Bibliographic measures of top-tier finance and information systems journals

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Abstract

Purpose – Pay, tenure and promotion decisions are frequently based upon inferences regarding the value of faculty research. Meanwhile, departmental, college and university reputations are frequently based on perceptions regarding the quality of research being produced by its faculty. Making correct inferences requires accurate measurement of research quality, which is often based upon the journal through which results are shared. This research expands upon the research found elsewhere through its detailed investigation of leading journals in two business disciplines, including examination of four different citation-based measures and four journal characteristics which are exogenous to the quality of any individual piece of research. The paper aims to discuss this issue.

Design/methodology/approach – This study assists in the development of an accurate perspective regarding research quality, by studying the popular Journal Citation Reports (JCR) impact factor. A further expansion on the past literature is consideration of three newer journal quality metrics: SCImago Journal Rank (SJR), Source Normalized Impact per Paper (SNIP) and percentage of articles cited. Top-tier journals in finance and information systems are compared to evaluate the consistency of these measures across disciplines. Differences in journal characteristics and their impact on citation-rate based measures of quality are also examined. The potential impact of discipline-based variation in acceptance rate, issue frequency, the time since journal inception and total reviewers are put forth as additional potential exogenous factors that may impact the perception of journal quality. *t*-Tests are employed for discipline comparisons, while correlation and multiple regression are used for journal characteristic analysis.

Findings – There is a significant difference in the JCR impact measures of high-quality finance journals vs high-quality information systems journals, which are correlated with a variety of journal-specific factors including the journal's acceptance rate and frequency of issue. Information systems journals domination of finance journals persists whether one considers mean, median, minimum or maximum impact factors. SJR measures for finance journals are consistently higher than information systems journals, though the SJR value of any individual journal can be quite volatile. By comparison, the SNIP metric rates premier information systems journals higher. Over 12 percent more of the articles in leading information systems journals are cited during the initial three years.

Research limitations/implications – Logical extensions of this research include examining journals in other business disciplines. One could also evaluate quality measures reaction to variation in journal characteristics (i.e. changes in acceptance rates). Furthermore, one could include other measures of journal quality, including the recently released CiteScore metric. Such research will build on the present research and improve the accuracy of research quality assessment.

Practical implications – To the extent that citation-based research measures and journal-specific factors vary across disciplines as demonstrated by our investigation, discipline-specific traits should be considered adjusted for, when making inferences about the long-term value of recently published research. For instance, finance faculty publishing in journals with JCR readings of 2.0 are in journals that are 53 percent above the discipline's average, while information systems faculty publishing in journals with JCR readings of 2.0 are in journals that are 18 percent below the discipline's average. Furthermore, discipline-specific differences in journal characteristics, leading to differences in citation-based quality measures, should be considered when making inferences about the long-term value of recently published research in the process of making recommendations regarding salary adjustments, retention and promotion.

Social implications – Quantity and quality of research are two hallmarks of leading research institutions. Assessing research quality is very problematic because its definition has changed from being based on review process (i.e. blind refereed), to acceptance rates, to impact factors. Furthermore, the impact factor construct has been a lightning rod of controversy as researchers, administrators and journals themselves argue over which metric to employ. This research is attempting to assess how impact factors and journal characteristics may influence the impact factors, and how these interactions vary business discipline. The research is especially important and relevant to the authors which separately chair departments including finance and information systems faculty, and therefore are in roles requiring assessment of faculty research productivity including quality.

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Originality/value – This study is a detailed analysis of bibliographic aspects of the top-tier journals in two quantitative business areas. In addition to the popular JCR, SJR and SNIP measures of performance, the analysis studies the seldom-examined percentage of the article cited metric. A deeper understanding of citation-based measures is obtained though the evaluation of changes in how journals have been rated on these metrics over time. The research shows that there are discipline-related systematic differences in both citation-based research measures and journal-specific factors and that these discipline-specific traits should be considered when making inferences about the long-term value of recently published research. Furthermore, discipline-specific difference in journal characteristics, leading to differences in citation-based quality measures, should be considered when making personnel and remuneration decisions.

Keywords Journal quality, Research quality, Acceptance rates, Finance journals, Information systems journals, Journal Citation Report (JCR)

Paper type Research paper

1. Introduction

Acceptance rates were historically viewed as the appropriate measure of scholarship quality. Presumably, the lower the acceptance rate, the higher the research quality. Being a function of the number of manuscripts submitted, leakages in the review process and reflection of a journal's review process across many submissions, acceptance rates may have little to do with the quality of any individual piece of research. Since submission statistics are maintained by editors, they also are heavily dependent upon the whims of these editors. Unscrupulous editors may count re-submissions as new submissions in order to expand the acceptance rate denominator and reduce the published acceptance rate. Being less susceptible to manipulation, impact factors have recently replaced acceptance rates as the primary measure of research quality. A more comprehensive history of journal impact factors can be found in Van Rann (2006) and Archambault and Lariviere (2009).

Research extending beyond one's own narrow discipline is frequently viewed as a measure of quality (Schermann *et al.*, 2014; Belcher *et al.*, 2016). On the one hand, joint exploration by parties from multiple disciplines helps address complex issues faced in the real world. However, Bromham *et al.* (2016) and Williams (2016) find that joint exploration is frequently funded at a level that is less than that of pure, single discipline endeavors. Krueger and Shorter (2019) contend that the joint analysis of finance journals and information systems journals facilitates an understanding of journal impact for readers within these (and other) disciplines.

Reliance upon impact factors does not, in and of itself, provide a solution to the challenges that exist in one's attempt to make accurate inferences regarding research quality. As will be pointed out in the literature review below, there are a variety of journal impact measures arising from the existence of various definitions of "impact." Contrasting impact factors will be dealt with in a separate section. The initial focus here is one of assessing the robustness of the popular and most widely disseminated Journal Citation Reports (JCR) value across business disciplines. The analysis identifies exogenous journal characteristics which are correlated with the JCR impact measure and the extent to which these journal characteristics vary across two quantitative business disciplines. The three research issues, related research hypotheses, alternative hypotheses and implications of each, evaluated in this study are provided below.

1.1 Hypothesis concerning JCR journal impact measure variation across disciplines

H1. JCR values are similar across top-tier journals in the finance and information systems disciplines.

H1a. JCR values of top-tier journals in finance and information systems are significantly different.

Variation in research quality itself is controlled by limiting the sample to highly regarded academic journals. One of the most quality-conscious lists of academic journals is the

Chartered Association of Business School's (CABS) *Academic Journal Guide (AJG)*. *H1* supports the contention that JCR impact factors of quality journals will be similar across business disciplines. The importance of this analysis lies in the possibility that researchers may claim that their research is abnormally good based upon a higher JCR measure, but these measures may be typical for the research's topic area.

1.2 Hypothesis concerning journal characteristics correlation with JCR impact factors

H2. Research quality, as measured using JCR values, is independent of journal-specific factors (i.e. acceptance rate, frequency of issue, time since initial publication, number of reviewers, etc.).

H2a. JCR values are correlated with journal-specific factors.

Ideally, JCR values are independent of journal factors, such as time since initial publication. In such a case, the JCR measure would tend to be a better indicator of research quality. However, journal longevity may be indicative of its quality, and shed light on the quality of its articles.

1.3 Hypothesis concerning robustness of journal quality measures

H3. Alternative bibliometric measures of journal quality provide consistent rankings of journal quality across disciplines.

H3a. Alternative bibliometric measures give conflicting ratings of journal quality across disciplines.

To the extent that journal "quality" is an all-encompassing construct, one would detect consistent rankings of journal quality across disciplines. However, differences in ranking may provide insight regarding the utilization of new research by citing authors in a given discipline. Researchers in a given discipline will want to be cognizant of the bibliometric measure being employed by supervisors and campion that measure which puts their scholarly productivity in the best possible light. The following literature review focuses on scholarly performance assessment across disciplines, past studies of impact factors and acceptance rates, and alternative measures of impact. The research method and findings are revealed in the following two sections. Implications of these findings relative to the research hypotheses and proper evaluation of scholarly performance are addressed and suggestions are provided for future research.

2. Literature review

2.1 The importance of research quality in faculty assessment

Numerous researchers have tackled the topic of what constitutes excellence in research. This issue is addressed by members of promotion and tenure committees, as well as those regularly called upon to write reference letters for candidates. One major element of these evaluations is the quality and quantity of the candidate's research publications. The quality of the journals the researcher actually publishes in is frequently used as an indicator of the long-term impact of the candidate's research. This is especially true for the disciplines studied here, as demonstrated by recent articles in both finance (see, e.g. Brogaard *et al.*, 2018; Netter *et al.*, 2018) and information systems (see, e.g. Dennis *et al.*, 2006; Bernardi and Collins, 2018).

Even after making the heroic assumption that journal quality can be used as a surrogate for research quality, several issues need to be resolved. A variety of measures have been used, over time, to assess the quality of journals. A popular measure of journal quality has

been whether submissions are reviewed by peers, and whether the journal follows a blind review style (Crane, 1967; Blank, 1991). Double-blind reviews, wherein the identity of both the author and reviewer are unknown to the other party are typically perceived to provide greater quality. In a comparison of the single-blind and double-blind review process, Snodgrass (2007) found that when a double-blind review process was used acceptance rates are lower and referees turn in more critical reviews. However, using the broad-brush requirement that an article be in a peer-reviewed journal essentially created only two classes of articles and said little about the relative quality differences of journals. Therefore, blind review was replaced by acceptance rates as a means to compare journal quality.

2.2 Past studies of comparing finance and information systems journals

Perhaps the most relevant set of prior research is the analyses of acceptance rates in finance, information systems and other areas were conducted by Krueger and Shorter. In their initial study, Krueger and Shorter (2012) investigated variation in acceptance rates over time in the finance and information systems areas. They then added data from the accounting discipline (Krueger *et al.*, 2012) and the marketing discipline (Shorter *et al.*, 2012), while studying acceptance rate variation across time and national boundaries. Instead of treating all journals in finance equally, the next analysis considered acceptance rates across seven finance sub-disciplines, such as insurance, real estate and corporate finance, which found significant variations across finance sub-disciplines (Krueger, 2013). Meanwhile, Shorter (2013) took a more careful look at the impact of time to review, manuscript length, and how journal sponsorship impacted information system journal acceptance rates. Management journals were added to the investigation stream by Krueger (2014), which documented the relative impact of publication fees on acceptance rates. This report is a natural outgrowth of these research streams, because it investigates the analysis of JCR, SJR, Source Normalized Impact per Paper (SNIP) and citation score variation across the finance and information systems disciplines, limiting it to top-tier journals, and uses updated values and journal characteristics.

Frequently, journal quality measurement is simplified to the requirement that a publication be included on a predetermined list of premier journals. Krueger (2017) compared journals included in the CABS's *AJG* and Australian Business Deans Council's Journal Quality List to the journals included in Cabell's Directory of Publishing Opportunities in Finance. As with this research, demographic characteristics of journals were examined. Instead of going across listings of finance journals, this study compares the *AJG* listing for finance and information systems. This listing provides a much larger sample of journals than the Schaffer *et al.*'s (2011) bibliometric study of four finance journals and Lowry *et al.*'s (2013) study of eight information systems journals.

2.3 Journal impact factors

A variety of alternative impact measures have been created, each of which attempt to gauge the relative importance of a journal. The impact factor was devised by Eugene Garfield, with data published yearly since 1975 in the JCR and now available from Clarivate Analytics. The SCImago Journal Rank (SJR) is another measure of the scholarly value of journal articles based on perceived journal quality. Journal quality is defined by SJR in terms of both the number of citations and the prestige of the journals in which a given journal's articles are cited. One essentially ends up with a measure of the average prestige per article for each Scopus journal. In a ranking of 300 economics journals, Moosa (2017) reports that the *Journal of Finance* moves up one notch if one uses this "prestige articles in prestige journals" measure.

The SNIP measure was developed by Moed (2011). This ratio's numerator is the number of citations per journal, while the denominator is a value based on what is referred to as the

citation potential. The citation potential may be viewed as the average length of a list of references in a discipline (Moed, 2010, 2011).

In this analysis we initially concentrate on the JCR measure and how it estimates the impact of finance and information systems journals. We will discuss how the other bibliometric measures (SJR, SNIP and CITE scores) affect finance and information systems journals in Section 4.3 Analysis of Additional Bibliometric Measures. The SCImago Journal Ranking (SJR) provides additional "points" for prestigious journals, and thereby may be self-perpetuating according to the CABS. CABS also warns that the SNIP accommodates multi-disciplinary journals, but is sensitive to the number of reviews published and "game playing" arising from self-citation (ABS, 2015, *Academic Journal Guide*, p. 11). Given the documented increase in self-citation (see, for instance, Chorus and Waltman, 2016) and the recently created CiteScore metric (see for, instance, Kim and Chung, 2018; Sugimoto and Lariviere, 2018; Memon, 2018), the authors chose to initially concentrate on the historical standard of research quality, the JCR measure.

There has been a significant amount of research regarding which bibliographic measures provide the best estimate of journal quality. In an expansive study, Mingers and Yang (2017) contrast JCR, SRJ and SNIP ratings of 37 business journals including four finance journals and two information systems journals. Whereas, in information systems, Lowry *et al.* (2013) contrast expert opinion and bibliographic measures finding a high degree of agreement in terms of journal quality. While some researchers (i.e. Merigo *et al.*) study a single journal's bibliometric measures across extended periods, our focus is one of analyzing and contrasting the current environment in which finance and information systems scholars find themselves.

3. Research method

The initial sample consisted of finance journals and information systems journals included in the 2015 *AJG*, published by the Association of Business Schools. The research was completed before the 2018 interim revision was released, which added relatively few finance journals and information systems journals to the 105 finance journals and 79 information systems journals. The added journals typically have the lowest *AJG* ranking possible. The next comprehensive analysis of journals is expected to be published in 2020.

The *AJG* is unfortunately only a listing of journals, with no journal demographic information. Following the approach of Krueger (2018), we used the editor supplied information reported to and published by Cabell's Directory of Publishing Opportunities online. This single source of data is used as a means to capture journal demographics which are generically defined, readily available, and puts this research in line with prior bibliometric studies. Using Cabell's Directories reduced the maximum sample size to 90 finance journals and 59 information systems journals. The sample on which each comparison is based varies with the availability of dependent and independent data and provided in the tables.

In order to assess the multi-collinearity of the sample, Pearson product-moment correlation coefficients were computed for the four numeric independent variables which are shown in Table I. Variable correlations across finance journals are presented in Panel A, while correlations across information systems journals are presented in Panel B. The average of the absolute value of the correlation coefficients for finance journals is 0.170, with none of the correlations being above 0.308. The latter value can be found in the acceptance rate column and year of initial publication row, which is essentially the first computed value in Table I. The positive value means that as journal origin becomes more recent acceptance rates tend to rise. A positive correlation is not surprising, in light of more recently originating journals having to set a lower standard in order to attract submissions. Or, they may need to accept a higher percentage of submissions to provide a perceived necessary

	Acceptance rate	Year of initial publication	Issue frequency per year	Number of reviewers
Panel A: finance journals (n = 46)				
Acceptance rate	1.0			
Year of initial publication	0.308	1.0		
Issue frequency per year	−0.050	−0.038	1.0	
Number of reviewers	0.165	−0.293	−0.160	1.0
Panel B: information systems journals (n = 46)				
Acceptance rate	1.0			
Year of initial publication	−0.160	1.0		
Issue frequency per year	0.019	−0.252	1.0	
Number of reviewers	−0.155	−0.021	−0.012	1.0

Table I.
Pearson product-movement correlation coefficients

number of articles to justify existence. The coefficient of determination for the combination of acceptance rate and year of initial issue is only 0.095 (i.e. 0.308^2), meaning that less than 10 percent of the variation in finance journal acceptance rates can be explained by how long the journal has been in existence.

Correlation coefficients for information systems journals are exhibited in Panel B of Table I, where one finds lower correlation values than those exhibited in Panel A. The highest absolute value below the diagonal is the −0.252 correlation coefficient for the relationship between the date of issue and issue frequency. The implication of the negative sign is that more recent information systems journals tend to have fewer issues per year. Over the years, older information systems journals may have had more of a chance to build a following resulting in a demand for more frequent publication. Supporting this contention, in Panel A, one can see that the relationship between issue frequency and year of initial issue is also negative among finance journals. Squaring this information systems journals' correlation coefficient for these independent variables provides a value of 0.064 (i.e. 0.252^2), suggesting that only about 6 percent of the variation in publication frequency can be explained by when the journal first appeared.

In order to assess the robustness of the comparison between finance and information systems journals, information regarding the SCImago Journal Rank (SJR indicator), SNIP and citation rates was obtained. The SJR indictor accounts for both the number of citations received by a journal and the prestige of the journals where such citations are located. SCImago Lab produces the SJR index and freely provides a variety of additional journal quality metrics at its website, some of which go back to 2002. The SNIP (indictor) adjusts citation counts for the number of citations in a given field. The SNIP measure is published by Scopus, which publishes SNIP data going back to 2012. Scopus also publishes the percentage of journals which have been cited over the subsequent three years, which is a third bibliometric measure beyond JCR that is reported in this paper.

4. Findings

4.1 Discipline-based differences in JCR values

Interestingly, as shown in the first row of Table II, 46 journals in both finance and information systems were listed in the 2015 *AJG* with a JCR impact measure. The mean JCR value of information systems journals (i.e. 2.45) is almost twice that of finance journals (i.e. 1.31). Although the medians are less diverse, information systems journals have higher

minimum and maximum JCR impact factors. Consequently, it is not surprising to find that the impact as measured by the JCR metric is significantly different at the 0.01 level. The dominance of information systems journals over finance journals, in terms of JCR-measured impact factors, is illustrated by the taller bars on the right hand side of Figure 1.

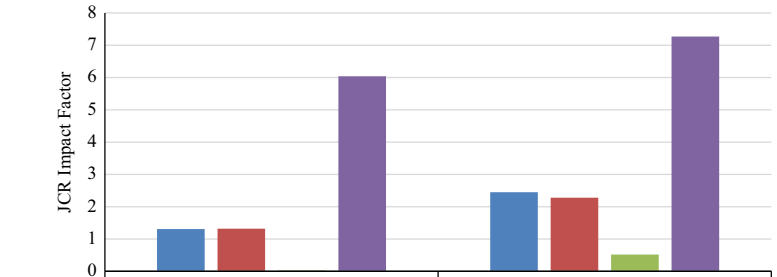
The implication is that quality information systems articles are cited 1.14 times more than top-tier finance articles. Although one potential explanation is that there are more information systems journals, which would have more articles citing other information systems research, and hence the higher impact factor, the counter argument is that as the number of journals rises so does the denominator in the JCR index, which would reduce this measure. The actual number of finance journals in the *AJG* listing exceeds the number of information systems journals by a ratio of 1.56 to 1 (i.e. 86 ÷ 55). Regardless of cause, the evidence does not support the first hypothesis, and does support the alternative hypothesis. JCR values of research without information regarding the discipline should be used with great caution.

One may wonder about the relative level of these JCR means relative to other journals. Across the 12,061 journals with JCR scores, as reported by Gann (2017), 205 journals have score above 10. *MIS Quarterly* at 7.27 has a ranking that is in the Top 3.3 percent, while the *Journal of Finance* with a ranking of 6.04 is in the top 4.6 percent of academic journals. With an overall score of 2.45, the average quality information systems journal has an impact ranking which is in the top 28.6 percent of all journals. By comparison, with an overall score of 1.31, the average impact of quality finance journal is in the top 55.4 percent of all journals.

	Finance journals	Information systems journals
n	46	46
Mean	1.31	2.45
Median	1.32	2.28
Minimum	0.03	0.52
Maximum	6.04	7.27
t-statistic	4.220	
p-value	0.000**	

Note: **p-value = 0.01

Table II.
Comparison of JCR impact factors



	Finance Journals $n=46$	Information Systems Journals $n=46$
Mean	1.31	2.45
Median	1.32	2.28
Minimum	0.03	0.52
Maximum	6.04	7.27

Figure 1.
Comparison of JCR impact factor statistics

4.2 JCR correlation with key journal characteristics

This section reveals results discovered in a quest to identify why information systems journals have higher JCR impact values. Specifically, we studied four numeric journal characteristics: acceptance rate, annual frequency of issue, launch date and the total number of reviewers. Given the limited amount of multi-collinearity, as exhibited in Table I, a multiple regression analysis was completed in order to gain an understanding of the explanatory power of these journal characteristics. Multiple regression is required due to the testing of the impact of several journal characteristics. Multiple regression coefficients values provide an understanding of how citation-based quality measures vary across changes in journal characteristics. One is able to assess the overall significance of the models as well as significance of each individual independent variable.

The results of the multiple regression computation are provided in Table III, where model-related statistics are reported in the left set of columns and regression model coefficients and their significance is reported in the right set of columns. These results are based on the 43 finance journals and 37 information systems journals included in the *AJG* with complete information available in Cabell's Directories. The multiple regression model *F*-value is highly significant for finance journals and approaching significance for information systems journals. The ability of these four variables to explain the JCR metric registers at 25.2 percent for finance journals and 8.3 percent for information systems journals.

Multiple regression coefficients are presented on the right side of Table III, with coefficient *p*-values and asterisks to help the reader locate terms which are significantly different from 0. The acceptance rate is the only independent variable which is significant in both regression models. The negative sign of the term is expected because it indicates that as the acceptance rate rises, there is a decline in the JCR value. For instance, an increase in the acceptance rate of 10 percent, for instance from 20 to 30 percent, is likely to reduce the JCR metric among finance journals by 0.54 and among information systems journals by 0.78. Stated in terms of citations, the number of citations is likely to drop by about half of a citation per top-tier finance article as the acceptance rate rises by 10 percent. The decline is about three-fourths of a citation among information systems journals.

In the discussion of correlation coefficients above, it was noted that one of the highest correlations among finance journals exists between acceptance rate and year of initial issue. Although the year of initial issue is approaching significance, one cannot say that this variable adds a significant contribution to the explanation of the JCR measure. The negative sign of the year of initial issue and acceptance rate correlation found in Table I is matched by a negative sign in the regression model computed and exhibited in Table III. The implication arising from Table III is that more recent journals tend to have a lower JCR value. A negative sign is also

	Regression model significance			Regression model coefficients			
	F-value	*p*-value	Adjusted R^2	Acceptance rate	Year of initial issue	Annual issue frequency	Number of reviewers
Finance journals ($n = 43$)	4.54	0.004**	0.252	−0.054 (0.000**)	−0.005 (0.151)	0.081 (0.026*)	0.213 (0.526)
Information systems journals ($n = 37$)	1.81	0.151	0.083	−0.078 (0.044*)	−0.003 (0.574)	−0.012 (0.395)	−0.093 (0.385)

Notes: *p-value = 0.05; **p-value = 0.01

Table III.
JCR multiple regression model results

found in the equation with the information systems journals' year of initial issue, with the coefficient again being insignificant.

There is a difference in the significance and sign attached to the annual issue frequency by finance journals and information systems journals. Greater frequency each year results in a higher JCR value among finance journals, with the term being significant at the 0.05 level. Among the many reasons for this positive coefficient is the possibility that journals with many issues have a greater opportunity to cite prior research appearing in the same journal. Although the information systems journals' coefficient on this term is negative, it is not significant. The number of reviewers term is not statistically significant for journals in either discipline.

4.3 Analysis of additional bibliometric measures

4.3.1 SJR metric. In light of the dichotomy of JCR results reported above, journal ratings on three additional bibliometric metrics were obtained and analyzed. Comparisons based on the SCImago Journal Rank (SRJ) metric, which considers both the citation and quality of the journal in which a journal is being cited, are reported in Panel A of Table IV. The SNIP metric, which corrects for citation frequency differences across fields of study and considers three years, is shown in Panel B. Meanwhile, the percentage of journal articles cited is shown in Panel C. To further enhance the analysis, we present both the most-recently report 2017 values of these measures and their level for at least one historical period. SJR measures are reported for 2002, 2007, 2012 and 2017, while SNIP and citation percentages are reported for 2012 and 2017. Table IV includes mean, median, maximum and minimum values for these bibliographic measures among premier finance journals on the left and information systems journals on the right. For ease of reading the larger value within each period and measure is highlighted in italic.

SJR measures for finance journals are consistently higher than information systems journals, whether one is considering mean, median or maximum values. In 2017, finance

Panel A: SJR measures

	Finance journals $n = 50$				Information systems journals $n = 42$			
	2002	2007	2012	2017	2002	2007	2012	2017
Mean	*1.17*	*1.40*	*2.18*	*1.87*	0.65	1.18	1.03	1.16
Median	*0.54*	*0.80*	*0.90*	*0.89*	0.47	0.76	0.77	0.80
Minimum	0.10	*0.17*	0.21	*0.16*	*0.15*	0.15	*0.22*	0.11
Maximum	*9.90*	*9.87*	*19.47*	*18.32*	3.41	9.42	5.23	5.08

Panel B: SNIP

	Finance journals $n = 82$		Information systems journals $n = 61$	
	2012	2017	2012	2017
Mean	1.31	1.16	*1.52*	*1.50*
Median	0.91	0.96	*1.48*	*1.42*
Minimum	0.04	0.14	*0.15*	*0.21*
Maximum	*5.16*	*5.80*	5.05	4.48

Panel C: citation rate

	Finance journals $n = 69$		Information systems journals $n = 60$	
	2012 (%)	2017 (%)	2012 (%)	2017 (%)
Mean	49.91	53.75	*63.07*	*66.25*
Median	50.00	54.00	*69.50*	*67.00*
Maximum[a]	6	17	*18*	*29*
Minimum[a]	96	*100*	92	95

Note: [a]Scopus provides integer values for citation percentages

Table IV.
Analysis of alternative bibliometric measures across time

journal SJRs were 61 percent higher on average, though the median is only 11 percent higher. The diminished minimum SJR rating among information systems journals may be a reflection of diminished quality at the *Information Resources Management Journal*, which experienced a 58.1 percent decline in its SJR rating from 0.258 to 0.108. Meanwhile, the most cited journal is the *Journal of Finance* which has an SJR rating that is over three times that of *MIS Quarterly*.

From 2002 to 2017, average SJR measures of top-tier finance journals rose by 59 percent, however, the 2017 SJR value was lower than it had been in 2012. By comparison, information systems journals rose by 78 percent over the 2002–2017 period; however, the highest reported SJR value occurred in 2007. The median values present a picture of stability over the period from 2007 to 2017, whether one is considering finance journals or information systems journals. Considering the journals with the maximum SJR measure on a year-by-year basis, the *Journal of Finance's* SJR value peaked in 2014, at a level of 21.42, while *MIS Quarterly's* SJR value reaches its zenith in 2007 at 9.42. While finance journals are rating higher on this quality metric, the SJR value of any individual journal can be quite volatile.

4.3.2 SNIP metric. By comparison, the SNIP metric rates premier information systems journals higher, whether considering the mean, median or minimum SNIP rating. Italic lettering in Panel B of Table IV only exists on the finance side of the ledger when it comes to the maximum SNIP rating, which would be the results from the *Journal of Finance*. The difference in SNIP values grew over the 2012–2017 period, from an average difference of 16 to 29 percent. In fact, the average SNIP values of finance journals declined over the five-year period. However, the median SNIP value increased among finance journals, but declined among information systems journals. All else being equal, the comparison of the SJR and SNIP ratings would suggest that extending the citation window an extra year and/or considering the relatively fewer citations in information systems journals increases the SNIP-perceived perception of information systems journals.

4.3.3 Citation rates. Even within top-tier journals, citation rates are far from spectacular, with only 53.75 percent of finance articles in 2017 cited and 66.25 percent of information systems journal cited over the initial three-year period. For instance, articles in 2014 could have been cited in 2015–2017. Both citation rates were up about 3 percent from where they had been in 2012. Median numbers are quite similar, with the typical top-tier information systems article being 13 percent more likely to be cited.

At the lowest extreme, in 2017, only 17 percent of the articles in the *Journal of Emerging Markets Finance* had been cited. By comparison, the worst showing among information systems journals in 2017 was the *International Journal of Information Technology and Management*, a journal with only 29 percent of its articles being cited. At the higher extreme, 95 percent of *MIS Quarterly*'s articles were being cited, meaning that 5 percent had not been considered worthy of citation over the ensuing three years. By comparisons, it is surprising that all of the articles in the *Journal of Finance* appearing in 2014 were cited over the following three years. Even among what are considered to be top-tier journals, this evidence is consistent with the naysayer's view that a large percentage of articles are not read by more than the authors, reviewers, and editors. These results also lend support to the third alternative hypothesis, which states that the relative measure of journal quality varies across bibliometric measures.

4.3.4 Factors leading to differences in additional bibliometric metrics. Considering the divergence in ratings given to finance and information systems journals by these alternative bibliometric measures, an important question is one of whether the differences are tied to variation in specific journal characteristics. For ease of comparison, Panel A of Table V restates the JCR metric information found in Table III. In that prior discussion, it was reported that acceptance rate is significantly related to the JCR of both finance and

	Regression model significance			Regression model coefficients			
	F-value	*p*-value	Adjusted R^2	Acceptance rate	Year of initial issue	Annual issue frequency	Number of reviewers
Panel A: JCR metric							
Finance journals ($n = 43$)	4.54	0.004**	0.252	−0.054 (0.000**)	−0.005 (0.151)	0.081 (0.026*)	0.213 (0.526)
Information systems journals ($n = 37$)	1.81	0.151	0.083	−0.078 (0.044*)	−0.003 (0.574)	−0.012 (0.395)	−0.093 (0.385)
Panel B: SJR metric							
Finance journals ($n = 46$)	3.07	0.027*	0.235	−0.127 (0.013)*	−0.053 (0.070)	0.312 (0.076)	0.129 (0.820)
Information systems journals ($n = 36$)	2.49	0.064	0.250	−0.052 (0.009**)	0.006 (0.530)	−0.024 (0.712)	−0.351 (0.089)
Panel C: SNIP metric							
Finance journals ($n = 69$)	5.96	0.006**	0.275	−0.019 (0.004**)	−0.016 (0.008**)	0.053 (0.142)	0.046 (0.715)
Information systems journals ($n = 50$)	2.21	0.082	0.164	−0.019 (0.123)	−0.004 (0.629)	0.054 (0.234)	−0.114 (0.628)
Panel D: citation rate metric							
Finance journals ($n = 53$)	1.28	0.291	0.096	−0.027 (0.205)	−0.121 (0.586)	1.310 (0.200)	0.163 (0.964)
Information systems journals ($n = 48$)	3.84	0.009**	0.263	−0.045 (0.048*)	−0.071 (0.598)	0.234 (0.777)	−7.372 (0.003**)

Notes: *p-value = 0.05; **p-value = 0.01

Table V.
Multiple regression model results across impact factors

information systems journals. Going down the annual issue frequency column in Table V, one can see that this independent variable was only tied to finance JCR measures, and unrelated to variation in any of the four journal quality measures of information systems journals.

As one would expect, there are several similarities across regression equations. For instance, a significant proportion of SJR measure variation can be explained by these independent variables. As acceptance rates rise, SJR values drop by a significant amount. Looking at the three right columns of Panel B, one finds that the SJR is the only journal quality measure that is independent of journal longevity, issue frequency and number of reviewers. This lack of significance may make SJR a better measure of journal quality because perceived article quality is not correlated with these journal factors that are extraneous to the article itself.

By comparison, journal longevity is significantly related to finance SNIP ratings. With the significance of the acceptance rate and relatively large sample size, the *F*-ratio reaches its highest level (i.e. 5.96) in the regression wherein finance SNIP values serve as

the dependent variable. The explanatory power (i.e. adjusted R^2) reaches a height of 27.5 percent for finance SNIP measures. None of the independent variables are significantly related to information systems SNIP journal rating.

As was reported in Panel C of Table IV, the percentage of articles cited during the subsequent three years, is higher among information systems journals. As shown in Panel D of Table V, the explanatory power of these independent variables among information systems journals reaches 26.3 percent, with acceptance rate being significant at the 0.05 level and number of reviewers being significant at the 0.01 level. Ironically, as the number of reviewers rises, the percentage of articles cited drops. Careful investigation of this finding revealed that several of the journals with limited reviewers being used actually had among the highest citation ratings. Finance journal citation ratings were not significantly tied to any of the listed independent variables, resulting in the lowest *F*-statistic and explanatory power. What is evident from Table V is that the drivers of perceived journal quality vary from discipline to discipline, which is consistent with the third alternative hypothesis.

5. Conclusion

Quantity and quality of research are two hallmarks of leading research institutions. Assessing research quality is very problematic because its definition has changed from being based on review processes (i.e. blind refereed), to acceptance rates, to impact factors. Furthermore, the impact factor construct has been a lightning rod of controversy as researchers, administrators and journals argue over which metric to employ. This research assesses how impact factor estimates and journal characteristics, which may impact the impact factors, vary by business discipline. The research is especially important and relevant to the authors who separately chair departments which include finance and information systems faculty, and therefore are in roles requiring assessment of faculty scholarly productivity, including quality.

In order to limit the impact of journals with lesser quality influencing our findings, the empirical sample consists of journals identified by London's Association of Business Schools as having the best work in the field. Only 105 finance journals and 79 information systems journals are listed in the most recent comprehensive *AJG*. This study uses the arguably most popular JCR, or the JCR measure of impact. A subset of the *AJG* empirical sample is the 46 journals, in each discipline, for which JCR values are reported by Clarivate Analytics. We also used a special section of this paper to briefly discuss some of the other popular bibliometric measures SJR, SNIP and citation rates.

Using *t*-tests, we find that there is a significant difference in the JCR values of quality journals across disciplines, with information systems journals publishing research which will be cited more frequently. Information systems journals domination of finance journals persists whether one considers mean, median, minimum or maximum impact factors. For instance, finance faculty publishing in journals with JCR readings of 2.0 are in journals that are 53 percent above the discipline's average, while information systems faculty publishing in journals with JCR readings of 2.0 are in journals that are 18 percent below the discipline's average.

Correlation analysis and multiple regression techniques were employed to verify that several journal characteristics can be used to explain a journal's JCR measure. Or stated another way, research quality as measured by this factor can be foreshadowed by quantitative factors such as the acceptance rate and annual issue frequency. Finance faculty can court higher citation rates for their research by scouting out journals which have a lower acceptance rate, been in existence for a longer period of time, and have more annual issues. Interestingly, regarding the latter journal characteristics, information systems journals with fewer annual issues tend to have higher JCR values.

SJR measures for finance journals are consistently higher than information systems journals, whether one is considering mean, median or maximum values. While finance journals are rating higher on this metric, the SJR value of any individual journal can be quite volatile. By comparison, the SNIP metric rates premier information systems journals higher, whether considering the mean, median or minimum SNIP rating. All else being equal, the comparison of the SJR and SNIP ratings would suggest that extending the citation window an extra year and/or considering the relatively fewer citations in information systems journals increases the perceived perception of information systems journals. Even among top-tier journals, citation rates are far from spectacular in 2017, with over 46 percent of finance articles and 33 percent of information systems articles not being cited over the within three years of publication.

Even among what are considered to be top-tier journals, this evidence is consistent with the naysayer's view that a large percentage of articles are not read by more than the authors, reviewer and the journal editor. What is evident from our brief analysis of SJR, SNIP and citation rates, utilizing multi-regression is that the drivers of perceived journal quality vary from discipline to discipline.

Logical extensions of this research include examining journals in other business disciplines. One could study the correlation of changes in bibliographic measures and journal bibliometric measures across other disciplines such as management, marketing and accounting. Furthermore, one could include other measures of journal quality, such as the recently released CiteScore metric. A challenging pursuit would be computation and analysis of JCR, SJR, SNIP and citation rates at the researcher level. Such investigation will build on the present research and improve the accuracy of quality assessment.

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