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An Analysis of Finance Journal Impact Factors

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and BETTY J. SIMKINS*

ABSTRACT

This paper provides an analysis of the citation counts of articles published in the leading finance journals. It identifies the determinants of the most prevalent measure of influence for finance journals, the Social Sciences Citation Index impact factors. It finds that impact factors are affected by citations outside the finance field, are not affected by the distribution of published articles across subfields, and are good predictors of the long-term citation counts of articles. The citation impact factors are reduced for both the *Journal of Financial Economics* and *The Journal of Finance* by their publication of other than regular articles.

JOURNAL INFLUENCE IS AN IMPORTANT CONCERN in finance. Borokhovich et al. (1995) find that the influence of articles published in finance journals is significantly related to *U.S. News & World Report's* rankings of business schools. The rankings are based in large part on the opinions of business school Deans and CEOs of major corporations, and the ability of the school to attract the most qualified students. These results suggest that publications in influential finance journals may directly or indirectly be a significant factor in forming the perceptions of administrators, the business community, and the general public. Based on this evidence, it is not surprising that Swidler and Goldreyer (1998) find that only articles published in the most influential finance journals are reflected in the salaries of finance faculty.

Obviously, the relations between influential finance publications and both business school reputation and finance faculty salaries would not be possible unless there was general agreement on which journals are influential. In finance, the most commonly used measure of journal influence is the *Social Sciences Citation Index (SSCI)* impact factor. This measure is calculated by summing the number of times the articles published in a journal in years $t - 1$ and $t - 2$ are cited in year t , then dividing the sum by the total number of articles published in the journal in years $t - 1$ and $t - 2$. Schwert (1993) presents the impact factor as the single quantitative measure that demonstrates the position of the *Journal of Financial Economics (JFE)* as a lead-

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ing finance journal. Borokhovich et al. (1995) weight publications by the impact factors of the journals in which they appear to determine the research productivity of finance departments. Fishe (1998) and Borokhovich and Chung (1999) use impact factors to select the most influential journals in their studies of the research productivity of Full Professors and recent graduates with doctoral degrees in finance, respectively.

The use of the *SSCI* impact factor to measure journal influence is prevalent in finance, however no study has analyzed why some journals maintain high factors over time. For the impact factor to be a meaningful measure of influence, these journals must attract high quality submissions that the editorial board then recognizes and accepts for publication. Therefore, an understanding of the determinants of the impact factor is central to establishing the acceptability of the impact factor. Within this context, at least three potential biases may be introduced that could cause a journal to have an impact factor that does not reflect the journal's actual influence. The first is a negative bias. Even though editors of some journals recognize and publish influential articles consisting of original research, they also include other types of articles. This procedure may have an effect on the journal's impact factor. In fact, concern for the potential dilution of a journal's perceived influence because of the mix of articles is serious enough for some editorial boards to take action. For example, Borokhovich, Bricker, and Simkins (1999) explain that *Financial Management (FM)* has recently changed its mission to focus on mainstream financial research exclusively. The editors expect the change to result in, among other things, a higher impact factor and an enhanced reputation as an influential finance journal.

Second, Borokhovich et al. (1998) find that articles addressing some areas of finance, such as those in corporate finance, tend to appear in journals with higher impact factors than do other articles, such as those addressing financial institutions. Further, Borokhovich, Bricker, and Simkins (1994a) present evidence that corporate finance may be more integrated than areas such as financial markets, which may lead to corporate articles being cited more often, on average. Therefore, if articles examining some areas of finance are cited more often than articles examining other areas, the areas addressed in the articles a journal publishes will bias its impact factor.

Third, the impact factor only measures influence over the two years immediately following publication of the articles. This short time period may be biased toward journals that follow "hot" topics or fads that are briefly popular, then quickly forgotten. The impact factors for these journals would be higher than for journals that publish innovative papers that lead to new streams of research because the innovative papers might not be cited frequently soon after publication.

This paper first examines the determinants of the *SSCI* impact factor, then addresses whether the impact factor provides an unbiased measure for selecting the most influential finance journals, or whether the potential biases in the factors tend to favor some journals over others. The study consists of an analysis of the citation patterns of the three finance journals with

the highest average *SSCI* impact factors since the inception of those factors. The three journals are *The Journal of Finance* (*JF*), *Journal of Financial Economics* (*JFE*), and *Review of Financial Studies* (*RFS*). The evidence presented here shows that the impact factors are determined by the publication of articles that are cited by a broad range of journals both inside and outside the field of finance. Further, the journals' impact factors are not the result of any favorable bias. In fact, the only systematic bias is negative for *JF* and *JFE*. These two journals actually deflate their impact factors annually by publishing papers other than regular full-length articles. Otherwise, the evidence is consistent with the journal impact factors providing an unbiased measure of journal influence. Specifically, with one exception the citation rates across articles in different areas of finance are not significantly different. The one exception is for corporate finance and governance articles in *RFS*, which tend to be cited significantly less often than other articles in the same journal. Since articles addressing any specific area have no citation-rate advantage over articles addressing any other area, specializing in one area of finance would not bias a journal's impact factor. Further, there is no evidence that the impact factors of the three journals are dependent on publishing papers on "hot" topics or fads of short-term interest. To the contrary, the citation rates for the articles published in these journals are significantly higher three to five years after publication than they are in the first two years.

The remainder of the paper is organized as follows. Section I presents descriptive data on the source and quantity of the citations to the three journals as a means of examining the determinants of the journals' influence. Section II addresses the potential biases in the impact factors. Concluding remarks are in Section III.

I. Descriptive Data and Determinants of Influence

Citation data are extracted from the *SSCI* for each article published in the three journals from 1990 through 1996, inclusive. This period is chosen because it includes all the years contained in the online database with a minimum of two years of citation data available following the year of publication. Two years following publication is the period for which the citations to the articles are included in the impact factor. Besides full-length articles, the study includes *JF*'s shorter and proceedings papers, *JFE*'s clinical papers, and *RFS*'s symposium papers. Nonrefereed articles and book reviews are excluded.

Figure 1 presents the annual impact factors for the three journals since 1977. *JFE* enters the index in 1978 and *RFS* first appears in 1992. The impact factors vary considerably from year to year, particularly for *JFE*. From soon after it is first listed, *JFE* holds a dominating position in finance until 1990, then its impact factor declines. The most recent trend has been generally upward. *JF*, the most stable of the three journals, shows a mild upward trend from 1977 through 1989, then a significant increase through

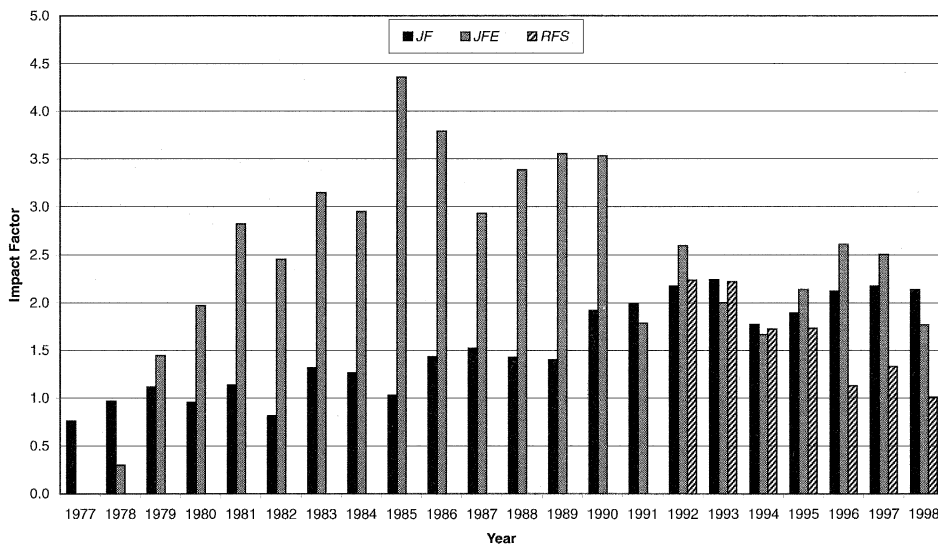


Figure 1. Impact factors for *The Journal of Finance* (JF), *Journal of Financial Economics* (JFE), and *Review of Financial Studies* (RFS) from the SSCI Journal Citation Reports, 1977–1998. The *Social Sciences Citation Index* (SSCI) impact factor is calculated for year (t) as the number of citations in year (t) to a journal's articles published in years ($t - 1$) and ($t - 2$) divided by the number of articles published in the journal in years ($t - 1$) and ($t - 2$). The SSCI started covering JFE in 1978 and RFS in 1992.

1993 followed by a relatively steady state. *RFS* has generally been declining since its initial listing. The high degree of variability in these patterns suggests that the impact factor for a given year is not as informative as the average factor and trends over a longer period of time.

The total citations received annually by all articles ever published in each journal are presented in Figure 2. *JF*, which has the advantage of being both the oldest of the journals and the one that publishes the most articles annually, has the highest total citations perennially. Although the advantage of having published more articles over a longer period of time explains some of the differences in total citations, citation rates per article also play a part. *JFE* closes the gap with *JF* for a period in the late 1980s, reflecting the relative influence of the papers published in that decade. The gap then widens in the most recent years, which corresponds to the decline in *JFE*'s impact factor and the increase in *JF*'s.

The impact factors and total citations are broad measures of influence. They do not identify where the influence lies. Borokhovich, Bricker, and Simkins (1994b) show that while all three journals publish articles on all or most major topics in finance, *RFS* appears to be more specialized than *JF* or *JFE*. The evidence presented here is consistent with those findings. Figure 3 shows that approximately one-third of all the citations to articles in *JF* and *JFE* come from journals outside finance, compared to only 20 percent for

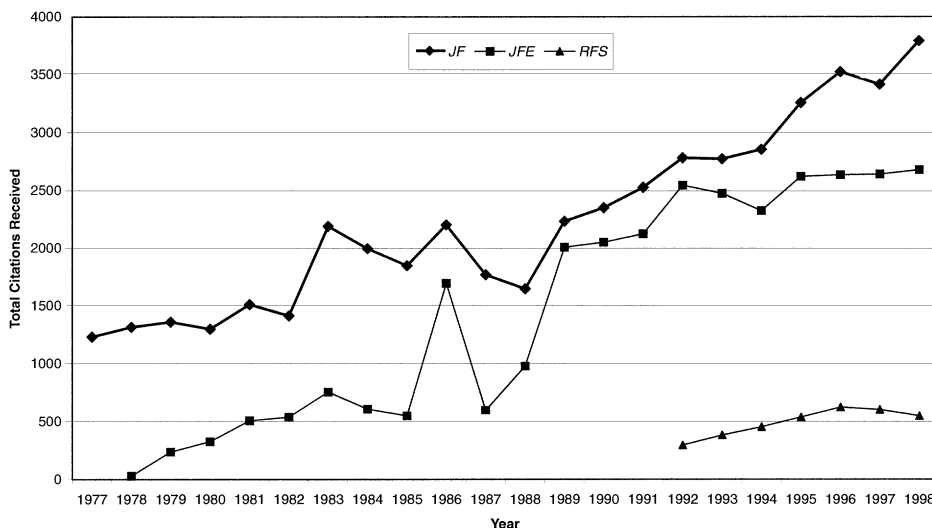


Figure 2. Total citations received by *The Journal of Finance* (*JF*), *Journal of Financial Economics* (*JFE*), and *Review of Financial Studies* (*RFS*), 1977–1998. The *SSCI* started covering *JFE* in 1978 and *RFS* in 1992.

RFS. Of that 20 percent, 18.6 percent comes from economics journals, leaving only 1.4 percent from other sources compared to 15.3 percent for *JF* and 19.4 percent for *JFE*. Figure 4 also contrasts the broader influence of *JF* and *JFE* articles to the narrower focus of *RFS* articles. The number of journals citing *RFS* articles is a fraction of those for *JF* and *JFE*. This evidence suggests that *RFS*'s impact factor is a result of deep, but not broad influence.

II. Examination of Potential Biases

This section examines the potential biases that may affect the *SSCI* impact factors for the three journals. The first potential bias is that imposed by the types of articles the journals themselves decide to publish. The second potential bias concerns whether papers addressing some areas of finance tend to be more highly cited than other papers. Finally, we address the question of whether the impact factors are the result of short-term influence.

A. Types of Articles

All three journals clearly differentiate between the types of articles they publish, but all types are included in the calculation of their respective impact factors. *JF* differentiates between articles and shorter papers. The shorter papers are more specialized and may be less likely to be cited. *JF* also publishes a proceedings issue for papers selected from the American Finance Association's (AFA) annual program. *RFS* includes symposium (proceedings)

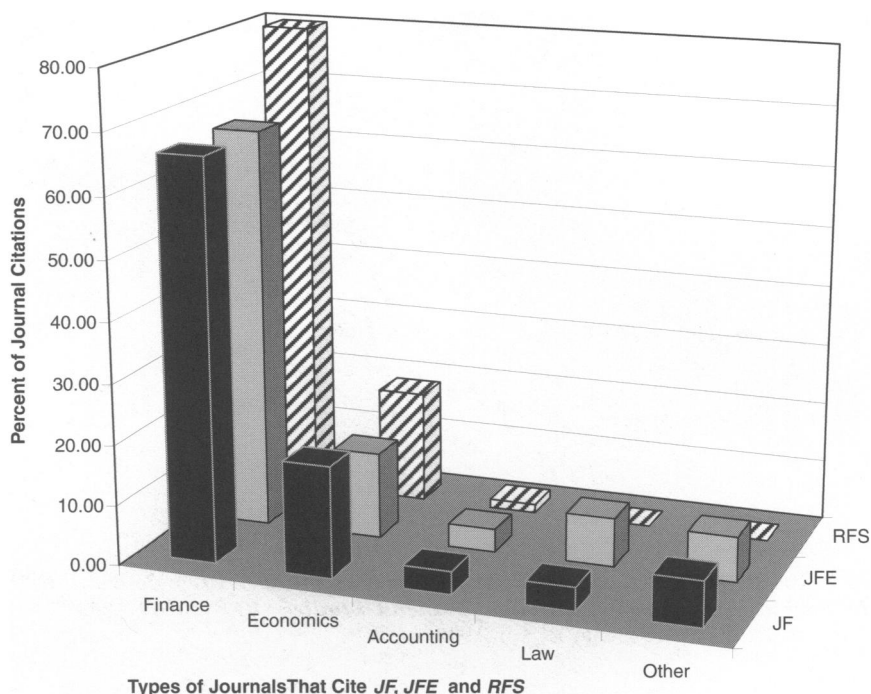


Figure 3. Types of journals citing *The Journal of Finance* (JF), *Journal of Financial Economics* (JFE), and *Review of Financial Studies* (RFS), 1990–1997. This figure illustrates the types of journals listed on the *Social Sciences Citation Index* (SSCI) as having cited articles in JF, JFE, and RFS. Percentages are based on the total citations received by journal type over the period 1990 to 1997. The SSCI started covering RFS in 1992.

papers in its regular issues. The proceedings papers do not go through the same review process as the articles in the regular issues. Additionally, the proceedings issue of *JF* contains an address by the President of the AFA. These addresses often cover material of wide interest, but they are not necessarily original research articles. *JFE* differentiates between articles and more narrowly focussed clinical papers.

Table I presents the results of three tobit regressions, one for each journal, testing differences in the total citations over the first two years subsequent to publication for each type of paper. The total citations measure over the two-year period captures the influence of the papers over the period in which they would be included in the calculation of the impact factor. The structure of the tests provides results relative to regular full-length articles. The evidence is consistent for *JF* and *JFE*, but differs for *RFS*.

The shorter papers and proceedings papers in *JF* and the clinical papers in *JFE* are all cited significantly less often than the regular articles in those journals; however, the presidential addresses in *JF* have significantly higher citation rates than regular articles. In *RFS* the symposium papers are ac-

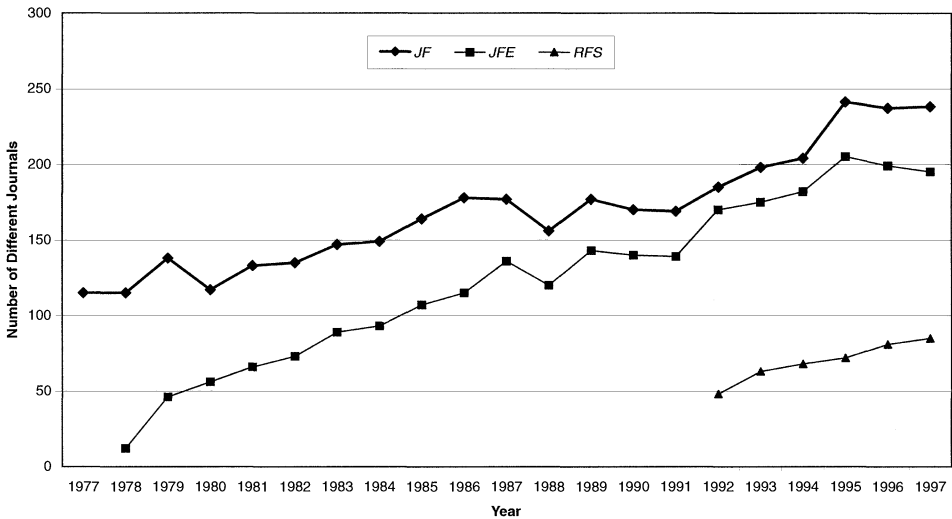


Figure 4. Number of different journals that cite *The Journal of Finance* (*JF*), *Journal of Financial Economics* (*JFE*), and *Review of Financial Studies* (*RFS*), 1977–1997. This figure illustrates the number of different journals listed on the *Social Sciences Citation Index* (*SSCI*) that cite *JF*, *JFE*, and *RFS* each year from 1977 through 1997. The *SSCI* started covering *JFE* in 1978 and *RFS* in 1992.

tually cited more often than the regular articles. Although the editors have little or no control over the proceedings papers and presidential addresses, they are ultimately responsible for the classification of shorter papers at *JF* and clinical papers at *JFE*. In both cases, the classification systems appear, on average, to identify papers successfully.

Table I provides additional evidence on the ability of the editors to identify influential articles. Some journals, including *JF* and *JFE*, lead each issue with what the editors believe will be an influential paper. The results of this policy are clear. The lead articles in both journals are cited significantly more often than the other regular articles.

Based on the evidence that the editors successfully differentiate between types of articles, and because the journals publish different mixes of articles, a more accurate measure of journal influence than the overall impact factor would be an impact factor for regular articles only. Figure 5 graphically shows these adjusted impact factors based on the available data. A comparison with Figure 1 shows that the impact factors for *JF* and *JFE* are biased downward each year by the publication of papers other than regular articles. However, the impact factor for *RFS* is higher in some years and lower in others after adjusting for the inclusion of the symposium papers. A further comparison of Table I and Figure 5 shows that, on average from 1992 to 1997, exclusion of articles other than regular articles from the calculation of the impact factors changes the relative measure of journal influence significantly.

Table I
Tobit Model for Analyzing Total Citations per Paper
to the Type of Paper

This table presents the results of a tobit model, censored at zero, that relates the total citations received (per paper over the two years following publication) to the type of paper. Model parameters are estimated using maximum likelihood. The sample includes papers published in *The Journal of Finance* (*JF*), the *Journal of Financial Economics* (*JFE*), and the *Review of Financial Studies* (*RFS*) over the period 1990 to 1996. The type of paper classifications are as follows: Articles (full-length articles contained in *JF*, *JFE*, and *RFS*), shorter papers (published in *JF*), proceedings (published in both *JF* and *RFS*), and clinical papers (published in *JFE*). The classification variable equals one if the paper is of the above type and zero otherwise, except for the type classified as Articles, which is represented in the intercept. PA equals one if the paper is the presidential address (*JF* only), Lead equals one if the paper appears first in its issue, and Second equals one if the paper appears second in its issue.

Independent Variable	<i>JF</i> Tobit Coefficient (<i>p</i> -value)	<i>JFE</i> Tobit Coefficient (<i>p</i> -value)	<i>RFS</i> Tobit Coefficient (<i>p</i> -value)
Intercept	3.954 (0.0001)	2.607 (0.0001)	2.882 (0.0001)
Proceedings	-2.187 (0.0014)	—	1.657 (0.0389)
Shorter papers	-3.579 (0.0001)	—	—
Clinical papers	—	-3.050 (0.0012)	—
PA	6.089 (0.0018)	—	—
Lead	5.160 (0.0001)	2.612 (0.0001)	-0.212 (0.7984)
Second	1.679 (0.0583)	1.727 (0.0127)	0.557 (0.5055)
Number of observations	548	248	215
Log likelihood	-1421.56	-615.80	-538.75

B. Differences in Citation Rates by Area of Finance

Since only regular articles are common to the three journals and are primarily responsible for their high impact factors, only regular articles are considered for the remainder of this study. All regular articles appearing in the journals from 1990 to 1996, inclusive, are classified in accordance with the broad areas used by *JF*. These areas are General Financial Markets, Financial Institutions, Corporate Finance and Governance, and Money and Interest Rates. Articles not falling into one of these areas are classified as General Finance. As shown in Figure 6, the distribution of articles by area is similar to what is found in Borokhovich et al. (1994b). *RFS* is the most specialized journal, with 138 of 190 articles (72.6 percent) in General Financial Markets, and 34 articles (17.9 percent) in Corporate Finance and Governance. The remaining 18 *RFS* articles (9.5 percent) are distributed over the other three areas. *JFE* is the least specialized, with 115 of its total 226

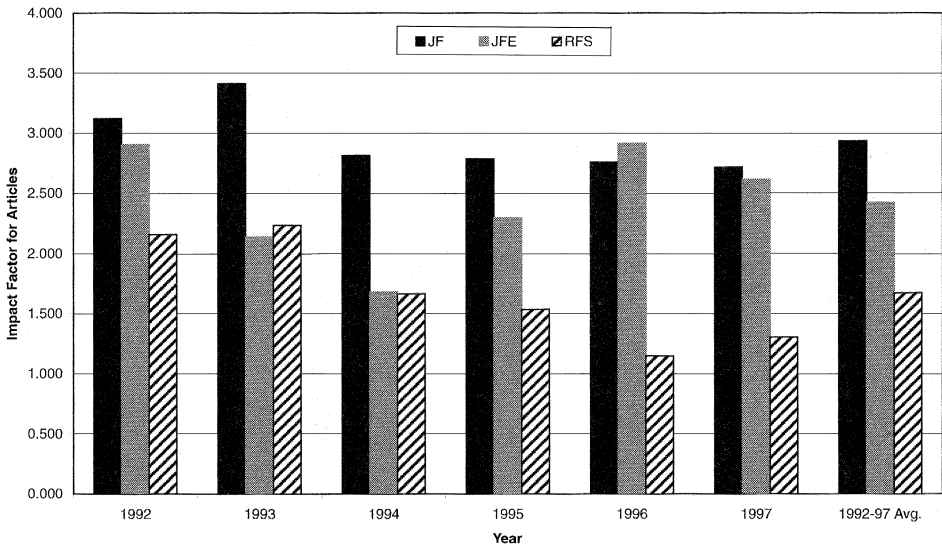


Figure 5. Impact factors based on articles only for *The Journal of Finance* (JF), *Journal of Financial Economics* (JFE), and *Review of Financial Studies* (RFS), 1992–1997. This figure presents adjusted impact factors for regular articles only for the years 1992 through 1997. The adjusted impact factors are calculated based on available data from the SSCI for 1990 through 1996.

articles (50.9 percent) in Corporate Finance and Governance, 78 articles (34.5 percent) in General Financial Markets, and 33 articles (14.6 percent) in the other three areas. *JF* has 181 of its 285 articles (63.5 percent) in General Financial Markets, 71 (24.9 percent) in Corporate Finance and Governance, and 33 (11.6 percent) in the other areas. One area accounts for at least half of the articles in each journal, which might suggest the editorial board has some special expertise in, or preference for, that area.

Table II presents the results of four tobit regressions, one for each journal and a pooled sample for all journals, analyzing the difference in citation rates by area of finance. The structure of the tobit regressions provides results relative to General Financial Markets articles, which is represented in the intercept. As shown, the distribution of articles by area in the journals, especially for *JF* and *JFE*, is likely the result of the proportion of articles submitted in each area that meet the standards for publication, not the preference or expertise of the editorial boards. There are no significant differences in citation rates over the first two years following publication for the articles in any of the areas for the journals overall, or for *JF* and *JFE* individually. Therefore, these journals do not have impact factors biased upward because they publish articles in areas that tend to be cited more often.

The only significant difference in citation rates presented in Table II is for Corporate Finance and Governance articles in *RFS*. It might be assumed that these less-often-cited articles are related to the general decline in *RFS*'s

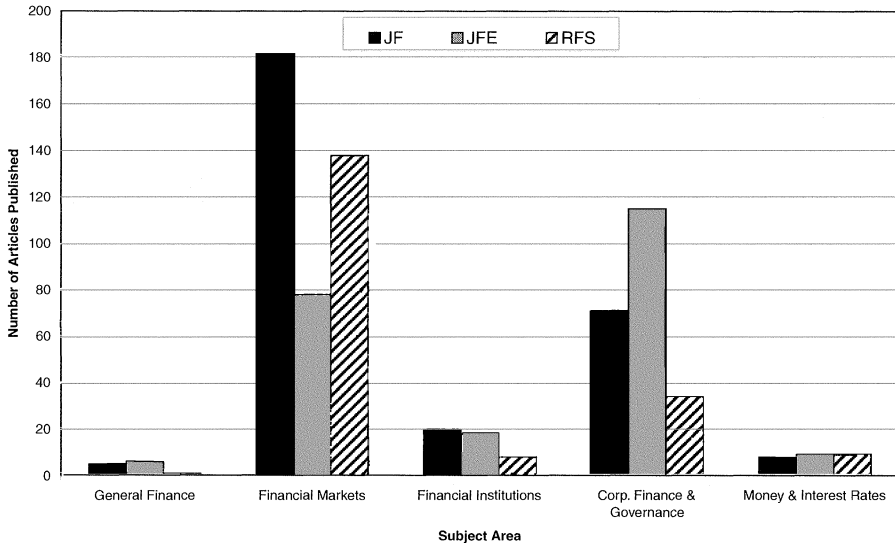


Figure 6. Distribution of articles published by subject area, 1990–1996. This figure shows the number of articles published by subject area during the period 1990 through 1996 for *The Journal of Finance* (JF), *Journal of Financial Economics* (JFE), and *Review of Financial Studies* (RFS). SSCI started covering RFS in 1992. The papers are classified according to subject area as general finance, general financial markets, financial institutions, corporate finance and governance, and money and interest rates.

impact factor. However, evidence not reported here shows that changes in citation rates for these articles are not a factor. The decline is directly related to a decrease in citation rates for articles addressing General Financial Markets.

C. Term of Influence

Some lines of research may look promising and draw a great deal of interest, then quickly lose favor among researchers. Articles published on these subjects would be cited frequently soon after publication, but the citation rate would then fall off. Journals tending to publish such articles could have high impact factors, but would have little lasting influence. Therefore, the SSCI impact factor is an effective measure of journal influence only if it is an indicator of longer-term citation rates.

For finance journals, the impact factor appears to be an effective measure of influence over time. The evidence presented in Figure 7 demonstrates that citation rates for regular articles tend to be lower in the first two years after publication than they are in the subsequent three years. JFE's annual citation rate drops slightly for articles four years after publication. Other than that instance, the citation rates increase annually for each of the jour-

Table II
Tobit Model for Analyzing Total Citations per Article to Subject Area

This table presents the results of a tobit model, censored at zero, that relates the total citations received (per full-length article over the two years following publication) to subject area. Model parameters are estimated using maximum likelihood. The sample includes papers published in *The Journal of Finance (JF)*, *Journal of Financial Economics (JFE)*, *Review of Financial Studies (RFS)*, and a pooled sample for all full-length articles in the three journals over the period 1990 to 1996. The full-length articles are classified according to subject area as general finance, general financial markets, financial institutions, corporate finance and governance, and money and interest rates. The subject area variable equals one if the paper is of the above type, except for general financial markets which is represented in the intercept.

Independent Variable	JF Tobit Coefficient (p-value)	JFE Tobit Coefficient (p-value)	RFS Tobit Coefficient (p-value)	Pooled Sample Tobit Coefficient (p-value)
Intercept	4.909 (0.0001)	3.368 (0.0001)	3.171 (0.0001)	3.972 (0.0001)
General finance	1.091 (0.6889)	-2.925 (0.1180)	-1.171 (0.7492)	-1.074 (0.4742)
Financial institutions	-0.560 (0.6959)	-0.761 (0.4914)	-0.296 (0.8235)	-0.558 (0.4799)
Corporate finance & governance	-1.287 (0.1312)	0.394 (0.5261)	-1.422 (0.0476)	-0.618 (0.1495)
Money and interest rates	-0.986 (0.6548)	-2.363 (0.1262)	0.606 (0.6297)	-1.106 (0.2854)
Number of observations	285	226	190	701
Log likelihood	-844.37	-578.18	-467.47	-1930.08

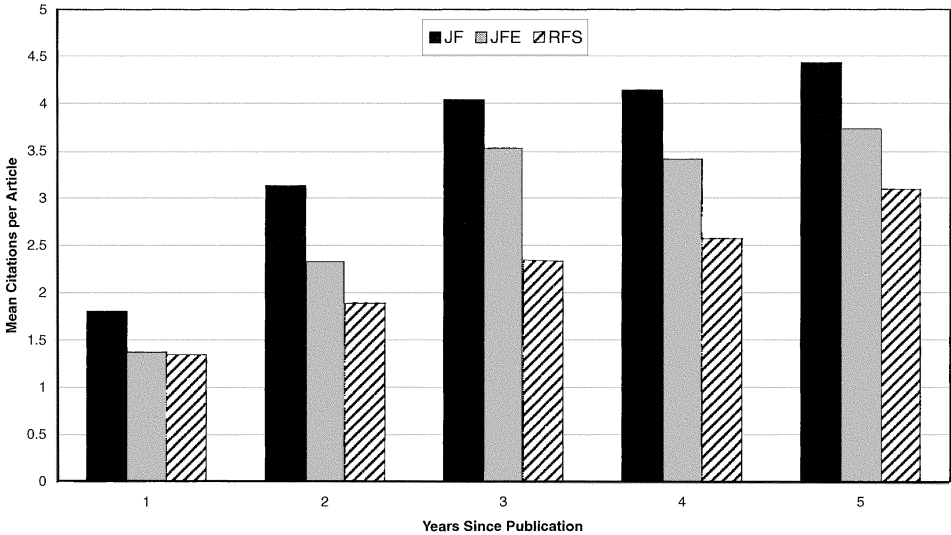


Figure 7. Mean citations per article (based on years since publication). This figure illustrates the mean yearly citations for the five years following publication for regular articles published in *The Journal of Finance* (*JF*), *Journal of Financial Economics* (*JFE*), and *Review of Financial Studies* (*RFS*) over the period 1990 through 1996.

nals, peaking in year five. In fact, the citation rates are at least twice as high five years after publication than they are in the first year after publication. The impact factors of the three journals are not biased upward by the publication of articles of short-term influence.

III. Conclusions

The prevalent use of the *SSCI* impact factor as a means of identifying the most influential journals in finance appears to be justified. In the case of *JF*, *JFE*, and *RFS*, the impact factors are the result of the publication of articles that are, on average, heavily cited both inside and outside the field of finance. Further, the impact factors for *JF*, *JFE*, and *RFS* are not biased upward because they publish articles in areas of finance that are more likely to be heavily cited. The impact factors are also not the result of publishing articles of short-term interest. In fact, the results show that impact factors are good indicators of longer-term influence. However, the impact factor for *JF* is negatively biased by the shorter papers and proceedings papers it contains, as is the impact factor for *JFE* because of its inclusion of clinical papers. Based on their full-length articles alone, *JF* and *JFE* would have even higher impact factors. This evidence is consistent with the impact factors for the three journals being the result of influential articles, and not the result of any bias.

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