



Business Research

VHB-JOURQUAL2: Method, Results, and Implications of the German Academic Association for Business Research's Journal Ranking
Ulf Schrader, Thorsten Hennig-Thurau

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VHB-JOURQUAL₂: Method, Results, and Implications of the German Academic Association for Business Research's Journal Ranking

Ulf Schrader, Institute of Vocational Education and Work Studies, Division of Work Studies: Economy and Sustainable Consumption, Technical University of Berlin, Germany, E-Mail: schrader@tu-berlin.de

Thorsten Hennig-Thurau, Department of Marketing and Media Research, Bauhaus-University of Weimar, Germany, and Faculty of Management, Cass Business School, City University London, E-Mail: tth@medien.uni-weimar.de

Abstract

VHB-JOURQUAL represents the official journal ranking of the German Academic Association for Business Research. Since its introduction in 2003, the ranking has become the most influential journal evaluation approach in German-speaking countries, impacting several key managerial decisions of German, Austrian, and Swiss business schools. This article reports the methodological approach of the ranking's second edition. It also presents the main results and additional analyses on the validity of the rating and the underlying decision processes of the respondents. Selected implications for researchers and higher-education institutions are discussed.

Keywords: Journal ranking, rating, impact factors, VHB-JOURQUAL

This article was commissioned by the Editor-in-Chief and went through the review process. Manuscript received September 10, 2009, accepted by Sönke Albers (Editor-in-chief) November 9, 2009.

1 Introduction

VHB-JOURQUAL represents the official journal ranking of the German Academic Association for Business Research (Verband der Hochschullehrer für Betriebswirtschaftslehre – VHB). It rates and ranks international and German-language academic journals which are considered relevant for German-speaking business researchers based on the quality assessments of VHB members who comprise more than 90% of all professors and researchers with a Ph.D. in business administration at German, Austrian, and Swiss universities. Since its initial publication in 2003 (Hennig-Thurau, Walsh, and Schrader 2004), the ranking has become the most prominent business research-journal ranking in German-speaking countries.

The results of an online survey of VHB members in 2007 ($n = 489$) give evidence that VHB-JOURQUAL is widely accepted and broadly used for

evaluating the scientific performance of business scholars in Austria, Germany and the German-speaking part of Switzerland (Schrader and Hennig-Thurau 2007). 59 % of the respondents assessed VHB-JOURQUAL as “good” or “very good”, while only 9 % held a negative attitude toward the ranking. VHB-JOURQUAL is of special importance for the formal post-doctoral assessment in German-speaking countries – the so-called “Habilitation,” a traditional requirement for obtaining a full professorship – and the appointment of full professors; in each case, 54 % of the respondents judged the ranking being of “high” or “very high” relevance for their institutions. Other areas for which VHB-JOURQUAL is considered to have substantial relevance include the hiring and evaluation of assistant professors (“*Junior-Professoren*”), research performance evaluations (with a possible impact on budget allocation), and the evaluation of the rapidly



growing number of cumulative doctoral dissertations.

VHB-JOURQUAL is considered a major driver of the radical transformation of the German business-administration community into a much more research-focused and internationally active academic discipline (Homburg 2008). In an environment which Simon (1993) described as a “black hole” – with German-speaking business scholars absorbing their international colleagues’ findings, but giving nothing back to the international community – , VHB-JOURQUAL offered for the first time a comparison of the scientific quality of articles published in German-language journals with those published in international journals. As the ranking provided strong evidence that the quality of even the best German-language journals is perceived to be substantially lower than the quality of leading international journals, VHB-JOURQUAL has since then become a strong motivating force for German scholars to publish their best work internationally and enter “global competition”.

This article describes the methodology of VHB-JOURQUAL and reports specific features and key results of the second edition of the ranking (VHB-JOURQUAL₂), which is based on a survey conducted among VHB members in 2008. We also investigate the ranking’s validity and provide concluding remarks on the benefits and limitations of VHB-JOURQUAL.

2 Background: Survey-based vs. citation based journal-rankings

There are two basic approaches for conducting academic-journal rankings: citation-based rankings (e.g., Azar and Brock 2008; Ritzberger 2008; Vieira 2008) and survey-based rankings (e.g., Bräuninger and Haucap 2002; Hennig-Thurau, Walsh, and Schrader 2004). Hybrid rankings, as a third ranking type, combine both approaches (e.g., Franke and Schreier 2008; Schulze, Warning, and Wiermann 2008). We will compare the different approaches in terms of strengths and weaknesses and explain how VHB-JOURQUAL addresses them.

Citation-based journal rankings such as the ISI Journal Citation Reports are often considered “objective” (e.g., Ritzberger 2008). Here, the ranking position of a journal depends on the number of citations the papers in the journal receive. The idea behind it is that citations are “the scientific commu-

nity’s version of dollar voting by consumers for goods and services” (Laband and Piette 1994a: 641). Similar to the way economic theory considers payment at the cash desk as the result of a quality assessment by consumers, a citation-based ranking treats a citation as a proof of perceived quality. However, there are two major caveats to this approach, particularly when audiences are interested in the scientific quality of a journal (e.g., Schulze, Warning, and Wiermann 2008):

- *Quality vs. impact.* Citations are not objective indicators for an article’s scientific quality. The decision to accept a submitted article, making it available for citations, is subjective and not only determined by scientific quality (Blank 1991; Frey and Rost 2008; Laband and Piette 1994b; Starbuck 2004), and authors’ decision to cite an article is, in addition to quality, also influenced by the article’s type and topic (e.g., state-of-the-art review), its shortcomings as well as citation cartel memberships (e.g., Fabel and Heße 1999). Thus, citation indexes do not measure the scientific quality but rather the impact of a journal. The ISI Journal Citation Reports ranks a journal according to its “impact factor”, not to a quality index. Impact and scientific quality should not be treated as synonyms since the empirical correlations between them can be weak or even negative in some cases (e.g., Maier 2006; Schlinghoff and Backes-Gellner 2002).
- *Data availability.* Citation data can only be obtained from a limited number of sources and is not available for a substantial number of journals. The market-dominating provider of interdisciplinary citation indexes is Thomson Reuters with the Social Science Citation Index (SSCI), the Science Citation Index-Expanded (SCI-X), the Arts & Humanities Citation Index (A&HCI), the Conference Proceedings Citation Index - Science (CPCI-S), and the Conference Proceedings Citation Index Social - Science & Humanities (CPCI-SSH), constituting the “ISI Web of Knowledge.” Elsevier introduced the competing database Scopus in 2004, with limited market penetration so far. For business researchers, the most important index is the SSCI with its business, business/finance, and management categories, which – as reported later in the section on ranking validation – cover only about 20 % of the journals



considered relevant for business scholars and included in VHB-JOURQUAL₂, with only one German-language journal being represented there (BFuP – Betriebswirtschaftliche Forschung und Praxis). Considering all SSCI categories and other indexes mentioned above, these numbers will be only slightly higher (Clermont and Schmitz 2008; Dyckhoff and Schmitz 2007). In 2009, the ISI covered in total nine and Scopus 12 German-language journals ranked in VHB-JOURQUAL₂, which have predominantly low ratings (Clermont 2009). Consequently, in German-speaking countries citation-based rankings are hardly able to measure publication productivity of business scholars (Albers 2009; Dilger 2000).

Survey-based rankings also face limitations. However, these obstacles appear less systematic and strongly depend on the mode of data collection and analysis when compared to those of citation-based rankings. Major threats to the validity of survey-based rankings include the following issues:¹

- *Sample.* Respondents from whose assessments survey-based rankings are constructed are not always suited for assessing the scientific quality of academic journals. VHB-JOURQUAL aims to overcome this potential threat by including only VHB members who, at a minimum, hold a post-doctoral position, with the majority being full professors. VHB-JOURQUAL also requires active readership of a journal to rate its quality (it first asks the respondents to indicate which journals they have recently read and only in a second step asks respondents to evaluate those journals only) and uses an expertise factor to account for the respondents' differing levels of expertise (see also Heischmidt and Gordon 1993; Extejt and Smith 1990).
- *Too few or too many journals.* Survey-based rankings are often forced to limit the number of included journals to avoid overstraining respondents. VHB-JOURQUAL assures completeness of relevant journals by using a multistage process starting with the Journal Quality List by Anne-Wil Harzing (for VHB-JOURQUAL₂: Harzing 2007), limiting the

danger of overstraining by a highly customized online survey design. Specifically, all journals are assigned to business sub-disciplines (e.g., accounting, finance), and respondents are asked to evaluate only journal titles relevant for their specific sub-discipline.

- *Strategic answers.* Opponents of the survey-based approach argue that researchers not always evaluate journals according to their actual quality perception, but rather in a way that is best for them (e.g., Schulze, Warning, and Wiermann 2008). Specifically, given that journal rankings can influence careers, scholars will have an interest that the journals they publish in or serve for as editors or reviewers are highly ranked; something which they can influence through their own ratings. As the incentive for such strategic answers strongly depends on the individual researcher's impact on a journal's rating, VHB-JOURQUAL only considers journals with at least ten individual ratings. Moreover, ratings in VHB-JOURQUAL₂ are not anonymous – each respondent had to use a unique ID and agree that his data could be linked to his personal information by the authors of this study. This should reduce the motivation for strategic answers, since evident over- or underrating may become overt to the VHB-JOURQUAL authors. In addition, outlier judgments were systematically removed as will be explained later in more detail.

Finally, *hybrid rankings* combine data from expert surveys and citation indices. This extends the number of journals and bases the evaluation on a broader foundation. However, the hybrid approach does not heal limitations inherent in the sources which serve as necessary inputs such as missing citation data for German-language journals.

3 Measuring journal quality in VHB-JOURQUAL

Survey-based rankings usually solely focus on the overall quality of the articles that are published by a certain journal. In VHB-JOURQUAL, we conceptualize overall scientific quality of a journal as being defined by two quality dimensions which are measured separately, namely the quality of the articles published in a journal (article quality) and the quality of the review process of the journal (review quality). Both quality dimensions are treated as forma-

¹ Please note that additional information on the VHB-JOURQUAL₂ methodology is provided later in this article.

tive indicators of overall journal quality (for a similar approach, see Rossiter 2002). Our distinction between article and review quality draws from quality literature in related fields such as service management, which has often been used as a template for higher-education research (e.g., Hennig-Thurau, Langer, and Hansen 2001).

Service research distinguishes between outcome-related quality aspects and those aspects which are related to the process of the service production as dimensions of overall (perceived) service quality (e.g., Brady and Cronin 2001). While article quality serves as the equivalent of outcome quality in the context of academic-knowledge generation, review quality refers to the process of how articles (and their authors) are treated by the respective journal. In that sense, article and review quality measure different dimensions of academic-knowledge generation. Not all academics (as “customers”) experience both quality dimensions; while article quality can be assessed by all readers of a journal’s articles (including those who had only limited contact with a journal), the assessment of review quality requires deeper experiences and insight into a journal’s internal processes. The inclusion of review quality not only helps to capture scientific quality in a more comprehensive way, but also adds dynamics and flexibility, as changes in the review process will be experienced much faster than their manifestation in printed articles.

The VHB-JOURQUAL index, on which the rating and ranking of journals is based, combines the two quality dimensions of article quality and review quality in a weighted additive composition (see equation 1). Both quality dimensions are measured with single items which is an adequate procedure for expert surveys with formative measures, as is the case with VHB-JOURQUAL (Rossiter 2002).

$$(1) \quad JQI_J = a_J \cdot \frac{\sum_{i=1}^{n_{J,AQ}} (E_i \cdot AQ_{J,i})}{\sum_{i=1}^{n_{J,AQ}} E_i} + b_J \cdot \frac{\sum_{i=1}^{n_{J,RQ}} (E_i \cdot RQ_{J,i})}{\sum_{i=1}^{n_{J,RQ}} E_i}$$

Article quality
Review quality

with JQI_J : VHB-JOURQUAL index value of journal J (10-point scale from 1 = ‘very low’ to 10 = ‘very high’),

$AQ_{J,i}$: Scientific quality of articles in journal J as perceived by respondent i (on a 10-point

scale from 1 = ‘very low’ to 10 = ‘very high’),

$RQ_{J,i}$: Review quality of journal J as perceived by respondent i (on a 10-point scale from 1 = ‘very low’ to 10 = ‘very high’),

$n_{J,AQ}$: Number of respondents who have evaluated the article quality of journal J,

$n_{J,RQ}$: Number of respondents who have evaluated the review quality of journal J,

E_i : Weighting factor for the expertise of respondent i,

a_J, b_J : Weighting factors for journal J, with $a_J + b_J = 1$.

Article quality is measured with the item “I consider the scientific standard of articles published in this journal to be ... [Please indicate a number between 1 = ‘extremely low’ and 10 = ‘extremely high’]”. The original German wording of this item is: “Das wissenschaftliche Niveau der in dieser Zeitschrift veröffentlichten Artikel halte ich für...[Bitte Zahl zwischen 1 = ‘extrem gering’ und 10 = ‘extrem hoch’ angeben].“ The item is evaluated by respondents who have read at least one new article in the respective journal in the last five years (VHB-JOURQUAL2: 2003-2007).

Review quality is measured with the item “The scientific quality of the review process is ... [Please indicate a number between 1 = ‘extremely low’ and 10 = ‘extremely high’]”. The original German wording of the item is: “Die wissenschaftliche Qualität des Review-Prozesses ist...[Bitte Zahl zwischen 1 = ‘extrem gering’ und 10 = ‘extrem hoch’ angeben].“ The scientific quality of the review process is defined as “standards for submissions requested by reviewers and/or editors” (in German: “die Ansprüche, die Gutachter und/oder Schriftleiter bzw. Editoren an eingereichte Beiträge stellen”). Review quality is rated only by those who have either submitted at least one paper within the last five years or know the review process as reviewers or editors of the journal. In VHB-JOURQUAL1 only authors who had submitted papers were allowed to evaluate the review process. Also letting reviewers and editors evaluate review quality leads to a higher number of review-process evaluations and reduces the likelihood that ratings and rankings are mainly or only based on article-quality assessments.

We weight the formative indicators of article quality and review quality equal (both a_J and $b_J = 0.5$), assuming both play the same role for determining overall scientific quality of a journal. However, to account for the limited number of review evalua-

tions for several journals and the loss in reliability associated with a small sample size for the review-quality indicator, we adjusted the weights for article and review quality if the number of review quality assessments fell short of a certain threshold. Equation 2 lists the adjustments in weighting the two quality criteria for different numbers of ratings of a journal's review quality. If no respondent has rated a journal's review process, the weight for b becomes 0 and (since $a_J = 1 - b_J$) the overall JOURQUAL rating is solely based on the article-quality indicator (with $a_J = 1$).

$$(2) \quad b_J = f(n_{J,RQ}), \text{ with } \begin{cases} b_J = 0 \text{ for } n_{J,RQ} = 0 \\ b_J = 0.1 \text{ for } n_{J,RQ} = 1 \\ b_J = 0.2 \text{ for } n_{J,RQ} = 2 \\ b_J = 0.3 \text{ for } 3 \leq n_{J,RQ} < 5 \\ b_J = 0.4 \text{ for } 5 \leq n_{J,RQ} < 10 \\ b_J = 0.5 \text{ for } n_{J,RQ} \geq 10 \end{cases}$$

Expertise is included in the calculation of the VHB-JOURQUAL₂ overall quality score as a weighting factor since we expect a positive correlation between the expertise of a respondent and the validity of her or his assessment. We argue that scholars who have published in a variety of journals, and particularly in leading international journals, will be better able to judge the quality of articles and review processes than colleagues who lack that experience. Specifically, we operationalize expertise by three indicators: (a) the number of different journals a respondent has published in during the last five years; (b) the number of publications in high-quality journals (defined as journals with an unweighted VHB-JOURQUAL index value ≥ 7) during the last five years; and (c) the international experience gathered by publications in English-language high-quality journals during the last five years. For the first two indicators the raw values are transformed to scales ranging from 1 to 2; for indicator (c) respondents with at least one international high-quality journal publication receive a 2, all others a 1. The three indicators are multiplied and then rescaled to an expertise scale ranging from 1 to 5. As a consequence, the evaluations of the respondents scoring with the highest expertise are weighted five times higher than the assessments of the respondents with the lowest expertise. We prefer a multiplicative function of expertise over an additive one, as we argue that academic expertise builds up in a non-linear way,

with the three indicators' impact on overall expertise not being independent.

While the journal ranking results directly from the different VHB-JOURQUAL index values, the rating assigned to an index value requires a categorization. VHB-JOURQUAL sorts journals into rating categories based on their index values, using absolute numbers as thresholds for defining the categories for the lack of a more objective categorization. Table 1 lists the six rating categories ranging for A+ to E and the respective VHB-JOURQUAL scores.

Table 1: Thresholds for Rating Categories

VHB-JOURQUAL Rating Category	VHB-JOURQUAL Index Value
A+	$9 \leq JQL_J$
A	$8 \leq JQL_J < 9$
B	$7 \leq JQL_J < 8$
C	$6 \leq JQL_J < 7$
D	$5 \leq JQL_J < 6$
E	$JQL_J < 5$

4 Survey and sample of VHB-JOURQUAL₂

The VHB-JOURQUAL₂ survey was conducted from February to April 2008. Every VHB member with a registered email address ($N = 1,555$) received an invitation email from the VHB chairmen and the authors of the study which contained a unique link to an online questionnaire. Every participant went through the highly individualized survey procedure depending on his or her specific research fields, reading habits, submission activities and reviewer or editor positions. 1,011 respondents started the evaluation process (response rate of 65%), about 600 fully completed the questionnaire. Many respondents who "dropped out" had actually proceeded through major parts of the survey. We included all responses in our calculations regardless of technical completion.

The questionnaire included a total of 1,633 journals. In addition to academic journals in a narrow sense, the list also comprises yearbooks and proceedings with a homogeneous review process. This is due to the observation that in some business sub-disciplines (such as information systems) refereed conference proceedings fulfill similar tasks than actual journals. The list of journals for VHB-



JOURQUAL₂ was selected in a multi-step process. First, we synchronized the VHB-JOURQUAL₁ journal list with the established Harzing-List of business-administration journals (Harzing 2007). Second, we assigned the journals to different business sub-disciplines which strongly overlapped with the 16 sections of the VHB (“Wissenschaftliche Kommissionen”; e.g., finance and banking, taxation, international management). Third, in a joint effort with all chairpersons of the VHB sections, we added new or previously overlooked journals, eliminated those which have ceased publication and adjusted the categorization. Fourth, we invited all VHB members to complete the journal list and asked them to indicate which journals they actually read in an online pre-survey (n = 489). The final list then included all journals which were either indicated by at least two respondents in the pre-survey or evaluated by at least five respondents in VHB-JOURQUAL₁. Journals which did not meet one of these requirements were excluded as we expected them not to receive the minimum number of ten evaluations in the main survey required for the inclusion in the final ranking.

To reduce the number of strategic answers, we limited the anonymity of the study by informing the participants in the invitation mail that the authors of the study would be able to assign every rating to the individual respondent. Also, indicating the number of submissions to and publications in a journal was not sufficient; respondents also had to name respective papers’ short titles. This information was used to assure a valid calculation of expert factors and that review processes are only evaluated by respondents who have actually experienced them within the period of observation. While we are aware that these measures cannot completely remove all kinds of strategic behavior, they certainly increased the psychological barriers to behave in such a way.

To further improve the quality of our data, we excluded outlier ratings when calculating the VHB-JOURQUAL₂ ratings, as we assumed outliers to be based on misunderstandings or strategic misevaluations. Specifically, for each journal, we kept all responses within the 99 % confidence interval (two-sided) for both dimensions of quality (i.e. article and review quality) and deleted those responses outside the confidence interval. This procedure resulted in the removal of a total of 315 individual ratings. About 90 % of these deleted ratings were below the

confidence interval; thus, the risk of overrating seems to be lower than the risk of underrating.

5 VHB-JOURQUAL₂ results

5.1 General Results

742 journals received more than 10 ratings in VHB-JOURQUAL₂; journals which received less than 10 ratings were excluded to assure a sufficient level of reliability (Web-Appendix 1 contains the alphabetical list of all 742 journals).² As VHB-JOURQUAL₂ aims at business scholars, we only included journals in the ranking which – in addition to being read by at least 10 respondents – could be assigned to at least one sub-discipline of business administration (e.g., accounting, marketing) or whose review process was evaluated by a minimum of 5 respondents. 666 journals met at least one of these criteria and were subsequently included in the VHB-JOURQUAL₂ journal ranking.

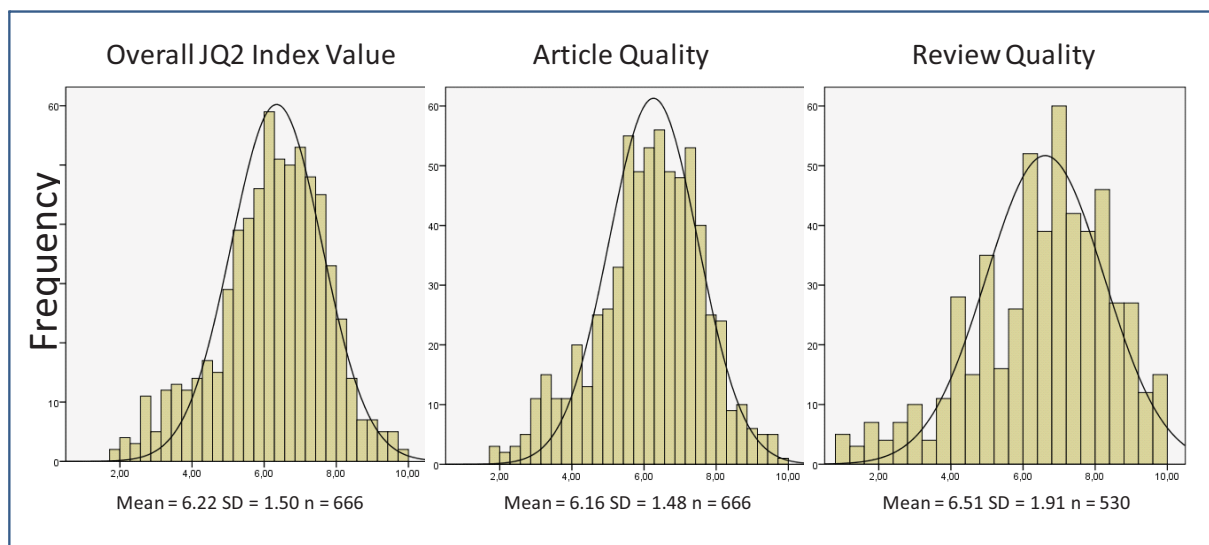
Figure 1 shows the distribution of VHB-JOURQUAL₂ (JQ₂) ratings for all 666 journals for the overall VHB-JOURQUAL₂ index value as well as the two quality dimensions and lists descriptive information. The mean of the overall JQ₂ score is 6.22, equal to a C-rating.

Figure 2 displays the distributions for the quality weighting parameters and the respondent expertise parameter. The weighting factor for the two quality criteria varied between 0 and 0.5, with an average weighting for the review process of .24 (standard deviation = .18).

As can be seen in Figure 3, the expertise factor for the respondents has a mean value of 1.36 (standard deviation = .58) and is positively skewed (the fourth quartile ranges from 1.74 to 5), that is, relatively few researchers have very high expertise scores. This is consistent with the finding of Dyckhoff and Schmitz

² Please note that this number differs from the initial results published on the VHB website as we deleted journals which were duplications of other journals with slightly different names or had ceased publication before the time frame considered in this ranking; we thank Robert Hofmeister from the Thurgau Institute of Economics at University of Konstanz for his valuable input. For duplicated journals, the evaluation scores were merged on an individual respondent level; if more than one journal version was rated by a respondent, the mean of his or her ratings for the respective journal was considered. As a result of this merging process, the scores for these journals can differ from those originally reported on the VHB website.

Figure 1: Distribution of Journal-Quality Measures in the Sample and Descriptive Statistics



(2007) that about two out of three German professors had no international refereed publication between 1990 and 2004; something which has changed only recently (Homburg 2008). Figure 3 also shows the distribution of the three expertise indicators.

Figure 2: Distribution of Quality Weighting

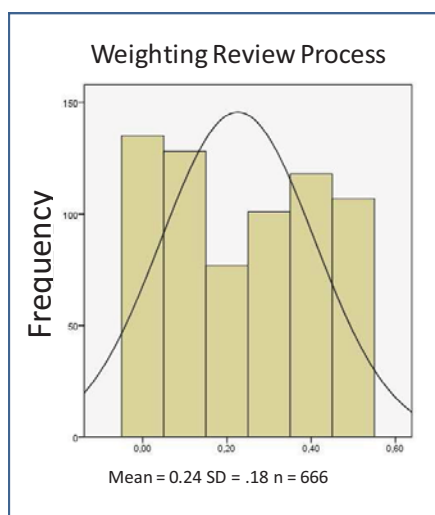


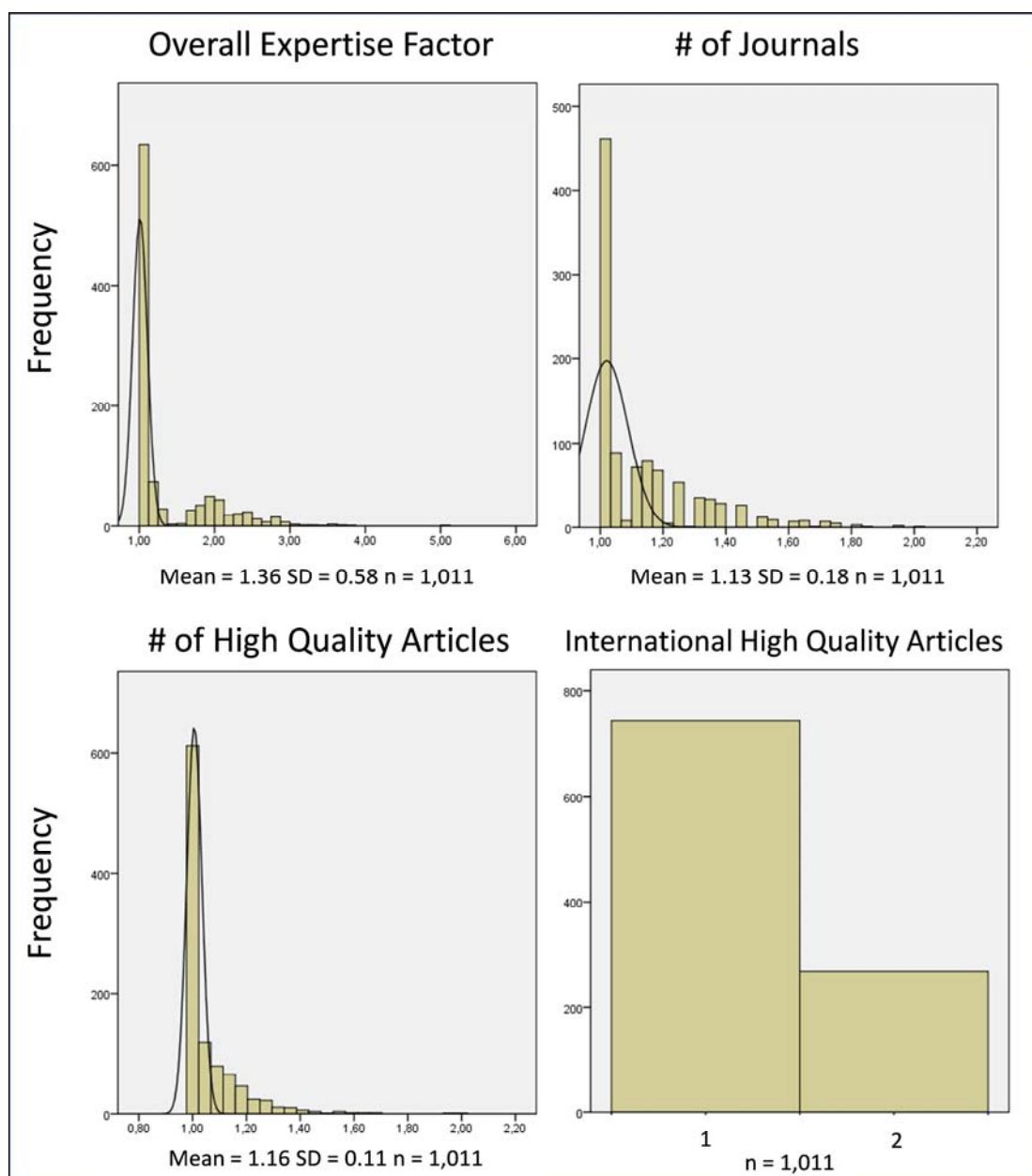
Table 2 lists the A+ and A ranked journals according to their overall quality index value and provides additional information on the assessments of the VHB-JOURQUAL quality dimensions and changes between JQ1 and JQ2. The full list of all ranked journals is reported in Web-Appendix 2. In addition to the expertise-weighted index values, we also re-

port the unweighted quality assessments for each journal.

Within the top ten journals are four marketing and three finance journals, with the *Journal of Finance* being listed as the number one journal. *Administrative Science Quarterly*, ranked fourth, has the highest JQ2 index value of all general management journals. 14 Journals (= 2 %) are rated A+, 50 (= 8 %) are rated A, 152 (= 23 %) are rated B, 186 (= 28 %) are rated C, 143 (= 22 %) are rated D, and 121 (= 18 %) are rated E. The best German-language journal is the B-rated *Wirtschaftsinformatik* (since 2009 also available in English as *Business & Information Systems Engineering*) ranked 169, followed by *Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung (zfbf)* ranked 177.

Considering the changes from JQ1 to JQ2, the ratings on average have decreased. Taking into account only those 326 Journals which were included in both rankings, the mean score for the overall quality has fallen from 6.86 to 6.22; 275 journals (or 84 %) received a lower and only 51 a higher quality assessment than five years ago. This indicates that respondents have not systematically overrated their preferred journals, but displayed a critical attitude in general. This attitude might be the result of a growing sensitivity among VHB members with regard to academic journal quality; a trend which has certainly been strengthened by the increasing number of VHB members which have experienced international journal review processes.

Figure 3: Distribution of Respondent Expertise Parameters in the Sample and Descriptive Statistics



The results also reveal that the double blind reviewing process has become a condition sine qua non for a high-quality journal among VHB members, following international standards. The journals with the highest decrease (by percentage) in quality rating did not employ a rigorous review process during the last five years (Appendix 3 lists the journals and their respective changes since JQ1). Most of the journals with a high decrease in quality perception

had already a below average rating in JQ1. Table 3 lists the best-rated journals for 16 business-administration sub-disciplines; the disciplines were selected based on the VHB sections structure. The table also reveals to which extent the journal-quality ratings are affected by judgments of researchers who do not belong to a specific sub-discipline. In other words: Does the “core audience” of a journal judge its quality differently than other scholars?

Table 2: A+ and A ranked Journals in VHB-JOURQUAL2

Rank	Journal	ISSN	JQ2 rating category	JQ2 index value	Change in % JQ2 vs. JQ1	Change in % JQ2 index value uw	Change in % w vs uw JQ2	Mean AQ	SD AQ	Mean RQ	SD RQ	n AQ	n RQ	Weight of RQ
1	Journal of Finance	0022-1082	A+	9.80	1.86	9.79	0.14	9.80	0.52	9.79	0.43	108	5	0.4
2	American Economic Review	0002-8282	A+	9.75	1.42	9.68	0.68	9.67	0.83	9.87	0.50	121	8	0.4
3	Review of Financial Studies	0893-9454	A+	9.48	2.32	9.46	0.16	9.38	1.05	9.71	0.49	41	4	0.3
4	Administrative Science Quarterly	0001-8392	A+	9.48	1.74	9.44	0.38	9.21	1.07	9.75	0.44	249	11	0.5
5	Journal of Marketing	0022-2429	A+	9.46	-0.85	9.43	0.27	9.49	0.77	9.43	0.97	122	22	0.5
6	Journal of Consumer Research	0093-5301	A+	9.44	0.49	9.34	1.04	9.12	1.10	9.91	0.29	75	6	0.4
7	Journal of Financial Economics	0304-405X	A+	9.43	-1.10	9.39	0.39	9.67	0.64	8.47	0.58	60	2	0.2
8	Information Systems Research	1047-7047	A+	9.42	6.74	9.41	0.14	9.28	0.96	9.75	0.47	36	4	0.3
9	Journal of Marketing Research	0022-2437	A+	9.34	-4.10	9.28	0.62	9.49	0.89	9.18	1.28	99	13	0.5
10	Marketing Science	0732-2399	A+	9.29	-4.60	9.30	-0.11	9.51	0.79	9.07	1.39	78	12	0.5
11	Management Science	0025-1909	A+	9.20	-0.97	9.17	0.36	9.30	0.93	9.11	1.15	330	47	0.5
12	Operations Research	0030-364X	A+	9.19	4.59	9.16	0.24	8.79	1.43	9.77	0.43	61	9	0.4
13	Academy of Management Journal	0001-4273	A+	9.08	-0.83	8.97	1.23	8.86	1.29	9.29	1.15	289	41	0.5
14	Academy of Management Review	0363-7425	A+	9.07	5.96	8.99	0.85	8.65	1.33	9.48	1.05	266	17	0.5
15	Journal of Financial and Quantitative Analysis	0022-1090	A	8.95	0.72	8.70	2.77	8.98	0.86	8.88	1.37	58	4	0.3
16	RAND Journal of Economics (formerly: Bell Journal of Economics)	0741-6261	A	8.93	-2.49	8.91	0.23	8.90	1.00	8.98	0.94	70	7	0.4
17	Mathematical Programming	0025-5610	A	8.92	3.96	8.88	0.52	8.80	1.62	10.00	1.6	16	1	0.1

Table 2 continued: A+ and A ranked Journals in VHB-JOURQUAL2

Rank	Journal	ISSN	JQ2 rating category	JQ2 index value	Change in % JQ2 vs. JQ1	JQ2 index value uw	Change in % w vs uw JQ2	Mean AQ	SD AQ	Mean RQ	SD RQ	n AQ	n RQ	Weight of RQ
18	Organization Science	1047-7039	A	8.90	0.11	8.89	0.11	8.84	1.13	8.95	1.10	92	11	0.5
19	Journal of Accounting and Economics	0165-4101	A	8.89	0.83	8.66	2.49	9.16	1.03	7.80	2.17	62	2	0.2
20	MIS Quarterly	0276-7783	A	8.84	n.a.	8.78	0.64	8.62	1.56	9.34	0.78	73	4	0.3
21	Journal of International Business Studies: JIBS	0047-2506	A	8.81	2.15	8.71	1.11	8.89	1.02	8.73	1.46	64	17	0.5
22	Review of Accounting Studies	1380-6653	A	8.79	-0.89	8.75	0.52	8.59	1.19	9.09	1.12	51	6	0.4
23	Accounting Review	0001-4826	A	8.78	1.27	8.68	1.19	8.82	1.35	8.69	1.47	79	3	0.3
24	Journal of Labor Economics	0734-306X	A	8.71	n.a.	8.66	0.66	8.74	0.97	8.64	0.52	20	3	0.3
25	Journal of Risk and Insurance	0022-4367	A	8.62	n.a.	8.36	3.04	8.20	1.52	9.61	0.84	23	4	0.3
26	Transportation Science	0041-1655	A	8.60	0.94	8.51	1.05	8.40	1.09	8.90	0.77	37	7	0.4
27	Journal of the Academy of Marketing Science	0092-0703	A	8.50	-4.29	8.45	0.61	8.38	1.08	8.63	0.91	78	12	0.5
28	Proceedings of the International Conference on Information Systems (ICIS)		A	8.48	n.a.	8.41	0.86	8.39	1.12	8.57	0.95	53	31	0.5
29	Journal of Industrial Ecology	1088-1980	A	8.47	n.a.	8.52	-0.50	8.02	1.34	9.53	0.97	12	3	0.3
30	SIAM Journal on Computing (Society for Industrial and Applied Mathematics)	0097-5397	A	8.46	n.a.	8.45	0.01	8.46	1.25			11	0	0.0
31	Strategic Management Journal	0143-2095	A	8.41	-5.64	8.37	0.54	8.67	1.31	8.16	1.86	233	26	0.5
32	Research Policy	0048-7333	A	8.41	10.46	8.40	0.13	8.37	1.12	8.46	1.01	76	20	0.5
33	Journal of Service Research	1094-6705	A	8.40	0.02	8.22	2.06	8.00	1.32	8.99	1.47	71	7	0.4

Table 2 continued: A+ and A ranked Journals in VHB-JOURQUAL2

Rank	Journal	ISSN	JQ2 rating category	JQ2 index value	Change in % JQ2 vs. JQ1	JQ2 index value uw	Change in % w vs uw JQ2	Mean AQ	SD AQ	Mean RQ	SD RQ	n AQ	n RQ	Weight of RQ
34	Journal of Business Venturing	0883-9026	A	8.38	5.13	8.30	0.86	8.17	1.26	8.58	1.38	69	16	0.5
35	Voluntas. International Journal of Voluntary and Nonprofit Organizations	0957-8765	A	8.36	n.a.	8.16	2.46	8.30	1.05	8.52	0.56	12	3	0.3
36	Journal of Applied Psychology	0021-9010	A	8.33	-7.05	8.39	-0.67	8.30	1.44	8.41	1.38	94	4	0.3
37	Accounting, Organizations and Society	0361-3682	A	8.33	n.a.	8.46	-1.53	8.60	1.57	7.94	0.97	64	6	0.4
38	Journal of Management Information Systems	0742-1222	A	8.32	n.a.	8.29	0.36	8.04	1.21	9.42	0.59	29	2	0.2
39	Production and Operations Management	1059-1478	A	8.32	13.48	8.24	0.87	7.83	1.53	8.81	1.00	50	11	0.5
40	Economic Journal	0013-0133	A	8.29	-1.93	8.16	1.55	8.44	1.21	7.00	0.00	34	1	0.1
41	Journal of Industrial Economics	0022-1821	A	8.24	n.a.	8.21	0.38	8.04	1.35	8.69	1.36	54	3	0.3
42	Discrete Applied Mathematics	0166-218X	A	8.24	n.a.	8.45	-2.61	7.51	1.48	9.33	0.93	11	5	0.4
43	Health Care Management Science	1386-9620	A	8.23	n.a.	8.31	-0.94	8.07	1.02	8.49	0.53	17	5	0.4
44	Journal of Economic Behavior and Organization	0167-2681	A	8.22	-8.56	8.20	0.30	8.19	1.13	8.29	0.50	39	3	0.3
45	Journal of the European Economic Association	1542-4766	A	8.20	n.a.	8.07	1.58	8.20	0.88			15	0	0.0
46	Entrepreneurship: Theory and Practice	1042-2587	A	8.18	20.68	8.07	1.35	7.66	1.72	8.70	0.62	56	12	0.5
47	Journal of Economics and Management Strategy	1058-6407	A	8.17	-7.63	8.05	1.52	7.87	1.49	8.62	1.04	51	9	0.4
48	International Journal of Research in Marketing	0167-8116	A	8.17	-8.10	8.05	1.46	8.07	1.30	8.26	1.18	75	19	0.5
49	Philosophy of Science	0031-8248	A	8.16	n.a.	8.15	0.08	8.16	0.94			13	0	0.0

Table 2 continued: A+ and A ranked Journals in VHB-JOURQUAL2

Rank	Journal	ISSN	JQ2 rating category	JQ2 index value	Change in % JQ2 vs. JQ1	JQ2 index value uw	Change in % w vs uw JQ2	Mean AQ	SD AQ	Mean RQ	SD RQ	n AQ	n RQ	Weight of RQ
50	IIE Transactions	0740-817X	A	8.12	-0.75	8.09	0.33	7.93	1.12	8.31	0.92	36	11	0.5
51	Organizational Behavior and Human Decision Processes	0749-5978	A	8.12	-4.97	7.98	1.70	8.14	1.17	8.00	0.00	27	1	0.1
52	Journal of Retailing	0022-4359	A	8.12	n.a.	8.08	0.49	8.20	1.24	8.00	1.76	75	5	0.4
53	Journal of Product Innovation Management	0737-6782	A	8.12	2.45	8.11	0.11	7.76	1.23	8.47	0.73	74	16	0.5
54	OR Spectrum (formerly: OR Spektrum)	0171-6468	A	8.10	-0.33	8.09	0.14	7.99	1.21	8.21	1.22	83	43	0.5
55	Journal of Health Economics	0167-6296	A	8.10	n.a.	8.13	-0.34	8.10	1.68			16	0	0.0
56	European Journal of Operational Research EJOR	0377-2217	A	8.09	-2.36	8.17	-0.90	8.21	1.27	7.98	1.52	79	46	0.5
57	Contemporary Accounting Research/Recherche Comptable Contemporaine	0823-9150	A	8.08	n.a.	8.07	0.05	8.28	1.43	7.59	2.30	61	3	0.3
58	Management Accounting Research	1044-5005	A	8.07	-7.91	8.02	0.65	7.88	1.43	8.36	0.80	57	9	0.4
59	Review of Finance (formerly: European Finance Review)	1572-3097	A	8.06	2.71	8.04	0.29	7.78	0.96	8.48	1.33	38	8	0.4
60	Journal of Scheduling	1094-6136	A	8.05	n.a.	8.15	-1.20	7.86	1.46	8.34	1.55	25	6	0.4
61	Journal of Banking and Finance	0378-4266	A	8.05	-1.68	7.89	1.98	8.08	1.18	8.01	1.23	72	14	0.5
62	Journal of Accounting Research	0021-8456	A	8.03	-12.15	7.96	0.93	9.03	1.12	4.03	1.15	77	2	0.2
63	International Journal of Game Theory	0020-7276	A	8.02	-4.03	8.00	0.21	8.02	1.82			12	0	0.0
64	Review of Derivatives Research	1380-6645	A	8.01	n.a.	7.95	0.80	7.87	0.73	8.34	0.85	11	4	0.3

Notes: uw = unweighted; w = weighted; AQ = article quality; RQ = review quality; n = number of evaluators; n.a. = not applicable because the journal was not ranked in VHB-JOURQUAL1.

Table 3: Top 10 Journals for Different Sub-disciplines

General Management*

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ
Administrative Science Quarterly	A+	9.48	9.21	9.75
Management Science	A+	9.20	9.30	9.11
Academy of Management Journal	A+	9.08	8.86	9.29
Academy of Management Review	A+	9.07	8.65	9.48
Strategic Management Journal	A	8.41	8.67	8.16
Journal of Economics and Management Strategy	A	8.17	7.87	8.62
Organization Studies	B	7.99	7.70	8.28
Journal of Management	B	7.85	7.33	8.37
Journal of Management Studies	B	7.55	7.33	7.78
International Journal of Industrial Organization	B	7.51	7.31	7.80

Accounting and Auditing

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Journal of Financial and Quantitative Analysis	A	8.95	8.98	8.88	8.64	n.a.	16	0
Journal of Accounting and Economics	A	8.89	9.16	7.80	9.30	9.00	45	1
Review of Accounting Studies	A	8.79	8.59	9.09	8.65	9.09	39	6
Accounting Review	A	8.78	8.82	8.69	8.85	8.61	56	2
Accounting, Organizations and Society	A	8.33	8.60	7.94	8.71	7.82	45	5
Contemporary Accounting Research/ Recherche Comptable Contemporaine	A	8.08	8.28	7.59	8.41	9.10	45	2
Management Accounting Research	A	8.07	7.88	8.36	8.05	8.36	42	9
Journal of Accounting Research	A	8.03	9.03	4.03	9.11	5.00	56	1
Journal of Business Finance and Accounting	B	7.94	8.13	7.76	8.21	8.74	30	7
Auditing: A Journal of Practice and Theory	B	7.93	7.70	10.00	7.63	10	19	1

Banking and Finance

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Journal of Finance	A+	9.80	9.80	9.79	9.92	10.00	42	3
Review of Financial Studies	A+	9.48	9.38	9.71	9.48	10.00	28	2
Journal of Financial Economics	A+	9.43	9.67	8.47	9.67	8.00	35	1
Journal of Financial and Quantitative Analysis	A	8.95	8.98	8.88	9.00	8.84	37	3
Review of Finance (formerly: European Finance Review)	A	8.06	7.78	8.48	7.83	8.86	25	7

Table 3 continued: Top 10 Journals for Different Sub-disciplines

Banking and Finance

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Journal of Banking and Finance	A	8.05	8.08	8.01	8.06	8.01	39	11
Review of Derivatives Research	A	8.01	7.87	8.34	7.84	8.14	9	3
Journal of Business Finance and Accounting	B	7.94	8.13	7.76	8.53	7.39	18	8
Mathematical Finance	B	7.90	7.90	n.a.	7.67	n.a.	15	0
Journal of Financial Markets	B	7.73	7.28	9.51	7.07	9.51	20	2

Business Information Systems

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Information Systems Research	A+	9.42	9.28	9.75	9.18	10.00	28	2
Mathematical Programming	A	8.92	8.80	10.00	9.47	10.00	4	1
MIS Quarterly	A	8.84	8.62	9.34	8.88	9.48	44	2
Proceedings of the International Conference on Information Systems (ICIS)	A	8.48	8.39	8.57	8.38	8.65	37	22
SIAM Journal on Computing (Society for Industrial and Applied Mathematics)	A	8.46	8.46	n.a.	8.06	n.a.	5	0
Journal of Management Information Systems	A	8.32	8.04	9.42	8.02	10.00	18	1
Information Systems Journal	B	7.98	7.76	8.49	7.75	8.00	16	1
Journal of the Association for Information Systems (JAIS)	B	7.96	7.72	8.52	7.53	8.42	26	2
INFORMS Journal on Computing (formerly: ORSA Journal on Computing)	B	7.91	7.54	8.46	7.61	8.66	16	3
Journal of Strategic Information Systems	B	7.87	7.47	8.81	7.32	9.00	12	1

Corporate Taxation

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
European Accounting Review	B	7.65	7.30	8.00	7.30	n.a.	15	0
National Tax Journal	B	7.64	7.60	8.00	7.48	8.00	16	1
FinanzArchiv	B	7.44	7.54	7.22	8.62	8.89	24	2
Journal of the American Taxation Association	B	7.28	6.98	10.00	7.08	10.00	10	1
Steuer und Wirtschaft	B	7.20	7.20	7.20	8.29	8.12	27	12
Journal of International Accounting Auditing and Taxation	C	6.77	6.77	n.a.	7.39	n.a.	8	0
Journal of Taxation	C	6.23	6.23	n.a.	6.27	n.a.	16	0
Fiscal Studies	C	6.19	6.19	n.a.	7.18	n.a.	9	0
Canadian Tax Journal	C	6.08	6.09	6.00	6.77	6.00	9	1
Internationales Steuerrecht	D	5.99	5.56	6.65	5.88	6.65	28	8

Table 3 continued: Top 10 Journals for Different Sub-disciplines

Environmental Management

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Journal of Industrial Ecology	A	8.47	8.02	9.53	7.91	10.00	11	2
Business Ethics Quarterly (BEQ)	B	7.88	7.54	9.25	7.25	10.00	8	1
Ecological Economics	B	7.63	8.04	4.00	8.18	4.00	12	1
Business Strategy and the Environment	B	7.57	7.47	7.73	7.73	7.73	13	6
Zeitschrift für Umweltpolitik und Umweltrecht	B	7.05	6.91	7.39	6.73	7.39	11	4
Journal of Business Ethics	C	6.92	7.09	6.66	6.18	5.15	10	3
Journal of Environmental Economics and Management	C	6.67	6.67	n.a.	7.69	n.a.	5	0
International Journal of Innovation and Sustainable Development	C	6.50	6.45	7.00	7.06	7.00	4	1
Journal of Cleaner Production	C	6.16	6.23	6.04	6.39	6.04	13	5
Journal of Macromarketing	C	6.05	5.73	7.34	7.00	n.a.	2	0

Higher Education Management

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Management Learning	B	7.05	6.95	7.48	7.00	n.a.	1	0
Academy of Management Learning and Education	C	6.92	6.30	9.40	4.00	n.a.	1	0
Higher Education	C	6.05	5.84	8.00	6.52	8.00	3	1
Research in Higher Education	D	5.99	5.99	n.a.	6.46	n.a.	4	0
Journal of Marketing Education	D	5.35	5.39	5.00	6.00	n.a.	1	0
Chronicle of Higher Education	E	4.90	4.90	n.a.	5.29	n.a.	6	0
Hochschulmanagement. Zeitschrift für die Leitung, Entwicklung und Selbstverwaltung von Hochschulen und Wissenschaftseinrichtungen	E	4.45	4.20	5.03	5.49	5.99	2	2
Das Hochschulwesen	E	3.58	3.58	n.a.	3.09	n.a.	6	0
Forschung & Lehre	E	3.29	3.02	3.94	2.61	1.00	12	1
DUZ. Deutsche Universitäts-Zeitung	E	2.32	2.32	n.a.	2.35	n.a.	10	0

Human Resources and Organization

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Organization Science	A	8.90	8.84	8.95	8.72	8.84	66	9
Journal of International Business Studies JIBS	A	8.81	8.89	8.73	9.18	9.39	31	9
Journal of Labor Economics	A	8.71	8.74	8.64	8.62	8.49	13	2
Journal of Applied Psychology	A	8.33	8.30	8.41	8.83	8.08	37	3

Table 3 continued: Top 10 Journals for Different Sub-disciplines

Human Resources and Organization

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Journal of Economic Behavior and Organization	A	8.22	8.19	8.29	8.15	n.a.	20	0
Organizational Behavior and Human Decision Processes	A	8.12	8.14	8.00	8.17	9.00	14	1
Journal of Law, Economics, and Organization	B	7.93	8.01	7.62	7.82	9.00	16	1
Research in the Sociology of Organizations	B	7.93	7.81	9.00	7.85	n.a.	18	0
Organizational Behaviour and Human Performance	B	7.85	7.85	n.a.	7.92	n.a.	14	0
Human Relations	B	7.85	7.66	8.03	7.71	7.60	52	8

International Management

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Journal of International Business Studies JIBS	A	8.81	8.89	8.73	9.32	9.33	32	11
Journal of International Management	B	7.59	7.50	7.72	7.60	7.85	16	5
Journal of International Marketing	B	7.57	7.49	7.70	7.94	8.12	17	6
Journal of World Business (formerly: Columbia Journal of World Business)	B	7.39	7.28	7.54	7.13	7.44	22	4
International Economic Review	B	7.35	7.27	8	5.12	n.a.	5	0
International Business Review	B	7.09	6.78	7.57	7.17	7.84	25	6
Management International Review MIR	C	6.86	6.46	7.25	7.27	7.95	41	22
European Journal of International Management	C	6.44	6.27	8.00	6.15	8.00	18	1
International Journal of Cross Cultural Management	C	6.36	6.28	7.00	6.29	7.00	15	1
Cross-Cultural Research	C	6.35	6.35	n.a.	6.53	n.a.	6	0

Logistics

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Transportation Science	A	8.60	8.40	8.90	8.41	9.08	25	6
Discrete Applied Mathematics	A	8.24	7.51	9.33	7.39	8.80	7	3
Naval Research Logistics	B	7.75	7.96	7.43	7.86	7.43	33	5
Transportation Research Part B: Methodological	B	7.70	8.00	5.00	7.94	5.00	17	1
Journal of Business Logistics	B	7.60	6.89	9.24	6.79	9.24	26	4
Journal of Supply Chain Management (formerly: International Journal of Purchasing and Materials Management)	B	7.49	6.67	8.71	6.53	8.71	24	6
International Journal of Physical Distribution and Logistics Management	B	7.41	7.03	7.80	6.94	7.80	34	10

Table 3 continued: Top 10 Journals for Different Sub-disciplines

Logistics

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Transportation Research Part A: Policy and Practice	B	7.40	7.40	n.a.	7.10	n.a.	11	0
Transportation Research Part E: Logistics and Transportation Review (formerly: Logistics and Transportation Review)	B	7.33	7.42	7.00	7.24	7.00	16	2
International Journal of Logistics: Research and Applications	C	6.87	6.48	7.80	6.38	7.80	18	3

Management of Technology and Innovation

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Research Policy	A	8.41	8.37	8.46	8.53	8.38	38	16
Journal of Business Venturing	A	8.38	8.17	8.58	8.54	8.73	36	11
Entrepreneurship: Theory and Practice	A	8.18	7.66	8.70	8.04	8.65	27	8
Journal of Product Innovation Management	A	8.12	7.76	8.47	8.34	8.50	37	15
IEEE Transactions on Engineering Management	B	7.76	7.16	8.36	7.24	7.99	30	7
Journal of Small Business Management (JSBM)	B	7.30	7.27	7.34	7.47	n.a.	15	0
Strategic Entrepreneurship Journal	B	7.15	7.15	n.a.	7.15	n.a.	15	0
Technological Forecasting and Social Change	B	7.04	7.38	4.00	7.07	n.a.	8	0
International Journal of Technology Management	C	6.96	6.76	7.16	6.95	7.19	32	14
Industrial and Corporate Change	C	6.94	7.37	5.96	7.58	7.00	16	1

Marketing

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Journal of Marketing	A+	9.46	9.49	9.43	9.60	9.38	75	18
Journal of Consumer Research	A+	9.44	9.12	9.91	9.30	9.87	56	4
Journal of Marketing Research	A+	9.34	9.49	9.18	9.59	9.34	69	11
Marketing Science	A+	9.29	9.51	9.07	9.67	9.20	54	10
Journal of the Academy of Marketing Science	A	8.50	8.38	8.63	8.49	8.93	55	9
Journal of Service Research	A	8.40	8.00	8.99	8.26	9.24	41	6
International Journal of Research in Marketing	A	8.17	8.07	8.26	8.37	8.32	55	16
Journal of Retailing	A	8.12	8.20	8.00	8.33	8.00	61	5
Journal of Product Innovation Management	A	8.12	7.76	8.47	7.72	8.63	34	9
Marketing Letters	B	7.85	7.73	8.04	8.04	7.92	49	8



Table 3 continued: Top 10 Journals for Different Sub-disciplines

Operations Research

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Information Systems Research	A+	9.42	9.28	9.75	8.29	n.a.	3	0
Operations Research	A+	9.19	8.79	9.77	8.94	9.75	37	8
Mathematical Programming	A	8.92	8.80	10.00	8.93	10.00	11	1
MIS Quarterly	A	8.84	8.62	9.34	7.28	n.a.	13	0
Transportation Science	A	8.60	8.40	8.90	8.43	8.98	26	6
SIAM Journal on Computing (Society for Industrial and Applied Mathematics)	A	8.46	8.46	n.a.	9.05	n.a.	7	0
Discrete Applied Mathematics	A	8.24	7.51	9.33	7.27	9.07	7	3
IIE Transactions	A	8.12	7.93	8.31	8.22	8.37	24	10
OR Spectrum (formerly: OR Spektrum)	A	8.10	7.99	8.21	8.34	8.47	43	31
European Journal of Operational Research EJOR	A	8.09	8.21	7.98	8.53	8.23	42	33

Philosophy of Science**

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Research Policy	A	8.41	8.37	8.46	8.19	8.34	9	2
Philosophy of Science	A	8.16	8.16	n.a.	8.36	n.a.	8	0
Theory and Decision	B	7.75	8.23	6.64	8.56	4.00	5	1
Academy of Management Learning and Education	C	6.92	6.30	9.40	5.87	n.a.	12	0

Production Management

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
MIS Quarterly	A	8.84	8.62	9.34	7.46	n.a.	13	0
Production and Operations Management	A	8.32	7.83	8.81	7.87	8.48	41	8
Discrete Applied Mathematics	A	8.24	7.51	9.33	7.32	10.00	5	2
IIE Transactions	A	8.12	7.93	8.31	8.20	8.37	27	10
Journal of Operations Management	B	7.84	7.61	8.17	7.48	7.71	30	6
Manufacturing and Service Operations Management	B	7.72	8.46	4.75	8.27	4.75	21	2
International Journal of Production Economics	B	7.55	7.62	7.47	7.76	7.67	45	25
International Journal of Production Research	B	7.54	7.59	7.49	7.82	7.68	41	19
Journal of Supply Chain Management (formerly: International Journal of Purchasing and Materials Management)	B	7.49	6.67	8.71	6.07	9.00	21	1
International Journal of Physical Distribution and Logistics Management	B	7.41	7.03	7.80	6.75	7.65	25	4

Table 3 continued: Top 10 Journals for Different Sub-disciplines

Public- and Non-Profit Management

Journal	Rating category	JQ2 index value	Mean AQ	Mean RQ	Mean AQ only SM	Mean RQ only SM	n SM for AQ	n SM for RQ
Voluntas. International Journal of Voluntary and Nonprofit Organizations	A	8.36	8.30	8.52	8.04	8.69	8	2
Journal of Accounting and Public Policy	B	7.77	7.81	7.60	7.70	n.a.	5	0
Nonprofit and Voluntary Sector Quarterly	B	7.65	7.65	n.a.	7.95	n.a.	9	0
Journal of Public Policy and Marketing	B	7.59	7.37	8.48	7.43	n.a.	4	0
Public Administration	B	7.56	7.21	8.97	7.59	8.97	9	2
System Dynamics Review	B	7.47	7.34	7.76	9.50	n.a.	2	0
Nonprofit Management and Leadership	B	7.23	7.15	8.00	7.65	n.a.	10	0
Journal of Non Profit and Public Sector Marketing	B	7.00	7.00	n.a.	7.24	n.a.	7	0
International Journal of Nonprofit and Voluntary Sector Marketing	C	6.74	6.60	8.00	6.55	8.00	7	1
Zeitschrift für öffentliche und gemeinwirtschaftliche Unternehmen	C	6.25	6.45	5.95	6.43	6.04	16	6

Notes: AQ = article quality; RQ = review quality; n = number of evaluators; SM = section members.

* No general management section exists within the VHB; ** Less than 10 journals with $n \geq 10$ are considered as falling into this category

As can be seen, differences between quality ratings are usually very limited. Specifically, for the journals listed in Table 3, total ratings and those based on section members correlate with $r = .91$ ($p < .01$, $n = 133$) in the case of article quality and with $r = .92$ ($p < .01$, $n = 96$) for review quality. The average ratings are slightly higher for the section members (7.85 vs. 7.57 for article quality; 8.30 vs. 8.08 for review-process quality), but the difference is not significant for any of the two quality indicators.

In our model, we assume that article quality and review quality define the overall scientific quality of an academic journal. Both constitute different, but related dimensions of quality, as a high-quality process will usually go hand in hand with high outcome quality; something which is also reflected by a correlation of $r = .75$ between the two quality dimensions. The merit of measuring quality via the two dimensions becomes apparent when studying those journals for which both quality criteria differ substantially. Table 4 lists those journals whose articles and review standards are perceived most differently by the respondents.

Among the journals whose articles receive better quality ratings than the review process are some which are explicitly positioned as “transfer” journals, linking scientific insights with managerial audiences (e.g., *Harvard Business Manager*, *Sloan*

Management Review). Those journals which receive higher review ratings than article ratings, however, seem to have difficulties to fully transfer the quality of their review process into their final product, the published articles. An alternative explanation might be that these journals have increased the quality of their review through procedural changes only recently, but the change has not reached the majority of the journals’ readership yet, since article-related ratings can be expected to be more resistant to change than review ratings.

5.2 Respondent-level Determinants of Quality Assessments

To learn which variables explain the interpersonal differences in journal-quality ratings and to shed more light on the unobserved heterogeneity which underlies the aggregated results, we conducted an additional post-hoc analysis. We focused on the three most prominent German-language business-research journals, namely *Die Betriebswirtschaft – DBW*, *Zeitschrift für Betriebswirtschaft – ZfB*, *Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung – zfbf* (Macharzina, Wolf, and Rohn 2004; Schlinghoff and Backes-Gellner 2002). This selection offers two main advantages: these journals (a) are read by a large number of respondents, and they (b) contain articles from different subdisci-



Table 4: Strongest Differences between Article and Review Quality

Journal	Absolute Difference between Article Quality and Review Quality	Article-Quality Rating
Highest positive differences		
Zeitschrift für angewandte Umweltforschung	2.63	5.22
European Journal of Information Systems	1.65	7.15
Zeitschrift für das gesamte Kreditwesen	1.55	4.01
Journal of Financial Intermediation	1.50	8.28
International Transactions in Operational Research	1.47	6.29
Sloan Management Review	1.47	6.03
Corporate Ownership and Control	1.47	5.96
Harvard Business Manager	1.38	4.08
Journal of Empirical Finance	1.18	7.44
Betriebswirtschaftliche Blätter	1.17	3.27
Highest negative differences		
Journal of Supply Chain Management (formerly: International Journal of Purchasing and Materials Management)	-2.04	6.67
Venture Capital: An International Journal of Entrepreneurial Finance	-1.98	5.61
Der Markt. Zeitschrift für Absatzwirtschaft und Marketing	-1.91	3.74
NeuroPsychoEconomics	-1.84	5.90
Discrete Applied Mathematics	-1.82	7.51
Managing Service Quality	-1.80	5.43
Academy of Management Perspectives (formerly: Academy of Management Executive)	-1.66	5.81
Decision Sciences	-1.66	6.97
Tagungsbände der Konferenz Modellierung betrieblicher Informationssysteme (MOBIS)	-1.65	5.14
International Journal of Management Reviews IJMR	-1.47	5.59

Note: Only journals with $n \geq 5$ for review quality were considered for this analysis.

plines of business administration, attracting a highly diverse readership.

We conducted OLS regressions for each of the three journals, with the perceived article quality serving as dependent variable. As independent variables, we included the individual respondent's expertise factor, his or her affiliation with the 16 VHB sections which represent business-administration sub-disciplines (scholars can be affiliated with multiple sections), the respondent's status as a board member of the respective journal, his or her academic status (i.e. full professor or not), as well as age and

gender as demographic characteristics. The regression results are reported in Table 5.

The results show a substantial amount of overlap between the three journals; a correlation analysis with the standardized regression coefficients as cases exhibits correlations of $r = .66$ ($DBW/zfbf$), $r = .68$ (DBW/ZfB), and $r = .84$ ($zfbf/ZfB$). Consistently, corporate taxation researchers tend to rate the German business-administration journals higher than scholars from other sub-disciplines; the same is true for accounting scholars. These findings might be attributed to the fact that in both sub-disciplines

Table 5: Determinants of Journal-Quality Ratings

Variable	DBW	ZfB	zfbf
Expertise factor	-.157**	-.090*	-.034
Membership in VHB sections:			
Accounting and Auditing	.106*	.123**	.160**
Banking and Finance	.046	-.008	.050
Business Information Systems	.049	.056	.002
Corporate Taxation	.129**	.185**	.159**
Environmental Management	.083	.008	.006
Higher Education	.027	.017	.017
Human Resources	.041	-.028	-.070
International Management	.023	-.009	.010
Logistics	-.080	-.033	-.051
Management of Technology and Innovation	-.007	.002	.010
Marketing	.125*	.066	.087
Operations Research	-.141**	-.068	-.084
Organization	.055	-.016	-.063
Philosophy of Science	.026	-.003	.018
Production Management	.013	.221**	.105
Public Management	.118**	.063	.095*
Age	.037	.081	.101*
Gender (1 = female, 2 = male)	.004	-.015	-.069
Full professor rank	-.126**	-.109*	-.072
Board membership	.058	.047	-.031
R ²	.148	.124	.126
R ² adjusted	.111	.088	.088

Note: All parameter are standardized regression coefficients; ** $p < .01$, * $p < .05$.

the domestic legal framework plays a crucial role, so that research in these fields will have a stronger focus on national issues. Consequently, the relative importance of the domestic scientific community and of its German-language journals might be higher than in other disciplines. As the top domestic journals are the best possible publication outlets for these researchers, competition for publication space and article quality might also be relatively higher. Furthermore, we see that scholars with higher levels of research expertise tend to rate the German-language general business-administration journals lower; the effect is significant for two of the three journals. Obviously, experience with review proces-

ses of international journals – a major facet of research expertise – tends to heighten the researcher's comparison standard, resulting in lower evaluations for German business-administration journals. Also, established scholars tend to hold a more critical attitude – ratings of full professors tend to be lower for the German business-administration journals, with the effect being significant again for two of the three journals.

6 Validation of VHB-JOURQUAL2

To test the reliability and validity of VHB-JOURQUAL2, we compare its results with a number of other international ratings: the first edition of



VHB-JOURQUAL from 2003 (i.e. VHB-JOURQUAL₁), the 2008 ISI Journal Citation Impact Factors (ISI Impact Factors), the British Association of Business Schools Academic Journal Quality Guide from 2009 (ABS09), the French Centre National de la Recherche Scientifique ranking from 2008 (CNR08), and the Dutch Erasmus Research Institute of Management Journals Listing from 2006 (EJL06). With the exception of the ISI Impact Factors (due to copyright issues), all these rankings are included in the Harzing list (Harzing 2009) and – for the journals ranked in VHB-JOURQUAL₂ – also in Web-Appendix 2 of this paper.

The comparison with VHB-JOURQUAL₁ allows us to assess the reliability of the results, as the method and population for both rankings is very similar. Although differences will result from changes in journal quality over time and perception changes, they should be of a somewhat limited size. VHB-JOURQUAL₁ itself has been successfully validated in comparison with leading international survey-based journal rankings (Hennig-Thurau, Walsh, and Schrader 2004). For the 666 business-administration journals in VHB-JOURQUAL₂, we collected the VHB-JOURQUAL₁ index values of journals in the final ranking ($n_j \geq 10$). Data was available for 326 journals from VHB-JOURQUAL₁. We find that the correlation is significant and substantial, with $r = .94$ ($p < .01$).

Regarding the comparison between VHB-JOURQUAL₂ and the ISI Impact Factors, it is important to see that both ratings measure related, but distinct constructs. While VHB-JOURQUAL₂ explicitly focuses on the scientific quality of a journal, ISI Impact Factors are an established measure which reflects the degree to which a journal's articles are read and actively cited by researchers. Since high-quality articles are on average more likely to be cited by scholars than low-quality ones (e.g., Hult, Reimann, and Schilke 2009), a significant correlation between the two rankings can be expected. However, due to the conceptual differences between the two constructs, the correlation between VHB-JOURQUAL₂ and the ISI Impact Factors should be weaker than the correlation between the two versions of VHB-JOURQUAL. We collected the impact factors from the ISI Journal Citation Report Edition 2008 (Thomson Reuters 2009) for the disciplines business, business/finance, and management. Data was available for 137 journals listed in VHB-JOURQUAL₂. We find that the correlation between VHB-

JOURQUAL₂ and the ISI Impact Factors is $r = .57$ ($p < .01$); it is slightly higher ($r = .59$) when quadratic scores are used to account for the skewed distribution of the ISI Impact Factors. In addition to being significant and substantial, these correlations are also substantially lower than the one between VHB-JOURQUAL₂ and VHB-JOURQUAL₁, which is in line with our theoretical arguments.

Finally, when comparing the VHB-JOURQUAL₂ ratings with the international journal rankings listed above, we ran pairwise comparisons and determined the correlation between VHB-JOURQUAL₂ and each ranking. When doing this, we included all journals which are considered in VHB-JOURQUAL₂ and the respective comparison ranking ($n = 329$ for ABS09; $n = 233$ for CNR08; $n = 207$ for EJL06). In each case the correlation is strong and significant ($p < .01$) with $r = .64$ for ABS09, $r = .70$ for CNR08, and $r = .56$ for EJL06. It is again consistent with our arguments that the correlation between VHB-JOURQUAL₂ and EJL06 is relatively weaker than between VHB-JOURQUAL₂ and the two other rankings, as EJL06 is partly based on citations.

In summary, we interpret these results as strong support for VHB-JOURQUAL₂'s reliability and validity.

7 Discussion, Implications, and Future Research Perspectives

7.1 Discussion and Implications

This article reports the results of VHB-JOURQUAL₂, a survey-based ranking of 666 business-administration journals, and details the underlying methodology. In addition to presenting the results for the different journals, we provide empirical evidence for the ranking's reliability and validity. Thus, we have confidence that VHB-JOURQUAL₂ is a sound instrument to evaluate the journal-publishing achievements of business researchers. As such, we believe that the major contribution of this ranking is its ability to reduce the level of arbitrariness and the importance of non-performance-related network characteristics (such as "academic provenance") from key decisions made at universities – something which will benefit both universities and good scholars.

As its predecessor, VHB-JOURQUAL₂ carries the potential to stimulate business researchers in Ger-



many, Austria, and Switzerland to compete with colleagues from around the world for publication space in leading international journals, which are highlighted in this ranking. By doing this, VHB-JOURQUAL₂ might further raise the level of global competitiveness of the German-speaking business-administration community, a trend which we already see as a result of the existence of VHB-JOURQUAL₁ (Homburg 2008). Furthermore, we hope that the ranking will also help to make scholars' intellectual achievements much easier to communicate to colleagues, department heads, deans, and rectors, a precondition for getting adequate rewards for such achievements.

Nevertheless, we believe that the results reported here have to be treated with great care. We have ambiguous feelings when we read job postings for full professorships which say that the „scientific performance is mainly evaluated by number and quality of scientific publications in international journals according to the VHB-JOURQUAL Ranking” (like the University of Siegen in 2008, own translation). Although this indicates that VHB-JOURQUAL indeed influences the community (and that we have reached an objective we had when we once initiated it), we see the danger that the importance of the VHB-JOURQUAL ranking might be carried to excess. The scientific performance – not to say the overall performance – of an academic must not be solely judged on the basis of a single criterion, that is, a scholar's top journal publications according to VHB-JOURQUAL. As Albers (2009: 361) states, “we should be aware that any ranking can only provide a small piece of the overall performance picture”. Business researchers have to be careful not to over-emphasize the part of the picture which is measurable by ratings and rankings today, since the result would be counterproductive for the whole profession (Adler and Harzing 2009). As a consequence, we see a strong need for additional rankings of scholarly performances. Alternative ratings that measure business researchers' contributions in journal articles might use VHB-JOURQUAL as a comprehensive and powerful source for integrating survey-based and citation-based approaches into hybrid rankings; other rankings might want to emphasize a journal's reputation or its importance for knowledge transfer. The discrepancy between scientific quality and relevance for business managers has been shown by Oesterle (2006), who reported a significant negative correlation between

VHB-JOURQUAL results and academic-journal use by German managers with a PhD. In addition to different journal evaluations, powerful measurement tools for books, teaching, or university management achievements would be valuable to avoid the threat of one-dimensional university professors (Frey 2007).

However, VHB-JOURQUAL should not be blamed for its occasional misuse. It undisputedly covers a key facet of scholars' professional performance by providing a reliable and valid estimate of the scientific quality of a business researcher's journal articles. It should be treated as such, no more, but also no less.

7.2 Future Research Perspectives

While the current state of VHB-JOURQUAL provides an established tool for research-performance evaluation, it also raises questions which should be considered as opportunities for future research. Regarding the VHB-JOURQUAL methodology, it is obvious that some elements are based on pragmatic considerations and might be considered arbitrary, at least to a certain extent. So we encourage future research to identify more theoretically and/or empirically justifiable approaches for the following aspects of VHB-JOURQUAL and compare their results with the current ranking:

Definition and labeling of rating categories: Instead of measuring quality on a non-labeled 10-point scale and assigning the categories ex-post, the respondent might be asked to use the category labels themselves. While this was not possible in the first edition of the ranking (and perhaps might have raised substantial problems even when collecting data for the second edition), the category labels are now widely established among German-speaking business scholars. Alternatively, an empirical approach using empirical distributions might be chosen to assign rating categories, which reduces the danger that journals fall directly below the threshold between two categories.

Selection, weighting, and composition of indicators for the expertise factor: Regarding respondents' expertise, two relevant questions refer to the dimensions of expertise and their composition: Should other factors than those currently represented by the expertise construct be considered when measuring expertise? And is the current multiplicative composition optimal – and how would a different combination of expert dimensions affect the results?



However, the current results show that the impact of the expertise factor should not be overrated, as expertise-weighted results and unweighted results do not differ substantially for most journals.

Weighting of article and review quality: The current version of VHB-JOURQUAL posits that article and review quality are of equal importance for constructing the overall quality score of a journal (with adjustments if only a small number of judgments exists for review quality). An alternative approach would be to empirically determine the relevance (or factor weights) of the two quality dimensions. For example, conjoint measurement approaches can support (or reject) our decision for weighting of both determinants equal. Also, the weight correction for the review quality dimension in the case of limited review-related judgments might be questioned and potentially improved. Especially the potentially strong effect of low numbers of review quality ratings which differs substantially from the usually much higher number of article ratings would deserve additional thought; maybe it would be advantageous to treat review assessments as outliers in such a case. At the same time, theoretical or empirical arguments would be valuable to demonstrate the superiority of alternative approaches.

Minimum number of article-quality evaluations: While the current version of VHB-JOURQUAL considers a minimum number of 10 ratings as the threshold for the inclusion of a journal, future research might address whether this number is adequate to guarantee sufficient reliability or if lower numbers are possible – or a higher number required.

In addition, future studies would be welcome which provide insight why most of the highest-ranked journals come from marketing and finance. Both are large and global disciplines with a long tradition in journal ratings, which had also a large number of respondents in VHB-JOURQUAL₂. We tested for an impact of the number of raters of a journal on the journal's quality assessment, but found none within our sample (neither linear nor non-linear). We suspect that global competition for publication space is particularly strong in marketing and finance, which would contribute to the establishment of highly selective journals which are then perceived as of outstanding academic quality. The analysis of determinants for three German-language journals has shown that marketing and finance scholars do not have a general tendency to evaluate academic jour-

nals more positively than researchers from other business areas.

It is inevitable that the need for justification and adequate foundation of a journal ranking increases with its importance. Thus, we see the success of VHB-JOURQUAL as an obligation for its improvement. However, the potential trade-off between optimization and comparability of different JOURQUAL editions needs careful considerations.

Acknowledgments

Both authors contributed equally to this article. We thank the BuR reviewers; the board of the VHB, particularly its former chairman Sönke Albers and its current chairman Alfred Wagenhofer, for extensive valuable input to our study; Paul Marx for programming the online questionnaire and his help with the data handling; and all participating scholars for their investments in terms of time and effort, which has been essential for the success of this project. We also thank numerous colleagues for providing informational and motivational support. Last but not least, Uschi Hansen mentored our initial idea for this ranking several years ago – thank you!

Web-Appendix 1:

List of all Journals Rated in VHB-JOURQUAL₂ in Alphabetical Order

Web-Appendix 2:

VHB-JOURQUAL₂ Ranking of Business Research Journals

Web-Appendix 3:

Changes of JQ Index Values from VHB-JOURQUAL₁ to VHB-JOURQUAL₂

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Biographies

Ulf Schrader is Professor of Economic Education and Sustainable Consumption at the Technical University of Berlin, Germany. His main research interests are sustainable consumption, consumer policy, sustainability marketing, and business ethics.

Thorsten Hennig-Thurau is Professor of Marketing and Media Research at Bauhaus-University of Weimar and Research Professor in Management at Cass Business School, City University London. His main research interests are service management, media management, and customer relationship management.