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Organizational failure and decline – A bibliometric study of the scientific frontend

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ABSTRACT

In today's challenging economic times, the number of failing firms remains high. Theories of why corporations fail and consequences for organizations and individuals those affected by failure have mainly been examined in a research field traditionally summarized as "organizational failure and decline." Unfortunately, this research field suffers from strong fragmentation and various separate streams of scholarly interest. The aim of this study is to structure existing research with the help of bibliometric methods and present developments in research between 1982 and 2016. This can essentially contribute to a better understanding of the ongoing maturation of this specific research field. Concretely, we perform a co-citation analysis and visualize existing sub-clusters of organizational failure research. We also present the most frequently cited publications based on a citation analysis and highlight shifting citation patterns in different research periods. The main clusters are finally summarized in an integrated framework.

1. Introduction

Research on corporate failure and decline already has quite a long research tradition (e.g. Altman, 1968; Argenti, 1976; Beaver, 1966). However, compared with business management studies in general, it only receives limited scholarly attention, which is criticized as "much of the […] empirical literature has […] a distinct survivor bias" (Miner, Kim, Holzinger, & Haunschild, 1996, p. 239). In times of recent crisis and vague economic development, interest in findings from failure and decline research is again rising. Generally, corporate failure research can be broadly divided into three major themes, which all have specific fields of interest. These are "Prediction models," "Finance and law," and "Organizational failure" (Kuecher, Feldbauer-Durstmueller, & Duller, 2015). Organizational failure research has traditionally been dominated by two key issues. The first is related to the examination of the causes and processes of failing organizations to find appropriate strategies for preventing further failures. The second stream deals with understanding barriers to learning from failure and identifying strategies to overcome them (Carmeli, 2007). Recently, another important subfield has developed, which investigates the consequences, perceptions, and costs of entrepreneurial failure for individuals and organizations that in turn may affect learning and future entrepreneurial activity (Ucbasaran, Shepherd, Lockett, & Lyon, 2013), and how 'fear of failure' may be related to entrepreneurial initiatives (Cacciotti, Hayton, Mitchell, & Giazitzoglu, 2016; Morgan & Sisak, 2016; Wyrwich, Stuetzer, & Sternberg, 2016). Organizational failure research may differ by scientific theory used, level of analysis, definition of "failure," and content (Carmeli, 2007; Jenkins & McKelvie, 2016; Mellahi & Wilkinson, 2004; Ucbasaran et al., 2013). As a consequence, scholars claimed that a common framework, understanding, and holistic research agenda due to its fragmentation and strong diversity are still lacking (Mellahi & Wilkinson, 2010). This study therefore focuses on the examination of this specific research field to extend consolidation and increase transparency.

Although recent papers have reviewed the organizational failure literature, these are limited in scope or use different methodologies (e.g. Amankwah-Amoah, 2016; Mellahi & Wilkinson, 2004; Ucbasaran et al., 2013; Weitzel & Jonsson, 1989). In particular, due to the strong fragmentation of the field, bibliometric methods are especially helpful for integrating and extending the findings of previous studies and reviews. Thus, we analyze relevant literature and beyond reference lists, thereby presenting objective and accurate information regarding the inner structure and past evolvement of the entire research field. In this sense, we can offer "an overall portrait of [the topic's] discipline" (Calabretta, Durisin, & Ogliengo, 2011, p. 501), present the bigger picture of organizational failure research in terms of related schools of thought (Xi, Kraus, Filser, & Kellermanns, 2013), and analyze and highlight historical developments and shifts in scholarly interest based on most frequently cited references. The findings may not only help academics but also others interested in organizational decline and failure, such as

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students and practitioners.

This study is structured as follows. First, we discuss the method of citation and co-citation analysis and describe the way we identified the appropriate scientific articles for bibliometric investigation. This is followed by a descriptive analysis of the articles examined in terms of publication journal, year, citation statistics, scientific category, type of study, sample sizes, and data sources. In the next step, we perform a co-citation analysis to identify the sub-clusters of the intellectual foundation of organizational failure and decline research and visualize the overall co-citation network graphically. Based on the findings of the co-citation clusters, we then present the shifting citation patterns of the most frequently cited studies in four different periods (< 1993, 1994–2000, 2001–2007, 2008–2016[1]). Finally, we summarize the most important content of each cluster, highlight the growing or falling importance in citation patterns, and guide the reader through the maturation process and historic development of the field.

2. Methodology

2.1. Bibliometric methods – co-citation and citation analysis

Originally, bibliometric analyses started in information sciences (Osareh, 1996). Even though business and economics scholars have not used them frequently, some recent studies have been published in strategic management research (e.g. Furrer, Thomas, & Goussevska, 2008; Nerur, Rasheed, & Natarajan, 2008), family business research (e.g. Benavides-Velasco, Quintana-Garcia, & Guzman-Parra, 2013; Xi et al., 2013), business ethics (e.g. Calabretta et al., 2011), and entrepreneurship research (e.g. Schildt, Zahra, & Sillanpää, 2006). Bibliometric methods provide scholars and researchers with several benefits. The most commonly mentioned advantage of bibliometric approaches is their objectivity. For this study, we decided to perform a citation and co-citation analysis to complement existing reviews and provide additional insight through a broader and more objective form of analysis. Co-citation analyses enable a rather objective identification of intellectual clusters or schools of thought by identifying pairs of references cited together (Garfield, Malin, & Small, 1983). Moreover, counting the number of key references according to citation frequency (citation analysis) gives scholars the possibility to receive "a clear and unbiased starting point for qualitative reviews" of individual sub-fields (Calabretta et al., 2011, p. 501). An in-depth investigation along periods can further increase insight and contribute to a better understanding of past developments in the field (Ramos-Rodriguez & Ruiz-Navarro, 2004; White & McCain, 1998). Summing up, the aim of this bibliometric study is to obtain an overview, consolidate existing research, and visualize the research field's main topics and concepts. Moreover, we examine past developments in citation patterns in detail and therefore can make an essential contribution to pertinent literature by investigating and presenting the maturation process of this specific research field.

2.2. Data

Organizational failure research has mainly been published in general management, entrepreneurship and small business management, or strategy-oriented journals as well as social sciences and economics-related publications. Moreover, there is no common or generally accepted definition of "failure" in organizational failure research, which has already promoted examinations of the definitions used (Balcaen & Ooghe, 2006; Headd, 2003; Jenkins & McKelvie, 2016; Mellahi & Wilkinson, 2004; Ucbasaran et al., 2013). Definitions vary from a relatively wide understanding (e.g., deviations from expected and desired results, discontinuance, termination to prevent further losses, and failure to "make a go of it") to a quite narrow one (e.g., formal bankruptcy petition) (Cannon & Edmondson, 2001; Watson & Everett, 1996, 1999). The heterogeneity of definitions of "failure" and fragmentation of relevant studies in terms of publication fields make it necessary to explain our search string in more detail. Due to the variety of different definitions of organizational failure used in empirical studies, as well as the fact that different levels of analyses and various sizes of organizations have been investigated, it is difficult to meet the requirements of meta-analyses (Calabretta et al., 2011). As a result, in the case of organizational failure studies, bibliometric methods may be preferred over meta-analyses, because generating a sufficiently large and homogeneous sample of quantitative articles for meta-analysis cannot yet be accomplished.

To identify the relevant literature, we followed a systematic approach that is replicable and reproducible (Tranfield, Denyer, & Smart, 2003). We selected and searched for "organizational failure" articles in top-ranked journals, which guarantees an analysis of the scientific frontend. In this sense 3-, 4-, and 4*-ranked journals of the sub-categories "Economics, Econometrics, and Statistics," "Entrepreneurship and Small Business Management," "General Management, Ethics, and Social Responsibility," "Organization Studies," "Social Sciences," and "Strategy" from the ABS Academic Journal Guide 2015 (Harvey, Kelly, Morris, & Rowlinson, 2015) were taken for analysis. The large body of financial management and accounting literature was deliberately omitted from our review because we believe that the focus of studies aiming to develop statistical models to predict business bankruptcy does not conform to the management perspective of organizational failure research of this study. Moreover, bankruptcy prediction models are mainly application driven, predominantly based on annual account information of large and listed firms in particular, and the respective literature has developed and built up a separate research domain and agenda within corporate finance over the last decades (Balcaen & Ooghe, 2006; Pal, Medway, & Byrom, 2011). This is also in accordance with previous literature reviews on organizational failure research (Amankwah-Amoah, 2016; Mellahi & Wilkinson, 2004). Although "exit" may be equated with "failure," it may also stand for the successful determination of an organization. In consequence and in consensus with recent research (Ucbasaran et al., 2013), we insisted on adding this keyword to our search string to avoid selecting out many success-oriented studies in the second step. In this sense, we searched for subsequent firm-related keywords in the titles of articles having been published at any time up to the end of 2016 in all top-ranked journals of the categories mentioned: "firm*" or "business*" or "corporate*" or "compan*" or "enterprise*" or "venture*" or "entrepreneur*" or "organization*" or "organisation*," and failure related synonyms such as "failure*" or "insolvenc*" or "bankruptc*" or "mortalit*" or "closur*" or "decline*" or "distress*" or "liquidation*" or "insolvent*."[2] Searching in titles only is in accordance with other recent studies (e.g. Xi et al., 2013), and is beneficial because it avoids a high drop-out rate. In addition, the aim of bibliometric studies is to analyze a "representative slice" of the appropriate literature (White & McCain, 1998, p. 32), which we do. This resulted in an initial search result of 243 articles, of which 56 were not included due to inappropriate abstract content. After content analysis, we reduced the number of relevant articles from 187 to 181.[3]

[1] Time zone 1 spans 1982 to 1993 because keeping the seven-year period would have resulted in a relatively low number of publications during this period. Period 4 allows for an investigation of the most relevant topics since the recent financial crisis.

[2] Throughout this study, any synonyms used for organizational failure, in accordance with the literature search string, may be interpreted in a wide understanding including different types of organizations.

[3] All unconsidered studies do not deal with organizational failure in a narrow sense but investigate diverse topics such as the relation between mortality and business cycles, bankruptcy law and the effect on housing decisions, failure in reporting standards, and others, to name a few.

Table 1
Methodological parameters of articles analyzed.

Article type	Frequency	%	Data source	%	Geographical dimension	%	Economic sector	%	Sample size	%
Conceptual-theoretic study	34	21.0%								
Empirical study	128	79.0%	Database	39.5%	USA and Canada	35.2%	Primary	0.6%	< 100	22.2%
			Mailed/delivered survey	15.4%	Europe	21.6%	Manufacturing	11.1%	100–400	19.1%
			Case studies	9.9%	Multicountry/rest of the world	12.9%	Services	21.6%	> 400	28.4%
			Others/n.a.	7.4%	Asia	5.6%	Samples including diverse sectors	45.7%	Non-indicated	9.3%
			Interviews	4.9%	New Zealand/Australia	3.7%				
			Fictitious case	1.9%						
Total	162	100.0%		79.0%		79.0%		79.0%		79.0%

3. Results

3.1. Descriptive analysis

In this section, we first discuss the sample of articles in terms of journal category, journal title, and time of publication, and we then present insight into the reference statistics. An analysis concerning methodological issues reveals that 21% were solely conceptual-theoretic studies, whereas the rest also used empirical data for their investigation (see Table 1).[4] In this regard, databases were the dominant source of data, followed by mailed surveys or questionnaires and case studies. Samples were mainly derived from regions in the USA and Canada, followed by Europe and multi-country studies. Studies from New Zealand, Australia, Asia, and Africa were underrepresented. This was also the case for samples from the primary sector. Even though it is presumed that industry plays an essential role in firm failure (Phillips & Kirchhoff, 1989), the majority of samples included organizations or entrepreneurs from multiple sectors. This fact confirms the problem of finding a sufficiently large sample of failing firms for a specific, homogeneous group to perform meta-analyses. The sample sizes varied from one case study to samples in excess of 400 units.

Regarding time span, we decided to structure the periods to investigate research patterns since the turn of the millennium and the recent economic crisis (Table 2). Concretely, the 181 publications analyzed were distributed by period as follows: 19 articles were published between 1982 and 1993, 34 articles were published between 1994 and 2000, 51 works were published between 2001 and 2007 and, since the recent crisis, the number of publications regarding firm failure rose to a high of 77 articles between 2008 and 2016. Earlier studies on organizational failure tended to be published by sole authors, which might indicate that these authors were isolated or poorly connected, but the average number of authors per article rose to 2.5 in the period 2008–2016. This finding has been confirmed by other studies, highlighting that research fields are emerging over time and receive increasing recognition. Modern information technologies further increase international and cross-institutional collaborations and connections (Calabretta et al., 2011). The average number of pages by article increased slightly throughout the study period with an overall average of 18.8 pages per article.

The number of references per article more than doubled between period 1 and period 4, reaching nearly 70 references per study published between 2008 and 2016. This indicates the growth of the literature related to organizational failure and decline, and highlights the development of a "consistent bibliographical base" (Casillas & Acedo, 2007, p. 144) as well as the field's maturity (Schäffer & Binder, 2008). We also calculated some ratios to verify and reaffirm these findings. The number of citations received by the Top 25 and Top 50 publications increased from period 1 to period 2, sharply fell in period 3, and again rose in period 4. This fact allows us to assume that there was a shift in the topics analyzed between periods 2 and 3 because the citation patterns changed substantially. However, in period 4 the changed intellectual foundation of organizational failure studies again matured and consolidated. Overall, the 50 most cited publications accounted for 8.1% of all different references. We used the ABS Academic Journal Guide 2015's categorization to give a first insight into the relevant topics investigated. With 61 publications in journals related to entrepreneurship and small business management research, this category was the biggest one (see Fig. 1). Herein, the main journal was the *Journal of Business Venturing* (22), followed by *Small Business Economics* (15) and *Journal of Small Business Management* (11). The second most important category contained 37 publications and was related to general management, ethics, and social responsibility issues. The *Academy of Management Review* (7), *Journal of Business Research* (7), and *Journal of Management* (6) dominated this category. Economic-related research (31) was predominantly published in *Economic Letters* (5) as well as diverse other journals (26). Organization studies (19), strategy (18), and social sciences (15) articles were almost equally analyzed, and *Long Range Planning* (12) and *Organization Science* (10) were the most frequent publication sites of articles within these categories.

An analysis by journal category and period shows that economics- and strategy-oriented journals dominated organizational failure research between 1982 and 1993 (see Fig. 2). Between 1994 and 2000, social sciences-related publications and general management journals gained importance. Overall, entrepreneurship and small business management studies dictated this period. In this regard, published studies were dominated by organizational ecology theory, which led to the empirical analyses of liabilities of newness and smallness theses (e.g. Hannan, 1998; Stoeberl, Parker, & Joo, 1998; Swaminathan, 1996). In the time between the millennium and 2007, journals related to organization studies became increasingly important. This came along with an increased prominence of case studies used to shed light on the complexity and intricacy of firm failure by investigating large corporate downturns in detail (e.g. Chatterjee, 2003; Maitlis & Lawrence, 2003; Mellahi, Jackson, & Sparks, 2002). After 2008, the category "Entrepreneurship and Small Business Management" clearly dominated, with about 40% of all articles analyzed. From period 3 to period 4, there was also a shift in the focus and content of organizational failure research. Before 2008, reasons for failing, processes in failing organizations, and learning from failure were the relevant aspects of research, yet afterwards the entrepreneurial perspective and consequences for those who fail rose to attention. Since then, new methods (e.g. narrative approaches) and theoretical lenses (e.g. stigma theory, psychological theories) have been used more frequently to investigate the perceptions of entrepreneurs regarding failure and impediments to successful learning, as well as the emotional implications and consequences of failure for entrepreneurial activity.

[4] The full-text analysis of 19 studies was not possible because we had no access to the content. As a result, the number of analyzed articles in terms of methodological issues reduced to 162. Any other analyses in this study are based on the total sample of 181 articles.

Table 2
Overview of descriptive statistics by period.

Statistics	Period 1	Period 2	Period 3	Period 4	Overall
	1982–1993	1994–2000	2001–2007	2008–2016	1982–2016
Number of articles analyzed	19	34	51	77	181
Authors per article (#)	1.7	2.1	1.9	2.5	2.2
Pages per article (#)	15.9	18.5	19.5	19.1	18.8
References (#)	584	1530	2673	5337	10124
References per article (#)	30.7	45.0	52.4	69.3	55.9
Aggregated references (#)	565	1262	2369	4237	7551
Top 25 publications (%)	7.8%	9.3%	4.8%	5.7%	4.9%
Top 50 publications (%)	12.2%	15.4%	8.0%	8.8%	8.1%

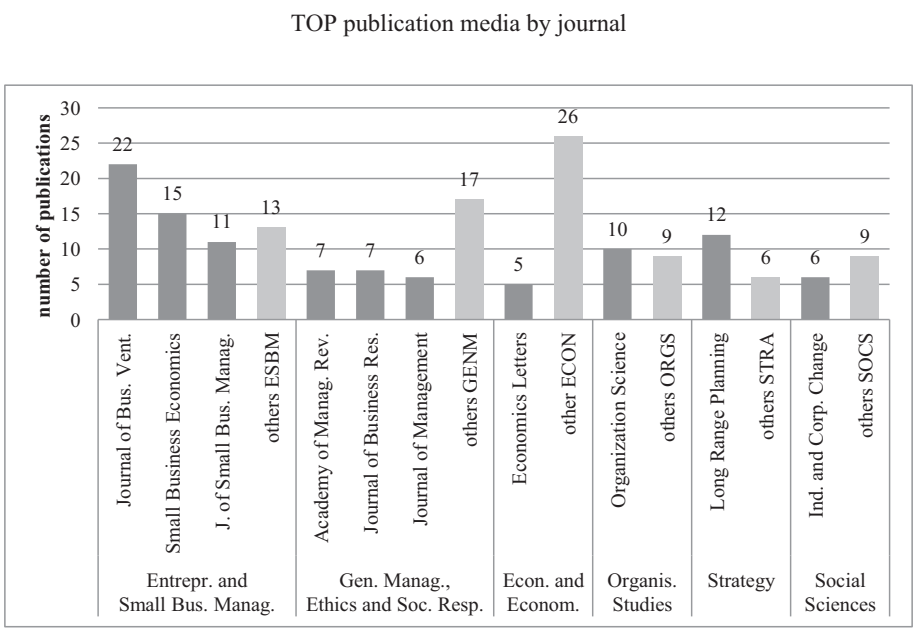

Fig. 1. Top publication media by journal.

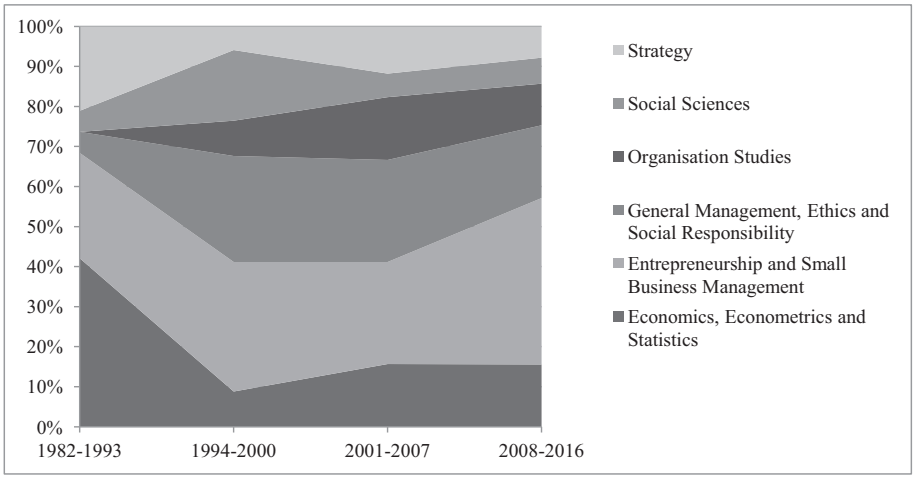

Fig. 2. Share of category by publications and time zone.

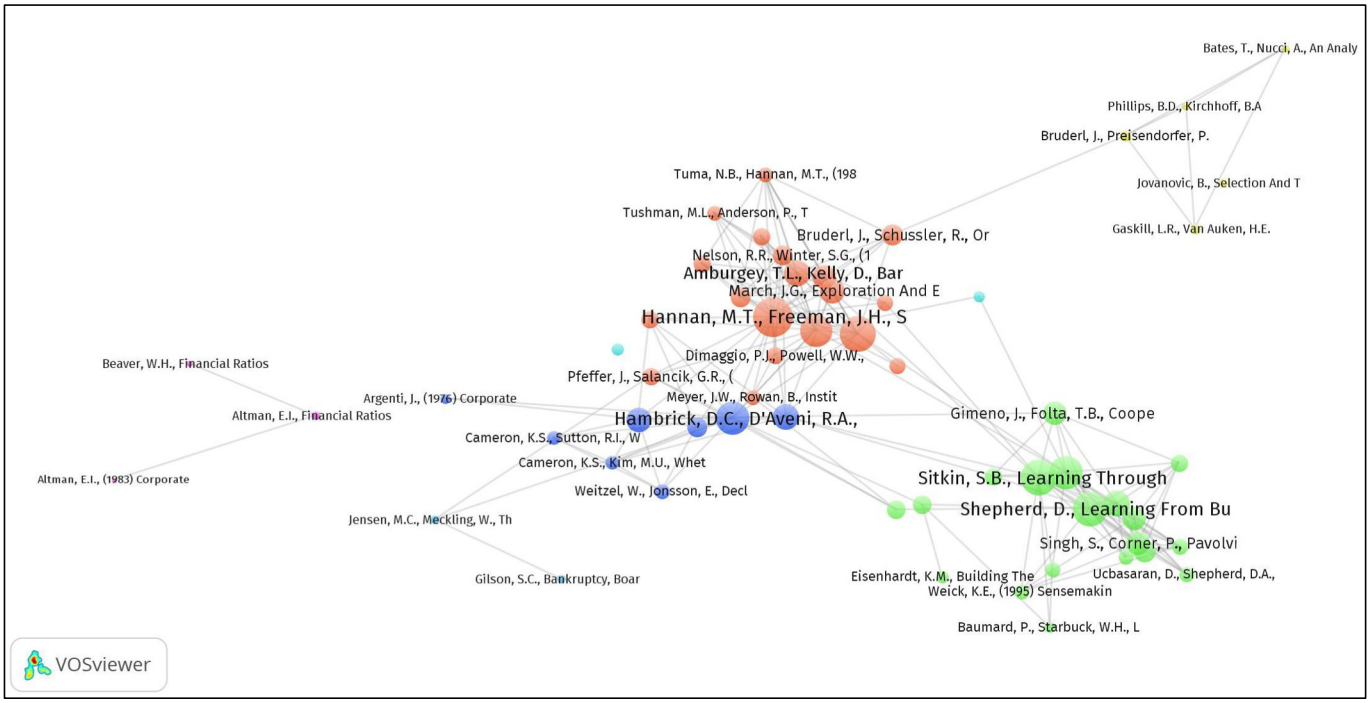

Fig. 3. Co-citation clusters.

3.2. Co-citation analysis

Having described the sample of articles on which basis bibliometric methods are performed in this study, we may now move on to the level of references. In this regard, the benefit of co-citation analyses is based on an objective clustering of similar content. Moreover, a graphical visualization enables a quick but comprehensive understanding of scientific coherences. Works closely linked present a relatively high number of co-citations of these studies, whereas those loosely related or in the periphery stand for less connected research (Calabretta et al., 2011). For visualization, we used VOSViewer, which applies its own VOS mapping technique that is an alternative to multidimensional scaling (Waltman, van Eck, & Noyons, 2010). In addition, other studies have used this program and visualization algorithms successfully (e.g. Appio, Cesaroni, & Di Minin, 2014). Due to the comparably low number of articles analyzed, we insisted on drawing co-citation graphs for each period, although we present an overall visualization from 1982 to 2016 (see Fig. 3). We decided to draw our graph with a clustering resolution parameter of 1.80 for all references with eight or more citations received. This resulted in an analysis of the top 58 publications, which is a compromise between accuracy, comprehensiveness, and readability.[5] Clustering shows seven different clusters, which are summarized in Table 3 and visualized in Fig. 3.

As already emphasized, two key issues traditionally dominate organizational failure research: investigating the causes and processes of failing firms, and analyzing barriers to learning from failures including strategies for overcoming them (Carmeli, 2007). Within the first research focus, two main theoretical streams have developed, which are used to explain organizational demise, namely deterministic and voluntaristic approaches (Mellahi & Wilkinson, 2004; van Witteloostuijn, 1998). The deterministic view, summarized by Cluster 1, deals with the organizational ecology and industrial organization literature. According to organizational ecology theory, the survival of organizations is predominantly defined by environmental selection processes (Hannan & Freeman, 1977, 1984, 1989; Stinchcombe, 1965). In other words, their fates are determined by environmental forces (Mellahi & Wilkinson, 2004). Moreover, organizational change is regarded as problematic and it can decrease the survival probability of firms due to lowered stability. With regard to our clustering algorithm, this cluster was found to be the biggest (19 publications). Ten of these 19 studies were among the top 25 publications, of which Hannan and Freeman (1977, 1984) and Stinchcombe (1965) were the most frequently cited ones (see Table 4). In contrast to organizational ecology theory is the strategic choice or rational adaptation literature, which is summarized by Cluster 3 and defined by eight key studies. This second perspective gained in importance after 2000, resulting from a voluntaristic understanding that presumes that internal shortcomings mainly lead to firm failure (Mellahi & Wilkinson, 2004). In this sense, firm failure results from an inappropriate fit between firm resources and environmental

Table 3
Overview of cluster investigated.

Cluster	Name/content	Number of studies	Dominating years
1	Organizational ecology and industrial organization	19	1994–2000
2	Entrepreneurial failure	18	2008–2016
3	Organizational decline and strategic choice	8	2001–2007
4	Small firm failures	5	2001–2007
5	Bankruptcy prediction	3	1982–1993
6	Strategy theories and case study design	3	–
7	Agency theory and corporate governance	2	–

[5] Generally, there is no consensus among scholars about the right cut-off point in bibliometric analyses (Casillas & Acedo, 2007). In this study, we decided to include at least the top 50 cited publications in the citation and co-citation analysis. In our case, that meant considering all references with eight or more citations received.

Table 4
Top 25 publications overall and by period.

Top 25	Overall	#	T	C	1982–1993	#	T	C	1994–2000	#	T	C	2001–2007	#	T	C	2008–2016	#	T	C
1	Sitkin (1992)	22	C	2	Altman (1968)*	4	E	5	Stinchcombe (1965)*	8	C	1	Hambrick and D'Aveni (1988)*	7	E	3	Shepherd (2003)*	20	C	2
2	Hannan and Freeman (1984)	22	C	1	Argenti (1976)	3	B	3	Hannan and Freeman (1984)*	6	C	1	Hannan and Freeman (1984)*	6	C	1	Sitkin (1992)*	15	C	2
3	Stinchcombe (1965)	21	C	1	Beaver (1966)	2	E	5	March (1991)*	6	C	1	Sitkin (1992)*	6	C	2	Mcgrath (1999)*	14	C	2
4	Shepherd (2003)	21	C	2	Porter (1980)*	2	B	6	Brüderl and Schüssler (1990)*	6	E	1	D'Aveni (1989)*	5	E	3	Shepherd, Wiklund, and Haynie (2009)*	13	C	2
5	Hambrick and D'Aveni (1988)	20	E	3	Altman (1983)	2	B	5	Hannan and Freeman (1989)	6	B	1	Bates and Nucci (1989)	5	E	4	Singh, Corner, and Pavlovich (2007)*	11	E	2
6	Hannan and Freeman (1977)	18	C	1	Williamson (1975)	2	B	–	Hannan and Freeman (1977)*	5	C	1	Beaver (1966)	5	C	5	Cardon, Stevens, and Potter (2011)*	11	E	2
7	Mcgrath (1999)	17	C	2	Ohlson (1980)	2	E	–	Nelson and Winter (1982)*	5	B	1	Phillips and Kirchhoff (1989)	5	E	4	Lee, Peng, and Barney (2007)	10	C	2
8	Cyert and March (1963)	16	B	3	Bruno, Leidecker, and Harder (1987)	2	E	–	Thompson (1967)	5	B	3	Altman (1968)*	5	E	5	Zacharakis, Meyer, and DeCastro (1999)	10	E	2
9	D'Aveni (1989)	15	E	3	Zavgren (1983)	2	C	–	Tushman and Anderson (1986)	5	E	1	Keasey and Watson (1987)	5	E	–	Headd (2003)	10	E	2
10	March (1991)	15	C	1	Cooper and Bruno (1977)	2	E	–	Barron, West, and Hannan (1994)	5	E	–	Cannon and Edmondson (2001)	5	E	2	Cyert and March (1963)*	9	B	3
11	Pfeffer and Salancik (1978)	14	B	1	Van De Ven, Hudson, and Schroeder (1984)	2	E	–	Altman (1983)	4	B	5	Hannan and Freeman (1977)*	4	C	1	Hayward, Shepherd, and Griffin (2006)	9	C	2
12	Altman (1968)	13	E	5	Liles (1974)	2	B	–	Hambrick and D'Aveni (1988)*	4	E	3	Amburgey, Kelly, and Barnett (1993)*	4	E	1	Hannan and Freeman (1984)*	9	C	1
13	Mellahi and Wilkinson (2004)	13	C	2	Mancuso (1975)	2	B	–	Dimaggio and Powell (1983)*	4	C	1	Tuma and Hannan (1984)	4	B	1	Sutton and Callahan (1987)*	9	E	2
14	Gimeno, Folta, Cooper, and Woo (1997)	13	E	2	Gartner, Mitchell, and Vesper (1989)	2	E	–	D'Aveni (1989)*	4	E	3	Pfeffer and Salancik (1978)*	4	B	1	Mellahi and Wilkinson (2004)*	9	C	2
15	Shepherd et al. (2009)	13	C	2	Biggadike (1979)	2	E	–	Amburgey et al. (1993)*	4	E	1	Cyert and March (1963)*	4	B	3	Stinchcombe (1965)*	9	C	1
16	Dimaggio and Powell (1983)	12	C	1	Blackman (1972)	2	C	–	Tuma and Hannan (1984)	4	B	1	Brüderl, Preisendorfer, and Ziegler (1992)	4	E	4	Hambrick and D'Aveni (1988)*	8	E	3
17	Nelson and Winter (1982)	12	B	1					Haveman (1992)	4	E	1	Cameron, Sutton, and Whetten (1988)	4	B	3	Gimeno et al. (1997)*	8	E	2
18	Jensen and Meckling (1976)"	12	C	7					Freeman, Carroll, and Hannan (1983)	4	E	1	Weitzel and Jonsson (1989)*	4	C	3	Ucbasaran et al. (2013)	8	C	2
19	Amburgey et al. (1993)	12	E	1					Aldrich and Fiol (1994)	4	C	1	Gimeno et al. (1997)*	4	E	2	Hannan and Freeman (1977)*	8	C	1
20	Sutton and Callahan (1987)	12	E	2					Bates and Nucci (1989)	4	E	4	Eisenhardt (1989)	4	C	6	Weick (1995)	7	B	2
21	Brüderl and Schüssler (1990)	12	E	1					Levinthal (1991)	4	E	–	Wruck (1990)	4	E	–	March (1991)*	7	C	1
22	Freeman et al. (1983)	12	E	1					Fichman and Levinthal (1991)	4	C	–	Mellahi and Wilkinson (2004)*	4	C	2	Cope (2011)	7	C	–
23	Porter (1980)	12	B	6					Dunne, Roberts, and Samuelson (1989)	4	E	–	Baumard and Starbuck (2005)	4	E	2	Vaillant and Lafuente (2007)	7	E	–
24	Cardon et al. (2011)	11	E	2					Carroll (1983)	4	E	–	North (1990)	4	B	–	Van Witteloostuijn (1998)	6	E	–
25	Singh et al. (2007)	11	E	2					Carroll and Hannan (1989)	4	E	–	Watson and Everett (1999)	4	E	–	Minniti and Bygrave (2001)	6	C	–

C…conceptual, E…empirical, B…book; * in overall Top 25 publication; "Top 25 publication but not among most cited in separate periods.
Top 25 publications according to citation count, if equal those with newest publication date are selected.
Cluster assignment bases on overall clustering by VOSViewer with 58 most cited studies (> 8 citations - intellectual base 8.9% of all citations consolidated).

needs and wrong actions taken by management who cannot stop declining paths, which in the worst case results in bankruptcy or insolvency. Three out of eight studies from Cluster 3 were among the top-cited sources. The strategic choice literature regards organizational change as a necessary adaptation process and therefore beneficial to survival. The focus is on organizational learning theories (e.g. Cyert & March, 1963), downward spirals and decline models (Hambrick & D'Aveni, 1988; Weitzel & Jonsson, 1989), and their strategic implications (D'Aveni, 1989).

Recently, another sub-field of organizational failure research became prominent in dealing with the implications and consequences of entrepreneurial failures as well as the perceptions, emotions, coping strategies, and sense-making of those confronted with failure. Theories regarding stigma (Sutton & Callahan, 1987), psychology (Shepherd, 2003; Shepherd et al., 2009; Singh et al., 2007), and sense-making (Weick, 1995), as well as ideas referring to the concepts of small losses (Sitkin, 1992) and finance-related real option theory (McGrath, 1999), are summarized by Cluster 2, named "Entrepreneurial Failure." This cluster also included the overall most cited study by Sitkin, who suggests that by allowing small failures, organizations and individuals can reduce the overall costs of large failures. In this line of argumentation, Sitkin finds "failure" to be a potential strategic asset because small failures much more than organizational successes prompt attention and foster organizational learning processes, adaptation and adjustment, risk tolerance, and problem solving capability, which secure mid- and long-term survival (Sitkin, 1992).

In addition to the main clusters (Clusters 1–3), some minor clusters were found from the co-citation analysis. Cluster 4 consists of a homogeneous group of studies dealing with small firm failure. Cluster 5 contains and refers to seminal works regarding bankruptcy prediction. Cluster 6 includes classic articles by Barney (1991), referring to resource-based theory, and Porter (1980), dealing with strategic management. Moreover, the frequently cited study regarding case study design by Eisenhardt (1989) is part of Cluster 6. Cluster 7 refers to another major stream of corporate failure research, namely finance- and law-oriented studies. In organizational failure research, these contain agency theory (Jensen & Meckling, 1976) and corporate governance issues (Gilson, 1990). On the basis of the identification of these clusters, an analysis of the citation counts of the most frequently cited references over time can extend the co-citation findings and reveals that the clusters identified were of shifting importance in the past, indicating that different ideas have been more or less prominent during the last decades. The changing relevance of these schools of thought over time essentially contributes to a better understanding of the maturation and evolvement of the entire "organizational failure and decline" research field within the last 35 years. In this regard, shifting citation patterns are presented in Table 4 and visualized in Fig. 4. The findings will be discussed in detail in the next paragraphs.

3.3. Citation analysis – a journey through history

3.3.1. Stage 1: First theoretic steps and bankruptcy prediction (1982–1993)

Despite the constantly rising numbers of bankruptcies as well as firms that failed in other ways (e.g. being in crisis or defaulting on debt), both in the United States and all over the world, researchers did not start to investigate organizational failure before the mid-1960s (Pompe & Bilderbeek, 2005; Sheppard, 1994). The analysis of citation frequency showed that organizational failure research was initially dominated by a finance-oriented view. Related research focused on predicting the probability of failure by using different mathematical methods including both univariate (Beaver, 1966) and multivariate approaches (Altman, 1968). These seminal works were also among the overall most cited studies and constituted the basis of many kinds of organizational failure-related research. Due to the availability of data, mainly large and listed companies were the objects of interest. However, samples of small or closely held firms were also tested to predict their bankruptcy probability (Keasey & Watson, 1987; Laitinen, 1992). The main objective of prediction is the empirical analysis of accounting information rather than theory building and development (Hall, 1992; Ohlson, 1980; Pompe & Bilderbeek, 2005). Methodological discussions of a multiplicity of different mathematical calculations of bankruptcy probability, mainly application driven, therefore developed its own research stream in finance- and accounting-oriented journals (Balcaen & Ooghe, 2006; Kuecher et al., 2015; Mone, McKinley, & Barker, 1998; Pal et al., 2011). In the late 1970s, management scholars turned their focus and attention toward the study of organizational failure and decline (Sheppard, 1994) and described the first theoretical models, which were complemented by initial empirical studies. Nevertheless, these studies did not gain substantial attention before the period 1994–2000. One exception was *Corporate Collapse* by John Argenti, who examined the reasons for failing and investigated patterns of corporate bankruptcy (Argenti, 1976). Although mainly descriptive, it was the second most cited study between 1982 and 1993 and is still listed among the top 50 most cited studies overall.

3.3.2. Stage 2: The deterministic perspective: organizational ecology, industrial organization, and liabilities theses (1994–2000)

As already emphasized, the social science-oriented view gained substantial importance in period 2. The first comprehensive theoretic stream to describe dynamic patterns of failing firms origins from organizational ecology theory focused on the birth, change, and mortality processes of organizational forms within organizational populations. In this line, it was argued that inert firms that do not change frequently and represent stability have a lower probability of failing (Hannan & Freeman, 1977, 1984). In detail, it was suggested that the accountability, reliability, and reproducibility of firms' core features increase survival chances (Wezel & van Witteloostuijn, 2006) because environmental selection processes favor stable and highly inert organizational forms (Barron et al., 1994; Hannan & Freeman, 1984). Thus, firms that are able to reproduce organizational procedures constantly, to succeed in building up routines (Nelson & Winter, 1982), and to improve initially installed features and abilities continuously, ultimately create a competitive advantage and benefit from a reduced failure probability (Heine & Rindfleisch, 2013).

The fact that small and young organizations showed the highest mortality rates led to the investigation of the "liabilities of newness" and "liabilities of smallness" in more detail (Brüderl & Schüssler, 1990; Hannan & Freeman, 1984; Stinchcombe, 1965). Stinchcombe's seminal work on the liabilities of newness was the most frequently cited study between 1994 and 2000. It is presumed that new firms face disadvantages against already established corporations in terms of barriers to entry, problems finding adequate and skilled staff, low network connections, and worse financing conditions. This all arises from reduced legitimacy because young firms may not have yet created reliable routines or do not offer the requested stability (Stinchcombe, 1965). Early empirical results supported Stinchcombe's hypothesis and confirmed an increased mortality rate for young firms in diverse organizational populations (Bates & Nucci, 1989; Carroll, 1983; Dunne et al., 1989; Freeman et al., 1983). Accordingly, small organizations face similar problems due to reduced size in contrast to larger competitors (Aldrich & Auster, 1986; Barron et al., 1994). In consequence, it is argued that the stabilization of routines offers a selection benefit for older and larger firms and that new and young firms suffer from a lack of established inertia. However, researchers also found that new firms initially benefit from a certain stock of assets from founding. In this regard, the mortality rate of firms is the highest for those unable to build up stability in their core processes before their initial properties or resources are exhausted. This finding is summarized as the "liabilities of adolescence" (Brüderl & Schüssler, 1990; Fichman & Levinthal, 1991). The length of the adolescence period may be different and it depends on the level of initial resources. Generally, organizational ecology claims that organizational change "may hurt the reliability of organizations'

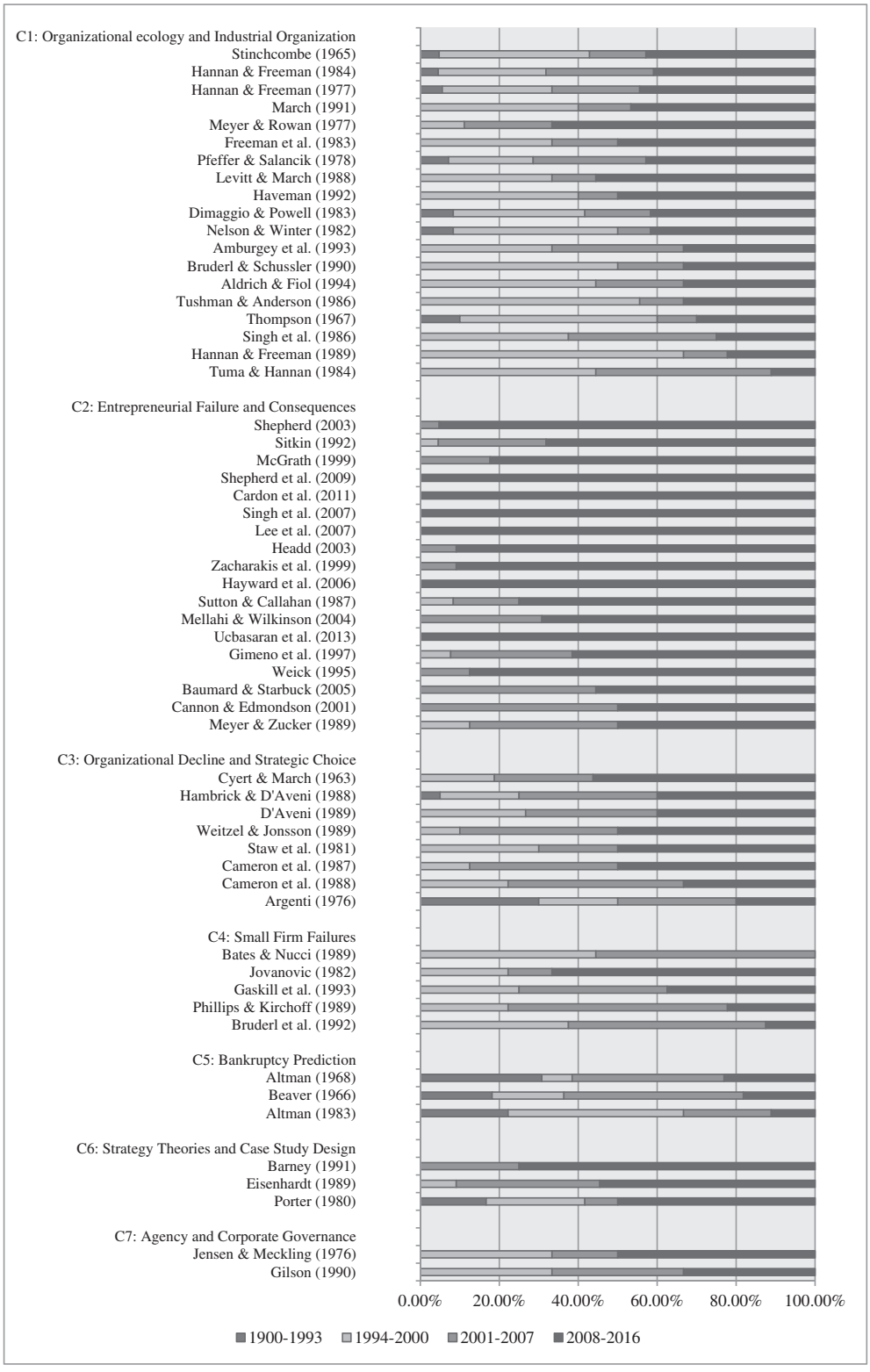

Fig. 4. Relative citation share of TOP publications by period.

performance" (Stoeberl et al., 1998, p. 537) and is detrimental to firm survival. In this regard, organizational ecology theory presumes that change can put established and inert organizations through the liabilities of newness again. However, "resetting" the liability of newness clock, rebuilding internal procedures and processes, and thus preserving external relationships can be managed if change does not happen too often (Amburgey et al., 1993). Moreover, the empirical results show that patterns in mortality rates for firms depend on the organizational population investigated and that they are moderated by industry density at founding (Carroll & Hannan, 1989). In populations confronted with adverse or changing environmental conditions, older firms may also face a decreased survival probability if they improve skills that add increasingly less value to survival (Hannan, 1998). Thus, scholars also claim that the monotonic decline of failure probability by age does not

exist if other relevant conditions such as organization size and industry structure are controlled. If industries require change, one may also expect increased failure rates for older firms, which is the case for "liabilities of aging" (Barron et al., 1994). As findings from organizational ecology provide explanations for the liabilities of both new and old firms, Levinthal saw organizational decline and change more like a random walk (Levinthal, 1991). Some firms stay inert and benefit from the environmental conditions, whereas others adapt to industry changes and escape the "liabilities of aging." In this sense, organizational ecology reasoning forms a valuable framework for dynamic organizational-level processes such as "downward spirals," which help explain paths toward and away from bankruptcy (Hambrick & D'Aveni, 1988).

In addition to organizational ecology, industrial organization is the second main deterministic stream dealing with environmental changes in detail. Frequently cited references and highly relevant studies within this sub-stream were published by Tushman and Anderson (1986) and Haveman (1992). Immanent to all these deterministic studies is the assumption that firms' fates are determined by environmental conditions; thus, firms cannot prevent failure in unsuitable conditions (Mellahi & Wilkinson, 2004). Despite the important contribution deterministic theories have made for understanding firm failure, they can hardly explain why some firms survive while others fail under similar conditions. As a consequence, there was a need to move away from population toward firm-level research and a more voluntaristic approach (Mellahi & Wilkinson, 2004). Therefore, the focus of research drifted to understanding what enables firms to prevent failure and adapt successfully to external requirements. In this line, the importance of organizational learning aspects increased between 2001 and 2007 (Cyert & March, 1963; March, 1991).

3.3.3. Stage 3: Theories of "strategic choice": firm-level studies, process models of decline, and a learning perspective (2001–2007)

Based on the most frequently cited references identified in period 3, scholarly research turned its focus toward the adaptability of firms, and under which conditions organizations are more or less adaptive (e.g. Barnett & Freeman, 2001). This seemed necessary, as environmental conditions change quickly and escalating commitment to previous strategies and processes or routines are especially harmful to organizations in decline (Staw, Sandelands, & Dutton, 1981). "Strategic choice" (Heine & Rindfleisch, 2013, p. 12) or "rational adaptation" theories (Hannan & Freeman, 1984, p. 151) claim that changes in strategy and corporate structures are necessary to avoid failure. This strand of research sees change as beneficial rather than detrimental and explains "organizational failure" as a failure to adapt to environmental requirements or internal dynamics (Cameron, Kim, & Whetten, 1987; D'Aveni, 1989; Heine & Rindfleisch, 2013; Staw et al., 1981; Weitzel & Jonsson, 1989). Thus, survival is determined by the fit between external environmental forces and internal firm-related responses (Moulton, Thomas, & Pruett, 1996). Although adaptive or reactive actions may prevent failure in slowly changing industries, rapidly changing environments require proactive and anticipatory responses (Weitzel & Jonsson, 1989). The frequently cited studies between 2001 and 2007 examined what went wrong in adaptation processes (Hambrick & D'Aveni, 1988), what attributes are typical for declining firms (Cameron et al., 1987), what ultimately caused organizational failure, and why some firms survive organizational decline while others fail (D'Aveni, 1989; Weitzel & Jonsson, 1989). During phases of decline, organizations are characterized by increased secrecy, rigidity, turnover, formalization, and centralization, whereas innovativeness, long-term planning, leader influence, and employee morale decrease (Cameron et al., 1987). Organizational declines may last long and failure finally results from inadequate adaptation to new environmental needs due to inertia, wrong decision-making under stress, or sheer bad luck (Hambrick & D'Aveni, 1988).

Management plays a central role when organizational change is necessary. It may guide organizations successfully and secure survival or it may fail and is made responsible for organizational downturn. As Mellahi and Wilkinson state, "*who* makes a decision is more important than the external context within which the decision is made" (2004, p. 28). In this regard, Sheppard and Chowdhury argued that failure may be seen as failed turnaround; thus, management was not able to exit the declining path of an organization (Sheppard & Chowdhury, 2005). To understand better the circumstances that drive firms to failure, scholars began to analyze firm decline empirically and more thoroughly with the help of case study designs (Chatterjee, 2003; Maitlis & Lawrence, 2003; Mellahi et al., 2002). This was also reaffirmed by the citation count of Eisenhardt's (1989) article, which dealt with case study design matters. With reference to Weitzel and Jonsson, decline patterns follow specific stages that correspond to the failure to anticipate (blinded), the failure to decide on corrective actions (inaction), wrong or inadequate decisions (faulty action), crisis, and dissolution (Weitzel & Jonsson, 1989, p. 97). The length of these stages may vary by type of failure, and each stage requires its own actions to be taken (D'Aveni, 1989; Weitzel & Jonsson, 1989). Seminal studies analyzing failure patterns also found that there are specific types that have aspects in common (Argenti, 1976; D'Aveni, 1989). Moreover, researchers also started to use narrative approaches to gain deeper insight into processes of change and organizational crises at the group and individual levels. Such analytical schema can increase transparency because they "deliver information on human and group behavior in existence-threatening situations [… and offer] a rich resource in explaining and understanding the underlying structure in the process of organizational decline" (Lamberg & Pajunen, 2005, p. 971).

During period 3, organizational learning theories also gained attention with regard to the number of citations. Organizational learning theory belongs to a greater scientific research stream regarding knowledge as a resource of competitiveness and highlights its importance for organizations (Madsen & Desai, 2010). Generally, two perspectives can be identified. On the one hand, the necessity of frequent adaptations requires corporate strategies and firm knowledge of "how to change." In this sense, operating and modification routines can be distinguished (Amburgey et al., 1993; Cyert & March, 1963; Nelson & Winter, 1982). With regard to operating routines, it is presumed that in the short run exploitation strategies such as refinement, continuous improvement, and the increased efficiency of core features and abilities increase survival probabilities. In the middle or long run, exploration in terms of innovation and variation is necessary to guarantee change in accordance to amended environmental conditions. Especially in declining firms, threat rigidity processes hamper a successful turnaround because management predominantly focuses on short-term goals and often neglects strategic change, necessary adaptation processes, or innovation (D'Aveni, 1989; Staw et al., 1981). It is therefore a competitive advantage to find the right balance between exploration and exploitation both in declining and in straight operating firms (Baumard & Starbuck, 2005; March, 1991). In other words, learning how to change successfully is a strategic asset (Sitkin, 1992). In consequence, the second perspective of "organizational learning" research deals with the question of whether firms can learn from failure, as this would improve future business activities, and if not what barriers exist. Firms learn from success, but increased routinization and the confidence of successful amendments in the past may lead to failure in the future (Baumard & Starbuck, 2005; Sitkin, 1992). Therefore, focusing on small or moderate failure may increase efficiency and simultaneously reduce the overall costs of large failures (Cannon & Edmondson, 2001). In this regard, Sitkin, in his seminal study about learning from failure, proposed allowing "intelligent failures" because they enable firms to learn and train knowledge of how to adapt successfully to new environmental needs at low risk (Sitkin, 1992). It was hypothesized that organizations learn even more from failures than they do from successes (Cyert & March, 1963; Sitkin, 1992). However, studies also show that learning from failure is often ineffective or does not occur at all, and if it occurs,

the wrong conclusions may be drawn (Baumard & Starbuck, 2005). Generally, individual-, group-, and organization-level barriers exist in learning from failure. Whereas at the individual level, psychological processes such as high self-esteem or self-efficacy lower learning effects, stigmatization and others' perceptions at the organizational or societal level may impede drawing the right conclusions from failures (Cannon & Edmondson, 2001).

3.3.4. Stage 4: Entrepreneurial failure: coping with failure, stigma, and perceptions (2008–2016)

After a thorough examination of organizational ecology matters regarding which firms are selected by the degree of fit between organizational structures and environmental requirements, and firm-level analysis from a more strategy-oriented view, scholars started to investigate organizational failure from an entrepreneurial perspective, which complemented prior research. New topics arose and scholarly research frequently focused on how failure is perceived, especially at the individual level (Mantere, Aula, Schildt, & Vaara, 2013; Zacharakis et al., 1999), or how fear of failure and stigmatization are related to entrepreneurial activities (Cacciotti et al., 2016; Simmons, Wiklund, & Levie, 2014). Generally, the consequences and implications of failure for those affected by firm demise rather than the causes and reasons for failure became the center of interest (Ucbasaran et al., 2013). In this sense, scholars referred to both the potential benefit through learning and sense-making and the emotional, social, and financial consequences of failure. Whereas scholars agreed that learning from failure is a benefit to those who learn, because learning increases experience, which in turn may foster firm performance, they also pointed out the difficulties that exist in learning from failure. Real crises may be too complex, as they are rare and are from different origins, whereas minor organizational failures receive too little attention and are quickly forgotten or even go undetected (Baumard & Starbuck, 2005; Desai, 2010). Barriers to learning also result from feelings and emotions, psychological impediments that may affect learning and future activities for entrepreneurs, self-employed persons, managers, and employees at the individual level (Shepherd & Haynie, 2011; Sitkin, 1992). Summarized, this new research stream prevalently investigated "how entrepreneurs perceive, make sense of, learn from, and respond to failure" (Ucbasaran et al., 2013, p. 164). With regard to the financial, social, and psychological costs of entrepreneurial failures, new theoretical approaches were chosen. In this sense, real options theory (McGrath, 1999) and theories from psychology such as grief theory, attributional theory, and stigma theory (Shepherd, 2003; Singh et al., 2007; Sutton & Callahan, 1987) gained importance. Moreover, institutional settings including the legal context in general and the degree of "entrepreneur-friendliness" of bankruptcy law specifically played important roles as moderators of both social and financial costs in the case of firm failure (Lee et al., 2007; Ucbasaran et al., 2013). The psychological consequences of failure included grief, panic attacks, anxiety, and anger (Singh et al., 2007; Ucbasaran et al., 2013).

Other frequently cited studies in period 4 dealt with the attributions, emotions, and perceptions of entrepreneurs facing failure, those that influence sense-making, learning, and recovery from failure, and subsequent entrepreneurial activity (Shepherd et al., 2009; Ucbasaran et al., 2013). As found by Zacharakis et al. (1999), misperceptions and attribution bias exist among entrepreneurs when evaluating their own and others' failures. Even though entrepreneurs attributed their own failure mainly to internal factors, the failures of others were attributed to manageable factors to a higher degree. In addition, attribution differences occur between entrepreneurs and other stakeholders, i.e. venture capitalists. Such misperceptions and self-serving attribution bias may impede drawing the right conclusions or lead – in the case of survival – to overconfidence and result in inefficient resource allocation or investment decisions in future business activities (Hayward et al., 2006; Ucbasaran et al., 2013). Thus, success promotes success, which at any time may then result in failure (Baumard & Starbuck, 2005). These liabilities of success "lead to persistence at the expense of adaptability" (Sitkin, 1992, p. 243) or, in other words, reliability and short-term improvement jeopardize long-term survival and resilience. Sense-making and attributions of causality also influence the stigmatization of failure at societal and cultural levels and may influence entrepreneurial activity. Cardon et al. (2011) analyzed media data on small firm failure and found that blaming the entrepreneurs and their mistakes occurred as often as pointing to outside factors and unavoidable misfortunes resulting from the environment. However, geographical and regional differences are apparent. Moreover, and with regard to the impact and consequences of failure stigmatization, individual and financial attributions dominated in newspapers. In addition to the influence of perceived stigma at the societal level, studies regarding stigmatization at the organizational and individual levels were also frequently cited (Sutton & Callahan, 1987; Wiesenfeld, Wurthmann, & Hambrick, 2008).

Although bankruptcy systems – as the institutional context – were predominantly analyzed in finance- and law-oriented journals, the organizational failure literature also focused on the impact of bankruptcy law (Kuecher et al., 2015). In this regard, the potential of developing entrepreneur-friendly law systems received increased attention (Fan & White, 2003; Lee et al., 2007; Peng, Yamakawa, & Lee, 2010). This fact highlights the important role of insolvency law for organizational failure research, where traditionally there has been a lack of law-oriented research in sociological and business examinations (Halliday & Carruthers, 2007). In this regard, both corporate and personal bankruptcy law (Berkowitz & White, 2004; Fan & White, 2003) can be an essential incentive and institutional setting that influences social norms and a society's belief about who holds responsibility for failure (Lee et al., 2007). In this sense, scholars found that the level of entrepreneurial activity, a major source of economic development and growth, is related to the stigmatization of failures (Landier, 2001). Whereas bankruptcy or failure in the United States is seen as a chance to learn and a quick restart should be enabled for entrepreneurs, failure in Europe is highly stigmatized, which results in an increased level of fear of failure (Vaillant & Lafuente, 2007). From an entrepreneurship-friendly perspective, optimal bankruptcy systems should enable a "fresh start" (Ayotte, 2007) or a "second chance" (European Commission, 2011), which would foster entrepreneurial development and enforce economic structures at a societal level.

4. Discussion and conclusion

This study was the first attempt to consolidate the strongly fragmented research field of "organizational failure and decline" with the help of bibliometric methods. We performed a co-citation and citation analysis based on 181 publications and identified seven coherent reference clusters in the inner structure of this research field. Moreover, we highlighted that these clusters or schools of thought have been more or less prominent in research history based on citation counts of most frequently cited studies within these clusters. Our results extend previous reviews of the literature and promote consolidation and transparency. In addition, our findings regarding shifts and developments in citation patterns also contribute essentially to the understanding of the paths taken and evolvement of the entire field. Finally, we integrate the main existing themes into a framework (see Fig. 5), confirming in whole or in part previous literature reviews (e.g. Amankwah-Amoah, 2016; Mellahi & Wilkinson, 2004; Ucbasaran et al., 2013).

Summing up, two main aspects exist. The first concentrates on the reasons for failing, processes in failing firms, and strategies for stopping the path of decline. The main sources for firm decline originate from environmental, ecological, organizational, and psychological factors. While the literature regarding the deterministic perspective is presented in Cluster 1, named "organizational ecology and industrial organization," the voluntaristic perspective refers to Cluster 3 and is summarized as "organizational decline and strategic choice." Within recent years, new concepts and research aspects have evolved in

Framework of "Organizational Failure and Decline" research

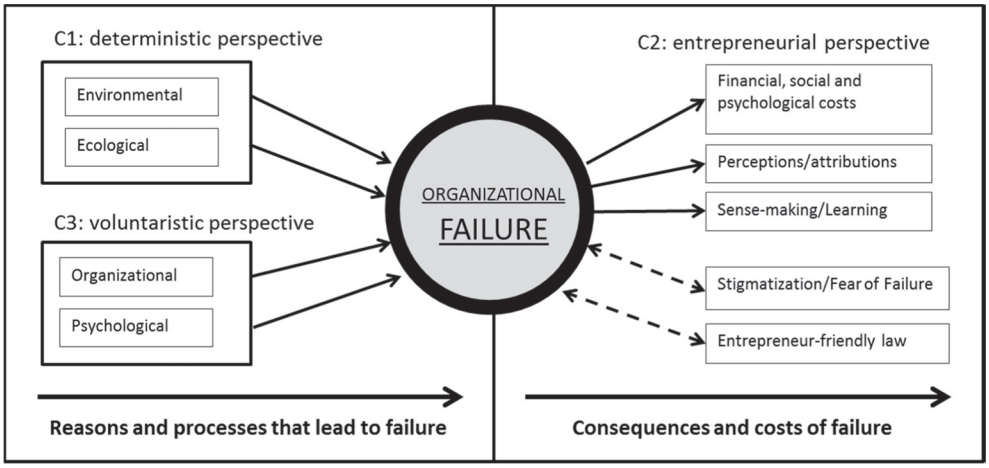

Fig. 5. Framework of "organizational failure and decline" research.

organizational failure research. This second stream can be summarized as "entrepreneurial failure" (Cluster 2) and deals predominantly with issues after failure has already occurred, such as learning from failure, the financial, social, and psychological consequences thereof, and making sense of or responding to failure (Ucbasaran et al., 2013). Moreover, a recent discussion refers to the potential of entrepreneur-friendly bankruptcy laws (e.g. Lee et al., 2007) and how fear of failure, stigmatization, and cultural norms are influencing entrepreneurial processes (Cacciotti et al., 2016; Morgan & Sisak, 2016; Wyrwich et al., 2016).

The main contribution of this study is that we add to the literature in two significant ways. Firstly, we present homogeneous clusters of similar and frequently cited studies and visualize them graphically. In contrast to other kinds of literature reviews, our findings result from a rather objective categorization method based on reference lists of pertinent literature. Immanent to all kinds of bibliometric studies is that the primary research focus lies on objective structuring and clustering of fragmented fields of research by "focusing on and describing what appears […] in the rear-view mirror" (Ramos-Rodriguez & Ruiz-Navarro, 2004, p. 981). Thus, in the center of interest is the analysis of cited references of studies identified by reviewing the literature on a certain topic rather than the articles identified on their own. This enables a quick but comprehensive overview of the main relations within the field and constitutes a solid basis for supplementary qualitative reviews of narrower sub-fields of organizational failure research (Calabretta et al., 2011). Secondly, we could highlight that different approaches and "ideas" have been more or less prominent during past research periods with changing emphases over time. Whereas the deterministic view dominated before 2000, voluntaristic approaches and a shift to investigating the organizational and psychological shortcomings that cause decline and lead to failure gained attention after 2000. Since the recent financial crisis, the entrepreneurial perspective clearly dominates the scholarly debate.

Moreover, based on the co-citation visualization and resulting from citation frequencies, the clusters "organizational ecology and industrial organization" (Cluster 1) and "entrepreneurial failure" (Cluster 2) are identified as the dominant schools of thought in international organizational failure research. Whereas organizational ecology is predominantly based on a statistical population level, entrepreneurial failure more prominently put the organizational and individual level (those directly affected by failure) at the center of interest. Both streams have in common that especially small and also young firms dominate in empirical analyses. This is not surprising because these companies form the backbone of many economies and also face the highest rates of failure. Strategic choice theory, which deals with processes of failures and the decline of bigger organizations, is of minor interest according to respective citation counts. Recently, entrepreneurial failure research founded a relatively homogenous research cluster with some leading publication journals, namely *Journal of Business Venturing*, *Small Business Economics*, and *Journal of Small Business Management*, and promoted a common research agenda. This has gone along with advances in theory building, refined conceptual foundations, and consolidation, which is highly beneficial to the entire development of the field.

However, our co-citation findings also show that the deterministic, voluntaristic, and entrepreneurial or emotive perspectives are still rather loosely connected, with some exceptions published recently (e.g. Artinger & Powell, 2016; Khelil, 2016). More research investigating organizational failure from a multidisciplinary or multi-level view "by embracing all known, or suspected, factors driving mortality" (Silverman, Nickerson, & Freeman, 1997, p. 32) and by integrating sociological, strategic, and psychological issues would benefit future research, further consolidation, and a more detailed understanding of the complex phenomenon of organizational failure. In addition, it will be necessary to agree on a common definition of organizational failure. Even though bankruptcy law systems differ around the world, defining failure as bankruptcy seems to be one possible way. However, in a recent classification scheme, Jenkins and McKelvie (2016) show that other subjective and objective conceptualizations of "failure" at firm- or individual-level were also employed in previous studies and may be meaningful, depending on the research focus. A common theory and transparent definition would simplify comparisons between studies and provide a common framework for future studies. However, it is far beyond this article's scope to present a comprehensive multi-dimensional theory describing organizational failure. Nevertheless, we could present the major sub-streams of organizational failure research and thus help academics and practitioners to gain quick and deep insight into the relevant literature and to understand better the coherence between different strands of studies of organizational failure. In this sense, the entrepreneurial perspective regularly sheds light on the characteristics, consequences, perceptions, and sense-making processes of management or the founding entrepreneur, and examines how these aspects define behavior during decline (Staw et al., 1981) or subsequent business activities after failure (Ucbasaran et al., 2013). This view is the most dominant in recent years. At the organizational level, processes within firms and shortcomings in strategic actions that cause decline or

downward spirals are investigated. Finally, the ecological and environmental perspective analyzes whole industries and populations of firms and discovers which specific external conditions may substantially harden the organizational survival of firms in this industry. This last strand has the longest research tradition.

In terms of future avenues for research, any integration of the deterministic, voluntaristic, and emotive perspectives would be promising. For instance, an investigation of how emotional outcomes of failed entrepreneurs differ between the reasons that led to entrepreneurial failure, or how the individual level of fear of failure of entrepreneurs relates to the probability to fail due to internal or external reasons in light of the escalation of commitment theory, would be possible and promising research questions. Moreover, an examination of how attributional bias is potentially affected by emotions of failed entrepreneurs, their perceived levels of fear of failure, or reasons why or how they have quit their businesses, either voluntarily or involuntarily, may be fruitful. In contrast, one may also put the entrepreneur at the center of the research regarding causes and processes, in other words, questioning who are the failing entrepreneurs, what are their experiences, attitudes, social ties, or knowledge, and how do these characteristics influence the way their businesses failed or why they failed. Within the cluster of "entrepreneurial failure," addressing the question of how stigmatization of failed entrepreneurs affects learning from their failures and therefore future entrepreneurial activities may also be promising.

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