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## ESTUDIOS / RESEARCH STUDIES

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### Who's who in Business Portfolio Restructuring Research: The intellectual structure

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**Abstract:** There are few studies applying extensive qualitative and quantitative methods for addressing the research into Business Portfolio Restructuring (BPR). The aim of this paper is to identify the main authors, journals and studies that have informed the intellectual platform underpinning BPR as well as identifying the topics that have had the greatest impact. In this study, bibliographic references cited between 1959 and 2012, are analyzed using different bibliometric techniques. Three main results are found: first, the intellectual basis for this field involves a multidisciplinary and multifaceted literature, although the disciplines of finance and management are the principal contributors to research into BPR. Second, authors, journals and papers are identified to track the main framework of portfolio restructuring. Finally, the main forerunners of this study area are corporate strategy, divestitures, diversification and corporate governance. This is a study that contributes not only to the field of strategic management but also to information management.

**Keywords:** Corporate restructuring; business portfolio restructuring; intellectual structure; bibliometric techniques; scientific production.

#### Quién es quién en la investigación sobre Reestructuración de la Cartera de Negocios: La estructura intelectual

**Resumen:** Son pocos los estudios que aplican métodos cualitativos y cuantitativos extensivos para abordar la investigación sobre Reestructuración de la Cartera de Negocio (RCN). El objetivo de este trabajo es identificar los principales autores, revistas y estudios que han informado a la plataforma intelectual subyacente a RCN e identificar los temas que más han impactado. En este estudio, las referencias bibliográficas citadas entre 1959 y 2012, se analizan utilizando diferentes técnicas bibliométricas. Se encuentran tres resultados principales: primero, la base intelectual de este campo involucra una literatura multidisciplinaria y multifacética, aunque las disciplinas de finanzas y administración son los principales contribuyentes a la investigación en RCN. En segundo lugar, los autores, las revistas y los documentos se identifican para seguir el marco principal de la reestructuración de la cartera. Finalmente, los principales precursores de esta área de estudio son la estrategia corporativa, las desinversiones, la diversificación y el gobierno corporativo. Este es un estudio que contribuye no sólo en el campo de la gestión estratégica, sino también en el campo de la gestión de la información.

**Palabras clave:** Reestructuración corporativa; Reestructuración de la cartera de negocios; Estructura intelectual; Técnicas bibliométricas; Producción científica.

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## 1. INTRODUCTION

Restructuring is a corporate strategy that includes a variety of actions designed to create shareholder value (Renneboog and Szilagyi, 2008). In view of its complex, diverse and broad scope of study, the literature identifies three dimensions to corporate restructuring: financial, organizational and portfolio-based (Bowman and Singh, 1993). The literature shows how difficult it is to conduct a comprehensive study of corporate restructuring given its broad scope. Therefore, academic papers often limit their analysis to one of its dimensions.

This paper focuses on the literature on the dimension of business portfolio restructuring (BPR). The concept of BPR, as addressed here, is defined as a corporate strategy that affects a company's activities through business divestitures and acquisitions. It is an alternative way out of a situation of value destruction that many companies face because of internal and external difficulties. Its main purpose is to develop a new arrangement of a firm's lines of business and create shareholder value (Bergh, 1998; Bowman and Singh, 1993).

Then, BPR refers to the redefinition of a company's business activity in response to internal and external difficulties in order to create value for shareholders (Hoskisson *et al.*, 2004). This strategic choice implies the sale of at least one line of business, although it may sometimes include a complex mix of business acquisitions and divestitures (Bergh, 1998).

The study of BPR is one of the key topics in the field of strategic management (SM). Its study is therefore important for three reasons. First, one of a company's most significant decisions from a strategic perspective is to define its scope. Moreover, a body of literature links restructuring to firm performance, with performance being the main objective in the business area (Bowman *et al.*, 1999; Ronda-Pupo and Guerras-Martín, 2012). Second, corporate restructuring is considered one of the major research topics in SM. According to Furrer *et al.* (2008), during their study period (1980-2005), 9.1% of all papers published in leading journals on strategy were related to corporate restructuring. Third, the interest in studying BPR is growing worldwide due to the sundry changes that have taken place in the global environment, such as the financial and economic crisis. Today's economic situation has led many highly diversified companies to divest themselves of businesses that are either unprofitable or not an essential part of their business portfolio (Kang *et al.*, 2010). Recent years have seen many news reports referring to major restructuring processes

undertaken by diversified firms (Pathak *et al.*, 2014). Thus, BPR is not only an important issue because of academic reasons but also a current topic because of real business problems.

Despite the importance of BPR in corporate restructuring and SM literature, to our knowledge, limited progress has been made towards its consolidation as a field of study, and there is a lack of general consensus on its theoretical development and empirical research (Sánchez-Riofrío *et al.*, 2015; Schönhaar *et al.*, 2014). Within this context, it seems necessary to analyze the state-of-the-art in this area of study. This paper aims to fill the gap in BPR literature by complementing and enhancing the findings of other qualitative and quantitative studies and identifying future challenges for BPR research. Moreover, it aims to contribute, through the different bibliometric techniques used in this study, in the information management field.

This study's main objective is to map the intellectual structure of BPR research through bibliometric techniques. To do so, we seek to identify the literature that has generated the greatest impact on BPR research, group the topics of greatest interest and, finally, analyze and explain the roots of the research into the intellectual structure of BPR. This analysis assesses the origins of the BPR study area and the main scientific sub-topics in this field.

In order to achieve these objectives, we are going to examine papers by a large number of authors over a long period of time. In view of the increased output of scientific articles over the past decades, the literature review would be very difficult to undertake using traditional qualitative methods. It is therefore necessary to handle bibliometric techniques for complementing the literature review in order to trace the origins of the study and locate the scientific community's most relevant papers and contributions (González-Alcaide and Gómez Ferri, 2014).

To achieve these aims, this paper is divided into four sections. First, a brief review of the literature on BPR is provided. Second, a description is made of the methodology employed, and in particular, citation and co-citation techniques and factor analysis. Third, the results of the bibliometric and factor analysis are discussed. Finally, conclusions, limitations and future lines of research are presented.

### Literature review on corporate and business portfolio restructuring

Corporate restructuring is a study area of great interest for researchers of SM (Bergh *et al.*, 2008; Bowman and Singh, 1993; Chang, 1996; Untiedt

*et al.*, 2012), organization (Bergh and Lawless, 1998; Sembenelli and Vannoni, 2000), finance (Alessandrini *et al.*, 2008; Denis and Kruse, 2000; John and Ofek, 1995), economics (Richter, 1997), sociology (Ahmadjian and Robbins, 2005; Hirsch and De Soucey, 2006) and psychology (Harner, 1987), among the better known disciplines. This paper will focus mainly on SM. However, the fields of finance and organization will also be considered because they are the pioneering fields in the study of BPR and are closely related to strategy (Alexander *et al.*, 1984; Bowman and Singh, 1993).

Research into corporate restructuring began in the mid-1970s (Tan and Yuan, 2003), but it was only in the 1990s that its interest increased considerably. Furrer *et al.* (2008) include corporate restructuring among the top 20 research topics in SM. Kang *et al.* (2010) have reported that the study of restructuring has increased since 2008 due to its extensive application in those business decisions made to tackle recent global financial crisis.

A brief literature review allows identifying certain key issues about the current state of BPR research. First, BPR strategy can be implemented on a voluntary or mandatory basis. Following an analysis of a company's value destruction or a decrease in a diversified company's benefits, managers may decide to implement a voluntary BPR strategy. Otherwise, external pressures may sometimes force managers to restructure with a view to protecting their own jobs, among other things (Chatterjee *et al.*, 2003). In the first case, the process begins through the internal mechanisms of corporate governance, the product market itself or pressure from institutional investors (John *et al.*, 1992; Robbie and Wright, 1995; Seward and Walsh, 1996). In the second case, the decision to restructure or not is triggered by external mechanisms such as takeovers or capital market threats that may affect the control of the firm (Bergh and Lawless, 1998; Florou, 2005).

Second, SM scholars usually base their research into four approaches (Bergh, 1998; Moschieri and Mair, 2008): agency theory, transaction cost theory, the resource-based theory and evolutionary theory. The first two theories have been used primarily for the study of divestments and over-diversification (Hoskisson *et al.*, 1999; Moschieri and Mair, 2008). The resource-based theory currently prevails in SM research, being widely applied in strategy studies (Barney *et al.*, 2011; Nandialath *et al.*, 2014). Finally, the evolutionary approach covers firm adaptation through business entries and exits (e.g., segregation, mergers and acquisitions) in response to environmental

changes (Chang, 1996; Meyer and Lieb-Doczy, 2003; Moschieri and Mair, 2008).

Third, the literature identifies three possible directions a firm may take by implementing a BPR strategy: a) refocusing, which is when the firm owns a core business with unique capabilities, so it decides to divest peripheral businesses and renew and concentrate its efforts on its existing core business (Chatterjee *et al.*, 2003; Geroski and Gregg, 1994; Haynes *et al.*, 2003); b) repositioning, when the firm identifies a new core business and decides to regroup its resources around the new business (Byerly *et al.*, 2003; Chang, 1996), and c) firm liquidation, as the last option and occurs when it is impossible to identify a core business that generates more economic value than by selling all the company's lines of business (Byerly *et al.*, 2003; Sengupta and Faccio, 2011).

Fourth, the methods commonly used for BPR are: a) divestitures (including spin-offs and sell-offs), understood as the parent company's reduction in or sale of assets, product lines, subsidiaries or business units (Lee and Madhavan, 2010; Moschieri and Mair, 2008; Villalonga and McGahan, 2005), and b) acquisitions and divestitures (including mergers and takeovers), where the firm not only divests but also merges, cooperates or acquires new lines of business in order to implement a new set-up in its field of activity (Bowman and Singh, 1993; Hoskisson and Johnson, 1992).

## 2. METHODOLOGY

The technique applied here involves the analysis of citations and co-citations. Citation analysis refers to the papers most cited by academics when conducting their own research. It may therefore be posited that the more frequently a work is cited, the greater its contribution will have been to the field analyzed. On the other hand, co-citation analysis refers to the number of times a couple of cited articles (bibliographic references) have been cited simultaneously by the citing sample. Thus, documents are co-cited if they are included in the same reference list (Vogel and Guettel, 2013).

This measure of proximity will help to analyze the intellectual structure of research into BPR by identifying the papers, authors and journals that have contributed the most to this research, as well as the topics that are part of the intellectual base in BPR (Ramos-Rodríguez and Ruiz-Navarro, 2004). Similarly, an analysis may be made of how the different studies used to construct the research line are grouped and inter-related. This research has been conducted according to the following steps:

**a. Selection of the citing sample:** the citing sample was identified through two basic searches using the Social Sciences Citation Index® (SSCI) of the Web of Science (WoS). There were no time constraints, so the results corresponded to all the BPR-related publications in the WoS up to December 31, 2012. The first search included the seven papers on BPR in the special issue of SMJ on "corporate restructuring" (vol. 14-Summer 1993), with their respective literature references. Moreover, we added, as citing sample, all the documents that cited at least one of these seven papers.

The second search located those papers that included some relevant keywords extracted from the special issue mentioned above: *corporate restructuring*, *portfolio restructuring*, *asset restructuring*, *divestiture*, *refocusing*, *reconfiguration* and *asset sale(s)*. The search was not restricted to the field of SM. The papers were chosen with a multidisciplinary perspective within the SSCI categories of "business", "management", and "business finance". The types of documents selected were papers, reviews and proceedings, as opposed to other kinds of documents, because they can be considered "certified knowledge" (Ramos-Rodríguez and Ruiz-Navarro, 2004).

The two searches were then merged, discarding repeated items and mistakes. A final screening was made to confirm that all these papers were BPR-related. All the papers needed to have at least one of the main keywords identified above in their abstract or title. If a paper had at least one of the main keywords it was accepted in the citing sample. If there was any doubt about a paper, we proceeded to read its abstract to decide whether or not to include it. Those papers that did not have any of the above keywords were discarded, as they were clearly not BPR-related. After this final screening, we selected 479 papers for the citing sample, which included publications from 1959 to 2012.

**b. Citing and cited sample migration:** We used Bibexcel software (Persson *et al.*, 2009) to migrate the citing sample with its respective literature references (cited sample) to a new Microsoft Excel database. The existence of numerous inconsistencies rendered it essential to conduct a manual clean-up of the sample. Those papers whose references were not located (27 items) were removed, especially very old ones. In addition, the spelling of authors' names, journal names and different editions of the same reference were corrected. Moreover, any references the program had omitted were located manually and inserted. This set of steps guaranteed the database's utmost possible accuracy and the reliability of the results forthcoming.

The final citing sample consisted of 452 papers with a total of 20,898 literature references to 12,525 different studies (cited sample). It should be noted that the citing sample represents the cutting-edge of research in the selected field, and the cited sample is the intellectual base for this field (Persson, 1994). Our paper used the cited sample to identify the intellectual structure in the field of BPR.

**c. Descriptive data obtained from the cited sample:** thanks to the previous migration, all cited sample's descriptive information was organized into different tables in Microsoft Access: abstracts, authors, journals for all the cited sample references and the number of times each literature reference has been mentioned by each citing article. The journals and authors in the cited sample have been sorted by the number of total citations received in the citing sample. This allowed identifying the journals and authors with the highest impact on the intellectual basis of BPR.

In order to obtain the 25 authors who have contributed the most to the study of BPR, an additional calculation was performed. Identification was made of the number of studies in the citing sample that had at least once cited a paper by one of the 25 authors with the most citations. This process provided the authors with the greatest impact in the citing sample, reducing the importance of the number of papers published in favor of their influence.

**d. Identification of the most influential BPR-related papers** (González-Betancor and Dorta-González, 2015): the identification of the 50 most influential papers in the study of BPR from 1959 to 2012 involved choosing the 12,525 different papers in the cited sample and dividing the total number of citations received by the number of years since the article was published, identifying the number of average annual citations. This meant that all the papers could be compared regardless of the years elapsed since their publication (Furrer *et al.*, 2008).

**e. Preparation of the factor analysis:** the proximity relations were analyzed between papers with greater impact in the literature on BPR through a factor analysis. Due to the high number of cited references, the cutoff point or threshold was 3.75%. That is, for a citing sample of 452 articles, this citation threshold involved analyzing co-citations among those references cited in at least 17 of the 452 papers analyzed. Overall, the selection for factor analysis involved the 97 most cited papers, and therefore the most influential ones in the area of BPR. The selected papers therefore had a minimum total citation of 17 and a maximum of 96.

The decision on the threshold percentage for the citations is a measure to be taken according to the research design. The two studies analyzing the intellectual structure of SM through factor analysis were taken as reference, being the cases of Ramos-Rodriguez and Ruiz-Navarro (2004), who use 100 of the 21,696 different papers to obtain the correlation matrix. Similarly, the study by Nerur *et al.* (2008) selects 62 authors to complement the design of the intellectual structure in SM. Hence the choice of the 97 most cited papers out of the 12,525 literature references is considered acceptable.

There does not appear to be any research that provides a methodological guideline on this matter, so the decision was made according to the best option for computer processing. Once the citation threshold had been defined, the correlation matrix was identified using SPSS version 17; the diagonal of the matrix was replaced by the mean, and following the methodology reported in various papers (Nerur *et al.*, 2008; White and McCain, 1998), factor analysis with varimax rotation was chosen. Figure 1 shows the design of the methodology applied in this research.

### 3. RESULTS AND DISCUSSION

This section is divided into two parts: a descriptive analysis and a factor analysis. The first one presents a description of the cited sample for BPR literature, as well as the most influential journals, authors, and papers for informing its intellectual base. The second one singles out the topics most widely studied by the intellectual base in BPR, as identified through a factor analysis of the bibliographic references cited by the 452 BPR papers published.

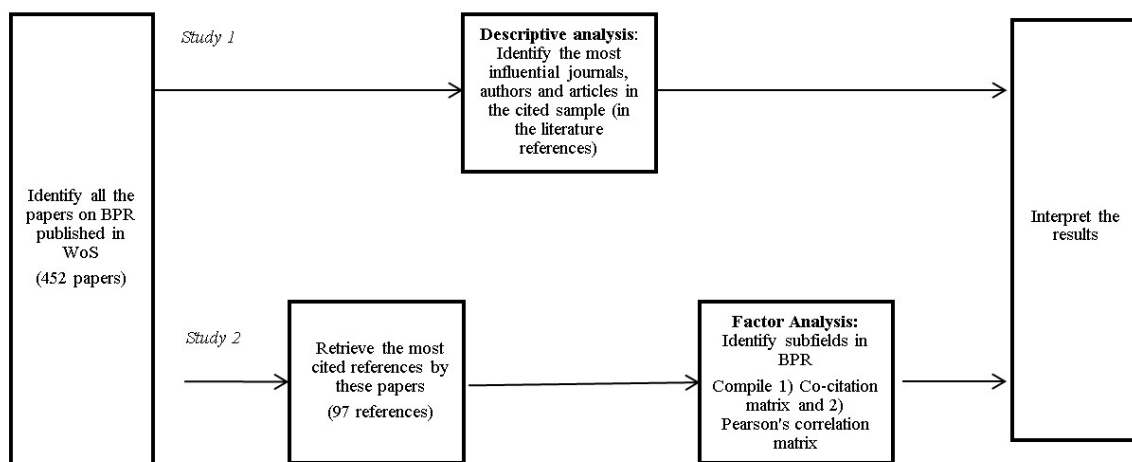
### Descriptive Analysis

The final citing sample consists of 452 articles with a total of 20,898 literature references to 12,525 different documents, which means an average of 46 references per paper. It is noticeable that the number of BPR-related papers published is increasing. By dividing the citing sample into three stages we note the following: the first stage contains the first 20 papers on BPR that appeared between 1959 and 1987; the second stage has a total of 176 papers published in the 1989-2000 period, and the third stage contains 256 articles published between 2001 and 2012.

In the first stage, the BPR-related papers were not published over consecutive years. Things changed in the second and third stages, when there was indeed continuity. However, the number of years in each period coincides (12). The citing sample increases by almost 600% from the first to the second stage, while from the second to the third stage BPR research increases by 36%. This clearly indicates that interest in the study of BPR has grown over time. Furthermore, it should be noted that part of the second stage coincides with the period of highest growth in research into corporate restructuring (Furrer *et al.*, 2008).

Table I presents the ten journals most cited by the citing sample -only journals are to be found among the most cited sources. The most cited book appears in 43<sup>rd</sup> place in the ranking (Ravenscraft, 1987). This indicator makes a clear distinction between general strategy research and BPR research. The study by Ramos-Rodriguez and Ruiz-Navarro (2004) shows that the eleven most cited references in the field of strategy are books, with the first paper appearing down in twelfth place.

**Figure 1.** Design of the methodology



It may be deduced that the basic field of study in BPR is related to journals on finance (*Journal of Financial Economics*, and *Journal of Finance*), management (*Strategic Management Journal*, *Academy of Management Journal*, *Academy of Management Review*, *Administrative Science Quarterly*, *Organization Science*, and *Journal of Management*) and economics (*American Economic Review*, and *Journal of Political Economy*). Regarding the overall ranking, it is worth noting the importance of the first four journals, as each of them accounts for more than 3% of the papers cited. Among them are two on finance and two on management, both disciplines especially related to the field of SM (Furrer *et al.*, 2008).

Another interesting result is that 37.6% of the citations received are to be found in just ten academic journals, all of them with a very high impact factor in the WoS within the categories of business, management and finance. In addition, the rest of the papers in the cited sample (62.4%) correspond to different journals that have been cited by less than 1% in the BPR-related literature; two-thirds of the papers in the intellectual structure have been published in less popular journals with different approaches, as happens in the study by Wallin (2012).

Table II shows the authors who have contributed the most to the research into BPR. We have identified 8,265 authors from 12,525 different literature references. The first column is the percentage of papers in the citing sample that cite at least one study by a particular author. This criterion is used

to sort the authors in this table. This helps to establish an author's greater or lesser degree of relevance within the overall citing sample.

The second column shows the number of citations that indicate the extent of an author's influence. The differences between one and another can be explained by an author's more or less mainstream or specialist approach. That is, an author with many citations, but especially focused on finance, may have many citations without being cited as much by other disciplines. The contributions made by authors with many citations and many papers citing them are more mainstream precisely because they are cited by a larger number of papers.

The third column is scientific production. An author with many papers can be cited on numerous occasions, but these citations are concentrated in fewer papers in the citing sample because each paper cites this author several times. The fourth column shows the field of study of the authors. We decided to divide the sample in three fields of study: SM, finance and economics based in the journal(s) where the authors published their work about BPR. Some of the major findings presented in this table are as follows. Michael C. Jensen tops the ranking in terms of both citations and scientific output. There is no doubt at all that Michael C. Jensen is the largest contributor to the building of the intellectual structure of BPR. His contribution is based primarily on agency theory, an approach that explains the potential conflicts of interest involved in whether or not to make the decision to restructure the business portfolio.

**Table I.** Journal citation frequency

| Cited journal                           | Citations received | Relative frequency |
|---|--------------------|--------------------|
| <i>Journal of Financial Economics</i>   | 1,922              | 9.2%               |
| <i>Strategic Management Journal</i>     | 1,632              | 7.8%               |
| <i>Journal of Finance</i>               | 1,578              | 7.5%               |
| <i>Academy of Management Journal</i>    | 787                | 3.8%               |
| <i>Academy of Management Review</i>     | 432                | 2.1%               |
| <i>Administrative Science Quarterly</i> | 415                | 2.0%               |
| <i>American Economic Review</i>         | 311                | 1.5%               |
| <i>Organization Science</i>             | 270                | 1.3%               |
| <i>Journal of Political Economy</i>     | 257                | 1.2%               |
| <i>Journal of Management</i>            | 253                | 1.2%               |
| Other journals cited                    | 13,041             | 62.4%              |
| <b>Total citations received</b>         | <b>20,898</b>      | <b>100%</b>        |

**Table II.** Main contributors to the intellectual structure of BPR

| Rank | Author                   | Relative frequency over the total citing sample | Citations received | Scientific output | Field of study |
|------|--------------------------|---|--------------------|-------------------|----------------|
| 1    | Michael C. Jensen        | 37.39%  | 310                | 31                | Finance        |
| 2    | Andrei Shleifer          | 25.00%  | 138                | 18                | Finance        |
| 3    | Larry H.P. Lang          | 23.67%  | 131                | 11                | Finance        |
| 4    | Michael E. Porter        | 19.47%  | 109                | 17                | SM             |
| 5    | Kose John                | 19.25%  | 106                | 14                | Finance        |
| 6    | Steven N. Kaplan         | 18.81%  | 115                | 25                | Finance        |
| 7    | Gailen L. Hite           | 18.81%  | 111                | 8                 | Finance        |
| 8    | Robert E. Hoskisson      | 17.48%  | 188                | 28                | SM             |
| 9    | Eugene F. Fama           | 16.15%  | 99                 | 24                | Finance        |
| 10   | Oliver E. Williamson     | 15.49%  | 112                | 22                | Economics      |
| 11   | Philip G. Berger         | 15.49%  | 100                | 8                 | Finance        |
| 12   | David J. Denis           | 14.82%  | 98                 | 24                | Finance        |
| 13   | Constantinos C. Markides | 14.38%  | 118                | 16                | SM             |
| 14   | Robert Comment           | 14.16%  | 66                 | 9                 | Finance        |
| 15   | Randall Morck            | 13.94%  | 77                 | 13                | Finance        |
| 16   | David J. Ravenscraft     | 12.61%  | 65                 | 6                 | Economics      |
| 17   | Katherine Schipper       | 12.39%  | 72                 | 8                 | Finance        |
| 18   | Cynthia A. Montgomery    | 12.17%  | 83                 | 14                | SM             |
| 19   | Michael A. Hitt          | 11.50%  | 80                 | 29                | SM             |
| 20   | Edward H. Bowman         | 11.50%  | 69                 | 10                | SM             |
| 21   | David J. Teece           | 10.18%  | 75                 | 20                | SM             |
| 22   | Jay B. Barney            | 10.18%  | 64                 | 11                | SM             |
| 23   | Donald D. Bergh          | 9.51%   | 94                 | 18                | SM             |
| 24   | Charles W.L. Hill        | 8.19%   | 72                 | 15                | SM             |
| 25   | Rafael La Porta          | 5.97%   | 60                 | 9                 | Finance        |

In the field of SM, and behind Michael C. Jensen, Robert E. Hoskisson records the largest number of items included in the cited sample. The author has 28 papers included in this sample. In contrast, Michael E. Porter has fewer references in the sample, 17 papers. However, within SM field, he is the author with the highest percentage of citations received; nearly 20% of the citing sample quotes him at least once. These two scholars would therefore be the referential authors in the field of strategy in the study of BPR. In the case of Michael E. Porter, this is because he receives a greater number of citations from the citing sample, despite having fewer papers in the cited sample. This finding agrees with the work by Ramos-Rodriguez and Ruiz-Navarro (2004), in which Michael E. Porter is the most influential author in the field of SM. In summary, Robert E. Hoskisson is the author who has produced the most papers, and Michael E. Porter is the most cited author for the building of the intellectual base of BPR.

Adopting a more financial approach, Michael C. Jensen, Andrei Shleifer, Larry H.P. Lang, Kose John, Steven N. Kaplan, Gailen L. Hite, and Eugene

F. Fama are among the authors with the most influence in the construction of the intellectual base of BPR. The last author (Fama) is a Nobel laureate in Economics (2013), known for his work on portfolio theory and asset pricing. All authors have contributed, above all, through techniques for measuring firm assets and performance.

To complete the descriptive part of this paper, we list the 50 most influential papers in the study of BPR from 1959 through to 2012, dividing the total citations by the number of years since the article was published, as explained in the methodology section. It is noteworthy that 43 of the 50 most influential papers are among the 97 articles chosen as the cited sample. The seven papers that do not appear in the cited sample are the latest ones to have been published, being therefore excluded because they had a fewer number of total citations (Capron *et al.*, 2001; Colak and Whited, 2007; Dittmar and Shivdasani, 2003; Graham *et al.*, 2002; Maksimovic and Phillips, 2002; Schlingemann *et al.*, 2002; Vijh, 2002). Table III shows the papers ordered by the number of annual citations.

**Table III.** Most influential papers cited in the intellectual structure of BPR

| Rank | Paper                               | Citations | Citations per year | Journal Name                   | Field of study |
|------|-------------------------------------|-----------|--------------------|--------------------------------|----------------|
| 1    | John and Ofek (1995)                | 71        | 3.9                | Journal of Financial Economics | Finance        |
| 2    | Jensen (1986)                       | 96        | 3.6                | American Economic Review       | Economics      |
| 3    | Lang <i>et al.</i> (1995)           | 63        | 3.5                | Journal of Financial Economics | Finance        |
| 4    | Berger and Ofek (1995)              | 54        | 3.0                | Journal of Financial Economics | Finance        |
| 5    | Comment and Jarrell (1995)          | 51        | 2.8                | Journal of Financial Economics | Finance        |
| 6    | Hite <i>et al.</i> (1987)           | 55        | 2.1                | Journal of Financial Economics | Finance        |
| 7    | Hoskisson <i>et al.</i> (1994)      | 39        | 2.1                | Acad. of Management Journal    | SM             |
| 8    | Ravenscraft (1987)                  | 50        | 1.9                | Book form                      | Economics      |
| 9    | Maksimovic and Phillips (2001)      | 23        | 1.9                | Journal of Finance             | Finance        |
| 10   | Lang and Stulz (1994)               | 35        | 1.8                | Journal of Political Economy   | Economics      |
| 11   | Jain (1985)                         | 51        | 1.8                | Journal of Finance             | Finance        |
| 12   | Shleifer and Vishny (1992)          | 38        | 1.8                | Journal of Finance             | Finance        |
| 13   | Kaplan and Weisbach (1992)          | 37        | 1.8                | Journal of Finance             | Finance        |
| 14   | Jensen (1993)                       | 35        | 1.8                | Journal of Finance             | Finance        |
| 15   | Schlingemann <i>et al.</i> (2002)   | 19        | 1.7                | Journal of Financial Economics | Finance        |
| 16   | Bowman and Singh (1993)             | 34        | 1.7                | Strategic Management Journal   | SM             |
| 17   | Rajan <i>et al.</i> (2000)          | 22        | 1.7                | Journal of Finance             | Finance        |
| 18   | Markides (1992)                     | 34        | 1.6                | Acad. of Management Journal    | SM             |
| 19   | Porter (1987)                       | 42        | 1.6                | Harvard Business Review        | SM             |
| 20   | Daley <i>et al.</i> (1997)          | 25        | 1.6                | Journal of Financial Economics | Finance        |
| 21   | Hoskisson and Johnson (1992)        | 32        | 1.5                | Strategic Management Journal   | SM             |
| 22   | Bethel and Liebeskind (1993)        | 30        | 1.5                | Strategic Management Journal   | SM             |
| 23   | Johnson (1996)                      | 25        | 1.5                | Journal of Management          | SM             |
| 24   | Graham <i>et al.</i> (2002)         | 16        | 1.5                | Journal of Finance             | Finance        |
| 25   | Denis <i>et al.</i> (1997)          | 23        | 1.4                | Journal of Finance             | Finance        |
| 26   | Berger and Ofek (1999)              | 20        | 1.4                | Review of Financial Studies    | Finance        |
| 27   | Jensen and Meckling (1976)          | 52        | 1.4                | Journal of Financial Economics | Finance        |
| 28   | Hite and Owers (1983)               | 42        | 1.4                | Journal of Financial Economics | Finance        |
| 29   | Mulherin and Boone (2000)           | 18        | 1.4                | Journal of Corporate Finance   | Finance        |
| 30   | Alexander <i>et al.</i> (1984)      | 40        | 1.4                | Journal of Finance             | Finance        |
| 31   | Bergh and Holbein (1997)            | 22        | 1.4                | Strategic Management Journal   | SM             |
| 32   | Maksimovic and Phillips (2002)      | 15        | 1.4                | Journal of Finance             | Finance        |
| 33   | Bergh (1995)                        | 24        | 1.3                | Strategic Management Journal   | SM             |
| 34   | Markides (1995)                     | 24        | 1.3                | Strategic Management Journal   | SM             |
| 35   | Gilson (1990)                       | 30        | 1.3                | Journal of Financial Economics | Finance        |
| 36   | Hoskisson and Turk (1990)           | 30        | 1.3                | Acad. of Management Review     | SM             |
| 37   | Klein (1986)                        | 35        | 1.3                | Journal of Finance             | Finance        |
| 38   | Krishnaswami and Subramaniam (1999) | 18        | 1.3                | Journal of Financial Economics | Finance        |
| 39   | Barney (1991)                       | 28        | 1.3                | Journal of Management          | SM             |
| 40   | Fama and Jensen (1983)              | 38        | 1.3                | Journal of Law and Economics   | Economics      |
| 41   | Ofek (1993)                         | 25        | 1.3                | Journal of Financial Economics | Finance        |
| 42   | Servaes (1996)                      | 21        | 1.2                | Journal of Finance             | Finance        |
| 43   | Miles and Rosenfeld (1983)          | 37        | 1.2                | Journal of Finance             | Finance        |
| 44   | Lins and Servaes (1999)             | 17        | 1.2                | Journal of Finance             | Finance        |
| 45   | Hoskisson (1994)                    | 23        | 1.2                | Book form                      | SM             |
| 46   | Dittmar and Shivdasani (2003)       | 12        | 1.2                | Journal of Finance             | Finance        |
| 47   | Vijh (2002)                         | 13        | 1.2                | Journal of Business            | SM             |
| 48   | Colak and Whited (2007)             | 7         | 1.2                | Review of Financial Studies    | Finance        |
| 49   | Capron <i>et al.</i> (2001)         | 14        | 1.2                | Strategic Management Journal   | SM             |
| 50   | Schipper and Smith (1983)           | 35        | 1.2                | Journal of Financial Economics | Finance        |

It can be seen that out of 50 items, only three are published in book form (Hoskisson, 2004; Ravenscraft, 1987 and Porter, 1985). This differs from the research on SM, where the first eleven of the cited references are books, and the first paper appears only in twelfth place (Ramos-Rodríguez and Ruiz-Navarro, 2004). There are two possible explanations for this difference. First, BPR research is a much more specific and specialized field than the study of SM. Second, the time variable is important, as more and more knowledge is based on articles from scientific journals than from books.

A further aspect to note is that the first six papers that have collaborated in the construction of BPR literature belong to a financial or economic journal, according to the classification of WoS. Furthermore, of the 50 most cited papers, 31 are published in a journal on finance, 3 are published in a journal on economics, 14 are published in a journal on organization, management or SM, and two are published in book form. This confirms that economics, finance and management are the pioneering fields in the study of restructuring, and have significantly influenced the intellectual structure of the study of BPR (Sánchez-Riofrío *et al.*, 2015).

Another finding is the major influence of the works whose main subfield is the method involved in restructuring. Twenty of the 50 papers are classified under this heading, with 11 addressing diversification and four dealing with the different theoretical approaches that have served as the basis for BPR literature. This confirms that before considering the matter of restructuring itself, the literature began by studying the mergers, divestitures and acquisitions upon which BPR strategy is founded.

An additional aspect to be highlighted concerns the two most cited authors: Michael C. Jensen in

finance and economics journals, and Robert E. Hoskisson in SM journals. This result is partially consistent with table II above, which renders the previous results more reliable.

Finally, the three journals that have published 35 of the 50 most influential papers are as follows: *Journal of Finance* with 15 papers, *Journal of Financial Economics* with 13 papers and *Strategic Management Journal* with seven papers. As can be noted, these three especially outstanding journals coincide with the three foremost journals in Table I above. This means that not only have they published most of the articles (quantity) but also the ones of greatest influence. Furthermore, they are the journals that receive the most citations and which publish the papers that have had the biggest impact on the intellectual structure of research into BPR.

### Factor Analysis

A factor analysis has been performed of the 97 most cited articles in order to identify the most important issues that inform the intellectual structure of BPR. For the analysis of proximity between the works with the greatest impact on the intellectual structure of BPR, the co-citation matrix (this matrix stems from co-citation analysis) is transformed into a correlation matrix, and a factor analysis is performed. Table IV presents the five factors (components) extracted (principal component analysis, varimax rotation) with eigen-values greater than one, which together account for 94% of the total variance. This is a very high percentage, which means that these five factors explain the sample without losing much information. The components are considered to have a clean factor structure when at least three variables have their greatest weight in it (Costello and Osborne, 2005).

**Table IV.** Total Variance Explained

| Component                                       | Eigen-value | Variance explained (%) |
|---|-------------|------------------------|
| 1   | 53.1688     | 35.61                  |
| 2   | 17.8090     | 32.65                  |
| 3   | 11.6924     | 15.31                  |
| 4   | 3.3501      | 7.43                   |
| 5   | 2.7833      | 3.48                   |
| Extraction Method: Principal Component Analysis |             |                        |

Appendix A shows the factor score for the cited sample (see [http://www.guerrasynavas.com/pdf/Riofrío-Guerras-Forcadell\\_2017\\_Appendix\\_A.pdf](http://www.guerrasynavas.com/pdf/Riofrío-Guerras-Forcadell_2017_Appendix_A.pdf)).

Each component may represent one or more subfields of the literature on BPR. Factor scores can be interpreted as the degree to which that specific work contributes to the research topic. Due to the overall size of the table, 97 items, only 65 papers with a factor score higher than 0.7 are shown in the five components, as recommended by White and McCain (1998).

Regarding the works with higher factor scores in the first component (explaining 35.61% of the total variance), 22 of the 25 items belong to the field of SM, and the remaining three references are books. The most important subfields in this factor are: a) corporate strategy (Hill and Hoskisson, 1987; Hitt *et al.*, 1996; Hoskisson and Hitt, 1988; Hoskisson and Johnson, 1992; Lieberman and Montgomery, 1988; Porter, 1987; Shleifer and Vishny, 1991); b) diversification (Bergh and Holbein, 1997; Hoskisson, 1994; Markides, 1995; Palepu, 1985); c) corporate restructuring (Bethel and Liebeskind, 1993; Bowman and Singh, 1993; Gibbs, 1993; Hoskisson and Turk, 1990; Johnson *et al.*, 1993); d) corporate refocusing (Johnson, 1996; Markides, 1992), and e) divestitures (Duhaime and Grant, 1984; Hoskisson *et al.*, 1994; Montgomery *et al.*, 1984; Ravenscraft, 1987).

In this same factor, the key theories used to study BPR from a strategic point of view are named: agency theory, the resource-based theory (Bergh, 1995) and transaction costs theory (Williamson, 1975; Williamson, 1985). It could be inferred that this factor groups the most developed subfields in SM, and they have provided the platform for the development of BPR literature. It is important to note that the subfield of corporate restructuring accounts for four of the seven papers in the special issue of *SMJ* (Vol. 14 Summer issue, 1993), with very high factor scores, which confirms the importance of this special issue for the advancement of BPR.

Two major aspects stand out in the second factor. First, there are works with a positive sign and higher factor scores referring to different ways of restructuring. Second, with a negative sign, there are works based on the resource-based theory and organizational theory. It is important to mention that all the works with a positive sign, with the exception of one that is a book, appear in the *Journal of Finance* or in the *Journal of Financial Economics*. Moreover, all the papers with a negative sign, except for one that is a book, appear in journals in the field of management or strategic management (Bowman *et al.*, 1990; Eisenhardt, 1989). In

this case, the positive and negative signs only differentiate articles with a financial perspective from papers with a management perspective.

The following works are found on the topic of "restructuring methods": Hite and Owers (1983), Miles and Rosenfeld (1983), Schipper and Smith (1983), Cusatis *et al.* (1993), Daley *et al.* (1997), and Krishnaswami and Subramaniam (1999) on the subject on spin-offs; Schipper and Smith (1986) and Slovin *et al.* (1995) on equity carve-outs; Alexander *et al.* (1984), Jain (1985), and Hite *et al.* (1987) on sell-offs; Mulherin and Boone (2000) on acquisitions; Rosenfeld (1984), Klein (1986), Boot (1992), John and Ofek (1995), and Lang *et al.* (1995) on divestitures.

It should be noted that although the first factor also contains works on divestitures, in this second factor the subfield is studied from a financial perspective. The works on the resource-based theory are: Penrose (1959), Wernerfelt (1984), Prahalad and Hamel (1990), Barney (1991), and Teece (1997). Furthermore, there is a paper on the organizational approach (Dimaggio and Powell, 1983). It is worth mentioning that, albeit with lower factor scores, there are two works (Comment and Jarrell, 1995; Porter, 1985) related to a company's outcomes; specifically dealing with share performance and competitive advantage. The explained variance is 32.65% in this latter factor.

The third factor has an explained variance of 15.31%, and is mostly related (8 out of 11 references) to the subfield of corporate governance. The works by Amihud and Lev (1981), Weisbach (1988), Morck *et al.* (1988), Kaplan (1989), and Jensen and Murphy (1990) address management teams/board of directors, while the works by Berle and Means (1932), Jensen and Meckling (1976), Jensen (1989), and Lehn and Poulsen (1989) analyze the ownership structure. The literature considers that a takeover bid is the external control mechanism for managers to sit up and refocus their strategy in order to ensure their company's survival (Chatterjee *et al.*, 2003). The works by Roll (1986), and Bhagat *et al.* (1990), with lower factor scores, are based on takeovers as an additional subfield in this factor.

The fourth factor is related to a single work with an explained variance of 7.43% and a factor score of 0.762 (Lins and Servaes, 1999). This fourth factor contains a paper that analyzes the matter from a financial perspective in different institutional environments, that is, internationalization. Although a part of the first factor also examines diversification, it does it in the context of the field of SM and relates it to restructuring.

Finally, the fifth factor contains a work with a factor loading of 0.731 and an explained variance of 3.48% of the total (Jensen and Ruback, 1983). This work, closely related to those on corporate governance, is a comprehensive review of the scientific literature on corporate control and concludes that the control market is a platform in which management teams compete for the right to manage corporate resources. Several studies suggest that corporate control is an important determinant in the decision on whether or not to implement a strategy, not only in terms of BPR but also as regards corporate restructuring (Denis and Kruse, 2000; Haynes *et al.*, 2003; Hoskisson *et al.*, 2005; Inoue *et al.*, 2008). Table V provides an overview of the subfields with higher factor scores in each component.

Some observations are pertinent regarding the data obtained from this factor analysis. Identifying the intellectual structure through bibliometric techniques and factor analysis allows us to examine the basic conceptual foundations of BPR with a view to consolidating the theoretical contributions and detecting the starting point for research into this topic. Furthermore, it is noted that the fields of management, economics and finance are the ones that have initially contributed the most to the intellectual base of BPR literature. Concepts such as divestiture and diversification have been widely studied in both financial and strategic literature, often coinciding on certain aspects, such as the definition of both concepts, but also contributing from their own perspectives. For example, most scholars in the field of SM consider divestiture to be a subfield of the restructuring strategy (Bowman and Singh, 1993; Hoskisson *et al.*, 1994), while for many financial scholars divestiture may be considered a strategy in itself for improving firm performance (Boot, 1992; Lang *et al.*, 1995).

The factor analysis of the second component mentions two works (Comment and Jarrell, 1995; Porter, 1985), which record lower factor scores for a firm's performance or results. However, the majority of the 97 papers reviewed here with the exception of the items on theories, corporate governance and corporate control, bear some relation to firm performance. Therefore, both the works on finance and economics and those on organization and SM seek to use restructuring to improve shareholder wealth and firm performance.

It is interesting to compare the subfields identified by this article's factor analysis with those forthcoming from the same analysis conducted by Sanchez-Riofrio *et al.* (2015). An initial reading reveals three clearly overlapping areas in both studies: divestitures, corporate governance, and corporate

control. However, these areas are complemented by others, and are grouped differently, due mainly to the papers' different goals and their analysis of different samples (cited and citing sample).

The subfields identified in the cited sample (this article) represent the topics studied as antecedents of BPR research in Sanchez-Riofrio *et al.* (2015). Before studying BPR strategy, academics extensively investigated divestitures, acquisitions, corporate governance, diversification, and corporate control, without such studies necessarily having a BPR perspective. These topics constituted the basis for subsequent research focusing on BPR. This confirms that the most significant factor is Strategic Management, as a particularly important area in this field, especially regarding business diversification, whose excessive levels may inform the need for a BPR strategy.

Meanwhile, the three subfields identified in the citing sample (Sanchez-Riofrio *et al.*, 2015) are directly related to the dedicated research on BPR. Divestiture is studied as a restructuring method. In fact, the concept of BPR implies that a company has to undertake at least one significant divestment. In addition, BPR academics consider corporate governance and corporate control refer to the mechanisms, both internal (boards, ownership structure) and external (based on markets), shareholders have for controlling managers' discretionary behavior forcing them to apply a BPR strategy. Economic performance refers to the results sought by those shareholders supporting a BPR strategy.

#### 4. CONCLUSIONS

This paper posits some new ideas related to the intellectual basis for BPR research. Identification of the different publications was made, the authors who have contributed the most, and the topics that have most enriched the development of this strategy. This paper provides a guide to identify the more relevant literature and gain a more holistic and objective vision of this field of study. The contribution this work makes is relevant because the analysis of the intellectual structure of the literature on BPR allows identifying the main characteristics of this field.

First, the number of papers published on BPR has been increasing since 1989. Second, the first papers providing the baseline for the study of BPR deal with the agency, transaction costs, resource-based, and organizational theories.

Third, the journals that published most of the articles (quantity) included in the intellectual structure of BPR and the most influential articles

**Table V.** Research subfields that are the building blocks for the study of BPR

| Subfield   | Main Contributions  | Author   |
|--|---|--|
| <b>Strategic Management</b>                      | <i>Strategy</i>   | Hill and Hoskisson (1987), Porter (1987), Hoskisson and Hitt (1988), Lieberman and Montgomery (1988), Shleifer and Vishny (1991), Hoskisson and Johnson (1992), Hitt <i>et al.</i> (1996)  |
|  | <i>Theoretical perspectives</i>   | Williamson (1975), Williamson (1985), Bergh (1995)   |
|  | <i>Relationship between diversification and restructuring</i>   | Palepu (1985), Hoskisson (1994), Markides (1995), Bergh and Holbein (1997)   |
|  | <i>Corporate restructuring</i>  | Hoskisson and Turk (1990), Bethel and Liebeskind (1993), Bowman and Singh (1993), Gibbs (1993), Johnson <i>et al.</i> (1993)   |
|  | <i>Corporate refocusing</i>   | Markides (1992), Johnson (1996)  |
|  | <i>Divestitures</i>   | Duhaime and Grant (1984), Montgomery <i>et al.</i> (1984), Ravenscraft (1987), Hoskisson <i>et al.</i> (1994)  |
| <b>Restructuring methods</b>                     | Acquisitions, divestitures, spin-offs, equity carve-outs, and sell-offs to improve performance.   | Hite and Owers (1983), Miles and Rosenfeld (1983), Schipper and Smith (1983), Alexander <i>et al.</i> (1984), Rosenfeld (1984), Jain (1985), Klein (1986), Schipper and Smith (1986), Hite <i>et al.</i> (1987), Boot (1992), Cusatis <i>et al.</i> (1993), John and Ofek (1995), Lang <i>et al.</i> (1995), Slovin <i>et al.</i> (1995), Daley <i>et al.</i> (1997), Krishnaswami and Subramaniam (1999), Mulherin and Boone (2000) |
| <b>Corporate governance</b>                      | Internal and external mechanisms adequate to ensure the implementation of effective measures to encourage and monitor management decisions. | Berle and Means (1932), Jensen and Meckling (1976), Amihud and Lev (1981), Weisbach (1988), Morck <i>et al.</i> (1988), Jensen (1989), Kaplan (1989), Lehn and Poulsen (1989), Jensen and Murphy (1990)  |
| <b>Diversification and international context</b> | The international context influences the effect of diversification on performance.  | Lins and Servaes (1999)  |
| <b>Review on corporate control</b>               | External disciplinary measures for tackling agency problems.  | Jensen and Ruback (1983)   |

are: *Journal of Financial Economics*, *Strategic Management Journal*, and *Journal of Finance*. However, a high percentage of papers pertaining to the intellectual structure corresponds to journals on diverse subjects of study, thereby confirming the multidisciplinary and multifaceted nature of the literature on the intellectual basis of BPR.

Fourth, the authors who have contributed the most to this field in terms of both the quantity and the quality of their contributions are the following: Michael C. Jensen, Andrei Shleifer, Larry H.P. Lang, Michael E. Porter and Robert E. Hoskisson. Similarly, the intellectual basis has been nurtured largely by brief academic contributions from different scholars. This confirms the complexity and heterogeneity of this area of study.

Fifth, of the 50 most influential works in the literature on BPR, the issue of restructuring methods (divestments and acquisitions) is the largest contributor informing research into BPR. This confirms that divestitures are the forerunners of corporate restructuring. The most influential papers correspond to the fields of finance, SM/management and, to a lesser extent, organization. This implies that BPR does not involve isolated changes and that restructuring strategy refers to the company as a whole, whereby financial or organizational restructuring may occur simultaneously or sequentially regarding BPR.

Sixth, concerning the five components identified by factor analysis, we find that the discipline of finance has contributed to the development of an important literature on equity carve-outs, spin-offs, sell-offs, acquisitions and divestments, which may now be considered part of different methods for financial, organizational and portfolio restructuring (Bergh *et al.*, 2008; Bowman and Singh, 1993; Chemmanur and Liu, 2011). Subsequently, issues such as takeovers, corporate control, agency problems and diversification have preceded the study of BPR and contributed to determine, especially as antecedents, the intellectual basis of BPR (Johnson, 1996; Schönhaar *et al.*, 2014).

This paper inevitably has its limitations. First, the search criteria and selection of papers through certain keywords in the WoS might be biased and affect the results. One potential bias can be the fact that WoS has been growing in the number of journals included over time. Then, recent articles have more probability to appear in the citing sample than old ones. However, considering that traditional qualitative reviews limit their selection to a series of specialized papers and journals with subjective criteria, the

choice of the papers using this methodology may be justified. In this case, the database is used without a time limit and includes papers from the fields of SM, organization and finance, substantially broadening the scope of the search and objectifying, insofar as possible, the selection of papers included in the database.

A further limitation is the bibliometric technique used. Due to the large number of items that were dealt with at the beginning of this work, the possibility of omitting an item that should be considered within the citing sample could not be ruled out. Nevertheless, given the relative weight of a single paper, this is not expected to significantly influence the final sample. The co-citation analysis used to build the co-citation matrix and subsequent correlation matrix also has its drawbacks, as it identifies just a very small fraction of the sample cited originally (only 97 items). Besides, the interpretation of the five components of factor analysis is inevitably subjective. However, the clusters of topics identified reveal a particular interest shown by some authors toward certain knowledge areas related to the study of BPR (Callon *et al.*, 1993).

Future research should entail a bibliometric analysis of the citing sample. It could be performed to obtain a more updated perspective of the study of BPR. As a future line of research in a broader context, it would be interesting to complete this paper by identifying the intellectual structure of financial and organizational restructuring to develop the analysis of the literature on corporate restructuring as a whole.

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**Appendix A:** Rotated Component Matrix

| Cited articles (*)                                 | Component |       |      |      |      |
|--|-----------|-------|------|------|------|
|  | 1         | 2     | 3    | 4    | 5    |
| Markides (1992)                                    | .977      |       |      |      |      |
| Markides (1995)                                    | .974      |       |      |      |      |
| Hoskisson (1994)                                   | .968      |       |      |      |      |
| Bowman and Singh (1993)                            | .965      |       |      |      |      |
| Bergh (1995)                                       | .965      |       |      |      |      |
| Hoskisson <i>et al.</i> (1994)                     | .964      |       |      |      |      |
| Bethel and Liebeskind (1993)                       | .961      |       |      |      |      |
| Hitt <i>et al.</i> (1996)                          | .959      |       |      |      |      |
| Lieberman and Montgomery (1988)                    | .955      |       |      |      |      |
| Johnson (1996)                                     | .954      |       |      |      |      |
| Hoskisson and Johnson (1992)                       | .954      |       |      |      |      |
| Johnson <i>et al.</i> (1993)                       | .953      |       |      |      |      |
| Hill and Hoskisson (1987)                          | .950      |       |      |      |      |
| Montgomery <i>et al.</i> (1984)                    | .948      |       |      |      |      |
| Duhaime and Grant (1984)                           | .946      |       |      |      |      |
| Gibbs (1993)                                       | .942      |       |      |      |      |
| Shleifer and Vishny (1991)                         | .938      |       |      |      |      |
| Hoskisson and Turk (1990)                          | .927      |       |      |      |      |
| Bergh and Holbein (1997)                           | .905      |       |      |      |      |
| Palepu (1985)                                      | .887      |       |      |      |      |
| Hoskisson and Hitt (1988)                          | .885      |       |      |      |      |
| Williamson (1985)                                  | .854      |       |      |      |      |
| Porter (1987)                                      | .842      |       |      |      |      |
| Ravenscraft (1987)                                 | .821      |       |      |      |      |
| Williamson (1975)                                  | .734      |       |      |      |      |
| Hite and Owers (1983)                              |           | .965  |      |      |      |
| Miles and Rosenfeld (1983)                         |           | .965  |      |      |      |
| Slovin <i>et al.</i> (1995)                        |           | .957  |      |      |      |
| Schipper and Smith (1983)                          |           | .957  |      |      |      |
| Schipper and Smith (1986)                          |           | .956  |      |      |      |
| Alexander <i>et al.</i> (1984)                     |           | .951  |      |      |      |
| Mulherin and Boone (2000)                          |           | .940  |      |      |      |
| Cusatis <i>et al.</i> (1993)                       |           | .935  |      |      |      |
| Jain (1985)  |           | .923  |      |      |      |
| Klein (1986)                                       |           | .906  |      |      |      |
| Hite <i>et al.</i> (1987)                          |           | .890  |      |      |      |
| Daley <i>et al.</i> (1997)                         |           | .883  |      |      |      |
| Rosenfeld (1984)                                   |           | .878  |      |      |      |
| Dimaggio and Powell (1983)                         |           | -.855 |      |      |      |
| Lang <i>et al.</i> (1995)                          |           | .850  |      |      |      |
| Krishnaswami and Subramaniam (1999)                |           | .844  |      |      |      |
| Myers and Majluf (1984)                            |           | .820  |      |      |      |
| John and Ofek (1995)                               |           | .787  |      |      |      |
| Porter (1985)                                      |           | -.766 |      |      |      |
| Boot (1992)  |           | .749  |      |      |      |
| Teece <i>et al.</i> (1997)                         |           | -.746 |      |      |      |
| Prahalad and Hamel (1990)                          |           | -.743 |      |      |      |
| Comment and Jarrell (1995)                         |           | .741  |      |      |      |
| Penrose (1959)                                     |           | -.740 |      |      |      |
| Bowman <i>et al.</i> (1990)                        |           | -.734 |      |      |      |
| Wernerfelt (1984)                                  |           | -.729 |      |      |      |
| Barney (1991)                                      |           | -.724 |      |      |      |
| Eisenhardt (1989)                                  |           | -.717 |      |      |      |
| Jensen and Meckling (1976)                         |           |       | .932 |      |      |
| Jensen (1989)                                      |           |       | .908 |      |      |
| Weisbach (1988)                                    |           |       | .889 |      |      |
| Morck <i>et al.</i> (1988)                         |           |       | .856 |      |      |
| Berle y Means (1932)                               |           |       | .854 |      |      |
| Amihud and Lev (1981)                              |           |       | .830 |      |      |
| Kaplan (1989)                                      |           |       | .810 |      |      |
| Bhagat <i>et al.</i> (1990)                        |           |       | .806 |      |      |
| Roll (1986)  |           |       | .789 |      |      |
| Lehn and Poulsen (1989)                            |           |       | .735 |      |      |
| Jensen and Murphy (1990)                           |           |       | .720 |      |      |
| Lins and Servaes (1999)                            |           |       |      | .762 |      |
| Jensen and Ruback (1983)                           |           |       |      |      | .731 |
| Extraction method: principal component analysis    |           |       |      |      |      |
| Rotation Method: varimax with Kaiser normalization |           |       |      |      |      |