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Journal rankings in management and business studies: What rules do we play by?

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ABSTRACT

Given the growing importance of journal rankings in academic performance management, it is relevant to researchers and managers alike whether there are certain characteristics of publications that are more prevalent the higher a journal is ranked. This paper examines how tangible and adaptable characteristics of papers vary between different rating categories of journals and what the drivers of publication in journals at the top of rankings are. We build on a bibliometric analysis of more than 85,000 papers published in 168 management and business journals as rated in 18 popular journal rankings. Results refute some often repeated but rarely substantiated criticisms of journal rankings. Contrary to many voices, we find that interdisciplinarity and innovativeness are positively associated with publication in highly ranked journals. In other respects, our results support more critical assumptions, such as a widespread preference for quantitative methods. By providing more evidence on the implicit standards of journal rankings, this study expands on the understanding of what intended or unintended incentives they provide and how to use them responsibly.

1. Introduction

In many academic systems and scientific disciplines, publication-based performance indicators inform academic management and science policy across various levels of decision-making. Publication counts are often weighted by information from journal rankings in order to account not only for the quantity of publications, but also to infer their quality from the ratings of journals. Journal rankings have become ever more widespread (Harzing, 2015) and increasingly determine which publication outlets can be considered as more instrumental for the pursuit of career goals and research funding than others (Hudson and Laband, 2013; Mingers and Willmott, 2012). Therefore, it is relevant to researchers and managers alike whether certain characteristics of publications (such as applied theories and methods, the degree of interdisciplinarity and novelty, or the origin of authors) vary with journal ratings and which of these features are particularly prevalent in journals at the top of popular rankings. If the probability of publication in differently rated journals is conditional on certain characteristics of research, implications for successful publication strategies can be drawn, although such conclusions should be considered very carefully.

The strong incentives to publish in top rated journals, provided by widely adopted practices of performance management in academia, foster the motivation of researchers to adjust their research and writing styles to the editorial policies and criteria of these journals. Performance managers in academia often infer the quality of publications from the quality of the journals in which they are published and link contingent rewards to it, such as funding, promotion and pay. This directs attention to the performative effects that rankings may have (Mingers and Willmott, 2012). In particular, journal rankings are criticized for favoring certain paradigms, theories and methods while discriminating against others (Van Fleet et al., 2000). According to the critics, this perpetuates a 'one best way' of research and reduces the diversity and experimentation that is considered vital to novelty and innovation (Mingers and Willmott, 2012). This discussion, however, is frequently put forward in commentaries and editorials and often builds on anecdotal evidence and essayistic reasoning. With some exceptions (e.g., Grey, 2010; Rafols et al., 2012; Rinia et al., 2001), there is little robust evidence on the criteria that are implicit to journal rankings.

The present paper adds empirical substance to the discussion on journal rankings and helps to examine the preferences that are aggregated in these rankings. Do tangible and adaptable characteristics of published papers vary between different rating categories of journals and if so, what are the drivers of publication in journals at the top of rankings? We address these research questions in a large-scale

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bibliometric study on paper-level predictors of publication in journals as rated in different rankings in the field of business and management studies. Our analysis builds on the literature on 'success factors' in academic publishing, on the one hand, and on the other hand on the controversy about journal rankings. Results refute some often repeated but rarely substantiated criticisms of journal rankings. For example, contrary to many voices, we find that interdisciplinarity and innovativeness are positively associated with publication in highly ranked journals. In other respects, our results support more critical assumptions, such as a widespread preference for quantitative methods and the predominance of Anglo-Saxon scholarship. With these findings, we draw a more balanced and nuanced picture as compared to the selective and scattered findings and opinions in the previous literature.

Beyond the current debate on journal rankings, our results make various further contributions in more practical terms. A deeper exploration into the distribution of research characteristics across papers in differently rated journals can provide authors with some guidance in their decisions where to submit a manuscript and what publishing standards to comply with. This provides a large-scale empirical supplement to recently edited books in which experienced scholars give advice on how to get published in the best management journals (e.g., Clark et al., 2016). Such insights have also implications for higher education managers, journal editors, and publishers. Higher education managers are able to conduct research evaluations more responsibly if they are informed about what exactly is measured by which journal ranking and, consequently, what incentives they provide by choosing a ranking for performance appraisals. Journal editors and publishers who strive for a favorable quality rating of their journal have an interest in what makes editorial policies successful in this respect.

The remainder of this paper is organized as follows: In the following section, we provide a review of the literature with a summary of some key findings, assumptions and implications on how characteristics of published research vary with the rating category of journals. We then introduce our data and methods. Essentially, we conducted a large-scale analysis by means of bibliometric and related methods. Our database includes 168 management and business journals in which more than 85,000 papers with more than 4.5 million references appeared in the period from 2000 to 2013. We recorded these data completely and considered how the journals are rated in 18 rankings that are built on different methods. The empirical results of multiple regression analyses are presented in the fourth section. We subsequently discuss the findings and derive some implications for scholars in management and business studies and practitioners in higher education.

2. Literature review

In management and business studies, there is a large but dispersed literature which allows for conclusions on the criteria and standards of research that are implicit to journal rankings and thus affect the probability of publication in differently rated journals. Subsequently, we integrate two streams of research: On the one hand, there is an often normatively charged debate on the discriminatory impact of rankings and their detrimental effects on innovation and academic freedom (e.g., Alvesson and Sandberg, 2013; Goodall, 2008; McKinnon, 2013; Mingers and Willmott, 2012; Özbilgin, 2009). On the other hand, some previous works have directly (and often empirically) examined the association between characteristics of journal papers and their success in terms of publication in recognized journals or citations by the community (e.g., Antonakis et al., 2014; Judge et al., 2007; Mingers and Xu, 2010; Stremersch et al., 2015). As journal rankings result from complex processes of preference aggregation, we consider both scientific and non-scientific factors (Tahamtan et al., 2016) that are associated with scientific recognition, reflecting normative (Merton, 1973) as well as social constructivist processes (Gilbert, 1977). Whereas the former are directly related to the appreciation of intellectual content, the latter aim at the persuasion of the audience (Bornmann and Daniel, 2008). Our review includes nineteen conceptual articles that theorize about possible ranking criteria and mostly provide anecdotal evidence, while thirty studies are based on large datasets and quantitative analyses (Table 1). These contributions cluster around six topics: characteristics of authors, the practical relevance of research, applied methods and paradigms, innovativeness, interdisciplinarity, and theoretical diversity.

2.1. Author collaborations and affiliations

A first body of literature suggests that the number of authors as well as their institutional affiliations and geographical origins are related to the quality of journals in which their work is published (e.g., Macdonald and Kam, 2007; Mingers and Xu, 2010). A team of authors can build on a broader stock of human capital in terms of expert knowledge, intellectual abilities, writing skills, and overall publishing experience as compared to single authors, and is thus more likely to make a significant contribution to scholarly discourses (Beaver, 2004). Furthermore, authors may engage in co-authorships because they enjoy social interaction and strive for visibility and status (Van Rijnsoever and Hessels, 2011). This should have social facilitation effects among co-authors and improve their motivation to make valuable contributions to the teamwork. Taken together, author collaborations are likely to be positively related to the quality of manuscripts which, in turn, increases the probability of acceptance in journals with high ratings (Puuska et al., 2014; Tahamtan et al., 2016).

Teams of authors also tend to have a broader stock of social capital as compared to single authors. Co-authorships enlarge the network of scholars who know at least one of the authors and may cite his or her paper (Leimu and Koricheva, 2005). In addition, the more authors a paper has, the more self-citations can be expected. Co-authors may present their papers in several different settings and scientific networks, such as conferences and workshops, which enhances the diffusion of knowledge and the attention gained (Bosquet and Combes, 2013). This may lead to more favorable decisions of editors because multiple authorships enhance the visibility of a journal and push its impact factor (Van Rijnsoever and Hessels, 2011). The positive impact of co-authorships on the ratings of journals can also be concluded from a bibliometric study by Aksnes (2003) who found that highly cited papers are more often the result of collaborative research than papers with lower citation frequencies. Accordingly, "[m]ultiple authorship is highly recommended for those wishing to publish in quality journals" (Macdonald and Kam, 2007, p. 645).

Beyond the number of co-authors, there is some evidence that publication success in top journals is not equally distributed across all geographical origins and institutional affiliations of authors. For example, Hodgson and Rothman (1999) compiled a list of the 30 most renowned journals in economics and found that most authors published in these journals stem from a few institutions that are mainly US-based—a phenomenon which they refer to as "institutional oligopoly." The predominance of scholars affiliated with institutions in the UK or USA has been explained, among other factors, with the fact that English has become the main language of publication, which makes it easier for native speakers to publish at high levels (Tsoukas, 2008). Cultural barriers may play a further role (Bornmann and Daniel, 2008). Authorships in top journals additionally show a high concentration in terms of institutional affiliations to prestigious universities and departments. World-leading institutions with high reputation, most of which are located in the UK and USA, are likely to attract highly productive researchers and to offer supportive conditions for research.

Affiliations to prestigious institutions may also serve as a heuristic in the editorial decision-making process because they send signals to the editors about the authors' social status (Judge et al., 2007) and "provide clues, albeit imperfect ones, as to the competency of a manuscript's author(s)" (Miller, 2006, p. 425). Likewise, Fogarty and Liao (2009) argue that the actual merit of a manuscript may be

Table 1
Summary of characteristics of papers associated with publication success.

Characteristics	Reference	Type of study	Assumptions/key findings/implications
Author collaborations and affiliations	Acedo et al., 2006	Conceptual essay	Scientific collaboration has increased in recent years. The probability of acceptance is not only dependent on the quality of the research but also on the authors' institutional affiliations.
	Aksnes, 2003	Empirical study	Highly cited papers tend to be authored by a large number of researchers and often involve international collaboration.
	Beaver, 2004	Empirical study	Collaborative papers receive more citations than single-authored papers.
	Bosquet and Combes, 2013	Empirical study	Collaborative studies are presented in several different settings and scientific networks, such as conferences and workshops, which enhances the diffusion of knowledge and the attention gained. This is positively associated with citation impact.
	Fogarty and Liao, 2009	Empirical study	Publications in top-ranked journals seem to be concentrated in respect of authors' institutional affiliations; this results in a departmental halo effect.
	Hodgson and Rothman, 1999	Empirical study	Many authors of the most prestigious journals in economics are affiliated with a few, mainly US-based institutions.
	Judge et al., 2007	Empirical study	Particularistic criteria such as the author's institutional affiliation send signals to editors and referees about the author's social status, which can bias their judgment.
	Leimu and Koricheva, 2005	Empirical study	In addition to an increase in self-citations, papers with multiple authors enlarge the network of scientists who know one of the authors and accordingly cite the article.
	Leydesdorff and Wagner, 2008	Empirical study	Internationally co-authored papers appear to receive more citations than nationally co-authored articles.
	Macdonald and Kam, 2007	Empirical study	Multiple authors enhance the chances of getting published in a top-tier journal because self-citations boost a journal's impact.
	Macdonald and Kam, 2011	Conceptual essay	The higher the journal's impact factor, the higher the number of authors. More authors bring about more self-citations, which enhance the number of a journal's overall citations and, in turn, its impact factor.
	McDonagh, 1976	Conceptual essay	The reputation of an author's institutional affiliation has a positive influence on the visibility of the scientific output, which enhances the probability of publication in renowned journals.
	Miller, 2006	Empirical study	The reputation of authors' institutional affiliations is often abused in the evaluation process of a manuscript by equating it to the scientific value of a manuscript so that such manuscripts are judged more favorably.
	Mingers and Xu, 2010	Empirical study	The number of authors is positively associated with the chance of an article getting cited.
	Peters and Ceci, 1982	Empirical study	The prestige of author affiliations has the potential to bias editors' and referees' judgment and promotes the chance of getting published in top-ranked journals.
	Puuska et al., 2014	Empirical study	The number of authors of an article is positively associated with citation impact.
	Van Rijnsoever and Hessels, 2011	Empirical study	Collaborative authorship enhances the visibility of a journal.
	Tsoukas, 2008	Conceptual essay	As English has become the main language of publication and journals usually refer to the tradition of UK or USA, scholars affiliated with corresponding institutions improve their chances of publication in top-ranked journals.
Practical relevance	Adler and Harzing, 2009	Conceptual essay	Rankings draw scholarship away from practical relevance.
	Antonakis et al., 2014	Empirical study	Complex quantitative methods (SEM, meta-analysis) receive higher citations. However, there is no practical relevance without rigor.
	Flickinger et al., 2014	Empirical study	There is no significant relationship between practical relevance and article citations.
	Grey, 2010	Empirical study	Top journals have become increasingly formalistic.
	Harmon, 2006	Conceptual essay	Competition for status leads to practical irrelevance and uniformity of research.
	Judge et al., 2007	Empirical study	Articles with complex designs (longitudinal studies, independent data sources) receive more citations; clear practical implications, however, do not have an effect on citations.
	McKinnon, 2013	Conceptual essay	Rankings favor theory over practical relevance and journals with greater mathematical content tend to get higher ratings.
	Parkhe, 1993	Conceptual essay	Many top journals put emphasis on 'hard' issues, such as multivariate data analysis and precision of measurements. This can result in practically trivial problems studied in order to ensure methodological rigor.
Methods and research paradigms	Alvesson and Sandberg, 2014	Conceptual essay	Review articles and meta-analyses often receive more citations than empirical studies.
	Antonakis et al., 2014	Empirical study	Review articles and theoretical articles predict higher citations. Qualitative articles receive fewer citations.
	Biscaro and Giupponi, 2014	Empirical study	The most cited articles contain a strong concentration of review articles. Review articles drive citations.
	Goodall, 2008	Empirical study	Articles using a case study methodology are difficult to publish.
	Grey, 2010	Empirical study	Qualitative studies are more likely rejected because of the dominant positivist concept of methodological rigor.
	Hambrick, 1990	Conceptual essay	There is a strong tendency towards multivariate analyses of big datasets in strategy research published in top journals.
	Ilgen, 2007	Conceptual essay	Review and conceptual articles are more likely to be published in top-ranked management journals.
	Judge et al., 2007	Empirical study	Qualitative or quantitative literature reviews receive more citations.
	Macdonald and Kam, 2007	Empirical study	Producing long reviews of past research work is favorable in terms of generating citations.
	McKinnon, 2013	Conceptual essay	Journals publishing conceptual articles tend to be higher ranked than those publishing mainly empirical work.
	Mingers and Willmott, 2012	Conceptual essay	The dominating positivist tradition in top journals marginalizes or even excludes heterodox forms of research from publication.
	Mingers and Xu, 2010	Empirical study	Reviews and conceptual articles receive significantly more citations. The use of case study methodology showed no significant effect on obtained citations.
	Özbilgin, 2009	Conceptual essay	Positivist traditions and mathematical logics prevail and lead to a marginalization of interpretative methodologies.

(continued on next page)

Table 1 *(continued)*

Characteristics	Reference	Type of study	Assumptions/key findings/implications
	Parker and Thomas, 2011	Conceptual essay	Review articles promote a journal's citations and thereby contribute to a journal's impact.
	Parkhe, 1993	Conceptual essay	There is a clear tendency in the social sciences to emulate the methods of the hard or mature sciences, regardless of the appropriateness of such practices.
	Tahamtan et al., 2016	Conceptual essay	Features of research methodology are related to citation impact.
Innovativeness	Alvesson and Sandberg, 2013	Conceptual essay	Highly ranked journals in management and organization studies tend to emphasize incremental research more than creative and innovative research.
	Alvesson and Sandberg, 2014	Conceptual essay	The pressure on performance provides significant barriers to challenging and innovative studies.
	Goodall, 2008	Empirical study	To get articles published in top journals, it is easier to build on preexisting knowledge than to offer new ways of thinking.
	Grey, 2010	Empirical study	Journal rankings tend to be conservative and thereby hamper intellectual innovation.
	Judge et al., 2007	Empirical study	Articles with explorative research plots are cited more often than refinements or extensions of existing literature.
	Lindsey, 1989	Conceptual essay	Research that is conforming to the mainstream or dominant paradigm receives more citations.
	Macdonald and Kam, 2007	Empirical study	Research in emerging areas or research that challenges paradigms may not be approved by the referees of top-ranked journals.
	McKinnon, 2013	Conceptual essay	Journal rankings discriminate against relatively young disciplines.
	Mingers and Willmott, 2012	Conceptual essay	Journal rankings discriminate against new journals and innovative research. They incentivize the production of 'safe' manuscripts that contribute to well-established topics.
	Parkhe, 1993	Conceptual essay	Focusing on a limited set of methods and techniques constrains the scope of research problems and may lead to trivial research dictated by the method.
	Siler et al., 2015	Empirical study	Top journals have difficulties in identifying breakthrough work.
	Stremersch et al., 2015	Empirical study	Challenging commonly held beliefs benefits citations, but citations decrease when articles get too controversial.
	Uzzi et al., 2013	Empirical study	Conventional combinations of existing knowledge are more likely to receive higher citations than atypical combinations.
	Van Fleet et al., 2000	Empirical study	Top-tier journals may hinder innovations, particularly those that involve a paradigmatic change.
Interdisciplinarity	Chakraborty et al., 2014	Empirical study	Disciplinary diversity of the references is positively related to citation impact.
	Goodall, 2008	Empirical study	The judgment of interdisciplinary research in the review process requires multiple (disciplinary) skills and is therefore often problematic.
	Harmon, 2006	Conceptual essay	Status competition through rankings leads to excessive uniformity in business research instead of promoting diversity.
	Ilgen, 2007	Conceptual essay	Interdisciplinary research is unlikely to be published in traditional top-ranked management journals.
	Laudel and Origgi, 2006	Conceptual essay	Interdisciplinary research may be disadvantaged since it requires an integration of different disciplinary perspectives in the review process which is hard to achieve.
	Mingers and Willmott, 2012	Conceptual essay	Multi- or interdisciplinary work is often not conforming to the policies of the top-ranked journals and is often poorly rated or excluded by journal rankings.
	Porter and Rossini, 1985	Empirical study	Reviewers often do not exhibit the necessary skills to adequately judge interdisciplinary research. In general, reviewers favor research that lies within their own domain of expertise.
	Rafols et al., 2012	Empirical study	The top-ranked journals comprise a less diverse set of disciplines than lower-ranked journals. Journal rankings show a systematic bias in favor of mono-disciplinary research.
	Rinia et al., 2001	Empirical study	Interdisciplinary research is often published in journals whose citation level lies below the average of the fields involved.
Theoretical diversity	Alvesson and Sandberg, 2013	Conceptual essay	The prevalence of "incremental gap-spotting research" leads to a reinforcement or moderate revision of already influential theories instead of challenging them.
	Azar and Brock, 2008	Empirical study	Management journals cite more references than economic journals which may impair the use of economic approaches.
	Bort and Kieser, 2011	Empirical study	Journal rankings increase the impact of fashion in science and promote certain theories. Concepts that refer to New Institutional Economics, reflecting the trend toward economic reasoning, are positively evaluated in terms of SSCI citations.
	Harmon, 2006	Conceptual essay	Status competition through rankings leads to excessive uniformity in business research instead of promoting diversity.
	Lee and Cronin, 2010	Empirical study	Mainstream journals in economics have a higher impact factor than heterodox journals.
	Macdonald and Kam, 2007	Empirical study	Quality journals reflect an established way of thinking, manifested in orthodox theories.
	Mingers and Willmott, 2012	Conceptual essay	Journals that engage familiar theoretical frameworks are favored by journal rankings.
	Pfeffer, 1995	Conceptual essay	There is an increasing influence of an economistic, rational choice perspective in organization studies (which manifests in rising citation counts).
	Van Fleet et al., 2000	Empirical study	Rankings induce rigidity in research standards and top-tier journals may serve only certain theories.

concealed by a departmental halo effect. The prestige of the authors' institutions positively affects the chances of getting published in a top journal (McDonagh, 1976; Peters and Ceci, 1982).

2.2. Practical relevance

A second line of discussion revolves around the question as to whether practical relevance is beneficial or detrimental to publication success in highly ranked journals. Both anecdotal comments and empirical evidence allow for the conclusion that practical relevance of research is not rewarded by journal rankings. As some commentators observe, scholarship increasingly chooses 'method over substance' or 'complexity before simplicity' (Alvesson and Sandberg, 2014; Harmon, 2006). A focus on technical perfection may improperly constrain the scope of problems that seem feasible and especially publishable to researchers (Parkhe, 1993). Methodological rigorous papers often define and address problems that practitioners are not interested in (Kieser and Leiner, 2009). Once written, they include complex descriptions of

methodology, expressed in a highly formalized language which is not easily accessible for practitioners (Flickinger et al., 2014).

Journal rankings are supposed to enforce this preference for methodological complex research at the expense of practical relevance (Antonakis et al., 2014). Grey (2010, p. 691) finds that "the elite US journals and those European journals that seek […] to join that elite have become increasingly formulaic and dull." Journal rankings are often based on judgements or citations from 'inside the ivory tower' and thereby neglect the aspect of practical relevance already in their creation (Adler and Harzing, 2009). As a consequence, management research is expected to move further away from management practice (Harmon, 2006).

2.3. Research paradigms and methods

Furthermore, the salience of certain research paradigms and methods in differently ranked journals is discussed in the literature. Paradigms include philosophical and epistemological assumptions and beliefs which touch the very foundations of research and which researchers themselves may even not be conscious of (e.g., Burrell and Morgan, 1979). However, to some extent, paradigms surface and manifest in the use of empirical data and methods. For example, rationalism draws on deductive conceptual reasoning without explicit use of empirical data which, in turn, is characteristic of the empiricist paradigm. Research seeking an objective truth reflects the philosophy of (neo-)positivism and is primarily conducted by means of quantitative analyses. On the contrary, qualitative studies try to establish intersubjective agreements about the meaning of observations, thus resonating with the interpretive paradigm.

Based on the use of data and methods as more tangible characteristics of research, there is some evidence for a dominance of certain paradigms in highly ranked journals. Several studies have shown that features of research methodology are related to citation impact (Tahamtan et al., 2016). For example, Özbilgin (2009) finds "a strong legacy and dominance of mathematical logics and positivist traditions, which draw on methods in science and engineering," what ultimately results in a "marginalization of interpretive methodologies." Quantitative studies seemingly promise higher quality ratings of journals than qualitative approaches (e.g., Goodall, 2008; Grey, 2010; Mingers and Willmott, 2012). For instance, Hambrick (1990, p. 243) observes "a clear tendency toward multivariate number crunching" in strategy research. Parkhe (1993, p. 244) finds a strong tendency "to emulate the methods of the 'mature' sciences, irrespective of the propriety of such practices." Consequently, quantifying the data of qualitative studies may bring about advantages in the publication game (Antonakis et al., 2014).

Other studies find rankings to be biased against empirical research of all kinds, suggesting that theoretical papers with extensive literature reviews are favored instead (Alvesson and Sandberg, 2013; Macdonald and Kam, 2007). Biscaro and Giupponi (2014) provide empirical evidence that review articles are significantly and positively related to citations. McKinnon (2013, p. 11) critically remarks that "journals containing conceptual papers, often written in abstruse, inaccessible language, tend to get higher ratings than those reporting empirical results." This effect may be especially salient in citation-based rankings, since comprehensive state-of-the-art papers could indeed receive more citations than papers reporting on a particular empirical finding. Accordingly, the paradigmatic and methodological orientation of a paper (in terms of data and methods) may affect its prospect of acceptance or rejection in differently ranked journals.

2.4. Innovativeness

The fourth stream in the debate on journal rankings is concerned with their impact on the innovativeness of research. Anecdotal evidence suggests that innovative research tends to be disfavored by journals the higher they are ranked. Although innovation is deemed to be the promoter and driving force of scientific progress (Alvesson and Sandberg, 2014), many scholars see the submission of innovative manuscripts as a risky strategy for getting papers accepted in highly ranked journals (Judge et al., 2007). Current research is criticized for a preoccupation with incremental innovation (Alvesson and Sandberg, 2013), seeking to confirm already reached consensus rather than to challenge existing beliefs (Goodall, 2008). According to this criticism, emerging research areas are typically neglected in the editorial policies of top journals (Macdonald and Kam, 2007). Lindsey (1989, p. 193) states that "citation counts favor the scientist doing work in the mainstream or dominant paradigm." Similarly, Van Fleet et al. (2000, p. 842) argue that top-ranked journals "serve only certain groups or approaches, topics, or theories." This lowers the willingness to take risks in the research process which, in turn, is expected to reduce creativity in theory-building (Alvesson and Sandberg, 2013; Grey, 2010; Van Fleet et al., 2000).

2.5. Interdisciplinarity

It is also highly contested as to whether journal rankings reflect preferences for or against interdisciplinary research. Some top-tier journals like *Nature* or *Science* address a wide range of scholarly communities and rely on, and contribute to, interdisciplinary appreciation (Clark et al., 2013). Further, Chakraborty et al. (2014) found a positive correlation between the disciplinary diversity of cited references and citation impact. On the contrary, some studies point to a negative evaluation of interdisciplinary research by highly ranked journals. The majority of those journals exhibit a lower disciplinary diversity as compared to lower-ranked journals (Rafols et al., 2012). Rinia et al. (2001, p. 360) found "that interdisciplinary research is often published in journals with a citation level below the average of the fields involved."

One possible explanation for a surfeit of mono-disciplinary research may be that reviewers can judge the quality of this type of research more easily (Goodall, 2008; Laudel and Origgi, 2006; Rafols et al., 2012). Porter and Rossini (1985) proclaim that reviewers consider proposals predominantly from their own disciplinary perspective so that ideas originating from their own discipline necessarily perform better in their view. There is "no obvious home" (Goodall, 2008, p. 415) for interdisciplinary research but rather "disciplinary silos" (Mingers and Willmott, 2012, p. 1056) that may slow down the emergence and diffusion of new topics, theories and methods within and across top-ranked journals (Goodall, 2008). However, contrary to these assumptions, Rinia et al. (2001) did not find a general bias against interdisciplinarity in quality assessments.

2.6. Theoretical diversity

Finally, a controversy in the literature is about theoretical diversity in peer-reviewed journals. Previous studies found a tendency towards theoretical homogeneity of papers in highly ranked journals, which are dominated by only a small set of theories. Competition for status "requires a common currency to certify the winners and losers. The commoner the currency, the better" (Harmon, 2006, p. 239). As long as competition for status is an important goal of scholarly endeavors, it may lead to theoretical uniformity by providing a high level of comparability through fixing a narrow 'theoretical canon' of orthodox theories (Harmon, 2006). This tendency has been confirmed by some empirical studies. Grounded in a citation-based study in the field of technology management, Beyhan and Cetindamar (2013, p. 11) conclude that there is "no escape from the dominant theories." Bort and Kieser (2011) find such a trend in organization studies. After the 1990s, articles referring to New Institutional Economics have increased at a much higher rate than articles referring to other theories. Similarly, Pfeffer (1995, p. 682) finds management research to be dominated "by

Table 2
Journal rankings in the sample.

Abbreviation	Institution	Name	Year	Type	Rating Categories[a]
5YIF	Clarivate Analytics	Five-year Impact Factor	2014	Citation-based	Continuous score
ABDC	Australian Business Deans Council	ABDC Journal Quality List	2013	Expert-based	A*, A, B, C
AERES	Agence d'Évaluation de la Recherche et de l'Enseignement Supérieur	n/a (Journal List)	2012	Expert-based	A, B, C
AJG	Chartered Association of Business Schools	Academic Journal Guide	2015	Hybrid	4*, 4, 3, 2, 1
CNRS	Centre National de la Recherche Scientifique	Categorization of Journals in Economics and Management	2014	Hybrid	1*, 1, 2, 3, 4
CRA	Cranfield University School of Management	Journal Recommendations for Academic Publication	2012	Hybrid	4, 3, 2, 1
DEN	Danish Ministry of Higher Education and Science	n/a (Journal List)	2011	Expert-based	1, 2
EJL	Erasmus Research Institute of Management	ERIM Journals List	2012	Hybrid	P*, P, P A, S, M*
ESS	ESSEC Business School Paris	ESSEC Ranking of Journals	2015	Hybrid	0+, 0, 1, 2, 3
FNEG	Foundation National pour l'Enseignement de la Gestion des Entreprises	Classement des Revues Scientifiques en Sciences de Gestion	2013	Hybrid	1*, 1, 2, 3, 4
FT45	Financial Times	n/a (Journal List)	2010	Expert-based	n/a (Journal List)
Google h5	Google	h5 index	2015	Citation-based	Discrete score
HB	Handelsblatt	n/a (Journal List)	2014	Hybrid	1, 0.7, 0.5, 0.4, 0.3, 0.2, 0.1
HEC	Hautes Études Commerciales de Paris	n/a (Journal List)	2011	Hybrid	A, B+, B, C
SJR	SCImago	SCImago Journal Rank (SJR) indicator	2013	Citation-based	Continuous score
UQ	University of Queensland Business School	Adjusted ERA Rankings List	2011	Expert-based	1, 2, 3, 4, 5
UTD	University of Texas, Dallas	n/a (Journal List)	undated	Expert-based	n/a (Journal List)
VHB	German Academic Association for Business Research	Jourqual3	2015	Expert-based	A+, A, B, C, D, E

Note. [a]Categories are stated in descending order, beginning with the highest quality rating.

an economistic, rational choice perspective." Readers of top-ranked journals are thus likely to come across a particular set of theories that represent an established way of thinking (Lee and Cronin, 2010; Macdonald and Kam, 2007; Van Fleet et al., 2000). Instead of rewarding theoretical diversity, rankings thus may let already influential theories become even more influential (Alvesson and Sandberg, 2013).

Table 1 provides an overview of the reviewed literature on the association between the characteristics of publications and ratings of journals. The assumptions made by some authors are often normatively charged, and many findings are inconclusive. To substantiate the debate, we considered a broad range of paper-level predictors of publication in differently rated journals and conducted a large-scale bibliometric study.

3. Data and method

3.1. Sampling and data

Our analysis focused on academic journals at the core of management and business studies. For sampling purposes, we consulted three widely used lists of journals: 1) the Journal Citation Reports® by Clarivate Analytics (formerly Thomson Reuters; subject categories "Business" and "Management"), 2) the Scopus® database by Elsevier (subject area "Business, Management and Accounting"), and 3) the Journal Quality List compiled and edited by Harzing (2015). We focused on the intersection of these lists and selected titles that were included in each of them, which resulted in a set of 168 journals.[1] We then downloaded bibliographic data, including references, of all articles, reviews, and proceedings papers published in these journals in the period from 2000 to 2013 from the Social Science Citation Index® (SSCI). Our final database included 85,084 documents with 4,516,730 references to 1,473,999 different sources. For reasons of simplicity, we subsequently refer to all kinds of documents as "papers."

3.2. Dependent variables

As dependent variables, we considered the rating categories of journals in which the selected articles were published. In total, we consulted 18 rankings (Table 2), 13 of which were selected from the 55th edition of Harzing's Journal Quality List (JQL; Harzing, 2015). We solely focused on rankings that were released after 2010 in order to ensure topicality and relevance. We additionally considered five journal rankings that have some circulation but were not included in the JQL: (1) The University of Texas at Dallas draws on a list of 24 journals for ranking business schools according to their research performance.[2] These journals are considered as leading in the field of business studies. (2) The German newspaper *Handelsblatt* gathers performance information for the ranking of faculties and universities in business administration from an own journal ranking.[3] This journal list is a meta-ranking that aggregates four other rankings. Furthermore, we included three citation-based journal metrics into our study because they can readily be used to create a hierarchy among journals according to their scientific influence. These metrics are (3) the Five-year Impact Factor gathered from the 2014 edition of the Journal Citation Reports® by Clarivate Analytics,[4] (4) the SCImago Journal Rank (SJR) compiled on the Scopus® database for the year 2014,[5] and (5) the Google Scholar h5 index for the period from 2009 to 2013.[6]

The selected rankings cover different approaches in terms of the underlying method. Citation-based rankings aggregate the preferences of the scientific community as revealed in citation behaviors. Expert-based rankings ask the members of a scientific community, or a smaller group of experts, for the inclusion of journals into lists and for their ratings of these journals in terms of quality. Hybrid rankings combine these methods and integrate both stated and revealed preferences. The expert-based and hybrid rankings in our sample provide between two and seven rating categories for journals. In order to compare better with the other rankings, we transformed the citation-based quality indicators into five categories (very low to very high), approximating the

[1] An Appendix with the full list of journals is provided in Online Appendix 1.

[2] http://jindal.utdallas.edu/the-utd-top-100-business-school-research-rankings/ (accessed 31/10/2016).

[3] http://www.handelsblatt.com/politik/konjunktur/bwl-ranking/bwl-ranking-methodik-und-interpretation/3180850.html (accessed 31/10/2016).

[4] http://ipscience.thomsonreuters.com/product/journal-citation-reports/?utm_source=false&utm_medium=false&utm_campaign=false# (accessed 31/10/2016).

[5] http://www.scimagojr.com/aboutus.php (accessed 31/10/2016).

[6] https://scholar.google.com/intl/de/scholar/metrics.html#metrics (accessed 31/10/2016).

optimized frequency distribution suggested by Cox (1957).[7]

3.3. Independent variables

The independent variables reflect some characteristics of research that are discussed in the literature as predictors of publication success in highly rated journals (see above section 2). At the operational level of measurement, we extract these characteristics from information about the author(s), the text corpus of the paper itself, and the references in the bibliography.

3.3.1. Author(s)

3.3.1.1. Number. The database provides some information on the authors of the recorded papers. We first extracted the number of authors from this information in order to measure the breadth of collaboration.

3.3.1.2. Institutional reputation. Various research centers, political advisory bodies, and popular newspapers publish rankings which intend to reflect the reputation of universities. We consulted the 2014-15 edition of the World University Rankings edited by Times Higher Education.[8] This source provides an overall score for the top 400 universities worldwide, aggregating subscales on research reputation, citations, industry collaborations, as well as internationalization. We assigned this score to the authors based on our bibliographic information on their institutional affiliations. If an author reported more than one affiliation, we considered only the institution with the highest score. The score was zero when the institution was not among the top 400 universities. We finally averaged the scores over the authors of each paper.

3.3.1.3. Institutional diversity. In order to account for the extent of collaboration across institutions, we calculated Blau's (1977) index for institutional diversity within the team of authors of a paper. Blau's index is a general diversity measure calculated as

$$B = 1 - \sum_{i=1}^{N} p_i^2$$

where p_i is the fraction of individuals or objects in each category. In our case, these objects are academic institutions to which authors are affiliated. A value of B = 0 would be assigned to a perfectly homogeneous team of authors in which all members are affiliated to the same institution (which also applies to single authorships), whereas B = 1 would be valid for a paper whose authors all come from different institutions. However, this is a theoretical value because the number of categories is not infinite. The single-highest number of categories in our sample is N = 48 for a paper whose authors are affiliated to 48 different institutions.

3.3.1.4. Anglo-Saxon affiliation(s). The institutional affiliations also show the geographical origins of authors. We calculated the share of affiliations to institutions in Anglo-Saxon countries among all institutional affiliations of the author(s) of a paper.

3.3.1.5. Non-academic affiliation(s). Authors may not only be affiliated to institutions in academia. We first coded all affiliations in our dataset as to whether they represent academic organizations, such as universities or research institutes, or non-academic organizations, such as corporations or government agencies. We then calculated the share of non-academic affiliations among all institutional affiliations of the author(s) of a paper.

3.3.2. Paper

3.3.2.1. Length. The length of a paper is its page count as provided in the SSCI.

3.3.2.2. Review. The SSCI also provides a field for the type of documents, with "review" as one option. However, in many cases it seems almost arbitrary as to whether a document falls into this category or is instead classified as "article." In order to classify the documents more consistently, we used a thesaurus which we compiled for text mining in titles, keywords, and abstracts. The literature provided us with some terms and categories that indicate different types of data and methods (e.g., Kaplan, 1986; Jasti and Kodali, 2014). To expand on this initial list, we coded the keywords of all papers in our database and finally arrived at a thesaurus with 7349 descriptors of data and methods. Some of these search terms indicate review papers, regardless as to whether the review is qualitative or quantitative (e.g., "literature review," "meta-analysis," "research synthesis;" Haneef, 2011; Judge et al., 2007; Silva and Teixeira, 2012). A paper was not coded as review if it additionally included descriptors of data or methods other than bibliographic (Antonakis et al., 2014; Kaplan, 1986).

3.3.2.3. Methods. The same thesaurus also allowed us to classify papers according to their methodological orientation. If the descriptors entailed such information and were found in title, keywords and/or the abstract, a paper was assigned to the family of quantitative, qualitative, or mixed methods, respectively. A paper was coded as using mixed methods if we found direct indications (e.g., "mixed methods") or if the authors referred to both quantitative (e.g., "structural equation modelling," "regression analysis," "simulation study") *and* qualitative methods (e.g., "ethnography," "grounded theory," "participant observation").

3.3.3. References

3.3.3.1. Number. We included the number of references into the analysis. This field is provided in the SSCI and consistent with the raw count of entries in the bibliography.

3.3.3.2. Quality. Most journal papers refer to other journal papers, and the referenced journals differ in their quality. To account for this quality, we considered the SJR indicator because it had the highest coverage among the cited references in our database as compared to other weights for journal quality. We excluded journal self-citations and matched the references with the SJR list of journals, which was possible for 76 % of all references to journals. We finally averaged the non-missing indicator scores for each paper.

3.3.3.3. Network efficiency. How references combine into bibliographies may indicate the degree of a paper's novelty. The replication of similar patterns of references is likely to result from more incremental innovations, in contrast to more deviant patterns that emerge from novel combinations of literatures. Some recent works in bibliometrics have pioneered the measurement of novelty in terms of unusual, atypical combinations of cited references (for an overview, see Marx and Bornmann, 2016, pp. 1408–1411). We follow this line of reasoning and borrow the notion of structural holes from the literature on network theory (Burt, 1992). When applied to bibliographic networks based on shared references as measures of document

[7] Since most of the categorical rankings in our sample provide five rating categories, we decided to transform the continuous measures (i.e., 5YIF, SJR) and the discrete measure (i.e., Google h5) into five categories, too. Cox (1957) suggests for such groupings a normal distribution with 10.9 % of cases falling into the highest and lowest category, respectively, 23.7 % falling into the second-highest and second-lowest category, respectively, and 30.7 % in the middle category. In order to approximate this distribution, we defined for each score cut-off values and assigned each journal to one of the five groups. For example, 10.85 % of the journals with a 5YIF exceeded the cut-off value of 5.180 and were thus assigned to the "very high" category.

[8] https://www.timeshighereducation.com/world-university-rankings/2015/world-ranking#!/page/0/length/25/sort_by/rank_label/sort_order/asc/cols/rank_only (accessed 31/10/2016).

similarity (bibliographic coupling; Kessler, 1963), structural holes reflect how a paper is embedded into its neighborhood. Structural holes are the empty spaces between two nodes (i.e., papers) with no direct connection to each other (i.e., with no shared references). If this gap is filled by a third node, otherwise unconnected pools of information are synthesized and new ideas can emerge across different segments of the network. Among the measures for structural holes is the efficiency of each ego's network, defined as the effective size of ego's network divided by the number of alters. The effective size, in turn, is the number of alters minus the average degree of alters (i.e., the average number of ties to other nodes) within the ego network, not counting ties to ego. The notation, then, is

$$Efficiency = (n - \frac{2t}{n})/n$$

where n is the number of nodes (excluding ego) and t is the sum of weighted or unweighted ties (excluding ties to ego).[9]
We assume that the higher the efficiency of a paper's ego network is, the more likely the paper is innovative because it combines streams of literature that are otherwise loosely or not connected. This is broadly in line with a recombinant approach to innovation, similar to genetic mutation (Marx and Bornmann, 2016, p. 1408).

3.3.3.4. Disciplinary diversity. We measured the interdisciplinarity of a paper by a diversity index calculated on the basis of cited references (Rafols et al., 2012). For this purpose, we used the classification of journals in the SSCI and calculated the index for the diversity of subject categories with Blau's (1977) formula (see above). B = 0 applies to a perfectly mono-disciplinary paper with references to journals in only one area, whereas B = 1 is true for a maximally interdisciplinary paper with all cited journals falling in different subject areas. Again, this maximum value is theoretical because the number of categories is not infinite. The most interdisciplinary paper in our sample refers to journals from 20 different subject categories (N = 20).

3.3.3.5. Theoretical diversity. Similar to interdisciplinarity, we calculated a diversity index for management and organization theories that were cited within each paper in our sample. We first coded theoretical approaches as presented in 20 text- or handbooks with a broad coverage of management and organization theories of different paradigmatic origins.[10] We consolidated the theories into a list of 115 approaches and selected for each theory five acknowledged references that have made seminal contributions. This bibliography allowed us to identify theoretical approaches within the papers on the basis of cited references. For reasons of consistency, we again calculated Blau's (1977) index (see above). A value of B = 0 would be assigned to a perfectly homogeneous paper in which all cited references represent only one and the same theory, whereas B = 1 would be valid for a paper in which all cited references represent different theories. Accordingly, this index reflects how many theoretical approaches are covered by a paper and how even or uneven their distribution is. The theoretically most diverse paper in our sample includes references to 23 different theories (N = 23).

[9] To illustrate the calculation, we consider three articles A, B and C. The matrix resulting from the first step contains the number of references shared by each pair of articles. The main diagonal of the matrix displays the total lengths of the reference lists. For example, A refers to 40 sources out of which 8 are shared with B and 6 with C. In the second step, these counts are transformed into relative measures of similarity. A shares 8 references with B and vice versa, and the pooled reference list of both articles include 75 sources in sum. Accordingly, the relative similarity between A and B is (8 + 8)/(40 + 35) = 0.213. When a network is compiled from either of these matrices (step 3), A is connected to both B and C while B and C are not linked to one another because they do not have a single reference in common. Accordingly, B and C are separated by a structural hole, but A plays a brokerage role because it connects B and C indirectly. In this example, the ego network of A has an efficiency of 1 because n = 2 and t = 0.

[10] An Appendix with the full list of textbooks is provided in Online Appendix 2.

3.4. Estimation

We ran multiple regression analyses at the level of papers. We opted for a single level of analysis because once journal ratings are used for the evaluation of publications, the quality rating is transferred from the journal to the paper and thus becomes a characteristic of the latter. This implies that the quality of a paper can at least to a substantial extent be inferred from the quality of the journal in which it is published. Although this assumption has frequently been criticized because the quality of papers may vary considerably within journal classes and even within journals (Baum, 2011; Seglen, 1994), performance management systems in academia commonly provide incentives for publishing in certain (top) journals. The application of journal rankings for this matter relieves from an individual assessment of papers and thus saves efforts on the part of performance managers who usually lack expert knowledge. Analyzing independent and dependent variables at a single level reflects this practice and accounts for the incentive effects that may arise from it. However, since observations within a journal may not be independent from each other due to editorial policies, we clustered standard errors at the level of journals.

We estimated ordered logit models for rankings with more than two rating categories and logit models for rankings with a binary classification of journals. Different timeframes were tailored for the analysis: Since citation-based rankings are calculated on the basis of a clearly defined period (e.g., five years for 5YIF and Google h5), we sliced the data accordingly. For rankings that are completely or partially based on survey data or expert opinions, we extended the timeframe of the analysis to ten years because reputation building is likely to be a long-term process. We additionally introduced a gap year between the period of investigation and publication of the ranking because the evaluation of the survey and the publication process usually take some time.

Since large sample sizes may inflate statistical power artificially and result in inefficient estimates and biased standard errors, we examine substantial effects in addition to regression analyses. For this purpose, we calculated how the probability of publication in top journal categories varies with different values of the predictor variables. It is worth noting that the predicted probability is calculated on the basis of the published papers in our sample and thus cannot simply be considered as prospects for future submissions.

3.5. Robustness checks

Although we are confident that the broad database of our study yields robust findings, we conducted several robustness checks. First, we varied the timeframes and repeated the analyses for the shorter period of five years. Second, we tested for robustness of measurements. Where available, we applied alternative indicators (e.g., network measures, diversity indices, journal quality indicators) and coding schemes (e.g., SSCI subject categories instead of Scopus® subject areas). And third, we took alternative estimation approaches and repeated the analyses with multinomial logistic regression models. Overall trends remained stable and single results did not differ substantially between all these specifications but were very close to those reported below.

4. Results

Means, standard deviations and intercorrelations of all predictor variables are reported in Table 3. Furthermore, we calculated rank correlations between journal rankings in order to assess the overall extent of agreement and disagreement among them (Table 4). All correlation coefficients are positive and significant at the 1 %-level. This finding suggests that there is large consensus implicit to the rankings in our sample. However, they also differ from one another, which is signified by a Friedman test ($p < 0.01$) and a medium inter-rater reliability (Kendall's coefficient of concordance W = 0.766; N = 52 without replacement of missing values; W = 0.636; N = 168 with replacement

Table 3
Means, standard deviations and correlations of predictor variables.

	Mean	SD	Corr													
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Author(s) – number	2.33	1.24	1														
(2) Author(s) – institutional reputation	32.01	28.48	0.04	1													
(3) Author(s) – institutional diversity	0.31	0.29	0.51	0.12	1												
(4) Author(s) – Anglo-Saxon affiliation(s)	0.64	0.44	−0.03	0.19	0.02	1											
(5) Author(s) – non-academic affiliation (s)	0.07	0.20	0.02	−0.19	0.05	−0.06	1										
(6) Article – length	16.64	8.58	0.04	0.07	0.05	0.03	−0.04	1									
(7) Article – review (d)	0.01	0.10	0.00	−0.01	−0.01	−0.01	0.01	0.02	1								
(8) Article – quantitative methods (d)	0.41	0.49	0.14	0.00	0.13	−0.10	−0.02	0.01	0.01	1							
(9) Article – qualitative methods (d)	0.13	0.33	−0.03	−0.05	−0.05	−0.02	−0.01	0.06	0.08	−0.32	1						
(10) Article – mixed methods (d)	0.05	0.22	0.04	−0.03	0.01	−0.04	0.00	0.03	0.05	−0.15	−0.04	1					
(11) References – number	52.95	34.70	0.07	−0.02	0.11	0.00	−0.15	0.41	0.06	0.04	0.05	0.05	1				
(12) References – quality	3.70	2.03	0.02	0.11	0.11	0.01	−0.12	0.08	−0.02	0.11	−0.05	−0.03	0.17	1			
(13) References – network efficiency	0.50	0.36	0.04	0.06	0.09	0.01	−0.12	0.17	0.00	0.07	0.02	0.02	0.41	0.28	1		
(14) References – disciplinary diversity	0.63	0.22	0.11	0.02	0.13	−0.04	−0.17	0.11	0.02	0.23	0.01	0.06	0.37	0.28	0.31	1	
(15) References – theoretical diversity	0.20	0.31	0.02	0.04	0.07	0.00	−0.10	0.21	0.01	−0.04	0.06	0.00	0.48	0.27	0.30	0.16	1

of missing values by lowest rank). These results suggest that papers are likely to be evaluated differently depending on the journal ranking applied. While hybrid rankings based on both judgements of experts *and* citations (i.e., AJG, CNRS, CRA, EJL, ESS, FNEG, HB, HEC, UQ) have much in common with other rankings (mean correlation of 0.906), expert-based rankings (i.e., ABDC, AERES, DEN, FT45, UTD, VHB) and citation-based rankings (i.e., 5YIF, Google h5, SJR) are less congruent with the rest of the sample (mean correlation of 0.761, respectively 0.775).

4.1. Author(s)

Table 5 shows the results of the regression analyses. The ratings of the journals in which the papers were published enter as dependent variables. A first group of independent variables reflect some characteristics of the papers' authors. Research is an increasingly collaborative endeavor, but we find no evidence for a collaborative advantage. On the contrary, there is a tendency that the larger a team of authors is, the lower is the rating of the journal in which the work is published. This relationship is significant for ESS and UTD ($p < 0.01$) and moderately significant for FNEG and FT45 ($p < 0.05$), but only slightly significant, or not significant at all, for the other rankings. Accordingly, the marginal effects are rather small. To make these effects more intuitively accessible, Fig. 1 plots for each predictor and ranking the changes in the probability of publication in the top journal category. Each subgraph shows how this probability is conditional on variations in the respective predictor, given that all other predictors are held constant at their means. In the case of the intensity of collaboration, it is visually apparent that the probability of publication in the top journal category tends to decrease with an increasing number of co-authors, but this association is not very strong in substantial terms. On average across all rankings, the predicted probability drops steadily from 23.2 % for a single-authored paper to 18.9 % for a paper with ten co-authors.

The results establish a positive association between the institutional reputation of authors and the ratings of journals. This relationship is consistent across all rankings and highly significant ($p < 0.001$) in most cases, with AERES, DEN and FT45 ($p < 0.01$) as well as EJL ($p < 0.05$) as exceptions. In terms of marginal effects, the probability of publication in top journals increases substantially with the reputation of the institution to which authors are affiliated (Fig. 1). If none of the authors of a paper is affiliated to an institution ranked by Times Higher Education, the average probability is 17.3 %. It almost doubles to 30.5 % if all authors of a paper were affiliated to the *California Institute of Technology*, the institution with the highest overall score in the 2014-15 edition of the World University Rankings.

As Table 5 also shows, there is a positive association between the institutional diversity of authors and the rating of the journal in which their work was published. This effect is significant at the highest level ($p < 0.001$), except for ESS and Google h5 ($p < 0.01$). It is not significant for DEN and FT45. On average, the conditional probability of publication in a top journal increases from 20.4 % for a paper written

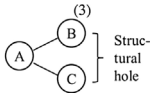
(1)

	A	B	C
A	40	8	6
B	8	35	0
C	6	0	62

(2)

	A	B	C
A	1	0.21	0.12
B	0.21	1	0
C	0.12	0	1

(3)



by authors who are affiliated to the same institution to 27.9 % for a paper written by authors with different institutional affiliations.

We observe a similar relationship between the geographical origin of authors and the journal rating, so that there is a positive association between the share of institutional affiliations to Anglo-Saxon countries among the authors of a paper and the rating of the journal in which the paper was published. This effect is highly significant for the majority of rankings ($p < 0.001$). In the case of ABDC, AERES, CRA and EJL, the level of significance is slightly lower ($p < 0.01$). The effect is moderately significant for HEC ($p < 0.05$) and not or marginally significant for DEN and Google h5. A paper none of whose authors comes from an Anglo-Saxon country has a 18.8 % probability of having been published in a top journal, while this probability is 24.7 % for a paper written by authors who are all affiliated to an Anglo-Saxon institution.

Overall, the share of authors with an affiliation to a non-academic institution is not, or only slightly, related to the rating of the publication outlet. We find a negative association for Google h5 and UTD, yet at a modest level of statistical significance ($p < 0.05$). Accordingly, the probability of having been published in top journals does not substantially vary with this author-related characteristic. It drops only from 22.7 % (no author affiliated to non-academic institutions) to 20.4 % (all authors with non-academic affiliations).

4.2. Paper

A second group of predictors reflect characteristics of the papers themselves. The association between the length of papers and the journal rating is statistically insignificant, with one remarkable exception: In the case of Google h5, the page count is negatively related to the rating of the outlet at the highest level of significance ($p < 0.001$). On average across all rankings, however, this effect is small in substantial terms. The probability of publication in top journals drops from 23.2 % for a ten-page paper to 20.2 % for a paper with fifty pages.

Table 4
Rank correlations between journal rankings.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1)	5YIF	1																	
	N	*168*																	
(2)	ABDC	0.487	1																
	N	*166*	*166*																
(3)	AERES	0.310	0.588	1															
	N	*136*	*135*	*136*															
(4)	AJG	0.533	0.696	0.501	1														
	N	*148*	*147*	*128*	*148*														
(5)	CNRS	0.396	0.625	0.882	0.584	1													
	N	*140*	*139*	*136*	*131*	*140*													
(6)	CRA	0.468	0.670	0.486	0.644	0.553	1												
	N	*129*	*127*	*113*	*119*	*115*	*129*												
(7)	DEN	0.377	0.461	0.389	0.477	0.366	0.512	1											
	N	*168*	*166*	*136*	*148*	*140*	*129*	*168*											
(8)	EJL	0.461	0.615	0.543	0.591	0.632	0.478	0.343	1										
	N	*116*	*114*	*105*	*106*	*107*	*100*	*116*	*116*										
(9)	ESS	0.431	0.611	0.541	0.706	0.644	0.576	0.473	0.604	1									
	N	*106*	*104*	*93*	*97*	*96*	*91*	*106*	*82*	*106*									
(10)	FNEG	0.442	0.679	0.803	0.680	0.882	0.601	0.402	0.694	0.707	1								
	N	*133*	*132*	*126*	*124*	*130*	*109*	*133*	*104*	*90*	*133*								
(11)	FT45	0.335	0.415	0.394	0.498	0.542	0.529	0.348	0.419	0.574	0.536	1							
	N	*168*	*166*	*136*	*148*	*140*	*129*	*168*	*116*	*106*	*133*	*168*							
(12)	Google h5	0.596	0.592	0.446	0.573	0.492	0.525	0.404	0.412	0.486	0.561	0.418	1						
	N	*168*	*166*	*136*	*148*	*140*	*129*	*168*	*116*	*106*	*133*	*168*	*168*						
(13)	HB	0.609	0.612	0.544	0.675	0.617	0.622	0.389	0.643	0.599	0.670	0.436	0.594	1					
	N	*152*	*150*	*129*	*135*	*132*	*122*	*152*	*116*	*102*	*124*	*152*	*152*	*152*					
(14)	HEC	0.464	0.546	0.480	0.680	0.629	0.593	0.353	0.703	0.652	0.721	0.517	0.376	0.644	1				
	N	*97*	*96*	*90*	*90*	*93*	*86*	*97*	*80*	*75*	*87*	*97*	*97*	*96*	*97*				
(15)	SJR	0.686	0.587	0.444	0.662	0.527	0.557	0.356	0.541	0.568	0.575	0.373	0.580	0.680	0.570	1			
	N	*168*	*166*	*136*	*148*	*140*	*129*	*168*	*116*	*106*	*133*	*168*	*168*	*152*	*97*	*168*			
(16)	UQ	0.478	0.771	0.626	0.705	0.685	0.640	0.418	0.575	0.616	0.705	0.469	0.568	0.577	0.601	0.512	1		
	N	*135*	*133*	*118*	*123*	*121*	*111*	*135*	*102*	*93*	*116*	*135*	*135*	*126*	*90*	*135*	*135*		
(17)	UTD	0.319	0.349	0.246	0.438	0.387	0.424	0.259	0.488	0.527	0.440	0.662	0.348	0.393	0.488	0.375	0.357	1	
	N	*168*	*166*	*136*	*148*	*140*	*129*	*168*	*116*	*106*	*133*	*168*	*168*	*152*	*97*	*168*	*135*	*168*	
(18)	VHB	0.503	0.616	0.500	0.678	0.640	0.539	0.396	0.701	0.625	0.704	0.443	0.513	0.707	0.718	0.614	0.618	0.482	1
	N	*141*	*139*	*119*	*128*	*123*	*115*	*141*	*106*	*97*	*119*	*141*	*141*	*137*	*93*	*141*	*124*	*141*	*141*

Notes: Kendall's Tau-b; all correlations are two-tailed with $p < 0.01$.

Table 5
Multiple regression analyses (standardized coefficients, clustered robust SE in parentheses); DV: journal quality rating [a].

		5YIF 2014[b]	ABDC[b]	AERES[b]	AJG 2015[b]	CNRS[b]	Cra 2012[b]	DEN[c]	EJL[b]
(1)	Author(s) – number	0.029 (0.026)	−0.034 (0.033)	0.041 (0.041)	−0.035 (0.029)	−0.019 (0.031)	−0.070^{+} (0.041)	−0.073^{+} (0.044)	−0.053 (0.035)
(2)	Author(s) – institutional reputation	0.011*** (0.002)	0.010*** (0.002)	0.007** (0.002)	0.016*** (0.002)	0.014*** (0.002)	0.015*** (0.002)	0.008** (0.003)	0.009* (0.004)
(3)	Author(s) – institutional diversity	0.570*** (0.103)	0.687*** (0.091)	0.445*** (0.130)	0.594*** (0.101)	0.524*** (0.110)	0.477*** (0.111)	0.203 (0.131)	0.473*** (0.127)
(4)	Author(s) – Anglo-Saxon affiliation(s)	0.400*** (0.113)	0.477** (0.172)	0.397** (0.146)	0.550*** (0.127)	0.459*** (0.118)	0.473** (0.154)	0.187 (0.190)	0.375** (0.143)
(5)	Author(s) – non-academic affiliation(s)	−0.173 (0.161)	−0.324 (0.202)	−0.205 (0.202)	−0.215 (0.211)	0.088 (0.156)	0.098 (0.317)	−0.551^{+} (0.307)	−0.437^{+} (0.259)
(6)	Article – length	−0.018 (0.013)	−0.017 (0.014)	−0.022 (0.020)	−0.012 (0.013)	−0.012 (0.015)	0.017 (0.014)	−0.005 (0.015)	0.003 (0.017)
(7)	Article – review (d)	0.158 (0.161)	−0.120 (0.158)	0.093 (0.215)	−0.238 (0.152)	0.006 (0.156)	−0.358 (0.318)	−0.434^{+} (0.239)	−0.413* (0.173)
(8)	Article – quantitative methods (d)	0.185 (0.124)	0.434*** (0.125)	0.201 (0.212)	0.232^{+} (0.127)	0.154 (0.144)	0.028 (0.190)	0.141 (0.196)	0.303^{+} (0.183)
(9)	Article – qualitative methods (d)	−0.076 (0.126)	−0.091 (0.132)	−0.538*** (0.145)	−0.393** (0.133)	−0.536***(0.115-)	−0.284* (0.132)	−0.136 (0.161)	−0.263^{+} (0.146)
(10)	Article – mixed methods (d)	0.181 (0.128)	0.225^{+} (0.125)	−0.076 (0.184)	−0.106 (0.124)	−0.126 (0.127)	−0.279^{+} (0.149)	−0.068 (0.183)	−0.073 (0.156)
(11)	References – number	0.011*** (0.002)	0.007** (0.002)	0.001 (0.003)	0.009*** (0.002)	0.001 (0.002)	0.003 (0.003)	0.002 (0.003)	0.006* (0.003)
(12)	References – quality	0.108** (0.039)	0.090** (0.032)	0.102* (0.042)	0.141** (0.046)	0.160*** (0.037)	0.105* (0.049)	0.011 (0.039)	0.182** (0.060)
(13)	References – network efficiency	0.214* (0.088)	0.376*** (0.089)	0.224^{+} (0.131)	0.292*** (0.083)	0.162^{+} (0.084)	0.339* (0.141)	0.169 (0.136)	0.224 (0.142)
(14)	References – disciplinary diversity	0.262 (0.382)	0.322 (0.305)	0.053 (0.341)	0.231 (0.330)	−0.033 (0.274)	−0.947 (0.618)	0.069 (0.450)	1.404 (0.991)
(15)	References – theoretical diversity	0.401^{+} (0.211)	0.371 (0.254)	0.371 (0.253)	0.077 (0.250)	0.405 (0.255)	0.699** (0.261)	0.521* (0.250)	0.308 (0.291)
(16)	Constant	n/a	n/a	n/a	n/a	n/a	n/a	0.095 (0.546)	n/a
(17)	Number of articles	31,602	44,049	36,323	46,681	42,822	35,916	38,713	34,639
(18)	Number of journals	168	165	135	148	140	127	165	116
(19)	Wald Chi-squared	172.77***	138.07***	58.14***	186.53***	132.32***	188.84***	40.10***	80.22
(20)	McFadden R-squared	0.050	0.066	0.046	0.067	0.052	0.064	0.031	0.082

	Ess 2015[b]	FNEG[b]	FT45 2010[c]	Google h5[a]	HB 2014[b]	HEC[b]	SJR[b]	UQ 2011[b]	UTD (undated)[c]	VHB[b]
(1)	−0.080** (0.029)	−0.063* (0.031)	−0.103* (0.045)	−0.001 (0.036)	−0.005 (0.030)	−0.009 (0.037)	0.019 (0.026)	−0.042 (0.040)	−0.136** (0.049)	−0.043 (0.030)
(2)	0.015*** (0.004)	0.016*** (0.002)	0.015** (0.006)	0.006^{+} (0.003)	0.012*** (0.002)	0.017*** (0.002)	0.014*** (0.002)	0.012*** (0.002)	0.029*** (0.003)	0.015*** (0.003)
(3)	0.428** (0.161)	0.619*** (0.099)	0.370^{+} (0.197)	0.514** (0.157)	0.561*** (0.107)	0.383*** (0.112)	0.717*** (0.109)	0.486*** (0.108)	1.382*** (0.152)	0.672*** (0.100)
(4)	0.698*** (0.112)	0.503*** (0.125)	0.705*** (0.155)	0.213^{+} (0.113)	0.471*** (0.137)	0.417* (0.169)	0.438*** (0.114)	0.330^{+} (0.170)	0.962*** (0.134)	0.593*** (0.129)
(5)	−0.113 (0.237)	0.041 (0.172)	0.114 (0.480)	−0.430* (0.215)	−0.059 (0.192)	0.273 (0.208)	−0.231 (0.146)	−0.185 (0.298)	−0.695* (0.352)	−0.315^{+} (0.176)
(6)	−0.004 (0.012)	−0.004 (0.015)	−0.018 (0.021)	−0.064*** (0.019)	−0.005 (0.012)	0.028 (0.020)	−0.017 (0.016)	0.004 (0.010)	−0.030 (0.019)	−0.001 (0.011)
(8)	0.088 (0.164)	0.286* (0.143)	−0.125 (0.228)	0.167 (0.155)	0.166 (0.143)	0.160 (0.183)	0.312** (0.104)	0.446*** (0.135)	0.470* (0.186)	0.339* (0.142)
(9)	−0.744*** (0.136)	−0.549*** (0.108)	−0.638*** (0.153)	−0.051 (0.123)	−0.340** (0.116)	−0.528** (0.171)	−0.161 (0.129)	−0.385** (0.122)	−0.647* (0.262)	−0.311* (0.124)
(10)	−0.387** (0.150)	−0.298* (0.130)	−0.614** (0.188)	0.191 (0.160)	−0.094 (0.137)	−0.295^{+} (0.174)	0.167 (0.125)	0.029 (0.109)	−0.155 (0.250)	−0.073 (0.131)
(11)	0.003 (0.002)	0.002 (0.002)	0.001 (0.004)	0.012*** (0.002)	0.003 (0.002)	0.004 (0.003)	0.009*** (0.002)	0.007** (0.002)	0.004 (0.003)	0.005* (0.002)
(12)	0.122** (0.040)	0.181*** (0.033)	0.085^{+} (0.047)	0.137** (0.046)	0.122*** (0.034)	0.102** (0.037)	0.133*** (0.038)	0.116*** (0.029)	0.272*** (0.046)	0.193*** (0.047)
(13)	0.061 (0.092)	0.216* (0.090)	0.154 (0.135)	0.260** (0.087)	0.362*** (0.092)	0.182 (0.128)	0.120 (0.089)	0.438*** (0.089)	0.352** (0.131)	0.304*** (0.086)
(14)	0.463 (0.324)	0.095 (0.264)	−0.873 (0.669)	0.056 (0.309)	0.561^{+} (0.317)	0.356 (0.323)	1.166*** (0.312)	0.298 (0.307)	2.578** (0.867)	1.329* (0.568)
(15)	−0.005 (0.294)	0.211 (0.243)	0.808* (0.361)	0.336 (0.215)	0.719** (0.250)	0.530^{+} (0.289)	0.097 (0.227)	0.588* (0.281)	0.194 (0.459)	0.209 (0.268)
(16)	n/a	n/a	−1.673^{+}(0.939)	n/a	n/a	n/a	n/a	n/a	−6.993*** (0.832)	n/a
(17)	39,610	35,353	41,749	31,602	46,135	27,891	19,576	34,131	52,402	45,620
(18)	106	133	166	168	152	96	167	133	168	141
(19)	114.54***	196.01***	113.15***	81.89***	135.52***	194.92***	203.84***	213.79***	378.13***	248.27***
(20)	0.060	0.067	0.088	0.044	0.051	0.080	0.056	0.087	0.210	0.092

Notes: [a] All models: VIF(max) = 1.94, VIF(mean) = 1.26; [b] Ordered logit regression; [c] Logit regression; *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.10$.

The type of paper is of limited relevance, too. We classified the papers as to whether they are reviews of literature, but find only modest relationships with the ratings of journals. While the association tends to be negative, it is moderately significant only for EJL, ESS, FT45 and UTD ($p < 0.05$). The probability of publication in a top journal is 19.7 % for a review paper and 22.5 % otherwise. The small magnitude of this effect underlines that the classification of a paper as review is not substantially associated with the rating of the publication outlet.

A further characteristic of a paper is as to whether it is based on empirical data, and if so, which methods were applied in the conduct of the research. We included three dummy variables for quantitative, qualitative and mixed methods, respectively, with non-empirical (i.e., conceptual) papers as reference category. Table 5 shows that many rankings reward the application of quantitative methods. We find a strong and positive relationship between quantitative methods and journal ratings for ABDC and UQ ($p < 0.001$). This relationship is still significant, yet at lower levels, for SJR ($p < 0.01$) as well as FNEG, UTD and VHB ($p < 0.05$). Since the association is not, or only marginally, significant for the other rankings, the average effect in substantial terms is rather small. The conditional probability of publication in top journals is 24.3 % for a paper with application of quantitative methods and 21.3 % otherwise.

While the conduct of empirical research with quantitative methods tends to be advantageous, or at least not disadvantageous, in terms of quality ratings of publication outlets, the opposite holds for qualitative methods (Table 5). We find a strong negative relationship for AERES, CNRS, ESS, FNEG and FT45 ($p < 0.001$). The association is still strong, yet on a slightly lower level of significance, for AJG, HB, HEC and UQ ($p < 0.01$), and it is moderately significant for CRA, UTD and VHB ($p < 0.05$). In substantial terms, a paper in our sample has, on average across all rankings, an 18.5 % probability of having been published in a top journal if it refers to qualitative methods, compared to 23.1 % if it does not.

There is a less clear tendency with regard to mixed methods (Table 5). In most rankings, the association between the application of mixed methods and the rating categories is either marginally significant or not significant at all. The relationship is negative and statistically significant only for ESS and FT45 ($p < 0.01$) as well as for FNEG ($p < 0.05$). Accordingly, the conditional probability of publication in top journals does not differ substantially with this characteristic. It is 21.2 % for papers with application of mixed methods and 22.6 % otherwise.

4.3. References

The extent and structure of bibliographies at the end of academic texts may also indicate certain characteristics of research, and these characteristics may, in turn, be related to the quality ratings of publication outlets. In the majority of rankings, however, there is no association between the number of references and rating categories (Table 5). We find a positive relationship at the highest level of significance for 5YIF, AJG, Google h5 and SJR ($p < 0.001$). The same association is still significant, but at lower levels, for ABDC and UQ ($p < 0.01$) as well as for EJL and VHB ($p < 0.05$). If the number of references equals the first decile of the frequency distribution of references across all papers in our sample (14), the average probability of publication in a top journal is 14.3 %. It increases to 20.1 % if the number of references in a paper's bibliography complies with the ninth decile in the overall distribution (95).

Except for only two rankings (DEN and FT45), the quality of references, as measured by the SJR indicator, is positively and significantly related to the journal ratings. This association is significant at the level of $p < 0.05$ for AERES and CRA, at the level of $p < 0.01$ for 5YIF, ABDC, AJG, EJL, ESS, Google h5 as well as HEC, and at the level of $p < 0.001$ in the case of all other rankings. The marginal effects further emphasize a strong association. If none of the journals cited within a paper has a SJR, the average probability of publication in top journals is 17.2 %. This probability more than doubles to 35.1 % if the average indicator score of cited journals is 10, which corresponds approximately to the score of the *Academy of Management Annals*.

The network efficiency is a measure for the extent to which a paper fills a structural hole in the bibliographic network of the publication year. It consistently shows a positive relationship with the quality ratings across all journals rankings (Table 5). The relationship is highly significant for ABDC, AJG, HB, UQ and VHB ($p < 0.001$), significant at a slightly lower level for Google h5 and UTD ($p < 0.01$), and moderately significant for 5YIF, CRA and FNEG ($p < 0.05$). A paper has a network efficiency of 0 if all ties to the neighborhood are redundant because the neighbors are interconnected anyway. In this case, the conditional probability of publication in top journals is 20.8 %. It increases to 24.8 % for a paper with a network efficiency of 1. This applies to a paper all of whose neighbors would be disconnected among each other if it were missing in the bibliographic network.

Table 5 shows that disciplinary diversity among the references is not significantly related to the quality ratings in most journal rankings. We find a positive and statistically significant association only for SJR ($p < 0.001$), UTD ($p < 0.01$) and VHB ($p < 0.05$). The substantial effects are small, too. The average probability of publication in top journals increases from 21.3 % for a monodisciplinary paper to 24.0 % for a maximally interdisciplinary paper.

Results are similar for theoretical diversity (Table 5). A positive association at accepted levels of significance was found only for CRA and HB ($p < 0.01$) as well as for DEN, FT45 and UQ ($p < 0.05$). However, the marginal effects are larger than in the case of disciplinary diversity. While a paper which refers to only one and the same theory has a 21.3 % probability of having been published in a top journal, this probability increases to 27.4 % if all references of a paper indicate different theories.

5. Discussion

Journal rankings increasingly inform academic performance management, but beyond the general claim to measure research quality, it is unclear what more specific criteria are implicit to the most widely used rankings. The prevalence of author-related characteristics as predictors of quality ratings suggests that the field of management and business studies can be considered a reputational work organization in which the social organization of research matters for the advancement of knowledge and careers (Whitley, 1984). In particular, we find evidence that collaboration among co-authors is not advantageous per se but conducive to publication success only if it spans institutional boundaries. This finding suggests that the advantage of geographical proximity matters less than the benefits of cross-institutional collaboration, the more so in an age of advanced information and communication technology. The quality of papers whose authors are affiliated with different institutions may benefit from a broader range of cognitive resources and a better fit of these resources as compared to co-authorships from within the same institution (Beaver, 2004; Hodgson and Rothman, 1999; Leydesdorff and Wagner, 2008). It is also possible that highly skilled authors are more deeply embedded into the scientific community and thus have more opportunities for collaboration with colleagues from different institutions (Van Rijnsoever and Hessels, 2011). Institutional diversity among co-authors thus may be a signal of social prestige. As such, it may also be recognized by journal editors and bias them towards more favorable evaluations of manuscripts.

Furthermore, the results show that publication in highly rated journals is not only a matter of institutional diversity among co-authors, but also of how renowned the institutions are and where they are located. Again, hidden preferences of journal editors may contribute to these effects (Miller, 2006; Peters and Ceci, 1982). It is also likely that prestigious institutions attract better skilled authors, offer them working conditions that are more supportive of research, and place

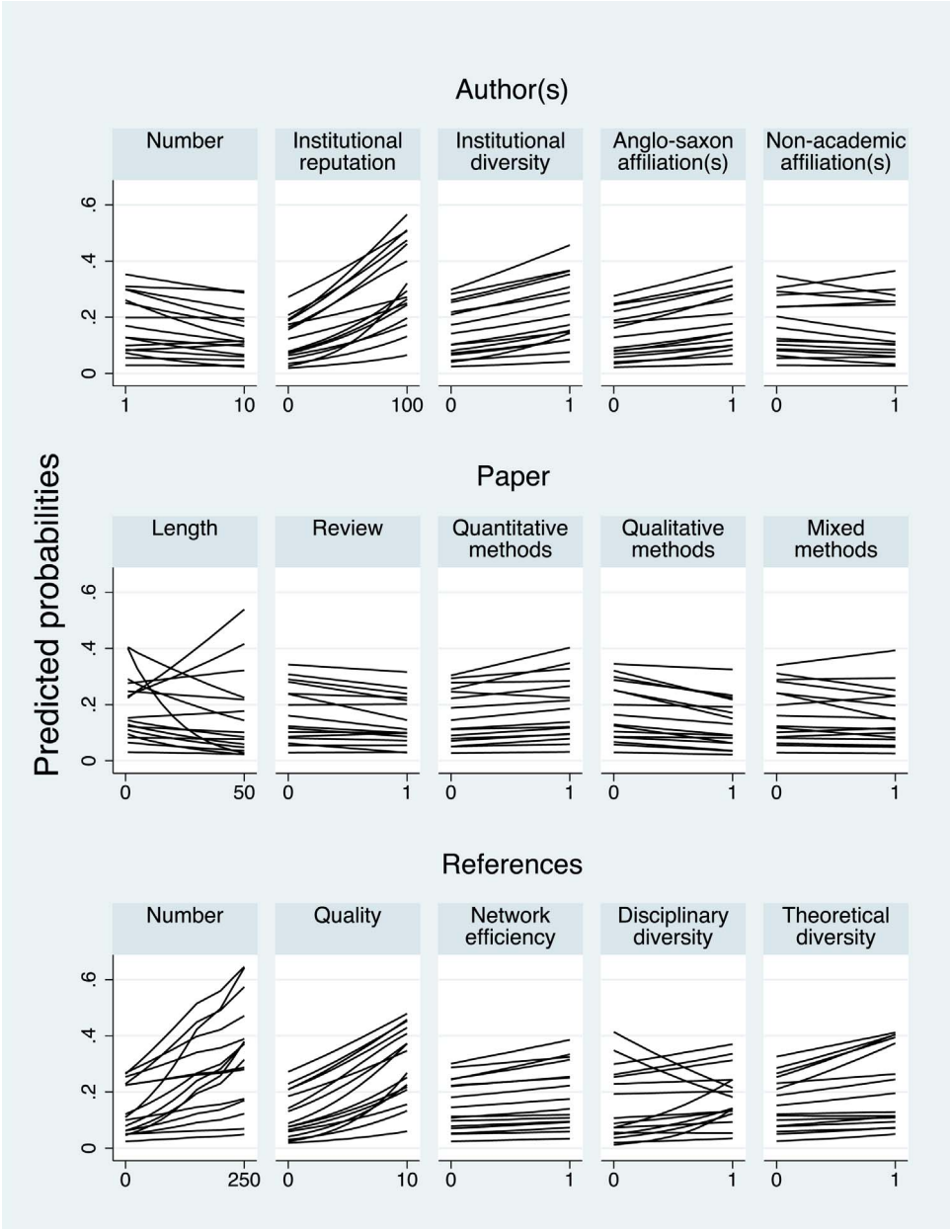


Fig. 1. Conditional probabilities of publication in top journal category.

more emphasis on top publications in their performance management systems as compared to institutions with a lower academic reputation (Campanario, 1998). A more rigorous approach to performance management may also be part of the explanation why management and business studies are predominated by Anglo-Saxon scholarship (Hodgson and Rothman, 1999; Tsoukas, 2008). Our results show that authors from Anglo-Saxon countries not only have by far the largest share among all authorships, they are also even more successful the higher a journal is ranked. In Anglo-Saxon countries, where the new public management movement originated, performance-based reward and funding schemes have been widely adopted in academic management and provide strong incentives to target top journals. Moreover, academic education and training in Anglo-Saxon institutions may better prepare for the art and business of publishing in these journals, not at least for reasons of language familiarity (Tsoukas, 2008).

A striking result is that non-academic affiliations of authors are not substantially related to the ratings of journals. This finding suggests that journal rankings do not draw scholarship away from practical relevance, as some critics have argued (Adler and Harzing, 2009; McKinnon, 2013). It rather confirms previous studies that find no significant association between practical relevance and publication success (Flickinger et al., 2014). However, it should be noted that authorship is an 'input indicator' for "practice-led research" (Birkinshaw et al., 2016) which only imperfectly reflects attributes of the output, i.e. the written paper. It was not possible for us to assess the relevance of a journal paper for managerial issues more directly, for example by coding of full texts or by analyzing downloads from outside academia. Future research could validate our findings with alternative measures of practical relevance.

Although there is vast evidence that literature reviews receive more citations than other types of papers (Antonakis et al., 2014; Ilgen, 2007; Judge et al., 2007; Macdonald and Kam, 2007; Mingers and Xu, 2010), we do not find a substantial association with the ratings of journals, not even in the three purely citation-based rankings in our sample. The mission statements of top journals often express editorial policies that are strongly committed to original research. This may prompt journal editors to resist the temptation of higher citation rates and to keep publication slots for review articles limited. At the same time, lower

ranked journals, particularly those of a young age, may publish review articles in order to increase citation rates and to improve in the rankings (Biscaro and Giupponi, 2014; Parker and Thomas, 2011). This may explain why in the few cases where we find significant effects, the association between the classification of a paper as review and the rating of the publication outlet is negative.

While we cannot confirm that highly ranked journals publish more conceptual papers than journals with lower ratings (Ilgen, 2007; Judge et al., 2007; McKinnon, 2013; Mingers and Xu, 2010; Parker and Thomas, 2011), we find strong evidence that empirical papers are favored by top journals if they use particular methods (Tahamtan et al., 2016). The results of our study support previous findings that quantitative methods applied to large datasets are more prevalent in top journals (Hambrick, 1990), while qualitative methodologies and case study research are less frequently published the higher a journal is ranked (Goodall, 2008; Grey, 2010). Since methodological orientations correspond to certain research paradigms (Burrell and Morgan, 1979), this finding is consistent with the view that a positivist tradition, which borrows heavily from the 'hard' or 'mature' sciences and puts emphasis on mathematical logic, predominates in management and business studies at the expense of more heterodox approaches (Antonakis et al., 2014; Grey, 2010; McKinnon, 2013; Mingers and Willmott, 2012; Özbilgin, 2009; Parkhe, 1993).

A particularly interesting finding is that the paper-level measure for structural holes in the bibliographic network shows a positive association with quality ratings across all journal rankings in our sample. Since this measure is intended to reflect innovativeness (Burt, 1992), the finding contradicts more anecdotal evidence that innovative research is detrimental to publication in highly rated journals (e.g., Lindsey, 1989; McKinnon, 2013; Mingers and Willmott, 2012). However, it should be noted that the applied network measure captures innovativeness in terms of how much a node connects otherwise unconnected nodes and thus fills a hole in the network. When applied to bibliographic networks, this corresponds to the extent to which a paper recombines literatures that have not been integrated in the same way before. Since this reflects a kind of "recombinant innovation" (Hargadon, 2003), the established association may hold only for moderate rather than radical innovation. Other ways of operationalization should be considered and tested empirically in order to account for the complexity of innovation in research.

Our findings are also not consistent with the assumption that journal rankings are detrimental to diversity in research. It has been argued that rankings discriminate for and against certain theories and do not provide incentives for interdisciplinarity (Macdonald and Kam, 2007; Mingers and Willmott, 2012). On the contrary, we find that theoretical diversity within papers tends to be more prevalent the higher journals are rated. The same holds true for interdisciplinarity, but this association is more ambiguous because two rankings (CRA and FT45) strongly deviate from the overall pattern. By and large, however, we find the opposite of discrimination because appreciation of theoretical and disciplinary diversity reflects tolerance for multiple perspectives in management and business studies. A possible explanation for this finding may be that "the number of broad-based management journals in the upper reaches of journal quality lists has increased," as Clark and Wright (2007, p. 614) observe. Journals with a wide coverage of topics and a broad audience can be expected to be more open to research that builds on a diverse set of theories from different disciplines than journals with higher degrees of specialization. However, we cannot exclude the possibility that our diversity measures are driven by frequently recurring combinations of the very same theories and disciplines. Future studies could account for disparities (i.e., dissimilarities) rather than for mere diversity (Rafols et al., 2012).

In summary, the results of our study provide evidence that different research orientations and practices, as reflected in tangible characteristics of papers, do indeed vary with the quality ratings of journals. Our study thus supports previous assumptions and findings that journal rankings do have discriminatory power and, given their growing importance for career advancement and resource allocation, provide incentives to conduct research in particular ways. While some of our findings support critical assumptions on certain preferences in editorial policies of top journals, others refute often repeated but rarely substantiated criticisms of journal rankings. However, the results should be interpreted with caution and conclusions should be drawn carefully because our study has some limitations that are worth acknowledging.

First, our study may suffer from a publication bias because we could only consider papers that were already published and hence have found approval by reviewers and editors. Among the non-covered papers may be those that are repeatedly rejected or never submitted because they deviate too strongly from the mainstream. Accordingly, the results presented above may still underestimate the discriminatory power of rankings. For the same reason, caution is required when implications for future prospects of submissions are drawn from publication data of the past. We cannot reasonably assume that the number and characteristics of submitted papers are equally distributed across all journals in all rating categories. Hence, the conditional probabilities of past appearance in a certain rating category should not be equated with acceptance rates of future submissions. Further research could try to expand the database by manuscripts and working papers that were submitted to journals but not accepted for publication.

Second, our study does not account for the heterogeneity within journal classes. The results rather show general tendencies across all journals with the same quality rating, but within each rating category, editorial policies may differ considerably. Therefore, authors may draw general conclusions from our findings, but these conclusions cannot substitute for the individual adjustment of publication strategies to the editorial policies of specific target journals.

Third, while bibliometric studies are powerful in detecting patterns of scholarly communication at high levels of aggregation, they also have some drawbacks. Bibliometric indicators reduce the complexity of research to large extents and thus often do not account for details. For example, citation-based indicators do not reflect different types or motives of citations (e.g., confirmative or negating; Bornmann and Daniel, 2008). Some more operational issues of the indicators employed in this study were discussed above. Bibliometric studies also require choices that could be made differently. Where possible, we have varied these choices of measurements and time frames as part of our robustness checks. We nevertheless encourage further studies with different methodologies in order to cross-validate our findings. Such studies could also account for non-linear (e.g., U-shaped) relationships between independent and dependent variables.

And fourth, since our study was limited to the field of management and business studies, it is unclear how the findings generalize to other systems of publication and reputation. Management and business studies is a "fragmented adhocracy" with a high degree of task uncertainty and a low degree of mutual dependence among researchers (Vogel, 2012; Whitley, 1984). Since such reputational fields are characterized by a low consensus on research priorities and significance standards, the evaluation of research is more ambiguous than in fields with less uncertainty and higher standardization, such as the natural sciences. At the absence of clear standards and priorities in the evaluation of the content of papers, other criteria (such as the institutional affiliation of authors) may gain in importance. Comparisons across different scholarly fields would help to assess the generalizability of our findings.

6. Concluding remarks

This paper examined how some important characteristics of research papers vary with the rating categories of journals. Our findings, which draw a more detailed and balanced picture than was available before, allow for conclusions about the characteristics of papers which are incentivized when papers in management and business studies are weighted with ratings of the journal in which they are published. Some

of this evidence is contradictory to often repeated criticisms of journal rankings, but this is not necessarily surprising. Journal rankings ultimately reflect preferences of the members of a scientific community who collectively assess the quality of outlets in terms of published research (implicitly by citation behavior, explicitly by expert judgements, or both). As with any preferences or attitudes, those towards journals are affected by deeply rooted values and norms. If the members of the scholarly community still adhere to traditional norms of science, such as theoretical diversity, interdisciplinarity and innovativeness, it is likely that these norms surface in the preferences aggregated by journal rankings.

We also find, however, partial support for a bias of top journals against a certain methodology (i.e., interpretive). This tendency counterbalances the more general appreciation of diversity. It may unintendedly trigger further homogenization because editors and publishers of lower-ranked journals may imitate editorial policies that are successful in terms of quality ratings. Under this isomorphic pressure, which may be facilitated by the economic logics of the publishing industry in higher education (Thornton, 2004), the field would converge more towards the standards set by prestigious outlets at the top of journal lists. This is another reason why higher education managers and members of scientific committees should still be cautious when applying rankings in the evaluation of research performance (Chang and McAleer, 2013). Using various rankings complementarily rather than alternatively is such a way to show responsibility. Further studies could explore if other rankings diverge from the patterns found in this study and thus add more variation to performance management in academia.

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Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at http://dx.doi.org/10.1016/j.respol.2017.07.001.

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