Manage Stud	431	409.51
10	Manage Sci	516	485.3	Economist	64	49.65	J Int Bus Stud	107	86.17	J Manage	371	356.56
11	Res Policy	481	430.39	Acad Manage J	63	58.66	Sloan Manage Rev	90	85.57	Harvard Bus Rev	370	351.22
12	J Manage	464	447.84	Sloan Manage Rev	48	45.83	J Manage	70	68.61	Manage Sci	349	333.16
13	J Marketing	404	356.57	J Bus Strat	47	43.96	J Marketing	63	54.21	J Marketing	176	167.19
14	Calif Manage Rev	378	359.62	Admin Sci Quart	45	43.44	Manage Sci	60	57.43	Organ Stud	168	161.97
15	Business Week	294	239.51	Manage Sci	45	42.45	Organ Stud	54	53.12	Calif Manage Rev	167	160.61
16	Organ Stud	234	227.07	J Manage Stud	44	39.68	Economist	48	42.45	J Bus Venturing	160	147.71
17	Fortune	226	200.87	Planning Rev	40	35.89	J Financ Econ	44	34.1	J Marketing Res	160	154.22
18	J Marketing Res	220	208.76	McKinsey Q	28	21.9	Wall Street J	44	38.87	J Prod Innovat Manag	152	140.97
19	Sloan Manage Rev	218	211	Bus Horizons	27	24.67	Acad Management Exec	42	40.87	J Bus Ethics	144	102.48
20	Wall Street J	192	157.83	European Management	27	22.82	Brit J Manage	42	40.48	Ind Corp Change	140	135.95
21	J Prod Innovat Manag	190	173.03	J Int Bus Stud	26	24.37	Business Week	42	29.85	Entrep Theory Pract	135	126.29
22	J Bus Venturing	184	171.18	Columbia J World Bus	25	21.8	European Management	42	39.97	J Financ	123	112.32
23	J Financ	170	152.63	J Manage	23	22.48	Fortune	39	34.05	J Bus Res	119	116.86
24	Economist	156	129.48	NY Times	22	21	Manage Int Rev	33	30.64	Brit J Manage	97	94.5
25	J Bus Res	156	153.06	Business Q	21	15.55	Hum Relat	32	30.01	J Appl Psychol	95	92.73
26	Ind Corp Change	152	147.84	Manage Int Rev	21	19.03	J Financ	32	27.03	Am J Sociol	91	88.97
27	J Bus Ethics	151	108.06	MIS Q	21	15.42	J Marketing Res	31	26.81	J Financ Econ	89	82.91
28	J Financ Econ	146	133.13	Futures	20	15.09	McKinsey Q	31	28.26	J Acad Market Sci	87	84.52
29	Brit J Manage	142	138.17	Org Dynamics	20	17.45	Res Policy	29	26.42	Manage Int Rev	86	83.52
30	Entrep Theory Pract	142	132.67	J Gen Manage	19	18.25	Am Sociol Rev	28	27.27	Hum Relat	73	71.42

Abbreviations: R = Rank; Cit = Citations; CLS = Citation link strength.

Source: The authors

The results confirm what was stated in the previous figures and show a strong influence of management magazines on LRP. It is also important to highlight the influence of journals from different areas of business and management. A particularly striking case is the growing influence of the Journal of International Business Studies on LRP. Note that this is much easier to observe from the previous figures, where JIBS appears to be heavily influencing LRP in the last decade, 2008-2017.

Another interesting issue to analyze is the co-citation of authors. These are the authors most cited in LRP and the different connections they have with other researchers. Figure 6 presents the co-citation of authors with a threshold of 50 documents and the 100 strongest co-citation connections.

The figures clearly show that Porter is the center of the main nucleus and is therefore one of the most cited authors among LRP publications. It is also evident that other authors have received quite a few citations and are therefore at the center of some of the figure's subcores. Such is the case of Mintzberg, Eisenhardt, Hamel, and Teece, among others. Note that several of these authors appear in the list of documents most cited by LRP publications, and therefore, the results obtained in the performance analysis and science mapping are consistent.

Another key aspect to analyze is the bibliographic coupling of the universities that publish in LRP. Remember that bibliographic coupling occurs when two documents from different universities cite the same third document from another university. Note that the two connected universities appear on the map, but not the third cited university, unless you also have a significant degree of bibliographic linkage through other documents (Merigó et al., 2017). In short, the map depicted in Figure 7 presents the most bibliographically coupled universities that publish in LRP.

The major universities are consistent with Table 5. However, universities in the same country are often grouped together and have strong connections. For example, in Figure 7, English universities such as Cambridge University, London Business School, and University of Birmingham, among others, tend to be grouped together.

Related to the above, the bibliographic coupling of the countries that publish frequently in LRP was analyzed. Bear in mind that this analysis was carried out with the country of origin of the universities that publish in the journals and not with the nationality of the authors, which can be very diverse. Figure 8 shows the results with a threshold of five documents and the fifty most representative bibliographical connections.

Note that the United Kingdom and the USA are the main nucleus of Figure 8. It is common in these types of figures to observe countries on the same continent close to each other. Such is the case of the European countries that are grouped in the left sector of the Figure. In the case of the USA and the United Kingdom, one factor that could explain their centrality and proximity is their linguistic closeness.

Finally, we analyze the most commonly used keywords by authors who publish in LRP. Note that the focus of the co-occurrence of keywords is on the list of keywords provided by the author. The graphical visualization of these words is a network graph. The size of the circles, which represent a keyword, are larger according to the relevance of this word in LRP. The network connections of these words are used to identify the most closely linked keywords. Figure 9 presents the results considering a threshold of 2 occurrences and the 100 most frequent co-occurrences.

At first glance, it is possible to observe that the subject matter of the articles published during these 50 years of LRP has been varied. However, some concepts stand out notably in the figure, such as business performance, innovation, strategy, competitive advantage and management. Obviously there are other keywords that represent the breadth of topics that have been published in LRP and still have much potential in the journal. It is therefore expected that LRP will continue to promote research on these topics in order to further explain the different business phenomena related to strategic planning.

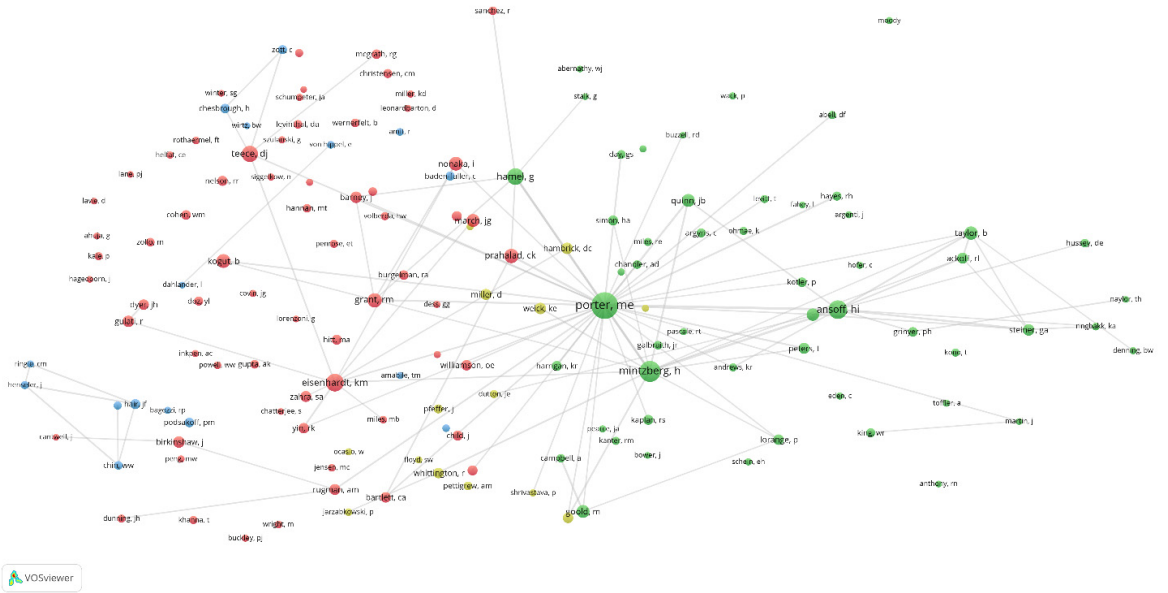

Figure 6 Co-citation of authors cited in LRP
Source: The authors

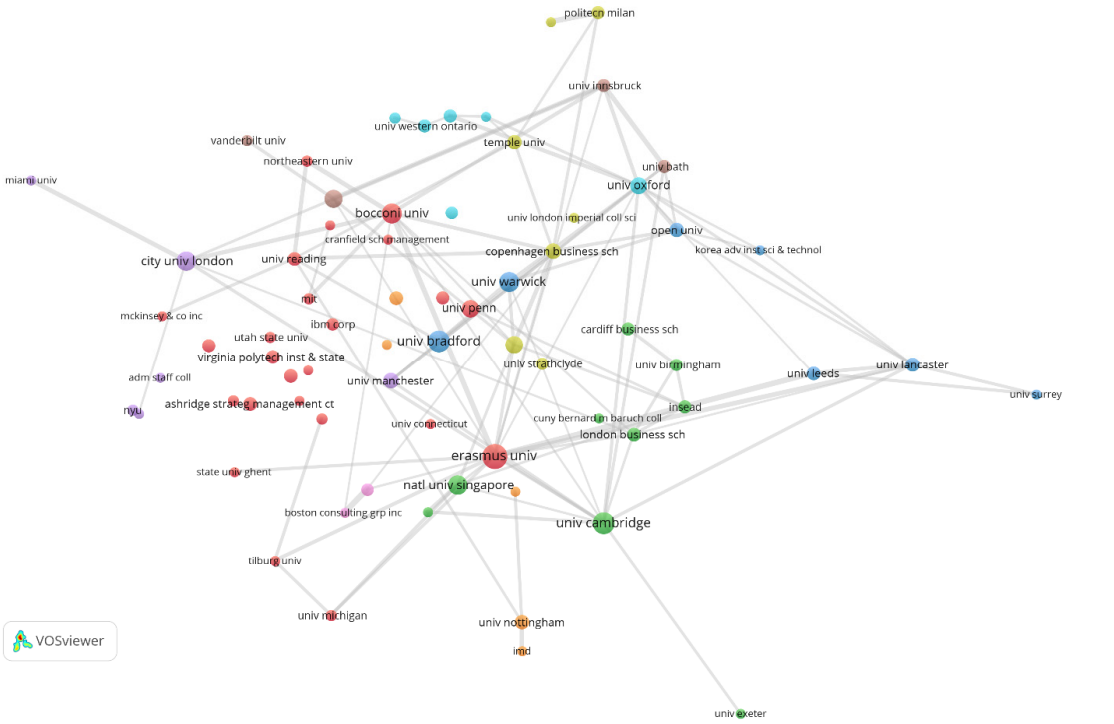

Figure 7 Bibliographic coupling of institutions publishing in LRP
Source: The authors

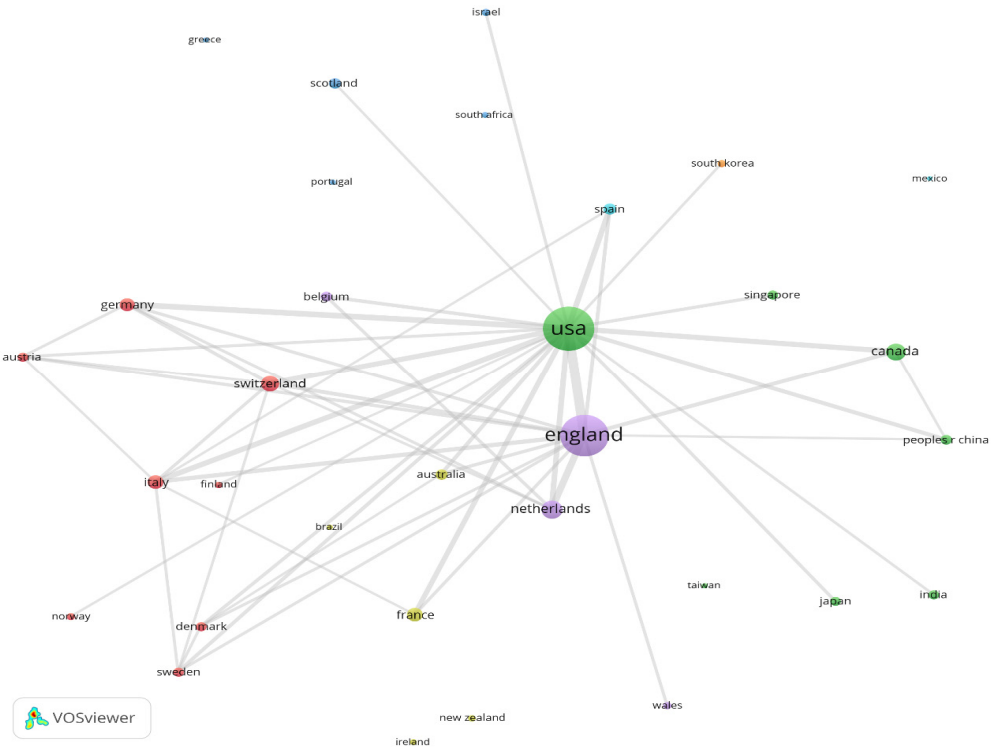

Figure 8 Bibliographic coupling of countries publishing in LRP
Source: The authors

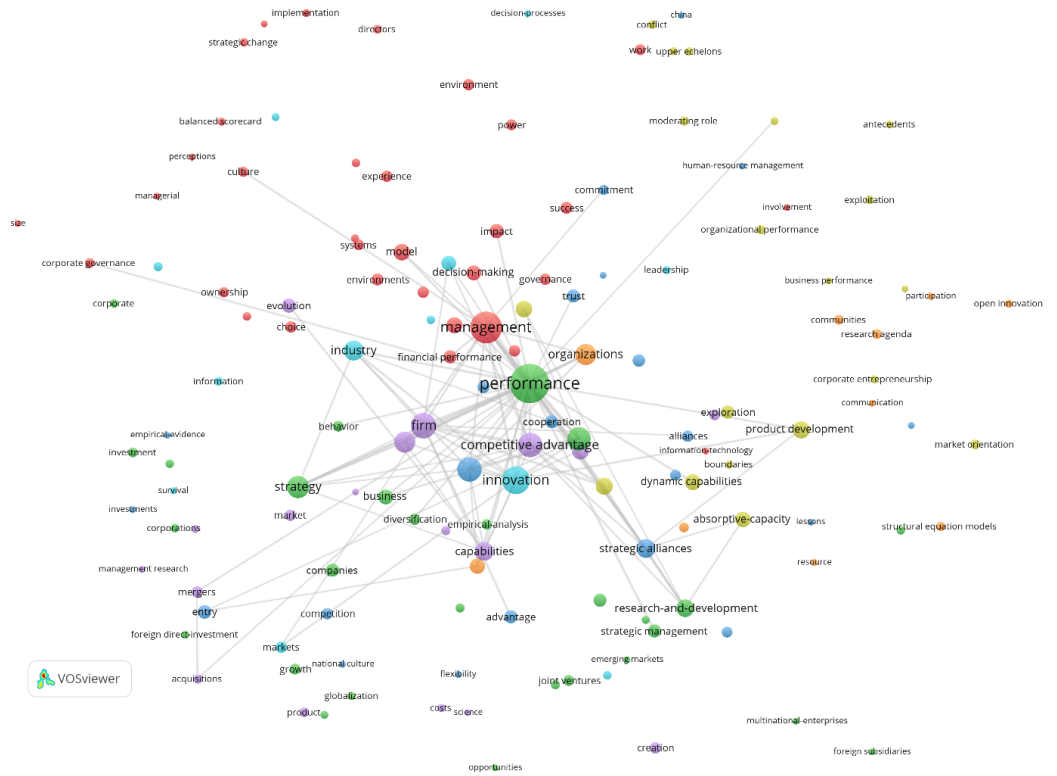

Figure 9 Co-occurrence of keywords (Keyword Plus) in LRP
Source: The authors

Conclusion

In recent decades, strategic planning has attracted considerable interest among researchers around the world and today continues to challenge them to understand both economic and corporate planning as well as large-scale projects (Laamanen, 2017). In this context, LRP is an important source of knowledge for researchers around the world who wish to understand strategic planning. In its 50 years and as the first strategy journal (Laamanen, 2017), LRP has played an important role in contributing relevant knowledge related to strategic planning. To celebrate this important anniversary, this paper seeks to provide a complete bibliometric analysis to identify the most significant results that occurred in the journal during its five decades. For this, the bibliometrics presented involve performance analysis and science mapping from all the research published in LRP between September 1968 and August 2018. The data were obtained from the Core Collection of the Web of Science database. The results confirm that LRP is one of the leading journals in the field of strategic planning and management.

The results of the performance analysis show that LRP has published documents from more than 50 countries around the world, with the UK leading in productivity of LRP publications. This makes sense because it is home to the journal's most productive and influential authors and universities. Another fact that explains this trend is that LRP originated in the UK. The USA is the journal's most influential country with the most citations, although in terms of productivity, it lags far behind the UK. It is important to mention that although LRP publications are concentrated in the UK and the USA, many other countries have published in the journal, confirming the global reach of the journal to which Laamanen's study (2017) refers.

As an important part of bibliometric analysis and to complement the results of the performance analysis, this paper developed a science mapping of all LRP publications. For this purpose, VOSviewer software was used. The results were consistent with those obtained in the performance analysis. However, one of the advantages of science mapping is to observe the connections between the variables in the journal's publications. Along these lines, it is evident that LRP publishes documents with a wide range of topics that are used to explain management and strategic planning. It is also possible to observe that the journal is strongly connected to Management journals such as Strategic Management Journal, Academy of Management Review, Journal of Management Studies, Organization Science, and Managerial Science, among others. From the science mapping, it is also evident that universities in the same country, as well as nearby countries, are strongly connected in LRP publications.

This article provides the main bibliometric results occurring in the 50 years of LRP. However, it is important to take into account some limitations. First, the dynamics of science imply that results can change with time, and therefore, condition the different variables analyzed in this study. Second, the data were obtained from the Core Collection of the Web of Science database, so the limitations of this database were transferred to this study. One of them is, for example, the complete counting system, in which documents signed by multiple authors or affiliations tend to have more importance in the analysis compared to those documents that appear with only one author. The science mapping done with VOSviewer was used to neutralize this limitation, since it uses a fractional counting system. The similarity and consistency between the results obtained from the performance analysis and the science mapping allow us to conclude that there is no significant deviation between the two counting methods. Third, the breadth of themes and disciplines in LRP has been highlighted. Therefore, some themes may receive more attention than others regardless of their relevance. Although researchers must take these limitations into account, this document identifies the most significant results in the 50 years of LRP's life, and its usefulness lies in the information presented in a comprehensive manner and considering different perspectives so that each reader understands the data according to his or her interests and priorities.SM

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The importance of training and certificates in the access of university graduates to the labour market

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Abstract
In the era of growing competitiveness on the labour market, it has become common for students and graduates of higher education institutions to participate in various types of training courses and obtain various types of certificates, which are an additional asset when applying for employment. The interaction of a university with the environment requires constant monitoring of the expectations of labour market. Therefore, the main objective of the paper is to analyse of labour market requirements on additional certified competences of graduates during their studies. The paper attempts to answer the question: whether, and if so, to what extent the training received and the certificates obtained by the potential employee are important from the employer's point of view. The matters raised in it are a contribution to the discussion on the issue of needs and preferences of employers, including the most important aspects that guide them during the recruitment process. The study presents the results of surveys aimed at analysing the preferences of entrepreneurs and other entities in relation to the competences of graduates of universities. The survey method was chosen from among the empirical research methods used, which is characterized by a nomothetical approach, aimed at seeking generalized judgments, laws and rules for a certain class of situations or events. The survey covered not only entrepreneurs, but also representatives of other entities. Random sample selection was adopted for the conducted surveys. Setting the acceptable margin of statistical error at e=5.5%, for confidence level α=0.80 (Z=1.28), response distribution f=0.5 and population size N_p=107.798. It has been calculated that the minimum research sample should consist of N_{min}=136 employers. The draw was conducted on the basis of a list of all entities of the Swietokrzyskie Region in Poland. The collected quantitative data were analysed. The survey results indicated that employers pay attention to certificates, qualifications, courses and trainings obtained by university graduates. Additionally, graduates should demonstrate some professional experience, therefore student apprenticeships and practical profiles of education are also important. Respondents emphasized the problem of the deficit of the skills of applying knowledge in practice by university graduates, stating the ubiquitous excess of theory over practice.

Keywords
labour market requirements, lifelong learning, graduate's expertise, certification of competences

Introduction

The labour market and phenomena related to it are the subject of many analyses and scientific studies. An efficiently functioning labour market is one of the basic pillars of the economy, enabling the utilization of existing labour resources and the human capital accumulated in them. This study takes into account the labour resources limited to the category of university graduates and analyses them from the point of view of employers in terms of their needs and preferences, including the most important aspects that guide employers in recruiting new employees. Developing possibilities to gain a new competence by students is the main goal of modern university. This requires building a support system for entrepreneurial attitudes

among students. Such a system can include various actions oriented to talented students (Bartosik, 2017).

Reports published as part of the research project "*Balance of Human Capital*", implemented by the Polish Agency for Enterprise Development in cooperation with the Jagiellonian University since 2009 – invariably show the unfavourable situation of university graduates on the labour market. A university degree, which used to be a springboard for a career, now requires additional certificates. These are primarily the effects of the educational change, which consisted in the massification of higher education (Kwieciński, 2012).

Since the beginning of the social and economic transformation in Poland, a significant increase in interest of young people in pursuing higher education can be observed. In 1989, 378 thousand people studied in Poland (Statistical Yearbook of the Republic of Poland, 1990), and in the record year 2005 — as many as 1.95 million (Statistical Yearbook of the Republic of Poland, 2006), (an increase by 416%). Since then, the number of students has decreased to 1.23 million in 2018 (Statistical Yearbook of the Republic of Poland, 2019), (through 1.84 million in 2010 (Statistical Yearbook of the Republic of Poland, 2011), and 1.41 million in 2015 (Statistical Yearbook of the Republic of Poland, 2016), but compared to the beginning of the 1990s, when economic transformation began, the number of people in higher education remains high. Although it is very often published that one of the main reasons for such an increase in Poland was the entry of the baby boomers of the 1970s and 1980s into the study age. Indeed, the statistical data indicate that in the years 1989-2004 there is a significant increase in the population aged 19-24, from 3 million (Statistical Yearbook of the Republic of Poland, 1990), to almost 4 million (Statistical Yearbook of the Republic of Poland, 2006), and then – since 2005, a decrease (Statistical Yearbook of the Republic of Poland, 2011), which is exactly in line with the trend in the number of students. The increase in the number of students was also influenced by the policy of public authorities, which started to appreciate the importance of higher education, not only in the sense of its impact on social and economic development, but also as a tool to reduce unemployment by postponing the entry of young staff into the labour market. The marketization of the economy has resulted in a change of priorities on the Polish labour market – higher education has gained value, translating into good job offers and relatively good remuneration. To sum up – in the 1990s, higher education was seen as a safety net against unemployment, but today it no longer secures employment, but in the young generation it functions almost as a prerequisite for success on the labour market.

If we assume that the gross enrolment ratio remains at the same level as in 1990 and the increase in the number of students results exclusively from the numerical growth of the age category, i.e. 19÷24 years of age, in 2004 – the most numerous in terms of population at the age of 19-24 – there should be about 512 thousand students, and in fact there were 1.95 million of them (Statistical Yearbook of the Republic of Poland, 2006). It becomes clear that the direct impact of the demographic factor was small, and the increase in the number of students is also due to other reasons. Moreover, the increase in educational aspirations in the baby boomer cohorts generates a higher number of students than it would have been in the period of low birth rate (Moron, 2016).

The effect of the educational boom described above is an increase in the number of people with higher education. In 2005, 23% of people aged 30-34 had higher education (Statistical Yearbook of the Republic of Poland, 2006), and in 2015 as many as 43% (Statistical Yearbook of the Republic of Poland, 2016), with the EU average of 28 and 39% respectively. The target value of this index adopted for the implementation of the Europe 2020 Strategy is 45%, which assumes maintaining a high level of the gross enrolment ratio for higher education. However, obtaining such an index in Poland requires creating conditions for undertaking higher education and increasing the chances of university graduates on the labour market.

BHC[1] research shows that in the years 2001-2005 about 2.5 million people under the age of 30 entered the labour market. In this group, 43% of

[1] Balance of Human Capital (BHC) – is one of the largest European research projects in the area of competences, employment and the labor market. Its aim is to monitor the demand among entrepreneurs in the above-mentioned area. The BHC is used for identification of areas of mismatch of competences by people of working age to the needs of the labor market. The results of the research are the basis for formulating recommendations for public policies in such areas as: science and education, the labor market, development of entrepreneurship. It provides valuable data on competence gaps in the economy and educational activity of adult Poles.

them were university graduates, 38% were from schools ending with a maturity exam and 19% from schools not offering the maturity exam, i.e. basic vocational, middle or primary schools.

On the one hand, the gross enrolment ratio is increasing and on the other hand, the demand for specialists with higher education is decreasing. Unemployment among university graduates is rising. In 2001 there were 3% of unemployed university graduates, and in 2011 there were 12% and there is no indication that this trend will change much. Between 2010 and 2011, the demand for workers, fitters and operators increased from 40% to 50% and the demand for specialists decreased from 40% to 25% (Pinheiro & Antonowicz, 2015).

Paradoxically, higher education has begun to deepen social divisions due to its massification. On the one hand, there are prestigious universities that give their graduates a chance to be a part of the middle class. On the other hand the overcrowding of the universities began to generate ever-increasing unemployment among holders of formal diplomas. It seems that the excess of people holding university diplomas does not bring profits to anyone, as both the graduates and employers do not have the expected benefit from them (Etzkowitz, 1998).

In view of the phenomenon of the inflation of diplomas, employers are trying to choose those candidates who will be competent. Competences, i.e. knowledge and skills acquired at school or at university, quickly become obsolete, due to the high dynamics of new technology development. The most recent BHC survey indicates that for most employers, the key criterion in selecting an employee is education (83%), followed by experience – 69%. Every fourth employer requires above all diligence, meticulousness, accuracy, responsibility, work discipline, honesty and credibility from candidates. Alongside education, soft skills are an important element in the search for employees. Among the most frequently mentioned are ease of establishment of relations with people, personal culture and self-presentation, willingness to work, time management and punctuality (Czarniak et al. 2019; Bartosik et al., 2018; Wiścicka et al., 2018).

The main objective of the paper is to analyse labour market requirements on additional certified competences of graduates during their studies. The paper presents the results of a survey of entrepreneurs and other employers of the Swietokrzyskie Region in Poland. The paper emphasises importance of training and certification of graduates in accessing the labour market.

1. Description of the Research Method

1.1. Research purpose

The aim of the empirical research was to diagnose – on the market of the Swietokrzyskie Region – the expectations of employers in relation to the competences of university graduates, with particular emphasis on the importance of certified trainings.

In particular, the study concerned the diagnosis of the actual state and recommendations to increase the effectiveness and accuracy of university management in terms of adjusting the program offer to the regionally differentiated labour market.

1.2. Research method

From among the applied research methods – to verify the above-mentioned research problem – the questionnaire method was chosen, as those methods have a quizzing nature and are widely used, allowing to recognize the designated opinions of respondents in relation to specific socio-economic phenomena taking place in organizations (Altdorfer et al., 2003).

The questionnaire research method is a part of the group of empirical methods and focuses on solving the research problem from the experience side, by capturing conditions which are as close as possible to reality and which allow the researcher to explore the issue from the scientific side. By their nature, they are part of the nomothetical research approach, focused on the search for generalized judgments, laws and rules of the world of organizations, which is implemented through an inductive research path (mainly incomplete enumerative induction), which allows to determine the truthfulness of a phenomenon on the basis of sentences confirming its existence in some cases only (out of all possible). However, for this reason, it is an unreliable method and requires a certain methodological rigor, ensuring relatively high accuracy, reliability and objective conclusions.

Questionnaire research is currently one of the most popular empirical research methods, where a questionnaire tool is used to collect information from respondents. In principle, they may be of a

verificative[2] or diagnostic[3] nature. On the basis of the factual state of affairs established during the research, it is also possible to anticipate and formulate the directions of development of the examined issue. Therefore, the decision to utilize this method was based on the nature of the problem to be diagnosed, which was planned to be solved.

Prior to the research, a questionnaire was developed, which consists of basic information and 12 close-ended questions (including 4 single and 8 multiple-choice questions) concerning the current situation of the surveyed employers, as well as actions only planned by them (Bartosik, et al., 2018; Wiścicka et al., 2018).

The so-called *mixed-mode data collection* scheme was chosen as the form of data collection in order to increase the degree of sample completion, consisting in combining several information collection procedures (Altdorfer et al., 2003). In this research project, it has been decided to conduct an online survey by means of an electronic questionnaire to be filled in by the respondents, and to use a traditional paper version of the questionnaire in order to ultimately ensure that potential respondents can participate in the survey in the most convenient way for them. The location of the questionnaire on the website, apart from the possibility of constructing a convenient research tool, made it possible to control its course, giving the opportunity to monitor the level of sample execution, as well as to check the correctness and completeness of filled-in forms. The website address of the questionnaire was sent to the respondents by e-mail and via an instant messenger. Paper questionnaires were sent by post with a request for it to be filled in and sent back or delivered to the respondents and collected in person. The quantitative data obtained in the empirical study were analysed statistically.

1.3. Sample selection criteria

The adopted research objective has clearly and unequivocally translated into the criteria for the selection of the research sample. The survey covered not only entrepreneurs, but also representatives of other entities and institutions of the Swietokrzyskie Region, including hospitals and local government units. From the surveyed population of employers, entities from several sections of the Polish Classification of Business Activities 2007 were excluded, i.e.: households that employ workers, households producing goods and services for their own needs and extraterritorial organizations and groups; member organizations and foundations, churches, religious denominations, associations and other social organizations, political parties, trade unions, organizations of employers, economic and professional self-governments, housing communities and associations of agricultural producer groups. It was not possible to examine in detail the companies and institutions from these specific sectors and types of entities with the sample size assumed.

Random sample selection was adopted for the conducted surveys (Mccrum-Gardner, 2010), (Omair, 2014). By setting the statistical error margin of $e=5.5\%$ (for confidence level $\alpha=0.80$ with $Z=1.28$, response distribution $f=0.5$ and population size $Np=107,798$), it was calculated using equation (1) that the minimum sample size should consist of $N_{min}=136$ employers.

$$N_{min} = \frac{N_p[Z^2 \cdot f(1-f)]}{N_p \cdot e^2 + Z^2 \cdot f(1-f)} \qquad (1)$$

The sampling frame of the draw was based on the list of all entities of the Swietokrzyskie Region, compiled by the Central Statistical Office, including 107,798 employers (as of December 31, 2017). The list of economic operators used to draw the sample came from the REGON database verified using other data available via the Central Statistical Office. The use of the REGON database, as a source of data, allowed for the selection of the sample according to the assumptions concerning the target population, ensuring the appropriate quality of results. This sampling frame, however, like others, is burdened with an error due to the fact that some of the data (e.g. contact details) and its contents (liquidation of companies) are outdated, especially in the case of the smallest enterprises. Ultimately, we assumed the sample size was $n=140$ employers.

Using the formula $K=N_p/n$, where N_p is the number of population elements (107,798) and n is the sample size (140), the value of the K interval (draw interval) was determined at 767. From the base which is the sampling frame from the Central

[2] The results of such a study may be the basis for confirming or rejecting the hypothesis, i.e. a presumed, predictable answer to the question contained in the research problem.

[3] The essence of this is to determine the characteristics or principles of functioning of a particular piece of reality.

Statistical Office, 140 subjects for research were selected via systematic selection[4].

2. Questionnaire Research Results

2.1. General statistical data

The results presented below regards Swietokrzyskie based entities and institutions aimed at learning about employers' expectations regarding the required competences when hiring university graduates. The discussed expectations were mainly related to the skills, predispositions and individual characteristics required from the employed graduates. This involved answering the question: *what aspects do you pay attention to when hiring university graduates*?

This survey was conducted from March to July 2018. The research sample consisted of 140 employers representing Swietokrzyskie-based companies and other institutions, differentiated by size, time on the market and industry. The selection of the research sample was random. In the empirical research carried out, a random sample selection was assumed, on the basis of which 140 subjects were selected in a systematic selection. The return rate of the completed questionnaires was 57.45% (88), of which 81 (92.05%) contained a full set of information, and they were subsequently subjected to statistical analysis.

With the high level of the sample implementation in mind, constant contact with the study participants was maintained. It was both a *pre-notification*, preparing the respondents for participation, as well as subsequent communication, mainly aimed at reminding about the survey and encouraging participants to take part in it again *(reminder)*, as well as thanking the participants for providing feedback or the special interest of respondents resulting in asking questions about the survey itself or a *follow-up for the* questionnaire.

2.2. Research sample characteristics

The employers who took part in the questionnaire research represented many fields of operation, of which industry (25.44%), trade (21.05%) and services (13.16%) were the most numerous. Figures 1 and 2 below show the proportions of distribution of particular sectors of respondents' activity.

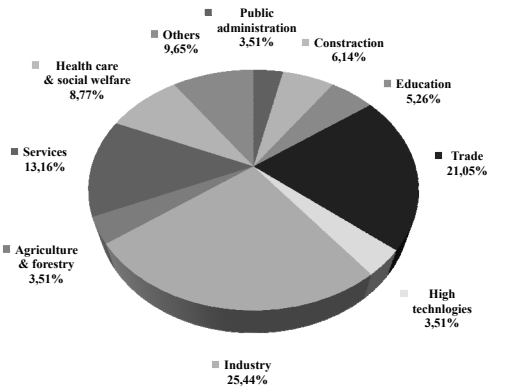

Figure 1 Research sample by sector of activity of respondents
Source: The authors' own elaboration

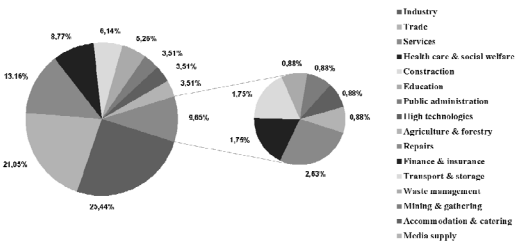

Figure 2 Research sample by sector of activity of respondents with a supporting chart
Source: The authors' own elaboration

The research sample of individual companies and units, according to their size, measured by the number of employees employed, was distributed almost equally. The largest group, 29.63%, were micro-type entities (1÷9 employees). Small and large enterprises employing 10÷49 and over 250 people respectively constituted 24.69% of respondents each, as shown in Figure 3. The least representative were the so-called medium size enterprises and institutions, i.e. employing from 50 to 249 employees (20.99%).

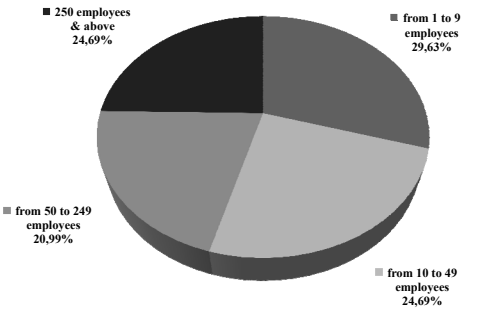

Figure 3 Research sample by number of respondents
Source: The authors' own elaboration

Figure 4 presents the structure of the period of operation on the market of the enterprises. More

[4] It consists in selecting every *K*-th element from the population – starting with the first one selected.

than 3/4 of the surveyed entities (75.31%) have been operating on the market for many years, i.e. more than 10 years. This was followed by companies and institutions operating for 5 to 10 years (8.64%), 1 to 2 years (7.41%) and 2 to 5 years (6.17%). The least numerous groups were young companies, existing for less than 1 year (2.47%).

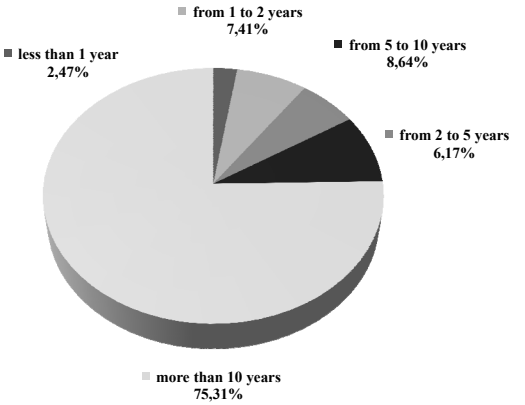

Figure 4 Research sample by period of operation of the entities on the market
Source: The authors' own elaboration

The analysis of empirical research began with the question: In the last 3 years (2015, 2016 and 2017) have the respondents employed university graduates? It turned out that more than ¾ of employers (75.31%) answered yes. It was a semi-open-ended (semi-close-ended) matrix question with many possible answers thanks to which information was obtained not only broken down into the years listed above, but also by the types of universities.

The respondents indicated the types of universities from which the graduates were recruited, which is presented in Figure 5. As one entity could employ graduates from different universities, the participants in the survey made one or more indications, therefore the total number of responses was 340, i.e. more than the number of analysed questionnaires (81).

Figure 6 shows that the graduates of technical universities were employed most often, as over ¼ (28.53%) of them were employed. In this respect, it should be borne in mind that the opinions presented later in the study will most often concern graduates from technical universities.

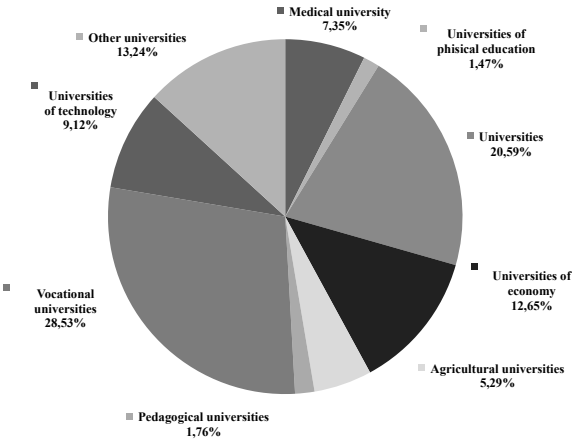

Figure 5 Structure of employed university graduates in the years 2015÷2017 by type of university
Source: The authors' own elaboration

The next question was a close-ended multiple-choice (conjunctive) asking for indication of what kind of education of university graduates (general or practical) employers prefer in terms of possible employment.

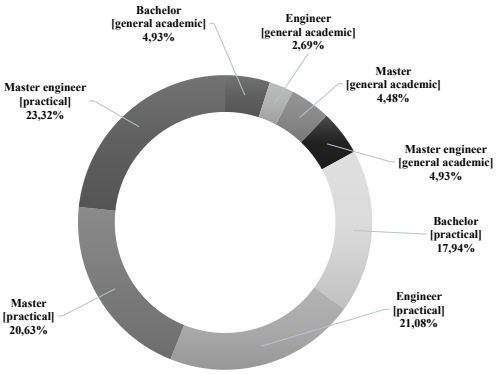

Figure 6 Preferences of employers in the area of education profile of a newly hired employee
Source: The authors' own elaboration

The chart above shows that entrepreneurs are most interested in employing graduates of technical universities with a master's degree in engineering, but with a practical profile. The next place, with an almost identical result, was taken by engineers and holders of master's degrees in studies with a practical profile. The next position was taken by graduates with a bachelor's degree with a practical profile. The lowest interest among employers concerned the employment of people with general education in engineering. The total indication of the practical profile by the employers was 82.93%, as shown in Figure 6.

The questionnaire research also clearly indicated which aspects, in addition to the ones

discussed above, are attractive to entrepreneurs when hiring graduates. It turned out that the most important factors are the acquired profession (26.79%) and professional experience (25.36%), as well as certificates/qualifications obtained (20.57%) and courses and trainings completed (17.70%) [20]. It is also interesting that for employers from the Świętokrzyskie region it is practically irrelevant whether the graduate has graduated from universities in the Świętokrzyskie region or outside of it. The grade on the diploma is also not important, as shown in Figure 7.

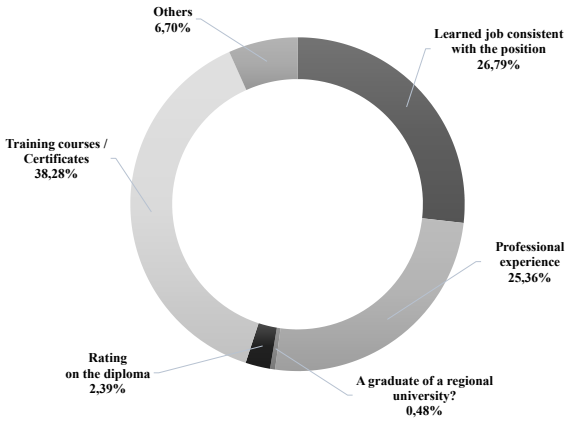

Figure 7 Important aspects when hiring graduates
Source: The authors' own elaboration

Conclusions and recommendations

The questionnaire research, which is diagnostic in its nature, was carried out on a sample of 81 entities, from the Swietokrzyskie Region, of which 29.63%, 24.69%, 20.99% and 24.69%, respectively, were micro, small, medium and large enterprises. The largest share of entities participating in the research were companies from the industrial sector (25.44%). The vast majority of respondents, as much as 75.31%, have been operating on the market for more than 10 years.

The analysis of the results of the empirical research allows to formulate the following conclusions:

The most numerous groups of respondents were companies and institutions from the industry, trade, services, health and social welfare, construction and education sector.

More than 3/4 of the respondents were companies and institutions operating on the market for over 10 years.

The majority of employers, 69.14%, indicated that they intend to employ university graduates in the next 3 years.

Employers are most interested in hiring graduates of master of engineering studies, but what is particularly important, studies of a practical profile. Employers are most interested in hiring university graduates who have completed studies with a practical profile (82.97%).

The employers indicated the following among the most important factors when deciding to employ a graduate:

- obtained certificates, qualifications, courses, training (38.28%),
- acquired profession, consistent with the occupied position (26.79%),
- professional experience (25.35%).

The results of the company surveys indicate that when hiring a university graduate, employers pay the greatest attention to the obtained certificates, qualifications, courses and trainings. As we observe changes in the labour market, the interaction of a university with the environment requires constant monitoring of the expectations from university graduates. Therefore, it is important that the process of managing the educational offer takes into account the possibility of acquiring additional competences and skills, which constitute an added value in a competitive labour market.

It is worth emphasizing that the presented research results are consistent with the opinions of employers in other regions in Poland. For example, the results of qualitative research conducted in the Opolskie Region (individual in-depth interview) at the turn of 2015 and 2016 showed that the strength of university graduates is precisely the possession of certificates of completed courses, which is a strong support when entering the labour market (Kudzia, 2017).

The research also shows that it is important for the graduates to have as much practice as possible, which is provided by studies with a practical profile, an acquired profession and professional experience. This is also confirmed by the results of qualitative research (focus group interview) conducted at the turn of 2017 and 2018 in eight large cities in Poland, i.e. Warszawa, Katowice, Poznań, Szczecin, Lublin, Olsztyn i Toruń (Turek, 2019). Employers of various industries strongly emphasized the problem of the deficit of the ability to apply knowledge into practice by candidates of higher

education, stating the ubiquitous excess of theory over practice (Turek, 2019).SM

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Investment strategies in pandemic situations: an analysis and comparison of prospective returns between developed and emerging markets

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Abstract
This study empirically analyzes return data from developed and emerging markets to assess whether emerging markets show superior performance during the COVID-19 pandemic in terms of cost of equity. It analyses panel data from eight country indices of developed and emerging countries as well as eight exemplary companies from developed and emerging countries, covering the period from 2000 to 2020. The results provide evidence that emerging markets do not perform in a better way than developed markets. The findings highlight the need for a reassessment of the generalized notion that emerging markets are more profitable than developed markets in such crises which affect the core of their economic structure. It provides investors with meaningful advice on the creation of an investment strategy if they wish to perform equity investments in similar periods like the COVID-19 pandemic. The study contributes to the literature by advancing this research area and is the first study which analyzes and compares the cost of equity of developed and emerging markets during the COVID-19 pandemic.

Keywords
COVID-19; pandemic; asset pricing; Fama French three factor model; cost of equity investment; behavioural finance; developed; emerging; panel data.

Introduction

In the past decades, the global economy was affected by numerous financial crises with detrimental economic, sociocultural, and political ramifications. The emergence of such situations is a rather continuous phenomenon and crises have been occurring regularly for at least the last century. Many of said crises often only affected single countries with some bordering nations, like the 1998 Russian Financial Crisis or the Icelandic Financial Crisis of 2008 to 2010. However, some of these events were of such magnitude due to their underlying causes that they affected the economies of many nations around the globe, regardless of the region. Such crises included the dot-com bubble in 2001, the Great Recession between 2007 and 2010 as a result from the Global Financial Crisis (GFC) of 2007 to 2008 or the ongoing European debt crisis from 2009. It is particularly interesting that these global crises are somewhat similar in their nature. Although the actual causes for their occurrence may differ, these types of financial crises only spread to the rest of the world after a certain time delay. For example, the recent recession, which began with the United States' housing bubble between 2005 and 2006, which then led to the US subprime

mortgage crisis and further developed into a global recession over a course of several years. The biggest threat to the global economic system of today in contrast to the former developments is the COVID-19 pandemic (Drobot, Makarov, Nazarenko & Manasyan, 2020). The term COVID-19 describes an infectious virus disease in humans that is caused by the so-called SARS-CoV-2 virus strain. While this virus is remarkably similar to the yearly influenza in terms of its range of symptoms, it is considered a significant threat to health systems and economies throughout the globe for the following reasons:

- It is a novel virus with no known cure or preventive vaccination.
- It is an airborne disease, able to spread meters around an infected individual.
- It can spread much more rapidly between humans than other known respiratory diseases. Sanche, Romero-Severson, Hengartner and Ke (2020) indicate in a recent study that this disease shows an R0 of 5.7. This number indicates that one infected person, on average, has the ability to infect five to six people with this virus. This number puts this virus's risk of spreading to a large number of individuals on one level with dangerous diseases such as Poliomyelitis, Smallpox, or Pertussis.
- Albeit its name, SARS-Cov-2 aggressively infects more organs than just the respiratory tract; e.g. it is also able to cause substantial damage to the human heart, the gastrointestinal tract, the nervous system, and triggers massive immune responses, making it difficult to control and treat infected patients.

Unlike other financial crises, Covid successfully attacks the very nature of thriving economic structures: human interaction and stable population health levels. Consequently, this pandemic showed its full effect on practically all areas of economic undertakings. As people are prohibited from leaving their homes for work, most types of shopping, and practically all forms of recreational activities for several months so far, entire industry sectors experienced massive plunges of revenue and profits on a global scale. This caused rising unemployment rates and had negative effects on the economic growth figures of both developed and undeveloped countries. Additionally, certain industrial sectors have been affected much more significantly by this pandemic than others, mostly due to the underlying nature of their business operations. Those sectors that require an extensive degree of human interaction, such as the aviation or tourism industry, appear to be affected to a larger degree than digital businesses, which require practically no face-to-face client-employee interaction at all. Surprisingly, at a first glance, it appears as if developing countries, especially those nations belonging to the emerging market classification, have been hit less severely – economically speaking – by this pandemic than those countries that are considered developed economies.

According to O'Sullivan and Sheffrin (2003), a developed country is a sovereign state that has a developed economy and advanced technological infrastructure relative to other less industrialized nations. A developing country is a country with a less developed industrial base and a low Human Development Index relative to other countries. Emerging markets, also known as emerging economies or developing countries, are nations that are investing in more productive capacity (Amadeo, 2020; Vertakova & Plotnikov, 2013).

Therefore, this study aims to research the following hypothesis:

In times of the COVID-19 pandemic, emerging markets express investment potential at better cost of equity levels than developed markets.

As no research is available on specific investment options in global pandemics, simply for the fact that comparable pandemics have not occurred in the modern age yet, this paper aims to fill this gap and add to the understanding of the financial impact of global pandemics and to provide meaningful data to investors who are looking for investment advice in such situations.

1. Literature review

Morgan Stanley Capital International (MSCI, 2014) lists specific criteria to assess whether a country may be considered developing (emerging) or developed. It must be noted that MSCI classifies developing markets as frontier markets; a category that only includes countries with higher development standards than the least developed countries (LDC). Consequently, MSCI does not include the complete variety of developing countries, but only those that meet a certain minimum standard of factors to be compared against developed nations. MSCI (2014) explains that three criteria are being assessed to determine the status of a market accordingly:

- Economic Development (precisely sustainability of economic development over a certain period of time)
- Size and Liquidity Requirements
- Market Accessibility Criteria

Based on the outlined criteria, MSCI (2014) explains that emerging markets must have at least three companies operating in its market with a market capitalization of more than roughly 1.2 billion US dollars, a security size of 630 million dollars and at least a 15% annualized traded value ratio (ATVR) as measure of security liquidity. Additionally, and rather important for this study, MSCI (2014) explains that emerging markets must express significant openness to foreign ownership and ease of capital in- and outflow as well as sufficiently tested operational frameworks and acceptable levels of institutional frameworks. In contrast, frontier markets only need to show reduced levels of openness to foreign ownership and ease of capital in- and outflow (Subic, Vasiljevic, & Andrei, 2010). Consequently, nations belonging to the frontier market classification will not be considered for this study as their business circumstances are highly volatile and unreliable for investors who are looking for meaningful and trustworthy investment options in situations with a considerable amount of uncertainty such as global pandemics. It would be foolish in such fickle situations to suggest investments into regions and markets that already express a substantial risk of suffering extensive losses in normal times. When speaking about emerging markets, Griffin, Kelly, and Nardari (2010) state that it is a common perception that investments in these markets are more profitable than in developed markets. As a supporting argument, Waszczuk (2013) states that higher average returns from these markets are achieved because of the significantly higher risk in relation to political instability, forms of government, level of corporate governance, as well as geographical location.

However, Griffin et al. (2010) suggest in their study that this point does not hold true. Griffin et al. (2010) mention that, for example, an application of short-term reversal strategies yielded roughly 9 percent of annual profits in developed markets, while developing markets produced approximately 11 percent of profits. Both results are quite close to each other and suggest a certain lack of strong superiority of emerging markets over developing markets in normal economic circumstances with higher risk levels in emerging markets. Griffin et al. (2010) also add further evidence to this notion in the strategy of exploitation of incomplete incorporation of earnings news into new stock prices. According to Griffin et al. (2010), emerging countries show even weaker profit production here with only 8.5 percent of annual profit, compared to a 14 percent profit yield in developed countries. Altogether, the results of this study are discouraging to the perception of excessively higher profit potential in emerging markets. Surprisingly, Didier, Hevia, and Schmukler (2011) hold against these findings that emerging markets outperformed developing markets during the Global Financial Crisis of 2007 to 2008 in terms of the number of months spent under recessionary pressure. Didier et al. (2011) show that emerging countries – grouped as a whole - were able to reach their pre-crisis levels of production in September 2009 already, only approximately one year after the full effects of the crisis have unfolded, while developing countries were still below their pre-crisis production levels by the end of 2010. Didier et al. (2011) mention four factors that have contributed to this significantly better growth performance:

- Emerging countries were less connected to financial markets of developed countries in which the root cause of the Global Financial Crisis occurred.
- Emerging countries focus more on production of goods than provision of services. As global demand for products increased again after the crisis and after the crisis has not transmitted fully into emerging markets, the emerging markets were able to recover faster than developed countries where manufacturing usually accounts for smaller shares of their economy.
- Emerging countries generally show higher growth rates than developed countries. Returning to their initial growth trajectories in a post-crisis setting allows them to overtake developed countries in terms of recovery.
- Emerging countries have applied fundamental changes to their policy framework, both to more reasonable financial and macroeconomic policies that allowed them to tackle crises more efficiently.

Although the findings from Griffin et al. (2010) suggest that emerging markets may not

fare well in terms of their proposed investment strategies, it could be the case that emerging markets may be more resilient to economic turmoil and are able to recover faster than developed markets. However, despite the empirical evidence that emerging markets and the available companies in these markets may effectively not prove more profitable than developed countries, these markets have never seen a crisis of the nature of the COVID-19 pandemic. Consequently, it may be possible that profitability differences exist between emerging markets and developed markets due to an improved pace of crisis recovery and stronger economic growth rates which have not been discovered yet. Investments into emerging markets may potentially prove to be fruitful in immediate post-crisis situations where emerging markets may display superior performance in terms of resumption of economic activity and achieving pre-pandemic production and revenue levels.

2.1. Choosing the right asset pricing model

2.1.1. Capital Asset Pricing Model (CAPM)

When one thinks about determining asset pricing models to pursue research on the cost of equity of assets, the most prominent answer to that question will be CAPM. William Sharpe (1964), John Lintner (1965), and Jan Mossin (1966) developed CAPM independently around the same time. It is fundamentally based on one factor that is the relationship between market beta and expected return of an underlying asset. Simply speaking, CAPM assumes one plain idea: the higher the risk or beta, the higher the returns of a specific asset. Jensen, Black, and Scholes (1972) confirmed in their study that this model is apparently effective and is able yield meaningful results after it has been tested on data of all securities listed on the NYSE between 1926-1966. At a first glance, CAPM would therefore be a more or less acceptable model for the relevant asset pricing. However, the model itself has both been proven to be inherently insufficient in providing precise return estimations and to be based on confining assumptions that are unrealistic in a real world setting. Additionally, as Banz (1981) mentioned, CAPM appeared to be misguided, as it was not effective during the analysis of securities that were sorted according to their market capitalization. Fama and French (2004) even go so far as to state that the available empirical evidence is sufficient to invalidate practically all applications of CAPM, as the model cannot truly be tested. They add that one of the model's major flaws is the reliance on the market portfolio as the heart of the model. Fama and French (2004) state that the market portfolio is a highly elusive concept, both theoretically and empirically. Consequently, they argue that any test of CAPM must employ proxies for the market portfolio, as it is impossible to determine the market portfolio effectively at any point in time. Roll (1977) already extended on this downfall shortly after CAPM has been introduced, stating that the use of proxies completely invalidates CAPM. Roll (1977) explains in detail that only one testable hypothesis is associated with CAPM, which is that the market portfolio is mean-variance efficient and that further implications from this model cannot be independently tested. Roll (1977) highlights in that regard that all other implications of the model directly follow from the market portfolio's efficiency and cannot be verified on an individual basis as the linear relationship of beta and returns are inextricably connected to the market portfolio mean-variance efficiency. Roll (1977) directly criticizes that CAPM cannot be tested in any way unless the full composition of the market portfolio is known and used for testing, meaning that CAPM can truly not be tested unless every single tradeable asset in existence is included in the sample of observations. Additionally, Roll (1977) explains that the used proxies may also be mean-variance efficient, which would result in samples that display efficient portfolios with the ability to perfectly satisfy all of CAPM's underlying assumptions or the proxies may turn out to be inefficient. However, this would not yield any meaningful statement about the efficiency of the true market portfolio. As a response to these insurmountable obstacles, Fama and French (2004) add that proxies for the true market portfolio will never be able to produce betas and market premiums that can explain the return on any given portfolio. Consequently, these proxies cannot be considered trustworthy approximations of the true market portfolio. One may ask in that case why CAPM is still widely being used. The answer is rather easy: The model is simple. It assumes an easy-to-understand linear relationship between market beta and return. A survey conducted by Graham and Harvey (2001) supports these perceptions, in which 73.5% of the surveyed CFOs from companies in the US stated that they always or

practically always use CAPM for the calculation of the cost of equity capital. However, it has been shown in numerous tests that the model's assumption is not sufficient to accurately describe potential returns for the underlying asset and that various anomalies exist which cannot be explained when using CAPM. While it may allow for an initial and simple estimation of potential returns, its results must be treated with caution, as they do not capture a large amount of the variety within underlying assets. Consequently, CAPM will not be used for the analysis of asset data in this study, as its results are significantly inferior to those of other, more advanced asset pricing models.

2.1.2. Fama French Three-Factor Model

In the beginning of the 90s of the 20th century, CAPM had extensively been researched and criticized; to such a point that most researchers deemed this model invalid in the striking majority of its stipulated fields of application. Consequently, researches looked for more comprehensive asset pricing models that showed an improved ability to explain the variations of the underlying assets. Fama and French introduced such a model in 1993, calling it the three-factor model. As Arnold and Lewis (2019) explain, Fama and French managed to demonstrate superiority of smaller companies in that they produced higher returns than larger companies did. Additionally, Arnold and Lewis (2019) outline that Fama and French were able to prove that such companies that held considerably high net assets compared to the share market value of the company performed significantly better compared to those companies with fewer net assets as proportions of the company's share market value. Fama and French (1993) used the CAPM as a fundamental basis for their new model but expanded it with factors capturing the company return findings. The newly added factors were labelled size and value factor or small [market capitalization] minus bug (SMB) and high [book-to-market ratio] minus low (HML). As Arnold and Lewis (2019) stipulate, the model attempts to capture those systematic risk factors not captured by the initial CAPM. Fama and French (1996) tested their model on shares – exclusively in the US – and concluded that the model is highly effective for return calculation of portfolios that are formed on size and book-to-market equity. In another study, Fama and French (1998) extended their widely US-specific test of the model to a global version, splitting all factors into a domestic and a foreign part, and reported a considerably good performance of the model on an international scale. In contrast, Moerman (2005) suggested in a study conducted on data from the European Union that the global version of the three-factor model showed signs of underperformance compared to more local, country-specific versions. Nevertheless, all available empirical results for this model hold one commonality: they significantly surpass the outdated CAPM in terms of explanations of the returns from diversified portfolios. Belyh (2019) states that the three-factor model is able to explain at least 90% of these returns, while CAPM is only able to provide explanations for approximately 70% of these returns. Consequently, the three-factor model has received widespread acclaim by researchers and continued to be a praised asset pricing model until today. Naturally, however, it has received criticism and suggestions for improvement over the years after numerous empirical studies have been conducted on its applicability. One practical issue – if it can be called an issue at all – is the fact that this model is considerably more complex than CAPM. While CAPM relies on relatively simple data sources for beta, the three-factor model includes factors that require a much greater extent of computation and time spent on the identification and processing of data sources. Additionally, one of the model's strongest downsides is its fundamental CAPM connection. As mentioned above, this model has been an innovative extension of the CAPM formula with the clear goal to be able to explain a higher percentage of the portfolio return variations. In that case, however, it does not really supersede CAPM. It merely expands the CAPM formula in such a way that the lack of explanatory power is addressed, but not the underlying and problematic assumptions of CAPM. In order to avoid redundancy, more detailed criticism on this model will be provided in the next chapter on the Fama French five-factor Model as the five-factor model is only an extended version of the three-factor model and is thereby based on CAPM as well. Consequently, both models bear the same underlying issues.

2.1.3. Fama French five-factor model

As a direct extension to the Fama French three-factor model, Fama and French introduced a new asset pricing model in 2015. As Arnold and Lewis (2019) state, Fama and French were able to

demonstrate that such companies offer higher returns on their shares that have higher profits-to-net-asset ratios and add that this observation was not captured by the three-factor model. Additionally, Fama and French (2015a, cited in Arnold and Lewis, 2019) analysed that companies which showed small changes in total assets over the last year performed much better than such companies which showed large increases in their investment levels. Consequently, Fama and French (2015) have added factors to the three-factor model that are believed to capture these discoveries accurately. Those have been the Profitability and Investment factors, or robust-minus-weak [profitability] (RMW) and conservative-minus-aggressive [investment] (CMA) (Fama & French, 2015b). This is a particularly special development as these factors are quality-based and not risk-related as the other factors from the three-factor model. It is a direct response to the fact that a plethora of studies on the three-factor model reported alpha values significantly different from zero. Therefore, it led to the conclusion that the three-factor model is not sufficiently comprehensive and that further factors are required to describe the cross section of portfolio returns. In their follow-up paper, Fama and French (2015a) stated that the five-factor model addresses practically all issues from the three-factor model, thereby proving to be far superior to the initial three-factor approach. However, despite its advantages in a more comprehensive asset pricing and being considered a decisive extension to the three-factor model, the Fama French (2015a) five-factor model contains major flaws as well which make a wide-ranging application of the model questionable now. Surprisingly, the available literature containing direct criticism of this model on a general scale is rather scarce. The majority of published papers deal with empirical testing of the applicability of this model to certain markets and raise potential issues with the use of the model in the researched fields, e.g. emerging markets or certain industrial sectors, but only a vanishingly small amount of papers dared to offer direct criticism of the model itself and its underlying assumptions. Blitz, Hanauer, Vidojevic, and Vliet, (2018) have engaged themselves in thorough criticism of the five-factor model and its underlying assumptions. Blitz et al (2018) have outlined major concerns of this model of which the following are most relevant for this study:

- The model retains the CAPM's relation between market beta and return, resulting in the negligence of a low-volatility premium.
- Momentum is still not considered as a factor in the model.
- The economic rationale for the model is unclear.

It is not surprising to see that the Fama French five-factor model also does not account for the prominently discussed low-beta premium as the heart of this model is still the CAPM. Just like with Fama and French's (2015a) three-factor model, the underlying core assumption is the linear relationship between higher market beta values and a subsequent increase of returns for the underlying asset. Fama and French (2015a) justify their CAPM basis by stating that the addition of CAPM by RMW and CMA, given a positive exposure to these factors, are remarkably successful in capturing the average returns of low-volatility stocks. However, these results have been challenged as being premature. Blitz and Vidojevic (2017) determined that exposure to beta in the cross-section of stocks is not directly rewarded with drastically higher returns as one would expect. In contrast, Blitz and Vidojevic (2017) ascertain that testing the five-factor model for low-risk anomalies results in a flat relationship between risk and return, instead of a largely positive relationship as previously claimed by Fama and French (2015a). Consequently, Blitz and Vidojevic (2017) correctly outline that it would be premature to assume that the low-risk anomaly has been resolved already. This raises the question whether basing the five-factor model on the CAPM has been the right decision. In their article, Blitz et al (2018) even go so far as to suggest that CAPM should not be the basis for any effective asset-pricing model in the first place. Blitz et al. (2018, p 73) further state that an '[…] asset pricing model should be able to explain the existence of an equity risk premium, but also allow for the absence of a return premium to market beta exposure in the cross section […]'. However, the available postulated asset pricing model should look like if it were not based on the rather dated CAPM.

In addition to the criticism above, another major point of critique about this model is the fact that Fama and French (2015a) have not included momentum as part of the extension of the three-factor model. This is rather confusing as the

momentum anomaly was already well known and deeply researched by the time of the introduction of the five-factor model in 2015. Even Fama and French (2015a) themselves acknowledged that their model does not capture momentum in a meaningful way, but do not provide further rationale as to why they have decided to omit this factor from their model. Blitz et al. (2018) add to this surprising point that evidence for the momentum premium's equality to size and value was already available in 1993 during the introduction of Fama and French's (2015a) three-factor model. In the referenced study, Jegadeesh and Titman (1993) determined that the described strategies realized significant abnormal returns in the examined period that could not be explained by a systematic risk-based approach. However, Blitz et al. (2018) analyse that this factor was most likely not included as the three-factor model was already finalized when the momentum anomaly was discovered. Somewhat unexpectedly, nevertheless, Fama and French (2008) acknowledged that momentum became a pervasive factor in asset pricing and acknowledge that it cannot be explained with both the CAPM and the three-factor model. One fails to understand why this factor was not added to their five-factor model then, as the inclusion of this factor would have been an incredible leap towards the provision of a truly comprehensive asset pricing model.

An additional issue with this model is the unclear economic rationale that has led to its introduction. As Blitz et al (2018) state, Fama and French have interpreted the SMB and HML factors as priced risk factors that relate to the risk of financial distress. Surprisingly, Fama and French have not provided direct risk-based explanations following the introduction of the RMW and CMA factors. Fama and French (2015a) directly argued during the introduction of the five-factor model that these factors are based on a rewritten version of the dividends discounted model (DDM). As Blitz et al (2018) add, the factors in this model directly imply expected returns in combination with the book-to-market ratio (B/M). Unfortunately, it is unclear in the literature at this point what the source of these additional factors really is in contrast to CAPM's and the three-factor model's risk foundation. Blitz et al. (2018) complete this point stating that the risk-based explanation of the model has apparently been pushed into the background and that it is therefore not clear what the economic basis for this model really is. At this point, it can only be questioned whether Fama and French (2003) wished to introduce a new fundament for the way asset pricing is being conducted and attempted to move away from the heavily CAPM-influenced nature of their initial three-factor model. These points, however, are highly speculative and subject to extensive research that will most certainly continue for the near future before conclusive statements can be made. Taking all of these points into consideration, one can see that the Fama and French (2015a) five-factor model appears to be a significant development in the field of asset pricing models, but bears significant flaws which have not been researched sufficiently as of today. Musaruwa (2019) adds to this discussion that the model left significant room for the development of superior asset pricing models and that '[…] it would be in the best interest for investors to use the currently available factor asset-pricing models until the five-factor model has sufficiently been proven in the empirical evidence.' Therefore, this study does not recommend using this model to research the stipulated hypothesis, but will perform calculations based on the Fama French three-factor model that has widely been accepted as a standard in asset pricing by researchers on a global scale.

It should be mentioned at this point that several other factor models have been introduced already which attempt to provide results that are more accurate and eradicate the flaws of the models discussed above. For example, Roy and Shijin (2018) have proposed a six-factor model based on the Fama French five-factor model. Rahman and Schneider (2019) have introduced both augmented versions of the four-factor model. However, these models have not been tested in such an extensive way that it would be possible to draw safe conclusions about their applicability or robustness. At best, they constitute the academic attempt to overcome the shortcomings of the past asset pricing models, but they cannot be considered valid enough yet to replace any of the previously used asset pricing models. Consequently, investors who wish to use such models are primarily left with deciding for a tradeoff. They either have to choose a model that is simple and can be applied easily, like the CAPM, but is practically invalid in most of its applications or go for a more complex, sophisticated option like the Fama French factor models as they have been researched extensively

with empirical evidence for their validity as well as clearly defined criticism on the limitations of their applicability. Either way, investors must keep in mind that all of these models are only approximations of reality and are, at least as of today, unable to fully explain all factors which affect asset pricing. Consequentially, one must remember that these models are built on – sometimes absurd – assumptions to simplify the real-world market behaviour. However, their results can provide meaningful insight into the underlying asset, which may then be tested further for reliability and usage in decisions on investments, comparison of performance of assets or asset classes and the like. One must only note that their results should not be taken as absolutistic truth and that a certain scepticism as well as consciousness about their underlying assumptions are required while applying these models to available data.

3. Research design

3.1 Model for explanation of stock returns

As mentioned above, this study will rely on the Fama French three-factor model to calculate the cost of equity from the chosen market data. The related regression equation is listed below:

$$R_{i,t} - RF_t = a_i + b_i[RM_t - RF_t] + s_i SMB_t + h_i HML_t + e_{i,t} \quad (1)$$

In the regression equation, $R_{i,t}$ is the return of the portfolio I for month t, RF_t is the risk-free rate, RM_t is the market return, SMB_t is the difference between returns on diversified portfolios of small and big stocks, HML_t is the difference between the returns on diversified portfolios of high and low B/M stocks, and $e_{i,t}$ denotes the error term of portfolio I for month t. The cost of equity calculations will be divided into the following subsections to allow the creation of a benchmark and analysis of several periods in time:

- Full Data Period
- During COVID-19 Pandemic Months
- Between GFC and COVID-19
- During GFC
- Before GFC

3.2 Test of model performance

As suggested by Gibbons, Ross, and Shanken (1989), the GRS F-test statistic will be applied to evaluate the chosen model's performance on given datasets by testing the null H_0: $\alpha_i=0$ for all of I or simply put, to test the intercepts jointly. The test statistic's calculation is outlined by the following equation:

$$GRS = \left(\frac{T}{N}\right)\left(\frac{T-N-L}{T-L-1}\right)\left[\frac{\hat{a}'\hat{\Sigma}^{-1}\hat{a}}{1+\bar{\mu}'\hat{\Omega}^{-1}\bar{\mu}}\right] \quad (2)$$

with T being the sample size, N displaying the number of portfolios to be explained, L being the number of explanatory factors, â being a vector of regression intercepts, $\hat{\Sigma}$ constituting an unbiased estimate of the residual covariance matrix in the sample, and $\hat{\Omega}$ denoting an unbiased estimate of the factor portfolios' covariance matrix. Following the H_0 that all regression intercepts equal zero, the GRS statistic expresses an F distribution with N and T – N – L degrees of freedom. Cakici, Fabozzi, and Tan (2013, p 48) add to these points that the application of this test requires the strong assumption that errors in the test are 'independent, identically distributed, and follow the normal law'. Applying this model will allow insights on the ability of the model to explain the variation of returns for a given portfolio. A high value indicates in this case that the value of the combined intercepts is considerably deviating from zero. Therefore, the factors of the models are not effectively explaining the portfolio's return variation, meaning that large values are not desired as an outcome. Consequently, a larger value of the GRS statistic constitutes a larger joint value of the alpha that stray farther from zero then and display an insufficient performance of the asset-pricing model.

4. Data

This study will use monthly stock level data from 4 major indices of developed markets (Nasdaq Composite – US, Nikkei 225 – Japan, Dax-30 – Germany, and FTSE-100 – United Kingdom) and 4 economically powerful emerging countries (IBOVESPA - Brazil, Shanghai Composite - China, Mexico IPC - Mexico, and MOEX - Russia) from Yahoo Finance as a basis for the calculation of the cost of equity for companies in these markets. The dataset ranges from January 2000 to the end of August 2020 with an exception for Russia where country-level data was only available from the beginning of October 2000. Additionally, return data on exemplary companies for two emerging markets and two developed markets will be used to calculate the rate of return for investors looking to invest in companies in

these specific regions. The used company data will come from Walmart and Apple for the US, SAP and Daimler AG from Germany, China Mobile and SAIC Motor for China, as well as Lukoil and Gazprom for Russia. As a support to these datasets, stock index movements have been researched to determine comparable patterns in their development that may support the notion that emerging markets express a similar reaction to severe economic crises as developed markets. Additionally, the visualized movement data allows a comparison of the crisis recovery potential of the researched countries. The movement data has been restricted between January 2007 and June 2010 for the GFC as well as January 2020 to August 2020 for the COVID-19 pandemic to allow a meaningful comparison. Other sources distinguish between the GFC from 2007 to 2008 and the Global Recession between 2008 and 2010. However, for a facilitated reading, this study will singularly refer to this period as GFC. All dataset returns were converted in U.S. dollars; excess returns have been calculated relative to the one-month U.S. Treasury bill rate. A cut-off has been made for data before January 2000 and after August 2020. This approach is in line with French (2017) stating that most investors even look at only four years of data and not several decades of data, which sometimes ranges back to the early 20th century in other sources. Such bigger datasets are usually employed to test the validity of asset pricing models in general, but do not necessarily provide useful decision tools to investors in a real-world setting. This particular time window was chosen to cover 20 years of financial return data that includes large financial crises, especially the GFC and its ensuing Global Recession. This allows an assessment of return data before the GFC, during the GFC, and after the GFC and a comparison with the available return data from the COVID-19 pandemic. No data has been included after August 2020 as the case numbers of COVID-19 were improving following governmental measures that were directed at reducing numbers of infected individuals in each country. Consequently, the researched period was restricted to those months where COVID-19 infection activity has had the most severe effects. It must be mentioned that the COVID-19 pandemic is still ongoing when this study has been prepared. Further governmental restrictions, increasing case numbers and negative economic effects cannot be ruled out at the current time and may have significantly altering effects on the results that are presented below. Therefore, additional data will be available in the future that should be incorporated in additional analyses of these markets.

4.1 Implementation of asset pricing factors

This study considers three factors that will be used as explanatory variables in the asset pricing regression given in Equation (1). These factors are the market factor, the SMB factor, and the HML factor. The respective factor data for both developed and emerging markets has been sourced from Kenneth French's factor model-specific data library, which can be accessed at French, (2020a).

The developed market factors include information from 23 developed countries. The emerging market factors include data from 26 emerging countries. The exact calculation of the factors will not be explained as part of this study as the factor data is being provided and used in a finalized format based on compounded portfolios for a predefined set of developed and emerging countries. Further explanations as to how the factors were obtained can be found in Kenneth French's data library at the following locations for both developed and emerging markets: French, (2020b, 2020c).

It must be noted here that the factor data set for emerging markets also includes additional factors from the five-factor model, namely the profitability and investment factors. The respective data has not been taken into consideration for further calculations due to this study's focus on the three-factor model. An omission of these two factors does not have an impact on the results of the Fama French three-factor model.

5. Results

In this section, the empirical results are presented.

5.1 Stock index movement similarities

As a benchmark for their performance, the stock indices of both the exemplary emerging and developed countries have been researched to determine how the index value changed during the GFC between 2007 and 2010. Figure 1 outlines the movement overview for all developed market stock indices over the whole sample duration, showing that they react similarly to the researched crises.

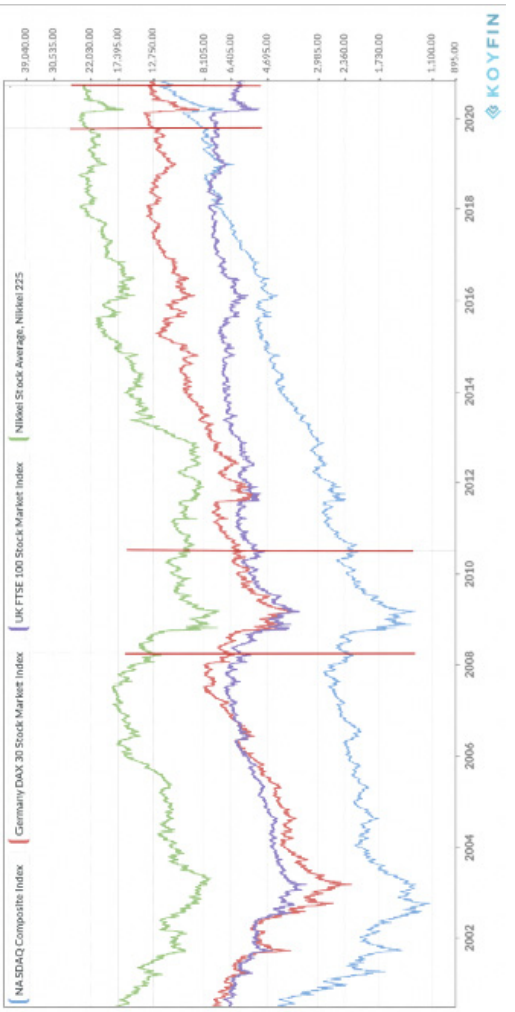

Figure 1 Composite Developed Market Index Overview – Global Financial Crisis and COVID-19 Pandemic
Source: Koyfin, 2020a, 2020b

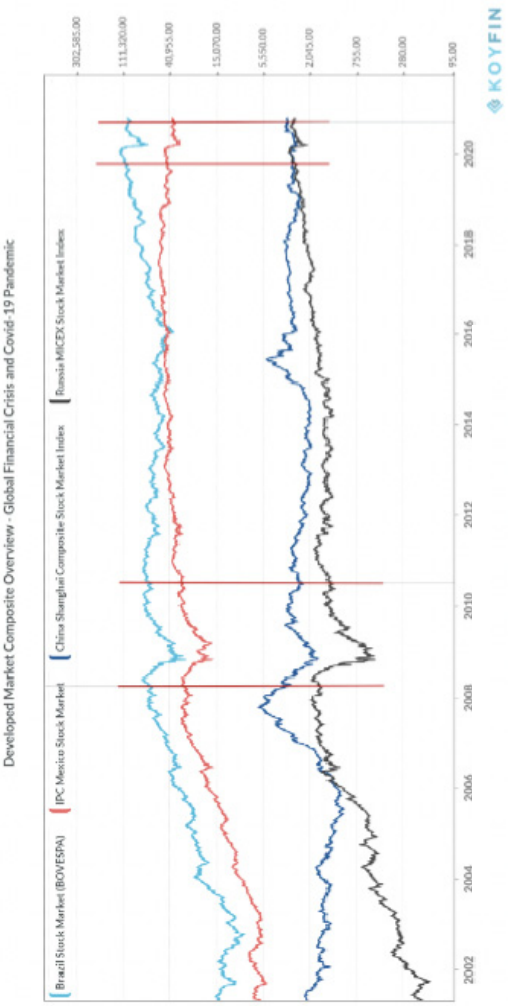

Figure 2 Composite Emerging Market Index Overview – Global Financial Crisis and COVID-19 Pandemic
Source: Koyfin, 2020a, 2020b

On average, the index values for the developed markets dropped by approximately 49% and increased by roughly 51% again during the Global Financial Crisis. Similarly, the average decline in the emerging markets ranged at roughly 48%. In contrast, however, the value of the emerging market indices increased, on average, by approximately 99%.

Figure 2 outlines the movement overview for all emerging market stock indices over the whole sample duration, showing that they also react similar to the researched crises as the developed markets.

On average, the index values for the developed markets dropped by approximately 35% and increased by roughly 46% again during the COVID-19 pandemic, as of now. Similarly, the average decline in the emerging markets ranged at roughly 31%. In contrast, the value of the emerging market indices only increased, on average, by approximately 34%, as of now.

5.2 Exemplary companies in emerging and developed countries – GFC and Covid-19 pandemic

As a benchmark for their performance, the stock indices of both the exemplary companies from developed and emerging markets have been researched to determine how their stock value changed during the GFC between 2007 and 2010. On average, the stock values for the exemplary companies from developed markets dropped by

approximately 32% and increased by roughly 114% again during the GFC. Similarly, the average decline in the exemplary companies from emerging markets ranged at roughly 53%. In contrast, however, the value of the emerging market companies increased, on average, by approximately 72%. In comparison, the company stock development for the COVID-19 pandemic period can be found below. On average, the stock values for the exemplary companies from developed markets dropped by approximately 31% and increased by roughly 90% again during the past months of the COVID-19 pandemic. Quite similarly, the average decline in the exemplary companies from emerging markets ranged at roughly 39%. In contrast, however, the value of the emerging market companies only increased, on average, by a disappointing 27%.

A composite stock value index visualization has been omitted for the company data as their respective development curves were so close to each other in value that the readability of the graph was significantly reduced. Nevertheless, the data showed that the exemplary companies also reacted in similar patterns to both the GFC and the COVID-19 pandemic.

The values above allow a first indication as to whether emerging markets perform better than developed markets in crises such as the COVID-19 pandemic. Both market regions suffered comparable loss levels, both during the GFC and the COVID-19 pandemic. While the emerging markets recovered much better during the GFC with an average recovery of market index value of 99% compared to 51% in the developed markets, the emerging markets show a noticeably worse index value recovery of roughly 34% during the COVID-19 pandemic, compared to nearly 46% in the developed market index values.

On an individual company level, the assumed superiority of emerging markets is questioned further by comparing the performance of companies that are based in developed countries compared to those companies that are headquartered in emerging markets. In this case, the companies in developed markets showed less severe value reduction levels of around 32% compared to the emerging market companies' 53% during the GFC and slightly less severe reduction levels of nearly 31% compared to the emerging market companies' 39% during the COVID-19 pandemic. Remarkably, the value recovery in companies from developed markets was far superior to for those companies that are based in emerging markets. The developed market companies increased their stock value, on average, by 114% compared to 72% in the emerging market companies during the GFC. During the COVID-19 pandemic, this finding becomes even more prominent as the developed market companies were able to increase their value, on average, by roughly 90% again, while the emerging market companies' stock value averagely increased by a mere 27%.

5.3 Results for stock market index data – emerging and developed countries

Further results from the application of the Fama French (2015a) three-factor model on both the index and company-level data for the developed and emerging markets will be presented in this section. As already performed above, the results of the exemplary developed and emerging market indices will be presented and compared at this point.

Table 1 Fama French Three-Factor Regressions for Country Indices - Developed and Emerging

Country Data	α	t(α)	β	s	h	R^2 (adjusted)
US	0,0030317	1,71	1,10	0,36	-0,88	0,82
UK	-0,0037146	-2,70	0,74	-0,21	0,09	0,70
Japan	-0,0030833	-1,26	0,85	0,46	0,08	0,53
Germany	-0,0005742	-0,25	1,06	-0,13	-0,13	0,64
Russia	0,0102602	1,95	0,19	1,32	0,39	0,08
China	0,0002503	0,06	0,53	0,34	0,25	0,18
Brazil	0,0007533	0,27	0,86	-0,70	0,42	0,65
Mexico	0,0041497	1,73	0,62	-0,15	-0,13	0,53
GRS Developed:	**14,297,099**		**MAVA:**	**0,00231**		
GRS p-value:	2.37E-08					
GRS Emerging:	**7,554,004**		**MAVA:**	**0,00335**		
GRS p-value:	5.39E-03					
Average R^2 DEV	**0,672302**					
Average R^2 EM	**0,361100**					

Source: The Authors

While using asset-pricing models, mutual agreement exists in the literature that a model can be considered valid if its intercept value is as close to zero as possible. Fama and French (2004) underline this point, stating that a model only holds its results if there is no possible way to group assets into portfolios in such a way that their intercepts are noticeably different from zero. Consequently, those models that return alphas closest to zero are also the ideal models in explaining asset returns. As shown in table 1, the Fama French three-factor model is successful in producing alpha values that are practically zero for all market indices of both the developed and emerging countries. This is also supported by the multi-attribute value analysis (MAVA) values for both the developed and emerging market indices that are also both practically zero. Three out of the eight alphas showed a negative value, while the remaining five alphas showed a positive value. Surprisingly, only the alpha value for the UK has been statistically significant at the 0.05 significance level. Additionally, the model expresses reasonably acceptable R^2 values for the developed markets, with an average R^2 of 0.67 and a rather disappointing average R^2 of 0.36 for the emerging markets, indicating that other factors must exist in the emerging markets that are able to explain the variation in the dependent variable, but are not captured in the model. However, it must be mentioned as well that this average value is particularly small due to the strikingly low R^2 values for Russia and China, while Brazil and Mexico show reasonably high R^2 values. All beta values came back as statistically significant at the 0.05 significance level. Five out of eight s values were reported as statistically significant at the 0.05 significance level and only two out of eight h values were considered statistically significant at the 0.05 significant level. When looking at the GRS statistic values for both the developed and emerging markets, the use of the model is clearly rejected, indicated by GRS statistic values of 14.297 for the developed markets and 7.554 for the emerging markets. The p-values for both GRS test series are close to zero and below the 0.05 significance level, which would indicate that H_0: $\alpha = 0$ for all i of the used Fama French (2015a) three-factor model can be rejected.

The cost of equity, from an investor's perspective, displays the required return for investments in equity, e.g. buying stocks. Consequently, a comparison can be made between the cost of equity of stocks of different regions to assess what kind of returns can be expected in certain areas during specific timeframes. Investors are able to see directly via the cost of equity what kind of returns they can expect in such markets and what level of risk they would need to face to reach these respective values. Average values have been calculated for a facilitated assessment.

Table 2 Fama French Three Factor Model - Cost of Equity Calculation Results Developed and Emerging Countries

Country Data	Full Period	Covid-19 Period	Between GFC and Covid-19	During GFC	Up to GFC
US	3,77%	18,91%	12,08%	-4,39%	-14,64%
UK	5,36%	-1,80%	8,07%	-3,24%	3,11%
Japan	6,49%	22,13%	7,23%	-3,38%	8,71%
Germany	6,45%	-17,05%	11,72%	-4,77%	1,84%
Russia	5,60%	146,44%	0,30%	5,16%	6,97%
China	7,41%	-15,39%	4,52%	9,08%	6,72%
Brazil	11,38%	185,19%	7,77%	7,75%	14,15%
Mexico	5,55%	35,71%	3,18%	9,92%	4,86%
Average Developed	**5,52%**	**5,55%**	**9,78%**	**-3,95%**	**-0,25%**
Average Emerging	**7,49%**	**87,99%**	**3,94%**	**7,98%**	**8,18%**
% Change Average DEV - EM	35,66%	1486,07%	59,67%	302,22%	3436,73%

Source: The Authors

For the developed countries, the average cost of equity came back as -0.25% before the GFC. For the emerging countries, the average cost of equity ranged around 7.98% before the GFC. During the GFC, the developed country market indices showed an average cost of equity of -3.95%. The average value of the cost of equity rose to 9.78% in the developed markets, while the average value for the emerging markets dropped to 3.94%. This finding is in line with Griffin, et al. (2010) who stated that emerging markets might show improved economic recovery rates after crises. Consequently, the reduced cost of equity falls in line with this finding as it indicates that the emerging markets stabilized faster and were able to generate reliable returns from economic activity at a faster rate and with reduced risk than developed markets. Surprisingly, the average cost of equity during the COVID-19 months ranged at

5.55% for the developed country markets. In contrast, the average value for the emerging markets was 87.99% in that period. As these sub-periods only allowed quite narrow data analysis, the full period has been assessed for the calculation of the cost of equity to factor the GFC benchmark values into the calculation as well as the effects during the COVID-19 months. Additionally, the full period was used as a basis for the cost of equity assessment as the use of the whole dataset alleviates the distorting effect of extensive arrays of negative return values in the sub-periods; especially in the GFC and the COVID-19 pandemic which both expressed detrimental repercussions on the performance of markets and thereby created predominantly negative values for all researched markets. The average cost of equity for the developed markets lay at 5.52%, while the emerging markets showed a cost of equity of 7.49%. No data is available for a calculation of an additional subset after the COVID-19 pandemic, simply because the pandemic is not over yet. At this point, one may deduct that the developed markets performed slightly better than the emerging markets, as the emerging markets express a total cost of equity, which is roughly 35.66% above the calculated cost of equity of the developed markets. The full period calculation shows a contrasting picture to the findings of Griffin et al. (2010), namely that the economic performance and rate of crisis recovery becomes worse in the emerging countries as soon as the COVID-19 pandemic period is included in the calculation. Nevertheless, it is not possible to estimate the further effects of the COVID-19 pandemic on the cost of equity for these markets as the pandemic is still ongoing and the affected countries have not been able to recover fully from its effects at all at the current moment.

5.4 Results for company stock data – emerging and developed countries

As shown in Table 3, the Fama French (2015a) three-factor model is also successful in producing alpha values, which are close to zero for all exemplary company-level stock data of both the developed and emerging markets.

Table 3 Fama French Three Factor Regressions for Company Stock Data - Developed and Emerging

Company Data	α	t(α)	β	s	h	R^2 (adjusted)
Apple	0,0237875	3,88	1,25	0,19	-1,11	0,33
Wal mart	0,0043526	1,38	0,34	-1,15	-0,16	0,20
Daimler AG	-0,0023196	-0,50	1,46	0,28	0,20	0,46
SAP	0,0067615	1,27	1,17	-0,34	-0,96	0,34
Lukoil	0,0049115	0,90	1,04	-0,37	0,46	0,39
Gaz-prom	0,0028662	0,36	0,84	1,31	0,73	0,17
SAIC Motor	0,0075910	1,04	0,58	0,14	0,68	0,11
China Mobile	0,0060114	1,36	0,67	-1,20	-0,96	0,37
GRS Developed:	**20,476466**		**MAVA:**	**0,007821**		
GRS p-value:	3,331E-16					
GRS Emerging:	**4,1728705**		**MAVA:**	**0,001456**		
GRS p-value:	0.00234312					
Average R^2 DEV	**0,331614**					
Average R^2 EM	**0,257887**					

Source: The Authors

This is also supported by the MAVA values for each company sets, which are both practically zero. One out of the eight alphas showed a negative value with no further negative alpha values being present in the data set. Surprisingly, only the alpha value for Apple has been statistically significant at the 0.05 significance level. Additionally, similarly to the market index results, the model expresses dissatisfying R^2 values; this time for both the developed and emerging markets, with even worse values for R^2. An average R^2 of 0.33 has been received for the companies in developed markets and an average R^2 of 0.25 for the emerging markets, also strongly indicating that other factors must exist in the markets that are able to explain the variation in the dependent variable, but are not captured in the model. All beta values came back as statistically significant at the 0.05 significance level. Only three out of eight s values were reported as statistically significant at the 0.05 significance level, but four out of eight h values were considered statistically significant at the 0.05 significant level. When looking at the GRS statistic results for both the developed and emerging markets, the use of the model is also strongly rejected, indicated by GRS test values of

20.4764 for the developed markets and 4.1728 for the emerging markets. Although the GRS value for the emerging market companies is visibly smaller than the GRS value for the emerging markets, the use of the model is still rejected as well. The p-values for the GRS test series of the developed and emerging market companies are also close to zero, which indicates that H_0: $\alpha = 0$ for all i of the used Fama French (2015a) three factor model can be rejected for the developed and emerging market companies.

Similar to the market indices, the cost of equity was also calculated for the exemplary companies in developed and emerging markets.

Table 4 Fama French Three Factor Model - Cost of Equity Calculation Results Exemplary Companies - Developed and Emerging Markets

Company Data	Full Period	Covid-19 Period	Between GFC and Covid-19	During GFC	Up to GFC
Apple	5,02%	51,09%	14,77%	-7,68%	-5,95%
Walmart	1,84%	91,35%	6,46%	-0,91%	1,58%
Daimler AG	9,75%	-47,26%	15,50%	-6,56%	8,46%
SAP	4,56%	-21,86%	12,15%	-2,14%	-15,44%
Lukoil	12,96%	274,48%	7,30%	6,54%	21,87%
Gazprom	12,79%	284,06%	3,55%	12,11%	16,56%
SAIC Motor	10,84%	-59,76%	4,45%	22,73%	16,92%
China Mobile	0,40%	-200,33%	4,05%	-13,82%	-15,03%
Average Developed	5,29%	18,33%	12,22%	-4,32%	-2,84%
Average Emerging	9,25%	74,61%	4,84%	6,89%	10,08%
% Change Average DEV - EM	74,73%	307,05%	60,41%	259,40%	455,24%

Source: The Authors

The same sub-periods were assessed. Unsurprisingly, the calculated value patterns are similar for all companies. Nevertheless, the magnitude of the values is different to those observed in the full market datasets. In the period before the GFC, the average cost of equity for the developed market companies was -2.84%, while the emerging market companies showed average cost of equity values of 10.08%. The average values during the GFC came back as -4.32% for the developed market companies and 6.89% for the emerging market companies. These values are heavily influenced by extensive arrays of negative return data during the GFC and must be taken with caution as these values, as above, indicate severely unfavourable economic effects, which pulled a majority of data points into a negative range. The period between the GFC and the COVID-19 expressed the same value pattern as the market data. The average cost of equity of the companies in developed markets lay at 12.22%, while the cost of equity for companies in the emerging markets was a considerably lower at 4.84%. For the COVID-19 period, the average cost of equity for developed market companies was 18.33%. The average cost of equity for the emerging market companies came back as 74.61%. As with the data for the market indices, the full period has been assessed for the cost of equity of the analysed companies for a more trustworthy result. In this context, the cost of equity for the companies in developed markets was 5.29%, similar to the market indices data. Contrastingly, the cost of equity for the companies in emerging markets returned as 9.25%, which was roughly 74% higher than the cost of equity for the companies in the developed markets.

6. Conclusion

6.1 Model performance in developed and emerging markets

It has been shown in tables 1 and 3 that the underlying model for the assessment only partially performed as expected. It is especially surprising to see that the R^2 values as an initial measure of model performance differed widely for the employed index and company data with values ranging from <0.1 to >0.8 for the index data and <0.2 to >0.4 for the company data. Although there is no strict rule for the classification of goodness of fit of the model for this value, Zikmund (2013) provides a rule of thumb for the classification of these results:

- $r < 0.3$ no or very weak size effect
- $0.3 < r < 0.5$ weak size effect
- $0.5 < r < 0.7$ moderate size effect
- $r > 0.7$ strong size effect

Keeping this classification in mind, it is intriguing to see in the model's regression results for developed markets that the independent variables only have a strong size effect in two of the researched country indices, namely the US and UK. The values for Japan and Germany merely indicate a moderate size effect. However, these results are satisfying for this setting

suggested in the article as they indicate that the independent variables in the underlying Fama French (2015a) three-factor model are able to explain at least 53% to more than 80% of the variance in the dependent variable and thereby allow a sufficiently meaningful determination of the cost of equity. However, these values are already invalidated to some extent by the GRS statistic results. This value speaks a different language in this regard, indicating that the model is rejected due to its GRS values straying strongly from zero and thereby indicating that the model is considerably unable to explain the variation in returns of the researched indices in developed markets. A less satisfying outcome is received for the emerging market indices which show very weak to only moderate size effects for the independent variables of the three-factor model where R^2 values between <0.1 and <0.7 were received. While the emerging market indices show a GRS statistic which is superior to the developed market indices, its effectiveness in explaining the variation in the returns of the researched emerging market indices is still rejected due to its GRS value being considerably larger than zero. Similar conclusions can be drawn from the comparison of more locally levelled data from the researched companies in the developed and emerging markets. It is surprising to see for these exemplary companies that their R^2 values do not reach values >0.5. In this case, the independent variables from the model are only able to explain 11% to 46% of the variance in the dependent variable. Additionally, the GRS statistic also indicated a poor performance of the model in the exemplary developed market companies where the GRS statistic was approximately 43% larger than the value for the developed market index data. For the emerging market companies, the GRS statistic was considerably closer to zero than the GRS statistic of the developed market companies. Nevertheless, this value also leads to a rejection of the model's performance, as it is considerably larger than zero. Despite these rejections, the GRS statistic shows a superiority in performance of the Fama French three-factor model in emerging regions due to its lower GRS values for both the market indices and the exemplary companies. Although the values are not close to zero, they are considerably below the values for the developed market data.

6.2 Choice of equity investment

Tables 2 and 4 carry a strong and clear message: The emerging markets performed considerably worse than developed markets during the COVID-19 pandemic in terms of the cost of equity for investments in these areas. Consequently, the thesis that emerging markets express investment potential at better cost of equity levels than developed markets during the COVID-19 pandemic does not hold true and must be rejected. As the calculations showed, both sample sets – market indices and exemplary companies – expressed massively higher cost of equity during that period. As for the country indices, the cost of equity for the emerging markets was approximately 15 times higher than the cost of equity for developed markets during that period: 5,55% in developed markets and 87,99% in emerging markets. A similar outcome has been observed for the exemplary company data where the cost of equity was roughly three times higher for emerging market companies than for companies in the developed markets; 18,33% for developed market companies and 74,61% for emerging market companies. At this point, it is already apparent that investors who are looking for suitable options in similar situations would face a significant challenge. While such numbers constitute a nightmare for risk-averse investors, even an extremely risk-seeking investor would find it hugely difficult to determine a suitable number of equity investment options, which yield returns between 70-80% in a reasonable timeframe without accepting uncontrollable levels of risk for such investments. These numbers are, however, not as much of a surprise as it may seem. Remember at this point that Didier et al. (2011) found that emerging markets recovered faster from the GFC than the developed markets. However, this superior recovery resulted from structural, organizational, and political differences between emerging and developed markets, which made the emerging markets more resistant to the GFC than the developed markets. The COVID-19 pandemic, however, gives a completely different picture. The very nature of this crisis is a severe disruption of essential aspects of a significant portion of economic sectors. As it compels governments worldwide – regardless of the development state – to restrict population movement, people are increasingly forced to stay at home in order to minimize contact to other people and thereby reducing the risk of spreading or contracting this disease. Consequently, all

ensuing economic activities are severely affected as well; be it recreational events, travelling, sports, the food service industry, or the provision of practically any service, which requires human interaction. As a substantial number of people faced unemployment because of this crisis, private consumer expenditure decreased which led to a drastically reduced demand for consumer products. As most emerging countries are typically focused on manufacturing products instead of being more service based, these developments had radical effects on the performance of these markets and resident companies. Consequently, these markets are being affected much more severely than the developed markets, compared to the GFC. It remains unclear at the moment if these effects can be remedied in the emerging markets again as during the GFC since the COVID-19 pandemic is far from over at the moment. One may ask at this point now what a good strategy would be in terms of equity investments in a time like this. Looking at the data in tables 2 and 4, it becomes clear that no straightforward answer exists for this question. Although the average cost of equity of emerging markets is clearly higher than in the developed markets, the results also show that all markets were and continue to be affected severely by this crisis. This becomes visible by the negative numbers in each table. Such results, while unexpected, show that the respective markets have experienced severe economic turmoil and are experiencing severe effects of this crisis on their overall return performance as well. The same outcome applies to the exemplary company data where negative values were observed for half of the analysed companies in both datasets. In addition, those results that came back positive are not exactly stunning as well.

In order to provide a meaningful recommendation, one additional, critical component will need to be taken into consideration at this point: irrational behaviour due to cognitive bias in investors. The analyses above – just like the underlying asset pricing models – are based on the assumption of rational investor behaviour. Garcia (2011) adds to this point that investors collect and utilize the full range of available information to realize profits and that investors have an endless ability to process new information, which will be used to update their point of view on a continuous basis. However, these assumptions are far from being the truth, as more recent findings in the field of behavioural finance showed (Kareem & Alameer, 2019). In this field, cognitive biases are analysed, which exist in private and institutional investors alike, affecting them on a broader basis and clouding the rationality of their investment decisions. Bansal (2020) outlines that individuals express a tendency to focus on such information which is easily accessible and absorb information at face value as this crisis continues. Bansal (2020) directly attributes this claim to the primary cognitive issues in behavioural finance:

- Representation bias
- Overconfidence
- Risk aversion
- Herding behavior
- Availability bias

For this study, the representation bias and overconfidence issues are critically important in terms of the provision of a clear investment recommendation. As explained by Zhang (2008, cited in Bansal, 2020), representation bias is a state in which individuals tend to associate a situation with equivalents of a similar nature and draw forecasts from this equivalent. Statman (2020, cited in Bansal, 2020) further defines this point by explaining that the current crisis is often compared to the stock market's state around 2009. Here, a reversal of the market decline has been observed, but may potentially be representative of the stock market during any other detrimental crisis where a reversal of the market decline has not been observed before several years have passed. The overconfidence bias is further segmented by Bansal (2020) into sub-categories:

- Miscalibration
- Better-than-average effect
- Illusion of control
- Unrealistic Optimism

All of these categories result in a critical misjudgement in an individual towards investment knowledge, paired with the assumption that their own information is superior to the knowledge of everyone else.

Going back to the calculated results from the data of this thesis, these biases could have a significant effect on the investment recommendation:

- Would investors invest in preferred markets based on information that they simply like instead of gathering the right bits of data for an informed decision?

- Would they ignore the risk of equity investments, because they think that their judgment and information is superior to that of other investors?
- How would an investor justify an equity investment in a company that is currently severely troubled with no signs of improvement of the current pandemic situation?

As a recommendation to answer such questions, this study suggest the following route of action:

- Critically and realistically assess your acceptable level of risk.
- Carefully select potential markets and companies for investments based on rational criteria, not sentiments towards certain global regions or specific companies.
- Scrutinize the available information once you have selected potential investments and assess where compiling has been done rationally or more on a sentimental basis.
- Potentially consider other investment options with reduced returns, but increased probability of yielding acceptable returns at bearable risk levels if the current equity investments turn out to be too dangerous.
- Do not rush decisions, as the current situation is still unfolding and may change at any time, potentially for the worse with the threat of incurring substantial losses.

While these recommendations are intentionally written in a generalized manner, they may still be used as a meaningful guidance for investors who are looking for potential equity investments in order to carefully assess one's own strategy and rule out the potential for cognitive bias to invest as rational as possible in a situation which presents more than enough room for irrational behaviour.

7. Limitations and further research

At the current moment, no valid studies exist which strictly analyse the economic impact of pandemics of the nature of SARS-CoV-2. As mentioned above, this research gap exists because pandemics of such magnitude have never occurred before. Consequently, it is not possible to compare the findings of this work to other research in this direction and integrate them into the existing body of research results. Therefore, this article provides novel insights in this field, which may be used as a basis to conduct further studies on future available data from this pandemic situation. Additionally, as discussed, the calculated results have shown that other factors must exist in addition to the market beta and the Fama French-specific size and value factors to explain the return development of underlying assets during pandemic situations. These limiting findings are in line with the currently existing body of criticism of the Fama French models as well as CAPM-based factor models in general. Further research and asset pricing model developments would be required to determine these factors in order to allow investors to make an informed decision on potential investment options. As pandemics are global events, which cause economic effects on a macroeconomic level, it would potentially be worthwhile to use the Arbitrage Pricing Model as described by Ross (1976) in further studies, which employs a linear relationship between an asset's return and a number of – self-selected – macroeconomic factors. While this model is far more complex than the used asset pricing model in this research study, it may provide further insights into the determining factors of asset returns in pandemic situations; however, at the cost of widely increased levels of effort to determine potential factors upfront instead of using the predefined factors in the Fama French three-factor model.SM

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Leadership style and employee readiness: basic factors of leadership efficiency

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Abstract
The scope of this study is based on the Situational Leadership Theory according to the model created by Hersey and Blanchard, predominantly defined by two research sub-fields: leadership style and readiness of employees. This model distinguishes four different leadership styles, while the subject area of readiness of employees comprises two components: readiness of employees based on the competency component and readiness of employees based on a psychological (motivational) component. The subject matter of the study is to identify leadership style as a new variable which will be utilized for determining the interdependence with leadership efficiency levels and readiness of employees. Leadership efficiency is determined by the degree of compatibility between the dominant style of leadership and the level of readiness of employees. In addition to the main objective of the research, aimed at determining leadership efficiency, significant research findings come as a result of specific objectives. That is impact of the dominant leadership style on readiness of employees and leadership results, based on each specific component. The sample will be a random sample from a finite population of units, with repeated sampling and known probability sampling. A sample of size n=100, with a proportion of 0.10, is based on a list of top 100 biggest companies in the Republic of Serbia in 2019. The application of Principal Component Analysis aims to identify new variables in the form of regression coefficient results, while the application of the hierarchical regression model will help determine the impact of each leadership style on readiness of employees. The study findings confirm the basic hypotheses of the aforementioned model, with regard to the results of leadership efficiency, as well as its impact of each leadership style on readiness of employees.

Keywords
Situational Leadership Theory (SLT), Hersey and Blanchard Model, leadership style, readiness of employees, leadership efficiency

Introduction

The chosen problem orientation of this paper is a consequence of the significant role that leadership has in the basic outcomes in the form of various success measures. As one of the functions of management, leadership has the most direct impact on achieving business goals at all levels of the organisation. The above mentioned does not mean that leadership is given exclusive dominance over other functional segments of the management process. Strategic management related to building and structuring the organization's resources predetermines the enterprise's potential pertaining to innovative ability (Leković & Marić, 2016). However, the dominant economic circumstances and business conditions based on the importance of the human factor and knowledge are directly influenced by the leadership function. So, thus determining the business results and business success, they contribute to the importance of the leadership function. Direct results of employees feature as consequence of adequately performing a leadership role.

Using several facts, primarily the importance of knowledge as a key factor of business and the main source of competitive advantage, on the one hand and unlimited human resources in the business process on the other, we can confirm the views that critical quantity is manifested by transformation into a new quality, especially when knowledge and the possibility of cognition are concerned. Unlike the traditional approach to leadership development, according to the above authors, it is necessary that all employees are involved and contribute to leadership development (Stojanović & Marić, 2018). Furthermore, the area of motivation, which is a key factor of individual contribution, achieved results and goals. The fact that motivation has no upper limit provides sufficient reasons for the concept of leadership to be ever present in the scientific research of different kind. Also, taking into account the nature of this role presented in the above mentioned stances, as it provides a significant space for identifying sufficiently relevant and current research problems with significant essential importance. ***The problem (subject matter) of the research*** defined based on the construction of the research framework is the area of leadership efficiency. The form of harmonising leadership style and employee readiness, i.e. improving leadership efficiency to provide leadership results, is more complex in nature, at a higher level. ***The basic research question is as follows:*** To what extent is leadership efficiency determined by the compliance of leadership style and employee readiness?

The needs of current and future research based on the Situational Approach within the Hershey and Blanchard Leadership Theory, are created by limited empirical support (Graeff, 1997; Nahavandi, 1997; Northouse, 2007; Yukl, 2006; Papworth, Milne & Boak, 2009) necessary for successful application and achievement of expected results. Also, significant space for new research is created due to the conflicting results of theoretical research. This is the case in the form of the presence and absence of a positive correlation between leadership efficiency and baseline results (Papworth et al. al., 2009; Vecchio, Bullis & Brazil 2006; Goodson, McGee & Cashman, 1989). Therefore, each new research represents a significant contribution to testing the reliability of the theoretical model based on the obtained research results enabling the identification of important situational factors. Both research result, existing and new, significantly affect leadership efficiency. Important situational factors of the model include the leadership style, employee readiness and business environment.

Within the field of leadership, numerous studies have been conducted with different approaches (Rowold & Borgmann, 2013; Hallinger, 2011; Dierckx de Casterle, Willemse, Verschueren & Milisen 2008; Nilsson & Furaker, 2012; Brandt & Laiho, 2013; Hoption, Barling & Turner, 2013). Despite the numerous studies that have been conducted so far, the field of leadership still provides unlimited opportunities for new research and knowledge as well. As many situational factors are associated with the role of leadership, both definition and interpretation are not generally accepted. The essence of the Situational Approach to Leadership is reflected in the implications of each specific situation that requires an appropriate leadership style. Many behaviourist scholars (Reddin, 1967; Adair, 1973; Blake & Mouton, 1982) believe that leadership can only be explained by a specific business situation. Leadership and organizational behavior stayed at pinnacle in the arena of organizational behavior research since decades and has attained significant consideration of scholars pursuing to define multifaceted dynamics of leadership and their influence on follower's behavior at work Majeed, Ramaya, Mustamil, Nazri & Jamshed, 2017). *The expected research results* will provide a better knowledge and understanding of the selected model. A significant contribution is reflected in the increase of empirical results and getting to know all important situational factors of the organisational context. These factors can potentially be included in the model and thus contribute to its development. Assuming the choice of an adequate approach/model in leadership analysis, primarily in the context of practical results, as well as application of the appropriate research concept. A significant space for improving leadership efficiency can be identified through direct results, primarily measured by employee performance.

1. Dominant views in the field of research - compliance of leadership style and employee readiness as an initial measure of leadership efficiency

The selected model of Situational Leadership Theory represents a very complex prism of

analysis of leadership practice and baseline results in order to obtain relevant facts through the research process, which will enable comprehensive definition of the state of affairs in the field of research and provide specific and precise guidelines necessary for requested improvements. Improvement occurs if the manager applies a leadership style that is best aligned with the readiness of employees, which means an appropriate level of ability in the form of competence, or on the other hand, the possibility and psychological factor in the form of commitment of subordinates, which leads to higher performance and employee satisfaction. A proper connection between these two elements gives good results both at the level of the organisation and at the level of the individual person.

Hersey and Blanchard's (1969; Hersey, Blanchard & Johnson, 2001) model of situational leadership is one of the best-known approaches to leadership (Bass, 1990; Northouse, 2004; Vecchio, 1987; Yukl, 2006; Kaifi, Noor, Nguyen, Aslami & Khanfar, 2014). This model is used as a major tool in training and development programmes in over 400 companies in the Fortune 500 list (Hersey et al., 2001; Lacey, 2019). Leadership style is a very important characteristic of managers (Lam & O'Higgins, 2012). In Situational Theory, the best leadership style is one that is adapted to the identified elements of a specific situation. The basic approaches of Situational Leadership Theory (STL) include Fiedler's Leadership Theory (1967), Path-Goal Leadership Theory (House, 1971), and Hersey and Blanchard's Situational Leadership Theory (Hersey & Blanchard, 1984). According to the Hershey and Blanchard's Situational Leadership Theory, there is a view that most leaders prefer a leadership style that is appropriate to the specific situation. The focus of the STL is on the interaction between the leader behaviour and employee readiness, which basically determines the effectiveness of leadership (Blank, Weitzel & Green, 1990). According to the basic principles of situational leadership, there is no single leadership style. Based on the above, there is no leadership style or model that matches every situation since the appropriate style is based on employee characteristics and the nature of business tasks, as a result of which all identified leadership styles have different levels of guiding behaviour and support (Farmer, 2005).

The situational leadership model creates four forms of behaviour that are the result of two dimensions, namely support that can be expressed at high and low levels (listening, providing feedback and encouragement) and guidance that can be represented at the level between two extremes in the form of instruction, training and monitoring (Hersey & Blanchard, 1984). Within this model, it is important to define three key competencies, namely: leadership diagnosis ability, flexibility and partnership in execution. So far, an evolutionary approach has identified three phases in the development of SLT (Thompson & Vecchio, 2009). The first original version of Situational Leadership Theory was presented by Hershey and Blanchard. In a newer version called SLT - II, exclusively created by Blanchard (2007), there is a modification in the relationship between leader behaviour and employee maturity. The essence of this version is reflected in the fact that the author introduces four developmental levels of employees (Blanchard, 2007; Thompson & Vecchio, 2009; Papworth et al., 2009), namely: (I) a beginner with enthusiasm, (II) a student without illusions, (III) a careful but capable employee and (IV) an employee with confidence. Of course, these four levels of employee development are retained by these authors in combination with the four basic leadership styles. The third generation of the SLT - III indicates possible different responses of employees in terms of the autonomy provided to them by the leader.

The objective of Situational Leadership Theory is to connect or harmonise the adequate leadership style with the achieved level of development of each individual, taking into account the defined individual goals and tasks. Therefore, SLT strives to apply an appropriate leadership style depending on the possible four development levels of employees. Accordingly, the role of the leader is reflected in providing the necessary guidance and support in order for employees to achieve continuity in development. This means that the leadership style needs to be changed in accordance with the change in the developmental level of each individual. This implies, above all, that there is no best style of leadership because each individual has a certain level of development depending on the nature of the individual goal and task. Thus, the model of Situational Leadership Theory is presented as a partnership based on the understanding of needs, which are determined in accordance with the nature of the work of each individual, by the leader.

1.1. Advantages and disadvantages of Situational Leadership Theory

With regard to SLT - II, several positive features can be identified, such as: (1) implementation of a development level framework that allowed leaders to better determine employee performance levels, (2) based on the first quadrant, the SLT and leadership style subsequently allow leaders adequate influence on employees based on style and behaviour. (3) Furthermore, the SLT - II emphasises flexibility by allowing leaders to adapt their own style to meet the needs of employees. (4) The development and performance of the lowest organisational level line is improved owing to employees (Graeff, 1983). In addition to the advantages of the model, there are certain shortcomings, such as: (1) lack of published research at the SLT - II level, indicating lack of information which limits support for basic conceptual assumptions, (2) additional research is needed to improve understanding of interdependence of competencies and task performance, (3) publication of standard results by common tools, (4) linking studies that explore the developmental level of specific goals and tasks, and (5) demographic studies inadequately explain how characteristics affect a leader (Boatwright & Vecchio, 2002) .

In addition to the mentioned advantages and disadvantages of the SLT model according to the approach of Hensri and Blanchard in terms of the assessment of the validity of the selected model and the whole defined framework, numerous criticisms of both theoretical views and empirical results can be mentioned. Based on the Leader Behaviour Analysis (LBA) scale, a positive correlation between the situational leadership style and the perception of employee performance by managers is emphasised. The said authors argue that the situations in which the model of Situational Leadership Theory was adequately applied, the performance of employees was at a significantly higher level. By using creative methods of content analysis to interpret the success of the leader/employee interaction, primarily in the form of improving employee readiness, leaders tend to be less dominant in terms of management style (Papworth et al., 2009). In addition to highlighting the increase in employee readiness, the results of this analysis also emphasise the fact that task-oriented leader behaviour becomes less represented and is directly related to the perception of the model. These views are supported by research the results of which indicate that leaders who use a more adaptable and flexible style are rated as more successful than traditional managers who have a rigid style, which is manifested at the organisational level in terms of greater success (Silverthorne, 2000; Silverthorne & Wang, 2001). Also, there are results that indicate that SLT emphasises the flexibility of leaders far more, while the results of the research we refer to largely support the existing theory of leadership compared to all other situational theories of leadership. The situational leadership model has been used as a basis for a contextual leadership method that suggests an increased level of concordance between employee readiness and leadership style determined by task or employee orientation (Ralph, 2004). Also, more current research and results confirm previous assumptions in the sense that the application of this model has a positive impact on the matching leadership style and employee readiness (Luo & Lio, 2014). The general attitude regarding the analysis of the chosen approach and leadership model, regardless of the limited scope of research dedicated to this area, shows that there is an increase in empirical results that confirm the validity of Hensri and Blanchard`s Situational Leadership Theory Life Cycle model.

The basic starting point of the research concept based on the situational approach of Hershey and Blanchard - this model of leadership indicates that the success of leadership is determined by the experience of the manager / superior officer (Rosiński, 2017), which implies the ability to match leadership style (Tortorella & Fogliatto, 2017; Lacey, 2019).

1.2. Leadership style and employee readiness

Accordingly, there is no such thing as the best style, approach or way of influencing subordinates/employees, but it is necessary to have adequate competence of the leader to identify all the important elements naturally manifested by the business situation, dominant readiness of employees, and accordingly apply the appropriate leadership style. It can be concluded from the above mentioned that subordinates define the behaviour of managers, while, on the other hand, managers have absolute responsibility for the adequacy of subordinates in terms of knowledge, skills and abilities. In line with the above interpretation, Hershey and Blanchard (1969) developed a Life Cycle of Leadership

Theory based on a three-dimensional concept of leadership theory that was later renamed Situational Leadership Theory by the same authors. The research aspirations manifested in such fashion, based on the approach of Situational Leadership Theory and the model of Hershey and Blanchard, make correlation between the effectiveness of leadership, as a measure of leadership style and employee readiness, which is widespread as a leadership development programme in many organisations. Mass use of the model is a consequence of the possibility of practical application and adaptation to specific circumstances, where generalisation is not possible. While on the other hand, the usefulness of the model is reflected primarily in its evolutionary maturity, as a theoretical concept from which a reliable tool has developed, as well as in the extreme complexity that fully corresponds to the situational approach and provides the opportunity to respect the different nature of situational factors (Hersey & Blanchard (1969; Hersey et al., 2001). The situational leadership model comprises three dimensions.

The two dimensions are related to the leadership style defined by a combination of two patterns of behaviour, both interpersonal and business-oriented. By combining these two models of behaviour, four leadership styles are established: Commanding style (S1: Z +, O-); Teaching style (S2: Z +, O +); Support style (S3: Z-, O +); Delegation style (S4: Z-, O-). According to this model, the most effective leadership style is determined by the readiness that employees (subordinates) show. Employee readiness is a combination of two components, psychological and competence components, as a result of which four developmental levels are formed: R1 - lack of competences and lack of readiness (motivation), R2 - lack of competences and present readiness (motivation), R3 - present competence without readiness (motivation) and R4 - present competence and readiness (motivation) (Blanchard, 2007; Blanchard, 2010; Thompson & Vecchio, 2009; Papworth et al., 2009; Thompson & Glaso, 2015).

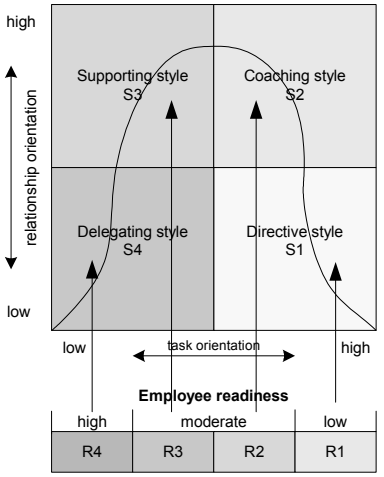

Figure 1 Hersey and Blanchard's Situational Leadership Mode
Source: Blanchard, 2007

Thus, the readiness of employees determines the specific style of leadership, as illustrated in the presentation, and the adequate harmonisation of leadership style and the level of readiness of employees determines the effectiveness of leadership. The original version of the Hersey and Blanchard normative model indicates that leadership style should be related to employee maturity (Hersey & Blanchard, 1977). In the latest version, the category of "maturity" has been replaced by the far more specific term "readiness" (Hersey, Blanchard & Johnson, 1996, 2013). There is no strict distinction between these two terms, since both terms are used in the theoretical discussion of the current references. Four levels of maturity require the application of four different leadership styles. Employees with the lowest level of readiness, R1, are not willing (motivated) and do not have the ability (competence) to perform tasks. In this case, the leader is expected to apply the S1 command style, which implies maximum orientation to the work task and minimum orientation to employees. At the core of this approach is the creation of a structure which provides specific and explicit guidance on work-oriented focus (Hersey et al., 2013). Moderate level of readiness of employees at the R2 level, includes a high level of motivation and low level of competences. With the appropriate leadership style being S2, training manifests itself in a great focus on both the task and the employees. By applying this style, leaders use dominant persuasion based on trust, explaining the importance of the task to employees and showing attention to maintaining the required level of motivation. When employees reach a higher level

of readiness, in the R3 category, then leaders have a need to involve employees in the decision-making process. This situation is characteristic of the S3 leadership style, where leadership support and maximum focus on employees dominate. Employees have a sufficient amount of knowledge, i.e. they are fully competent for the necessary successful problem solving when performing work tasks. Employees with the highest level of readiness, R4, are highly competent individuals in their field, they are highly motivated and capable of performing work independently. The behaviour or leadership style that best suit this category of employees is the style of delegation. This style is characterised by a low level of focus on both the task and the employees. It is reflected in a significant level of delegation of competences and responsibilities to employees, which results in independent decision-making of employees.

In Situational Leadership Theory, leadership efficiency is achieved if the manager uses a leadership style that is best related to employee readiness, i.e. motivation and ability. The best compliance of the stated elements of the Situational Leadership Theory ensures a high level of employee satisfaction and performance. It is obvious that by increasing the readiness of employees, leadership behaviour contains a lower level of structure (task orientation) and a smaller volume of social and emotional support (employee orientation). Leadership behaviour directed towards two possible extremes in interaction with the readiness of employees significantly affects the efficiency of leaders, which is defined as the effort with which employees show the ability and motivation to perform specific tasks. According to this theory, in the case of employees with a low level of readiness, leaders need to provide specific guidelines, while in the case of a high level of readiness, employees become responsible for specific tasks. Thus, there is definitely no best way to influence employees, which is why leaders have the need to assess the readiness of employees and accordingly choose to apply the appropriate leadership style. Therefore, in accordance with psychological and competence factors, it is argued that employees determine the appropriate style of leadership behaviour.

Considering all the above mentioned factors, the effectiveness of leadership is provided by the degree of harmonisation of leadership style and readiness of employees (subordinates) (Salehzadeh, Shahin, Kazemi & Shaemi Barzoki, 2015; Salehzadeh, 2017; Luo & Liu, 2014, Lacey, 2019). The influence of leadership style on work performance and job satisfaction has a significant, both theoretical and practical grounds. This influence of leadership is manifested at the level of the organisation, department or smaller groups such as teams in the form of work atmosphere or psychological climate. If they want to achieve positive and noticeable results in the field of leadership, individuals as bearers of this role cannot be determined for one general style (Goleman, 2000; Cote, 2017, Chivu, 2019). The principles of Situational Leadership Theory suggest that effective leadership is a function of the level of readiness of employees, which is based on traditional theories of motivation since individuals of different developmental levels have respectively different needs. In accordance with the abovementioned, these differences in needs result in different results even though individuals work under the same conditions on the same tasks.

2. Methodology

The basic research set, which by its nature has all the features of a closed population due to the defined final number of members, is given in the form of employees / individuals of the *100 largest companies in the Republic of Serbia in 2019*, with selected view values on the given scale of observed characteristics/variables grouped within the research unit of the general research space. The basic set of selected companies defined in this way is based on common criteria such as the *balance sheets from the previous year, the ranking of small, medium and large companies, revenue, profit, export value and number of employees.*

Data on the criteria for defining the basic set are provided by CUBE TEAM, as the leading provider of business and credit information in the Republic of Serbia. *In this manner, the basic set is methodologically grounded, since its definition is based on content, scope and time frame.* The values of parameters in the form of quantitative units, as aggregate descriptive features of the basic set, will be provided on the basis of data obtained by testing the sample.

The sampling draft will primarily take into account the properties of the base set, while the sample will have the characteristics of a random sample of the final base set, with a sample plan with repetition and a known sampling probability.

A sample of size n = 100 will have the characteristics of a proportional stratified sample, with a size of 0.10, because the list of 100 companies will be divided into 10 groups, by tens, so that the respondents of companies of different success levels are evenly represented. The selection of companies in each group will be based on the criteria of alphabetical order, and the strata within the selected company will be completed by the immediate respondents according to the snowball principle.

From the point of view of research feasibility and sample economy, for the purpose of quantitative procedures and statistical inference, the sample size can be considered sufficient in this predominantly exploratory research, since factor analysis of measurement scales requires 10 - 40 sample units per variable (research unit) included in model.

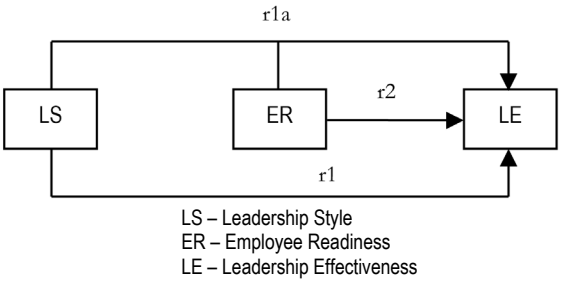

Figure 2 Conceptual framework of research
Source: The authors

Taking into account the structure of the research area and the relations established between the parts, research subunits, the basic hypotheses are defined, which will be elaborated or analysed during the presentation of the theoretical ruling positions of the research area for a more comprehensive research within the general research problem. Selected features/variables, grouped within the research units forming the questionnaire will enable inference as a consequence of conducted research and data analysis using a selected set of quantitative procedures aimed at examining the set relations in the form of the following research assumptions:

H1: There is a statistically significant interdependence between leadership style and leadership efficiency;

H1a: There is a statistically significant interdependence between leadership style and employee readiness and leadership efficiency; The hypotheses H1 (r1) and H1a (r1a) will be tested with hierarchical regression.

H2: There is a statistically significant interdependence between employee readiness and leadership efficiency. The hypothesis H2 (r2) will be tested with multiple regression. For the purpose of the research, a list of 24 variables from two research units divided into two research scales was selected. The scales used have an acceptable internal agreement, which are the results in Table 1.

Table 1 Reliability Statistics

Cronbach's Alpha		Cronbach's Alpha Based on Standardized Items	N of Items
LeadStyle	,861	,873	12
EplRed	,888	,902	12
LeadScore	,756	,768	12

Source: The authors' calculation

One scale of research covers the research unit of leadership with two segments, namely leadership style and leadership efficiency (LEAD *Other Scale, Hersey et al., 1996*), while the other scale examines the readiness of employees (*Readiness Scale - Staff Member Rating Scale, Hersey et al., 1996*).

Table 2 Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	6.912	34.558	34.558	6.912	34.558	34.558	6.906
2	2.543	12.716	47.274	2.543	12.716	47.274	2.547

Extraction Method: Principal Component Analysis.
a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.
Source: The author's calculation

Due to the number of variables, the selection of variables was performed in accordance with the research concept, and a quantitative analysis was conducted in order to group the selected variables using factor analysis based on the PCA (*principal components analysis*) approach. As a result of the analysis of this method, two factors (groups of variables) were singled out, i.e. two new variables

were formed, namely leadership style and employee maturity. The advantage of choosing factor analysis as an auxiliary research method is reflected in the possibility of forming new, more complex variables that represent more complex phenomena, as opposed to the basic method, hierarchical regression that examines the interdependence of individual features relationships of which are represented by the research model.

2. 1. Analysis of research results and discussion

Using the principal components method (PCA), 24 variables from two areas were analysed, namely employee maturity and leadership style. Prior to conducting specific factor analysis procedures, the suitability of a data set based on the CMO indicator (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) the value of which is 0.621 was examined, which exceeds the value of 0.6 (Kaiser, 1974) and the significance indicator (Bartlett's Test of Sphericity) with a significance level of p = 0.000, since the limit of acceptability is Sig. <0.05 (Bartlett, 1954). The stated values of previous analyses indicate the factorability of the correlation matrix, i.e. the justification of quantitative procedures of factor analysis of the selected method applied to the set of available data as an auxiliary method for confirming two subsets of variables from these areas examined by separate scales. There is also the suitability of the correlation matrix of the selected

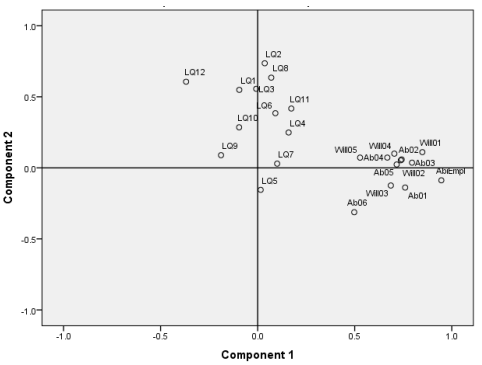

Figure 3 Diagram of components after rotation
Source: Author's calculation

variables for factorisation, since examination can isolate a significant number of correlation values of the variables at a level higher than r = 0.3. These quantitative procedures in this case were performed in two iterations.

They differed in the fact that in the first procedure, the number of selection factors was not limited. Then, 8 factors with specific values over 1 were identified, which explain cumulatively 80.46% of the variance, where the first two have a higher value compared to the remaining 6, which is 47.27%. Due to the inadequate number of components, based on the *Scree plot*, it could be detected that there is an obvious break in the line of the diagram between the second and third points, which indicates the justification for reducing the number of components to two.

Table 3 Pattern Matrix[a] - Rotated Component Matrix

	Component	
	1	2
Ability level	**.946**	-.088
Degree of self-confidence…	**.848**	.111
Skill level…	**.795**	.036
Scope of knowledge…	**.760**	-.139
Scope of experience…	**.742**	.059
Degree of commitment…	**.737**	.053
Timely execution…	**.716**	.024
Taking responsibility…	**.704**	.100
Degree of motivation…	**.686**	-.124
Degree of independence…	**.668**	.072
Scope of jurisdiction	**.527**	.072
Reporting frequency…	**.497**	-.312
C#2: Level of results...	.036	**.736**
C#8: Manager's confidence...	.070	**.635**
C#12: Bad employee relations	-.369	**.606**
C#3: Troubleshooting...	-.008	**.556**
C#1: The nature of communication...	-.095	**.549**
C#11: Promotion of a new manager...	.173	**.417**
C#6: New manager...	.091	**.385**
C#10: Taking responsibility of employees...	-.095	.285
C#4: Implementing change...	.159	.249
C#9: Improving results...	-.189	.089
C#7: Changes in jurisdiction...	.100	.030
C#5: Relation to results...	.016	-.155

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 4 iterations.
Source: The author's calculation

Within both identified factors, variables with significant factor weights are present, most of them above 0.5 (acceptable limit above 0.3). When analysing these two components, the acceptable interpretation could be that the selected variables are justifiably grouped and adequately represent by two components, namely leadership style with variables with factor weights ranging from 0.385 to 0.736, then the employee readiness component with respectable variables with factor weights ranging from 0.497 to 0.946.

In the sequential assessment of the impact of the two basic features of predictor and mediator status, leadership style and employee readiness for

leadership efficiency, multiple hierarchical regression was used in relations 1 and 1a of the said research framework. Other features had an auxiliary character in confirming the reliability of relations, such as age, education, position and area of education. In the first step of the hierarchical regression, the variable readiness of employees was missing, which influenced the coefficient of determination to be R^2 = 10.10%, i.e. the model contributes to the explanation of 10.10% of the variance of leadership efficiency. After adding the feature of employee maturity in the second step of the procedure, the model as a whole explained R^2 = 31.10% of the total variance of the specified dependent variable. Thus, the additional feature of employee maturity explained additional R^2 change=21.00% of the variance of leadership efficiency, which is significant contribution confirmed by the value of the indicator Sig. F change, p = 0.000. ANOVA indicates that the model as a whole is statistically significant with values of F (5; 78.432) = 2,328, p = 0.0002. When evaluating each independent variable, the obtained results indicate a statistically significant contribution of only three variables, leadership style (0.02), employee readiness (0.02) and area of education (0.05).

The r2 relation was evaluated by a multiple regression procedure, where the impact of employee maturity on leadership efficiency was assessed as the basic features of the model, while the auxiliary features contributed to the reliability of the assessment. The coefficient of determination of the model has the value R^2 = 9.5%, which indicates that the model explains 9.5% of the variance of the dependent variable, in this case the efficiency of leadership. The value of the coefficient of determination is on the limit of acceptability for the area of the observed phenomenon. The values of the ANOVA indicator show that the model as a whole is statistically significant with F (4; 84.071) = 2.478, p = 0.0004. When evaluating the contribution of each independent variable in the prediction of the dependent variable, the obtained results indicate a statistically significant value of the two variables, employee readiness (0.03) and area of education (0.05).

Table 4 Results Multiple (2), Hierarchical Regression (1)

Parameters for model evaluation	Model 1 /r1	Model 1a/r1a	Model 2/2
R^2	0,101	0,311	0,095
$R^2 \Delta$ (change)	0,101	0,210	
ANOVA[1A]		F(5; 78.432)=2.328 P=0.0002	F(4; 84,071)=2,478 p=0,0004
Leadership style (RFS)		0.020*	
Employee readiness (RFS)		0.029*	0,030*
Education		0.240	0,282
Area of education		0.046*	0,050*
Age		0.172	0.780

Dependent variable: leadscore leadership efeciency – leadership effectiveness
Predictors: (constant), leadership style (rfs); education, area of education, age (control variables)[1]
Predictors: (constant), leadership style (rfs); education, area of education, age (control variables), employee readiness) (mediator) rfs[1a]

Source: The authors' calculation

In the sequential assessment of the impact of the two basic features of predictor and mediator status, leadership style and employee readiness for leadership efficiency, multiple hierarchical regression was used in relations 1 and 1a of the said research framework. Other features had an auxiliary character in confirming the reliability of relations, such as age, education, position and area of education. In the first step of the hierarchical regression, the variable readiness of employees was missing, which influenced the coefficient of determination to be R^2 = 10.10%, i.e. the model contributes to the explanation of 10.10% of the variance of leadership efficiency.

After adding the feature of employee maturity in the second step of the procedure, the model as a whole explained R^2 = 31.10% of the total variance of the specified dependent variable. Thus, the additional feature of employee maturity explained additional R^2 change=21.00% of the variance of leadership efficiency, which is significant contribution confirmed by the value of the indicator Sig. F change, p = 0.000. ANOVA indicates that the model as a whole is statistically significant with values of F (5; 78.432) = 2.328, p = 0.0002. When evaluating each independent variable, the obtained results indicate a statistically significant contribution of only three variables, leadership style (0.02), employee readiness (0.02) and area of education (0.05).

The r2 relation was evaluated by a multiple regression procedure, where the impact of employee maturity on leadership efficiency was assessed as the basic features of the model, while the auxiliary features contributed to the reliability of the assessment. The coefficient of determination of the model has the value R^2 = 9.5%, which indicates that the model explains 9.5% of the variance of the dependent variable, in this case the efficiency of leadership.

Table 5 T test of independent samples - (In) compliance with leadership style and employee readiness

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Age	Equal variances assumed	1.940	,167	-2.563	98	.012	-7.145	2.787	-12.676	-1.613
	Equal variances not assumed			-3.231	22.034	.004	-7.145	2.211	-11.729	-2.560
Education	Equal variances assumed	.086	,770	-.872	98	.386	-.146	.168	-.479	.187
	Equal variances not assumed			-1.038	20.559	.311	-.146	.141	-.440	.147
LeadScore	Equal variances assumed	.016	,899	-1.682	98	.096	-2.880	1.713	-6.279	.519
	Equal variances not assumed			-1.657	17.316	.116	-2.880	1.738	-6.543	.782
Leadership Style RFS	Equal variances assumed	3.158	,079	-.642	97	.523	-.18562596	.28930211	-.75981057	.38855865
	Equal variances not assumed			-.884	25.244	.385	-.18562596	.21008495	-.61809203	.24684011
Employee Readiness RFS	Equal variances assumed	17.955	,000	8.530	97	.000	1.86939477	.21914323	1.43445611	2.30433342
	Equal variances not assumed			5.787	14.427	.000	1.86939477	.32303529	1.17847265	2.56031688

Source: The authors' calculation

The value of the coefficient of determination is on the limit of acceptability for the area of the observed phenomenon. The values of the ANOVA indicator show that the model as a whole is statistically significant with F (4; 84.071) = 2.478, p = 0.0004. When evaluating the contribution of each independent variable in the prediction of the dependent variable, the obtained results indicate a statistically significant value of the two variables, employee readiness (0.03) and area of education (0.05).

The available data for the observed variables or features allow additional analyses by which we can determine the effectiveness of leadership and then examine which variables contribute the most to the obtained result. Leadership efficiency is determined by the compliance of leadership style and employee readiness. With the determination of this variable, individual cases are divided into two groups, namely respondents where there is a match of leadership style and level of readiness of employees and a group of respondents where compliance is not present. By applying the T test of independent samples for the previously mentioned two groups of respondents, an attempt is made to determine the difference in terms of dependent features such as age, education, leadership result (situation assessment), leadership style (RFS) and employee readiness (RFS). Also, the aim is to determine the magnitude of the influence of variables in which the difference was identified. By comparing these two groups of cases where the compliance of leadership style is evident and where it is not, a statistically significant difference was found in two of the five analysed variables. A significant difference was found for the Age variable, where in the case of compliance (M = 34.79; SD = 7.224) or non-compliance (M = 41.93; SD = 9.993) the value of the t - test result is t (100) = -2.563 , p = 0.012, while the difference between the mean values of the features by groups is MD = -7.145 and the confidence interval at the level of 95%: -12.676 to -1.613, with the magnitude of the impact and the value of the square eta = 0.027, the difference in leadership compliance explains 2, 7% of the age variance.

For the variable Readiness of employees, a significant difference was found, where in the case of compliance (M = 1.61; SD = 1.18) or non-compliance (M = -0.26; SD = 0.67), the value of the t - test result is t (100) = 5,787, p = 0,000,

while the difference between the mean values of the features by groups is MD = 1.869 and the confidence interval at the level of 95%: 1.178 to 2.560, with the magnitude of the impact and the value of the square = 0.056, i.e. the difference in leadership compliance explains 5.6% of the variance of employee readiness. In addition to the analysed five characteristics, the readiness of employees stands out as dominant in terms of achieving an impact on the effectiveness of leadership, which once again confirms the stated theoretical grounds.

Conclusion

The selected model of Situational Leadership Theory represents a very complex prism of analysis of leadership practice and baseline results in order to reach relevant facts through the research process, which will enable comprehensive definition of the situation in the field of research and provide specific and precise guidelines necessary for required improvements. Improvement occurs if the manager applies a leadership style that is best aligned with the readiness of employees, which implies an appropriate level of ability in the form of competence, or on the other hand the possibilities and the psychological factor in the form of commitment of subordinates. The set research relations between the subunits of the research area form the basic concept of the paper, which is quantitatively evaluated and confirmed at the level of statistical significance by accepting all three research assumptions. The results indicate that there is a statistically significant interdependence between leadership style and leadership efficiency where employee maturity plays an important role as a mediator variable that further confirms this relationship and contributes to a more detailed analysis and understanding of the research framework.

The results of research obtained by collecting, processing and analysing data should primarily contribute to understanding the existing leadership style in a particular company and identifying levels of efficiency, getting to know all the essential elements of the situational model to make the necessary adjustments to improve leadership practice. Also, research results should strikingly highlight the specific nature of leadership style, the impact of situational factors, and underlying outcomes as direct consequences of leadership. The results of the research, in the form of specific guidelines based on the identification and definition of existing leadership practices, are expected to be absolutely applicable within the research area. As implication, significant contribution is reflected in the increase of empirical results and getting to know all important situational factors of the organisational context. These factors can potentially be included in the model and thus contribute to its development. Current and future research are limited empirical support necessary for successful model application and achievement of expected results.SM

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Social evolution in times of COVID-19 between politics, economics, and health

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Abstract
As well as highlighting difficulties in the health sector at local, national, and international levels, the COVID-19 pandemic has placed states in crisis by questioning the model of globalization, the political system, and the economic system. The article starts from a historical and philosophical analysis and tries to find solutions for getting out of the crisis. Science alone is not enough; it is necessary to redesign sustainable models in the economy and new political strategies.

Keywords
Social evolution, COVID-19, pandemics, politics, philosophy, economics

Introduction

The coronavirus pandemic seems to have brought philosophical discussions to every household in the world. The classical themes of philosophy, such as death, freedom, fear, care, love, education, leisure, work, forms of political control, the problem of truth, or the place of science in society, have today become a matter of confrontation and discussion. To this is added the economic problem, in a world already in economic crisis, due to the slowdown of the capitalist system that has governed society in the last century.

The global pandemic has brought millions of people into quarantine. The huge number of deaths has put the system in crisis, the problem of COVID-19 has become global, entering our homes overwhelmingly (Figus, 2020). There is nothing more instructive than silence about the problems. This is why we wonder what philosophy serves in a pandemic. The very idea of utility also becomes a philosophical problem.

Philosophy is defined by the critical claim to address the most important issues and help a closer to the best, recognizing that we start from a state of ignorance that forces us to assiduously question our ideas. After all, philosophy resembles a bit like pandemics, as it pushes us to identify priorities and become aware of our limits, highlighting new problems, it forces us to reflect, much more than political science and economics (Chauncey Crandall M.D., 2020). It is precisely the pandemic that has brought to light our fragility, the fragility of our time, it has brought us back to the raw reality, putting life and the importance of it at the centre. Health has so suddenly become central, a daily discussion in our global communication. Think, for example, of the American presidential elections, their media strength, and yet even these have ended up in the background compared to the pandemic crisis.

Philosophers, who live in a perpetual state of exception, have rediscovered how strategic their role can become in times of crisis, precisely because the philosopher always questions everything. The coining of the word epidemic, Hippocrates, used this term referring to the diseases of distinctive peoples (Angeletti & Gazzaniga, 2008). The doctor assists the traveller

who is travelling down a difficult path get closer to his destination, trying to help him as much as possible. Yes, philosophy and pandemic teach something. We are all passing through it and the crisis (another Hippocratic concept) leads to two possible outcomes: relapse or cure. After all, even in this globalized society, there is not much distance between learning to die and learning to live.

Some wanted to tackle this pandemic from a unique perspective. They are wondering how philosophers can contribute; after all, they are a caste of specialists in everything, and, therefore, how is it possible that they can also cure diseases. Topics like what is at stake is our way of life, the society we would like to have, the way we have to educate ourselves and others, do not seem to have been talked about enough in these years, and this is why philosophy comes into play.

The crisis highlights the problems and the crisis has made everyone understand that a society that relies only on the economy does not resist the psychological impact, yet the pandemic is a natural course of things, with its small and rare damages, to bear with patience. We can say that a simple virus cannot move more ideas than a treatise on philosophy.

Hippocrates recommended the doctor to describe the past, know the present and predict the future, listing the things a doctor needs to know to understand his patients, in what is an obvious example of the confluence of philosophy and medicine (Lopez, 2020). The doctor had to learn from nature what is common to all and the peculiar nature of each one, but also from the celestial phenomena and every region, from every place, from the customs of the people, from the diet, from the way of life, from the age of each one, with words, with attitude, with silence, with thought (Angeletti & Gazzaniga, 2008).

1. The pandemic today between economy and politics

Today we rely only on science; in the past, we listened to philosophers more than we do today. The pandemic reminds us of the interconnection of medicine with other realities, where multiple disciplines converge. Today this tends to be forgotten by placing, for example, virology, epidemiology or medicine into the centre of the world. All these indeed have various functions whose articulation depends on factors external to each of them, but they cannot be the driving force of society.

The solution to an epidemic is not limited to the treatment of bodies or the manipulation of viruses in laboratories but implies learning to live with them and prevent them through various measures, including politics, economy and new educational systems.

The first global pandemic in history highlighted contradictions between economy and medicine, between freedom and state control, between telling the truth and avoiding alarmism, between defending our right to demonstrate and limiting contagion. What must prevail? Medicine or economy, politics, religion, or is public health, the protection of people's health the most important issue?

In this context, the essential role is played by the media, which have been prone to one or the other thing, with changing criteria, revealing clear contradictions between medicine and information, between reality and storytelling.

Many see the pandemic as an opportunity for change, an advantage that will help us understand our vulnerability, make us aware of our mutual interdependence, teach us that we are all equal, encouraging us to build a more just society. Some argue that this crisis favours the idea of a more just world. Furthermore, it highlights how this is homologated, flat. It is true, it tends to guarantee human rights, the sustainability of future natural resources, even if more in theory than in practice. We think about climate change and the shared need to take effective measures altogether, but the reality is that you never manage to implement a project to the end, In the end, it seems that globalization has accentuated hypocrisy and not science.

This seems to revive the debate between optimists and pessimists that have emerged in other catastrophes that seem new but in reality, are repeated periodically and are part of our history. Think of the plague in Milan or the Spanish flu of 1918 (Treccani Dictionary, 2020), which caused millions of deaths. History often repeats itself, even the measures to contain the pandemic of a century ago during the Spanish pandemic, seem not many different from today: disinfection and closure of public spaces, theatres, schools, and borders. Since there were no private telephones back then, telephones and even telephone operators were disinfected, where citizens went to make calls. Historians have also discovered that in the United States the fines for those who did not wear a mask amounted to 100 dollars (Kelly, 2020).

However that was the past; today we are in a globalized world with a globalized economy, and yet suddenly the problem of investment in health and the precariousness of research becomes pressing. Our new goal is no longer economic, but health care. We attach incredible importance to vaccines, changing our idea of the welfare state. We are willing to question our idea of democracy as the sovereignty of the people, especially if we accept the definition of sovereignty as the ability to make decisions in states of emergency.

2. A historical perspective

Throughout the history of which there are records, there have been major and relevant pandemics that caused a lot of deaths.

Table 1 Chronology of relevant pandemics, 168 -2010

Historical Relevant Pandemia	from	to	Death toll estimated
The Antonine Plague (Roman Empire)	around 168	190	5-10.000.000
The Japanese smallpox epidemic	735	737	2.000.000
Black Deaths	1331	1353	75.000.00
The Mexico Smallpox epidemic	1519	1520	5-8.000.000
The Mexico Cocolitzli	1545	1548	10-15.000.000
The Egyptian Plague	1609	1610	1.000.000
The Italian Plague	1629	1632	1.000.000
The Great Plague of Seville	1647	1652	2.000.000
The Great Plague of London	1665	1666	100.000
The Great Plague of Marseille	1720	1722	100.000
The first Cholera pandemic	1816	1826	100.000
The second Cholera pandemic	1829	1851	100.000
The Russian Pandemic	1846	1860	1.000.000
The Global flu pandemic	1889	1890	1.000.000
The sixth Cholera Pandemic	1899	1923	1.500.000
Cholera pandemic encephalitic lethargica	1915	1926	1.500.000
The Spanish Flu	1918	1920	50-100.000.000
The Russian Typhus	1918	1922	2.500.000
The Asian Flu	1957	1958	2.000.000
The Hong Kong Flu	1968	1969	1.000.000
H1N1 pandemic – Swine flu	2009	2010	280.000

Source: The author's elaboration based on LePan (2020)

The economy, politics, information, and medicine collide, and this becomes inevitable and unsustainable. These perform different, often contradictory functions. There is no preset harmony or easy solution. There is therefore no shared and homologated philosophy; the crisis has changed the rules and the way the public opinion thinks, but will this last as long as the pandemic and everything will return as before, or has everything changed? Are we tied only to evil materialism or will the power of ideas return to dominate and advance the system?

Perhaps politics will draw great benefits from this experience, medicine will rediscover its role and the economy will take advantage to relaunch itself after the pandemic. In the end, it is the responsibility that must prevail. Meanwhile, the new generations are facing unemployment, but some see in the post-pandemic period the possibility of a revival.

The World Health Organization was as incapable of predicting this pandemic as economists were in the face of the 2008 crisis, which then included institutions such as the World Bank or the International Monetary Fund (United Nations, 2020). The graph shows the "global GDP Growth" over the period 1995-2020, highlights the global crisis of 2008 and the current crisis of 2020, the only difference that the latter is right outside the economy and is due to the Covid-19 pandemic.

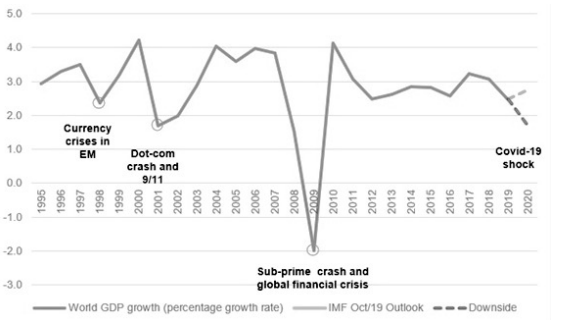

Figure 1 Global GDP Growth, 1995-2020
Source: Calculation based on United Nations Conference on Trade and Development, 2020

The graph below shows how much relationship there is between COVID-19 and the economy, between the pandemic and the economy. It was so for the Spanish pandemic of the last century, it is also so today.

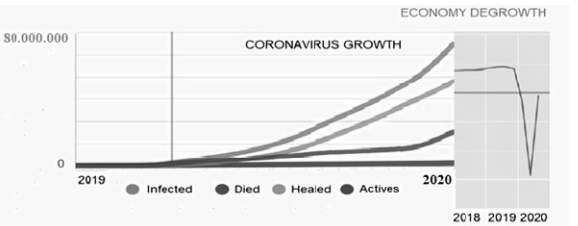

Figure 2 Corona virus Growth's impact on Economic growth
Source: The author elaboration data from World Health Organization, 2020

It is possible to talk about the political economy because, after all, politics affects the economy and the economy affects politics. It is not an economic matter; I am not an economist,

but I am interested in economics and its interaction with politics, even in the time of COVID-19, this question is not only of an academic nature. I have the impression that we will witness the tragic evolution of the political economy in real-time. The pandemic has led, is leading, and will lead to a terrible loss of life and at the same time the engine of the economy, especially today that we are in a globalized world, is freezing the gears of trade.

People's lives have been deeply shattered and affected by a crisis that is causing widespread unemployment, and while this crisis focuses on health by directing our attention, issues of political economy are more relevant than ever. Thus they underline that policies are not only influenced by economic analysis but also by non-economic, social, and political forces. Moreover, it forces us to think about how people and the economy will adapt in the post-pandemic, or rather a post-crisis world. The centrality of institutions, looking for sustainable economic policy solutions, is of fundamental importance, as this crisis deprives millions of migrants of job opportunities, reducing remittances, the most important income stream for many poor countries. There is an urgent need to ensure social cohesion and solidarity through policies that protect and support the most vulnerable groups when jobs disappear and deepen inequalities.

Managing the effects of the pandemic forces us to start a real debate on how to best implement a policy response to reach all segments of the population. To a large extent, economic policy will determine the ability of society to cope with the emergency and its consequences.

Politics comes into play by igniting the debate on policies in response to a universal threat. This does not come as a surprise; almost all economists believe that small countries would be better off if they removed all trade barriers. However, unilateral free trade is something practically unusual, and no country in the world promotes it today. It is difficult for governments to apply the right economic policies, precisely because politics and economy do not find common strategies, and thus politics finds the usual answers, and perhaps it is politics that prevents governments from better-applying policies, even in the face of imminent crises, failing in finding the right solutions to develop the right economic policies.

Politics strikes the economy and the economy strikes in politics, forcing governments to relaunch the economy mainly in the function of the acquisition and maintenance of power, and therefore often in the function of the elections, generating the so-called high and low political and economic cycles of economic activity, just at the time of the elections. The economic situation has a strong impact on elections. Politicians have revealed the simple fact that economic growth rates and inflation are the criteria for predicting the results fairly accurately, for example for the presidential elections in the United States. This is often not the case, as politicians often do not choose the best policies.

In short, the political economy is the integration of political and economic factors into our analysis of modern society. Politics and economics are closely and irremediably intertwined: politics affects the economy and economics influence politics - this approach should be natural. All of this shows that to be effective it is necessary to understand governments and societies at a time of profound change. Leaders should take these important factors into account when addressing the Covid-19 pandemic.

A crisis of this magnitude is a global turning point, leading economists and other analysts to broaden their imaginations and experiment with radical new ideas about how the world works. We can say that it is a reinvention of the world, where ideas that have not worked in a world too committed to the profit of the capitalist system could find space. We could finally find the time to take care of the environment, to look at a greener, smarter, more technologically intelligent, fairer, and more compassionate world. Perhaps this will be an opportunity to rethink the fundamentals of our social and economic life.

The economic issue seems to prevail over both health and politics. COVID-19 therefore seems to pose a huge threat to health and economic prosperity in the world. On the other hand, having unleashed volatility in financial markets and anger at the slow or insufficient responses of governments, the virus has also highlighted the lack of confidence in our institutions, especially those in Europe, caught unprepared and perhaps even inadequate.

Before the pandemic crisis, many countries had solid economic performances, practically at the level of full employment. One would have expected that the main institutions of society such as governments, companies, media, communication, and organizations would manage to govern the crisis shows that, on a global scale,

people do not trust institutions and the institutions do what they have to do. Unfortunately, the paradox is how to trust dynamics have evolved over the past 20 years and how financial markets depend on investor confidence, less on politics, and less on economic rules. COVID-19 impacted, and it was a big shock, which is why at this extraordinarily difficult time, institutions must go beyond expectations and restore confidence in investors, in people.

Governments are now challenged to demonstrate their competence in dealing with the crisis. The media must act as objective referees of the facts. Companies must offer the necessary products and supplies. The information must be reliable. Eventually, the ball will return to politics. Politicians may see with some fear the possible consolidation of public finances after the pandemic crisis, but given the budget decisions they will have to make, it will lead them to consider the "exceptional situation". However, fiscal consolidation through tax reforms will not have a high political cost, economic and political issues will always have to be considered together.

Crises can never be predicted. The states of the world have adopted such different models of action in the face of the pandemic. Alas, our loneliness also becomes instructive in terms of leisure, work, and consumption.

Conclusion

Recent data on health and economy show a strong alteration of the pandemic and consequently an evolution of the economy that suggests, as the European Commission claims, a recovery in 2021 much weaker than expected; the rapid spread of the virus has surprised everyone, politicians, and economists. At this point, it is necessary to be aware that we are facing a transition in which it will be difficult to keep the emergency and transformation of the world separate. In this new context, it is necessary to avoid essential emergency interventions, represent a moment of the chase of events, instead of their prevention.

The choices in the health and economy sector must be structured in such a way that the emergency is linked to a medium-term program that is essential to ensure the exit from recession to pursue viable strategies.

As we know, pandemics, economic crises, and climate instability, which is an issue that remains to be addressed and which only aggravates the global crisis, will have repercussions. The importance today must be given to resilience, which we understand as the ability of society to absorb change and adapt to it and prevent systemic failure (Betrus, 2020). The same importance must then be given to efficiency today.

Complex systems present multidimensional interactions between people, sectors, institutions, and policies; interactions with a wide variety of feedback cycles, interdependent trajectories, delays between cause and effect, and turning points, in this case, we need to look beyond, set new horizons.

Looking into the past is important but this world looks different; it is rapidly changing thanks to technology. This is changing the nature of economies and in parallel human interaction.

The power of traditional rulers is changing; it passes to good institutions able to manage reliably the change of the world order. After all, the pandemic follows the mutations due to storms, heat waves, floods, and droughts that warn us that with their periodic devastation traditional climate models are also in crisis. Moreover, there are social unrest and inequality, everything is set in a context of uncertainty and we ask ourselves the question of where will the work come from in the future or how the social contract will be.

In this world, there is no way to predict the exact consequences of systemic fragility. Institutions and decision-making processes presuppose a degree of predictability. The pandemic and environmental crisis suggest how we must act and what basic principles can guide us in the transition to a new political economy.

In all corners of the world, ways are being tested to apply new principles, think of the design of products in a "circular economy" that eliminates waste or networks with multiple participants focused on systemic transformation. The pandemic and its consequences should stimulate the expansion of these experiments to obtain the right resilience value that our global and at the same time very complex society needs, which, however, should also be based on the analysis of human nature.

The decision to look immediately at the needs arising from the resurgence of the COVID-19 can go well provided that a macroeconomic compatibility framework and a "vision" for development are immediately defined. Here the policy must interact taking into account the health issue. This pandemic is not something that alarms the world in the short term. Other similar events can be repeated in the future, as today the world

has become one unit.

Each state must necessarily proceed to an allocation of resources taking into account pandemic events that cannot be considered only as emergency interventions, to these are added the allocations for growth and development programs that, on the contrary, are not always defined (Bresnahan, Trajtenberg, 1995).

And yet history does teach. In 1918, as it is today, it was immediately understood that gatherings were a source of contagion, but a pandemic ends when there is no uncontrolled transmission of the community and cases are at a very low level. Then, when the effects subsided, people stopped worrying. After the Spanish flu and the First World War, the roaring 1920s arrived and so the population that managed to survive entered a phase of euphoria in every sense, including economic euphoria, but even in this phase of post-influenza optimism, totalitarian regimes began to emerge in the fertile ground of border control, individualism and the desire for autarchy, hopefully, this history will not repeat itself. Today the world has focused on internationalization, the economic system is based on finance and less on industry and agriculture, and it must rediscover the philosophy of mankind.

Investing in human capital is essential for today's world and, even more so, for the world of the future; this gives us a glimpse of the extent to which the enemy is often not the coronavirus, but ourselves.

Ultimately, pandemics like this require not only science but also prudence (MacKenzie, 2020). This means, among other things, recognizing that no science can solve our idea of politics and society, or our idea of death, or the way we educate young people and treat the elderly, or exhaust our idea of death, virtue, and education, but also a simple idea, sometimes mythical and even metaphysical, around which philosophical, political and religious problems of enormous importance revolve.

If at the end we will learn a lesson from the Covid-19 pandemic, it is that the end of the health crisis is a necessary condition for achieving lasting economic recovery, and this will only be possible if targeted interventions are in place to protect the most vulnerable groups. The pandemic is and will be related to a new recession, but today we cannot predict its exact extent even though there is every reason to predict that this recession will be much deeper and longer than in 2008. This crisis affects businesses and employment all over the world, but it will bring profound social and political changes, and prevent the crisis from leading to a lasting increase in unemployment the economic and political measures to be taken must be rapid so as not to aggravate inequality. In any case we are witing the vaccine (Mosley, 2020), solution for all? If this is not done, the distance between rich and poor will increase, and history teaches us the prospect of conflict. We cannot take the risk.SM

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Strakić, F., & Mirković, D. (2006). The role of the user in the software development life cycle. *Management Information Systems, 4* (2), 60-72.

➲ Journal article, two authors, paginated by volume

Ljubojević, K., & Dimitrijević, M. (2007). Choosing your CRM strategy. *Strategic Management, 15*, 333-349.

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Jovanov, N., Boškov, T., & Strakić, F. (2007). Data warehouse architecture. *Management Information Systems, 5* (2), 41-49.

➲ Journal article, three to six authors, paginated by volume

Boškov, T., Ljubojević, K., & Tanasijević, V. (2005). A new approach to CRM. *Strategic Management, 13*, 300-310.

➲ Journal article, more than six authors, paginated by issue

Ljubojević, K., Dimitrijević, M., Mirković, D., Tanasijević, V., Perić, O., Jovanov, N., et al. (2005). Putting the user at the center of software testing activity. *Management Information Systems, 3* (1), 99-106.

➲ Journal article, more than six authors, paginated by volume

Strakić, F., Mirković, D., Boškov, T., Ljubojević, K., Tanasijević, V., Dimitrijević, M., et al. (2003). Metadata in data warehouse. *Strategic Management, 11*, 122-132.

➲ Magazine article

Strakić, F. (2005, October 15). Remembering users with cookies. *IT Review*, *130*, 20-21.

➲ Newsletter article with author

Dimitrijević, M. (2009, September). MySql server, writing library files. *Computing News, 57,* 10-12.

➲ **Newsletter article without author**

VBScript with active server pages. (2009, September). *Computing News,57,* 21-22.

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➲ **Basic format for books**

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➲ **Book, one author**

Ljubojević, K. (2005). *Prototyping the interface design*. Subotica: Faculty of Economics.

➲ **Book, one author, new edition**

Dimitrijević, M. (2007). *Customer relationship management* (6th ed.). Subotica: Faculty of Economics.

➲ **Book, two authors**

Ljubojević, K., Dimitrijević, M. (2007). *The enterprise knowledge portal and its architecture*. Subotica: Faculty of Economics.

➲ **Book, three to six authors**

Ljubojević, K., Dimitrijević, M., Mirković, D., Tanasijević, V., & Perić, O. (2006). *Importance of software testing*. Subotica: Faculty of Economics.

➲ **Book, more than six authors**

Mirković, D., Tanasijević, V., Perić, O., Jovanov, N., Boškov, T., Strakić, F., et al. (2007). *Supply chain management*. Subotica: Faculty of Economics.

➲ **Book, no author or editor**

Web user interface (10th ed.). (2003). Subotica: Faculty of Economics.

➲ **Group, corporate, or government author**

Statistical office of the Republic of Serbia. (1978). *Statistical abstract of the Republic of Serbia*. Belgrade: Ministry of community and social services.

➲ **Edited book**

Dimitrijević, M., & Tanasijević, V. (Eds.). (2004). *Data warehouse architecture*. Subotica: Faculty of Economics.

➲ **Chapter in an edited book**

Boškov, T., & Strakić. F. (2008). Bridging the gap: Complex adaptive knowledge management. In T. Boškov & V. Tanasijević (Eds.), *The enterprise knowledge portal and its architecture* (pp. 55-89). Subotica: Faculty of Economics.

➲ **Encyclopedia entry**

Mirković, D. (2006). History and the world of mathematicians. In *The new mathematics encyclopedia* (Vol. 56, pp. 23-45). Subotica: Faculty of Economics.

C. UNPUBLISHED WORKS

➲ **Paper presented at a meeting or a conference**

Ljubojević, K., Tanasijević, V., Dimitrijević, M. (2003). *Designing a web form without tables*. Paper presented at the annual meeting of the Serbian computer alliance, Beograd.

➲ **Paper or manuscript**

Boškov, T., Strakić, F., Ljubojević, K., Dimitrijević, M., & Perić, O. (2007. May). *First steps in visual basic for applications*. Unpublished paper, Faculty of Economics Subotica, Subotica.

➲ **Doctoral dissertation**

Strakić, F. (2000). *Managing network services: Managing DNS servers*. Unpublished doctoral dissertation, Faculty of Economics Subotica, Subotica.

➲ **Master's thesis**

Dimitrijević, M. (2003). *Structural modeling: Class and object diagrams*. Unpublished master's thesis, Faculty of Economics Subotica, Subotica.

D. ELECTRONIC MEDIA

The same guidelines apply for online articles as for printed articles. All the information that the online host makes available must be listed, including an issue number in parentheses:

Author, A. A., & Author, B. B. (Publication date). Title of article. *Title of Online Periodical, volume number*(issue number if available). Retrieved from http://www.anyaddress.com/full/url/

➲ **Article in an internet-only journal**

Tanasijević, V. (2003, March). Putting the user at the center of software testing activity. *Strategic Management*, *8* (4). Retrieved October 7, 2004, from www.ef.uns.ac.rs/sm2003

➲ **Document from an organization**

Faculty of Economics. (2008, March 5). *A new approach to CRM*. Retrieved July 25, 2008, from http://www.ef.uns.ac.rs/papers/acrm.html

➲ **Article from an online periodical with DOI assigned**

Jovanov, N., & Boškov, T. A PHP project test-driven end to end. *Management Information Systems*, 2 (2), 45-54. doi: 10.1108/06070565717821898.

➲ **Article from an online periodical without DOI assigned**

Online journal articles without a DOI require a URL.

Author, A. A., & Author, B. B. (Publication date). Title of article. *Title of Journal, volume number*. Retrieved from http://www.anyaddress.com/full/url/

Jovanov, N., & Boškov, T. A PHP project test-driven end to end. *Management Information Systems*, 2 (2), 45-54. Retrieved from http://www.ef.uns.ac.rs/mis/TestDriven.html.

REFERENCE QUOTATIONS IN THE TEXT

➲ **Quotations**

If a work is directly quoted from, then the author, year of publication and the page reference (preceded by "p.") must be included. The quotation is introduced with an introductory phrase including the author's last name followed by publication date in parentheses.

According to Mirković (2001), "The use of data warehouses may be limited, especially if they contain confidential data" (p. 201).
Mirković (2001), found that "the use of data warehouses may be limited" (p. 201). What unexpected impact does this have on the range of availability?

If the author is not named in the introductory phrase, the author's last name, publication year, and the page number in parentheses must be placed at the end of the quotation, e.g.

He stated, "The use of data warehouses may be limited," but he did not fully explain the possible impact (Mirković, 2001, p. 201).

➲ **Summary or paraphrase**

According to Mirković (1991), limitations on the use of databases can be external and software-based, or temporary and even discretion-based. (p.201)

Limitations on the use of databases can be external and software-based, or temporary and even discretion-based (Mirković, 1991, p. 201).

➲ **One author**

Boškov (2005) compared the access range…

In an early study of access range (Boškov, 2005), it was found...

➲ When there are **two authors**, both names are always cited:

Another study (Mirković & Boškov, 2006) concluded that…

➲ If there are **three to five authors**, all authors must be cited the first time. For subsequent references, the first author's name will cited, followed by "et al.".

(Jovanov, Boškov, Perić, Boškov, & Strakić, 2004).

In subsequent citations, only the first author's name is used, followed by "et al." in the introductory phrase or in parentheses:

According to Jovanov et al. (2004), further occurences of the phenomenon tend to receive a much wider media coverage.

Further occurences of the phenomenon tend to receive a much wider media coverage (Jovanov et al., 2004).

In "et al.", "et" is not followed by a full stop.

➲ Six or more authors

The first author's last name followed by "et al." is used in the introductory phrase or in parentheses:

Yossarian et al. (2004) argued that…

… not relevant (Yossarian et al., 2001).

➲ Unknown author

If the work does not have an author, the source is cited by its title in the introductory phrase, or the first 1-2 words are placed in the parentheses. Book and report titles must be italicized or underlined, while titles of articles and chapters are placed in quotation marks:

A similar survey was conducted on a number of organizations employing database managers ("Limiting database access", 2005).

If work (such as a newspaper editorial) has no author, the first few words of the title are cited, followed by the year:

("The Objectives of Access Delegation," 2007)

Note: In the rare cases when the word "Anonymous" is used for the author, it is treated as the author's name (Anonymous, 2008). The name Anonymous must then be used as the author in the reference list.

➲ Organization as an Author

If the author is an organization or a government agency, the organization must be mentioned in the introductory phrase or in the parenthetical citation the first time the source is cited:

According to the Statistical Office of the Republic of Serbia (1978), …

Also, the full name of corporate authors must be listed in the first reference, with an abbreviation in brackets. The abbreviated name will then be used for subsequent references:

The overview is limited to towns with 10,000 inhabitants and up (Statistical Office of the Republic of Serbia [SORS], 1978).

The list does not include schools that were listed as closed down in the previous statistical overview (SORS, 1978).

➲ When citing **more than one reference from the same author**:

(Bezjak, 1999, 2002)

➲ When several **used works by the same author were published in the same year**, they must be cited adding a, b, c, and so on, to the publication date:

(Griffith, 2002a, 2002b, 2004)

➲ **Two or more works in the same parentheses**

When two or more works are cited parenthetically, they must be cited in the same order as they appear in the reference list, separated by a semicolon.

(Bezjak, 1999; Griffith, 2004)

➲ **Two or more works by the same author in the same year**

If two or more sources used in the submission were published by the same author in the same year, the entries in the reference list must be ordered using lower-case letters (a, b, c…) with the year. Lower-case letters will also be used with the year in the in-text citation as well:

Survey results published in Theissen (2004a) show that…

➲ To **credit an author for discovering a work**, when you have not read the original:

Bergson's research (as cited in Mirković & Boškov, 2006)…

Here, Mirković & Boškov (2006) will appear in the reference list, while Bergson will not.

➲ When **citing more than one author**, the authors must be listed alphabetically:

(Britten, 2001; Sturlasson, 2002; Wasserwandt, 1997)

➲ When there is **no publication date**:

(Hessenberg, n.d.)

➲ **Page numbers must always be given for quotations**:

(Mirković & Boškov, 2006, p.12)

Mirković & Boškov (2006, p. 12) propose the approach by which "the initial viewpoint…

➲ **Referring to a specific part of a work**:

(Theissen, 2004a, chap. 3)

(Keaton, 1997, pp. 85-94)

➲ **Personal communications, including interviews, letters, memos, e-mails, and telephone conversations**, are cited as below. (These are *not* included in the reference list.)

(K. Ljubojević, personal communication, May 5, 2008).

FOOTNOTES AND ENDNOTES

A few footnotes may be necessary when elaborating on an issue raised in the text, adding something that is in indirect connection, or providing supplementary technical information. Footnotes and endnotes are numbered with superscript Arabic numerals at the end of the sentence, like this.[1] Endnotes begin on a separate page, after the end of the text. However, Strategic Management journal **does not recommend the use of footnotes or endnotes.**

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