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Publish or Perish: What the Competition is *Really* Doing

TERRY L. ZIVNEY and WILLIAM J. BERTIN*

ABSTRACT

This study provides comprehensive publications performance data over a 25-year period for finance doctorates. These data indicate that publishing one article per year in any finance journal (or finance, accounting, economics, or business journal) over any prolonged period of time is a truly remarkable feat, met by only 5% of the graduates. Tenure screens combining various quantity and quality requirements are examined to assess their ability to predict future publication productivity. Faculty and administrators seeking defensible benchmarks for evaluating faculty research productivity in finance will find that these data and results are particularly useful.

WITH THE EMERGENCE OF modern finance theory over the past 25 years, both the quantity and quality of scholarly research in the finance area has increased dramatically. In addition to the growth and maturation of the discipline itself, several other factors, such as an increasing supply of finance doctorates, greater institutional emphasis on research, and a growing number of journal outlets may be responsible for the increased research productivity. This paper examines the research productivity of finance doctorates who received degrees within the years 1963 through 1987 in an attempt to provide detailed data on the actual research output (as measured by the number of publications) of finance academicians.

The existing literature on research productivity in finance has examined only limited aspects of the issue. For example, Heck, Cooley, and Hubbard (1986) and Heck and Cooley (1988) describe the top contributors to the finance literature; while others, such as Ederington (1979), Klemkosky and Tuttle (1977a, 1977b), Niemi (1987), Petry and Fuller (1978), and Schweser (1977), consider the effects of various factors, such as doctoral origin, institutional source, geographic distribution, etc., on research productivity. Chung and Cox (1990) have examined the issue of concentration among contributors to finance journals. Petry and Kerr (1981) have addressed the coauthorship

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topic, while McDowell (1982) and Soldofsky (1984) have considered publication output from a life cycle approach. None of the previous literature comprehensively examines the entire distribution of research productivity of finance doctorates; yet the quantification of this distribution is essential for many personnel decisions.

Our paper makes a substantial contribution by filling this void in the previous literature. Examining the entire distribution of research productivity allows readers to compare their publication records with their cohort's. It also permits an investigation into the efficacy of various hiring, promotion, and tenure criteria in terms of predicting future productivity. Other related subissues addressed in this paper concern interyear comparisons and publication trends over time, the productive life cycle of finance doctorates, and the relationship of pre-degree publications upon subsequent productivity. While describing the data, the various finance publication outlets and their availability is also considered as a major factor affecting productivity.

This paper is organized as follows. Section I describes our sample and methodology. Section II discusses the level of publication activity and the outlets for finance publications. Section III examines the efficacy of several tenure screens formed by combining the number of publications required, the allowable set of journals for the publications (as a proxy for quality), and the probationary time period allowed for the tenure decision. The publication records of early publishers and delayed publishers are also considered as factors in the hiring and tenure decision processes. Finally, Section IV provides a brief summary of the paper.

I. Sample and Methodology

Our research can be viewed as attempting to determine the contents of "typical" (or other quality levels) vitae for finance faculty members at various points in time after their graduation. A straightforward approach would be to solicit vitae from a listing of finance faculty. Unfortunately, the nonresponse problem and self-selection biases typical of most surveys would prevent generalizing the results to the population of interest. Another approach would be to use names of authors publishing in some set of finance journals, as in Heck and Cooley (1988). This approach would include some individuals who are not primarily engaged in finance research and omits entirely those finance graduates who fail to publish in the selected journal set. A third alternative, using *Dissertation Abstracts International* description codes to select the sample, has two problems. First, finance graduates are spread across several description codes (i.e., Business Administration, Management, Economics (finance), and Banking). Second, the majority of people within each of these codes are predominantly nonfinance. To avoid the biases and problems inherent in these alternative approaches, we chose to use the *Journal of Business*' annual listing of new business doctorates

categorized by subject area.¹ Most people teaching finance courses and publishing in finance journals receive degrees in areas listed by the *Journal of Business* as "Business Finance and Investments," "Banking and Public Finance," "Business Economics and Economics," or "Insurance."

The sample includes all finance doctorates listed in the *Journal of Business* Doctoral Dissertations Accepted under the area "Business Finance and Investments" for the years 1963 through 1987. We chose graduates from this category because they appear more likely to publish in the "traditional" finance journals than the other groups which may have a broader focus.² Thus, a total of 1137 finance doctorates from 67 degree-granting institutions comprise the sample and the annual nature of the listing allows for interyear comparisons. The publications of the finance doctorates have been obtained from three different sources, with the primary source being the *Finance Literature Index* containing finance publications by journal and alphabetically by author for the 19 leading finance journals. Because of the interest in efficient markets by accountants, the *Accounting Literature Index* (which similarly contains the contents of 29 leading accounting journals) was also consulted. Finally, 80 additional business and economics journals were added resulting in a total of 128 journals examined. These 80 journals, indexed in various DIALOG on-line databases, were included for those doctorates who may have published in related fields. These business and economics journals were generally the 50 top-ranked journals in Liebowitz and Palmer (1984), supplemented with additional journals which published relatively high concentrations of articles in business finance and investments as determined by a subject search of the DIALOG Economic Literature Index, ABI/Inform, and Management Contents indexes.³

The *Finance Literature Index* and the *Accounting Literature Index* were searched in their computerized version from JIH Enterprises. This database

¹ The *Journal of Business* compiles its list from reports solicited annually from each doctoral-granting AACSB member institution. Although each school must self-report, Table I (described below) indicates that most schools with established finance doctoral programs have reported. Because the number of graduates reported for some schools seemed especially low, a survey of 15 of the schools listed in Table I resulted in 9 usable responses. An analysis of these responses found that the major shortcoming of using the *Journal of Business* listings was that for each school, some years' graduates were not listed in the *Journal of Business*. Over the 25-year period, the nine responding schools failed to report their graduates 33% of the time. However, for those years in which a school's graduates were listed, 97% of the graduates were accounted for when the annual listings were compared with the survey results. Thus, there is no evidence that schools try to report only the names of their 'better' graduates. To the extent that graduates are similar over time, an issue we examine later in the paper, this nonreporting problem should not result in biased estimates.

² The report of the Managing Editor of *The Journal of Finance* for the Year 1989 (July 1990, p. 985) shows that 70% of the papers submitted to the *JOF* in 1989 were in the areas of Business Finance and Investments.

³ Publication outlets aimed primarily at nonacademic audiences and largely populated by nonacademic authors (such as *Bankers Monthly*, *Public Utilities Fortnightly*, and the *American Association of Individual Investor's Journal*) were not included in this study.

contains all articles published in the 48 finance and accounting journals from the inception of each journal through 1988 (except for the *Journal of Business* and the *Journal of Accountancy*, for which coverage begins in 1950). In general, the contents of the other 80 journals were gathered from DIALOG, and as such usually begin no earlier than 1969 and continue through 1988. To the extent that early graduates may have published in nonfinance or nonaccounting journals, their publication totals may be understated as a result. However, a search of the *Index of Economic Articles* published by the American Economic Association from 1963 through 1968 uncovered only 13 additional articles for the 1963–1968 graduates. Thus, the potential undercount of articles for early finance doctorates appears to be small.

In order for our results to be consistent with earlier studies such as Heck, Cooley, and Hubbard (1986) and Heck and Cooley (1988), we only count “articles” or “notes.” That is, we do *not* count “comments” or “replies” to comments, nor do we include book reviews, dissertation abstracts, meeting abstracts, editorials, etc. Although these contributions undoubtedly enrich our discipline, the creative research essence is small in such efforts when compared with articles or notes.

II. Publication Activity and Outlets

A. Overall Findings

Table I contains a list of the 67 degree-granting institutions whose graduates are examined in this study. The number of graduates from each degree-granting institution is shown together with the percentage of those graduates ever publishing in any of the 128 journals. The last column, labeled “Annual Pubs,” is the average of the individual annual publication rates of the *publishing* graduates. Missing observations in this column are associated with those schools having no publishing graduates in the sample.

Table II shows that the graduates in business finance and investments tend to concentrate their publications in finance journals. In addition, finance graduates most frequently publish in those journals with the best reputations in the field. Only the 90 journals listed in Table II of the total 128 journals examined contained publications by the graduates. Those journals not containing articles by this group were almost entirely economics journals with a macroeconomic focus.

The first issue examined is the average rate of publication productivity in the 128 journals for the entire sample of 1137 graduates. Summing the number of articles shown in Table II would reveal that these graduates have published a total of 3658 articles in finance, accounting, economics, and business journals. This represents an average “productivity” of .2561 articles per year per graduate during their careers (or an average of .4291 articles per year if one considers only those who chose to publish).⁴ These results are

⁴ These statistics are computed by multiplying the number of years of post-graduation data available for each class times the number of (publishing) graduates in each class, summing these products and then dividing the result into 3658 articles.

consistent with Soldofsky (1984) who found that “publishing” members of the AFA or FMA averaged .48 publications per year from 1975 through 1978.

We next examine the data for life-cycle effects. That is, are the publication trends over time similar for different graduating classes? Levin and Stephan (1991) examined the publications records for a sample of physicists and found some evidence of vintage effects. These effects occur when there is a major change in the main body of knowledge which renders previous vintages of scientists obsolete. The introduction of portfolio theory and the CAPM were such changes in the finance paradigm; however, since these changes roughly coincide with the beginning time frame of our study (1963), there may not be a vintage effect in our data. In our group of finance researchers, the proportion of graduates publishing is remarkably constant over time with about 60% of each class ultimately achieving at least one lifetime publication.⁵ To further address this issue, we subdivide the finance graduates into four 5-year cohort groups beginning with the 1963–1967 cohort. A fifth and final group consists of 1983–1984 graduates. For our immediate purposes, graduates beyond 1984 are not examined in an effort to reduce the upward bias caused by the short publishing window of recent graduates.⁶ An additional restriction placed upon the formation of the cohorts is to include only those graduates who published at least one article in a finance journal through their fifth year after graduation. This eliminates the late publishers from the earlier groups who would impart a downward bias on publication rates when compared with recent groups who have no late publishers because of their limited post-graduation time frame. With these adjustments to the cohorts, Figure 1 plots the publications in finance journals over time for the median publishers in each of the five cohort groups.⁷ The curves bear a strong family resemblance, supporting a conclusion that graduates of different eras published similar numbers of papers at equivalent points in their careers.

⁵ A supporting table showing the proportion of each class publishing and the rate of publication is available upon request.

⁶ Assume the true publication behavior consists of publishing one article in alternate years. Observing publication behavior over any one year will find that those who publish ‘averaged’ one publication for that year. This is upward biased compared to the true rate of 0.5 article per year. The true rate can only be observed if the window is longer than the longest period of time between publications. Because the average rate for publishers is .4291 articles per year, and some publish much less frequently, we believe that at least a five-year window is needed to allow for the time between publications.

⁷ The values for the median publishers were estimated from Table III (below). For each year in Table III, the number of publications required to be at the 50th, 75th, and 90th percentiles of “publishers” was computed, interpolating between observations where necessary. The number of publications at each fractile were computed as follows. The number of publications bracketing the fractile, f , were designated as N and M , while the fraction of publishers corresponding to these publications are g and h , respectively. That is, if 55% of the publishers at time t had at least 5 articles and 40% had at least 6 articles, then for the median ($f = .50$), $N = 5$, $M = 6$, $g = .55$, and $h = .40$. Assuming that productivity is continuous over time rather than discrete, we computed the number of publications for the median producer at time t as $N + (M - N)(f - h)/(g - h)$.

Table I
**Number of Graduates with Degrees in Business Finance & Investments
 by Degree-Granting Institution—Classes of 1963-1987**

'Number Graduates' is the total number of graduates in Business Finance & Investments reported in the *Journal of Business* for the classes of 1963 through 1987. 'Percent Publish' is the percentage of these graduates ever publishing in any of 128 finance, accounting, economics, or business journals. 'Annual Pubs' is the average of the annual publication productivity rates for a school's graduates who ever publish. A survey showed that over the 25-year period the responding schools failed to report their graduates 33% of the time. Therefore, the number of graduates reported by some schools may be substantially understated. However, for those years in which a school's graduates were listed in the *Journal of Business*, 97% of the graduates were accounted for when the annual listings were compared with the survey results.

	Number Graduates	Percent Publish	Annual Pubs		Number Graduates	Percent Publish	Annual Pubs
NYU	75	46.7	.43	Houston	10	10.0	.25
Chicago	55	81.8	.73	Louisiana State	10	70.0	.31
Purdue	55	78.2	.61	Temple	10	10.0	.09
Illinois	43	53.5	.43	Cincinnati	9	66.7	.45
Penn State	42	64.3	.45	Wisconsin-Madison	9	77.8	.36
Harvard	41	31.7	.19	Iowa	8	75.0	.24
North Carolina-CH	41	78.0	.78	Minnesota	8	50.0	.15
Stanford	40	72.5	.41	Oklahoma	8	37.5	.21
Michigan State	39	59.0	.33	Pittsburgh	8	75.0	.63
Indiana	37	73.0	.46	SUNY-Buffalo	8	87.5	.76
Washington	37	62.2	.38	Maryland	7	85.7	.50
California-Berkeley	35	54.3	.31	Mississippi State	7	0.0	.00
Michigan	33	66.7	.46	Rochester	7	85.7	.88
Columbia	30	46.7	.57	Carnegie-Mellon	6	66.7	.41
Florida	30	46.7	.71	Kansas	6	66.7	.45
Ohio State	30	66.7	.33	Mississippi	6	16.7	.06
Texas-Austin	27	40.7	.57	North Texas State	6	50.0	.20
Arkansas	25	52.0	.33	CUNY	5	80.0	.28
MIT	23	69.6	.56	Colorado	5	60.0	.21
Georgia State	20	40.0	.38	Cornell	5	80.0	1.11
Northwestern	20	65.0	.38	Oregon	5	60.0	.19
Pennsylvania (Wharton)	19	52.6	.21	Syracuse	5	60.0	.50

Table I—Continued

	Number Graduates	Percent Publish	Annual Pubs	Number Graduates	Percent Publish	Annual Pubs
Florida State	17	58.8	.71	Missouri	3	66.7
Georgia	16	37.5	.53	Southern Illinois	3	33.3
Alabama	15	46.7	.32	Baruch	2	50.0
Kent State	15	46.7	.34	Lehigh	2	50.0
South Carolina	15	26.7	.76	Oklahoma State	2	0.0
Tennessee	15	46.7	.79	Boston U	1	0.0
USC (So. California)	13	46.2	.38	Case Western	1	0.0
Nebraska	12	25.0	.45	Louisiana Tech	1	100.0
Texas Tech	12	41.7	1.03	University of St. Louis	1	0.0
UCLA	12	50.0	.52	Washington U-St. Louis	1	100.0
Kentucky	11	72.7	.29	West Virginia	1	0.0
Arizona State	10	50.0	.62			.00

Table II
**Journals Published in Most Frequently By Business Finance
and Investments Graduates**

The ranking of the journals is based on the number of articles published in each journal by the 1137 recipients of doctorates in business finance and investments as reported in the "Doctoral Dissertations Accepted" column in the 1965-1989 issues of the *Journal of Business*.^f Denotes one of 19 journals listed in Heck's *Finance Literature Index*.

Rank	Journal Title	Articles
1.	<i>Journal of Finance</i>	590 ^f
2.	<i>Journal of Financial and Quantitative Analysis</i>	363 ^f
3.	<i>Financial Management</i>	233 ^f
4.	<i>Journal of Financial Economics</i>	207 ^f
5.	<i>Journal of Portfolio Management</i>	171 ^f
6.	<i>Financial Analysts Journal</i>	167 ^f
7.	<i>Journal of Financial Research</i>	158 ^f
8.	<i>Financial Review</i>	130 ^f
9.	<i>Journal of Business</i>	114 ^f
10.	<i>Journal of Financial Education</i>	91 ^f
11.	<i>Review of Business and Economic Research</i>	73
12.	<i>Accounting Review</i>	68
13.	<i>Journal of Business Finance & Accounting</i>	67 ^f
14.	<i>Journal of Banking and Finance</i>	65 ^f
15.	<i>Journal of Business Research</i>	63 ^f
16.	<i>Journal of Economics and Business</i>	62
17.	<i>Akron Business and Economic Review</i>	61
18.	<i>Journal of Futures Markets</i>	59 ^f
19.	<i>Journal of Bank Research</i>	55 ^f
20.	<i>AREUEA Journal</i>	48
21.	<i>Management Science</i>	47
22.	<i>Journal of Accounting Research</i>	42
23.	<i>Journal of Risk and Insurance</i>	42
24.	<i>Management Accounting</i>	38
25.	<i>Quarterly Review of Economics and Business</i>	33
26.	<i>Engineering Economist</i>	32
27.	<i>American Economic Review</i>	28
28.	<i>Journal of Monetary Economics</i>	28
29.	<i>Decision Sciences</i>	26
30.	<i>Journal of Money, Credit and Banking</i>	25 ^f
31.	<i>Review of Futures Markets</i>	25 ^f
32.	<i>Southern Economic Journal</i>	25
33.	<i>Journal of Political Economy</i>	22
34.	<i>Quarterly Journal of Business and Economics</i>	19
35.	<i>Arkansas Business and Economic Review</i>	17
36.	<i>Bell Journal of Economics</i>	17
37.	<i>National Tax Journal</i>	17
38.	<i>Journal of Accountancy</i>	16
39.	<i>Journal of Accounting, Auditing and Finance</i>	15
40.	<i>Journal of the American Statistical Association</i>	15
41.	<i>Journal of Law and Economics</i>	15
42.	<i>Review of Economics and Statistics</i>	15
43.	<i>Journal of Accounting and Economics</i>	13

Table II—Continued

Rank	Journal Title	Articles
44.	Managerial and Decision Economics	13
45.	Mississippi Valley Journal of Business and Economics	13
46.	Internat. Journal of Accounting Education & Research	12
47.	Journal of Economic Theory	12
48.	The CPA Journal	11
49.	Nebraska Journal of Economics and Business	11
50.	Journal of International Money and Finance	10 ^f
51.	Journal of Accounting and Public Policy	10
52.	American Economist	10
53.	Business Economics	10
54.	Land Economics	9
55.	American Journal of Agricultural Economics	8
56.	International Economic Review	7
57.	Journal of Business and Economic Statistics	7
58.	Econometrica	7
59.	Journal of Econometrics	7
60.	Western Economic Journal	7
61.	Advances In Accounting	6
62.	Quarterly Journal of Economics	6
63.	Journal of the American Taxation Association	5
64.	Journal of Economic Education	5
65.	ABACUS	4
66.	Accounting, Organizations and Society	4
67.	Accounting: A Journal of Theory and Practice	4
68.	Comtemporary Accounting Research	4
69.	Review of Economic Studies	4
70.	Accounting and Business Research	3
71.	Journal of Accounting Education	3
72.	Journal of Cost Analysis	3
73.	Review of Financial Studies	2 ^f
74.	Journal of Financial Services Research	2 ^f
75.	Journal of Accounting Literature	2
76.	Rand Journal of Economics	2
77.	Economic Inquiry	2
78.	Journal of International Economics	2
79.	Economica	2
80.	Accounting Historians Journal	1
81.	Advances in International Accounting	1
82.	Advances in Public Interest Accounting	1
83.	Advances in Taxation	1
84.	Corporate Accounting	1
85.	Journal of Information Systems	1
86.	Research in Government and Non-Profit Accounting	1
87.	Brookings Papers on Economic Activity	1
88.	Economic Journal	1
90.	Journal of Economic Literature	1

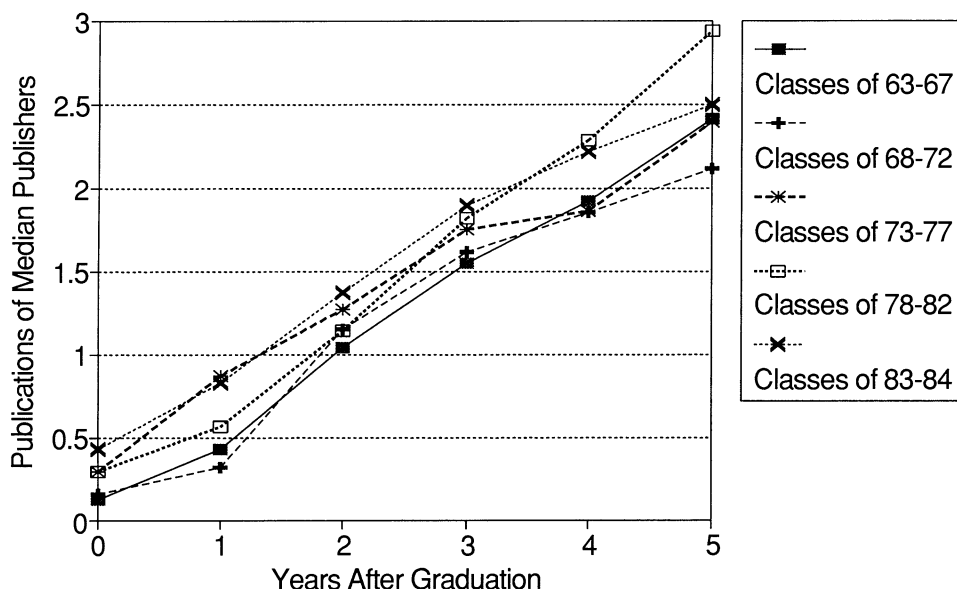


Figure 1. Publications in 19 finance journals of median publishers vs. years after graduation. The values for the median publishers in each cohort were estimated from Table III. For each year in Table III, the number of publications required to be at the 50th percentile of graduates who ever publish in one of the 19 finance journals was computed, interpolating between observations where necessary and assuming that productivity is continuous over time.

These findings of relatively constant productivity over time are somewhat surprising in view of several widely held beliefs about publication productivity.⁸ First, the increased emphasis on publications by schools seeking AACSB accreditation has supposedly stimulated recent graduates to increase output. Second, as the discipline has matured, more recent graduates are presumably better trained and motivated to do research than were previous generations of finance academics. Finally, many evaluators of finance research perceive a greater number of publication outlets in recent years, perhaps in response to the first two observations.

B. Publication Outlets

Figure 2 shows that these perceptions of more papers being published today are false. The number of articles and notes in leading finance journals has remained constant at best since 1977 and has actually decreased markedly for the “Top 3” journals. This decrease has been partially offset by the

⁸ We cannot explicitly control for quality. However, as an associate editor has noted, holding the total quantity of articles published constant would result in a concomitant increase in the quality of those articles evidenced in the level of rigor and analytics required to publish in any particular journal. This is related to the general presumption that finance has become more quantitative and scientific over time.

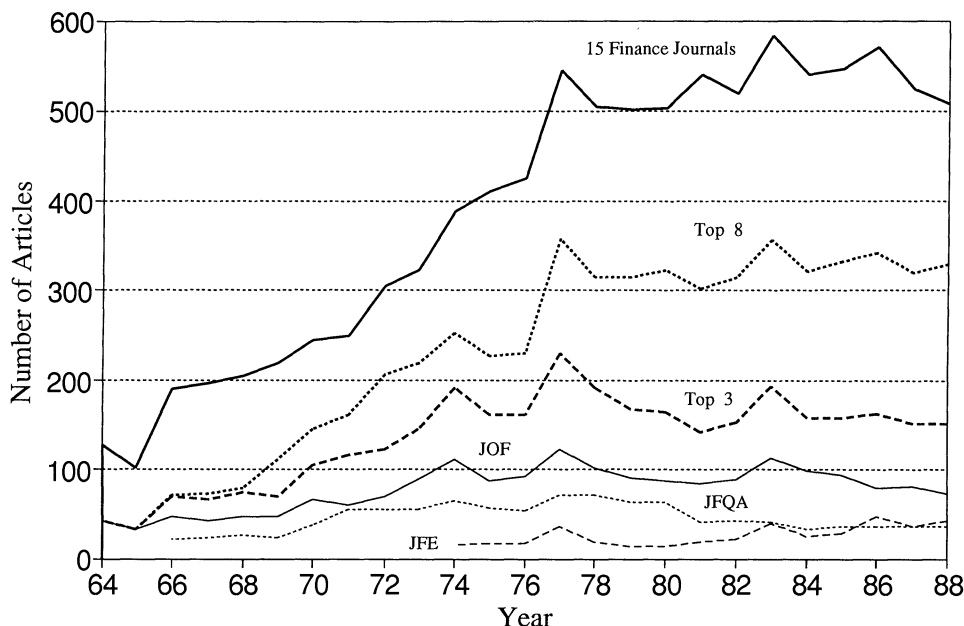


Figure 2. Number of articles per year published in finance journals. The Figure shows the number of articles and notes, excluding comments, replies, book reviews, letters, editorials, etc., published each year in various sets of finance journals. The "Top 3" journals include the *Journal of Finance* (JOF), *Journal of Financial Economics* (JFE), and *Journal of Financial and Quantitative Analysis* (JFQA). The "Top 8" journals adds the *Journal of Money, Credit and Banking*, *Journal of Banking and Finance*, *Journal of Financial Research*, *Financial Management*, and *Financial Review* to the Top 3 journals. The "15 Finance Journals" adds to the Top 8 the remaining journals from the 1988 edition of Heck's *Finance Literature Index*: *Financial Analysts Journal*, *Journal of Portfolio Management*, *Journal of Business Finance & Accounting*, *Journal of Futures Markets*, *Journal of International Money & Finance*, *Journal of Bank Research* and *Journal of Financial Education*. The data are from the *Finance Literature Index*.

increase in publications in the other five journals that comprise the "Top 8."⁹ If one visualizes a trend line for the Top 3 from 1963 through 1977 and then extrapolates it up to the present, the trend line would exit the Figure above the 1988 level for Top 8 finance journals. This suggests that a reasonable interpretation of Figure 2 is that most of the articles currently appearing in the second tier of journals (Top 8 minus Top 3), would have been included in the top tier (Top 3) had the growth of articles accepted kept pace with the growth in the number of finance academics.

Figure 3 shows that the acceptance rate at the *Journal of Finance* has fallen to half its previous rate over the 25-year period of this study. At the

⁹ The Top 3 journals are defined in this paper as the *Journal of Finance*, *Journal of Financial Economics*, and *Journal of Financial and Quantitative Analysis*. The Top 8 journals add the *Journal of Money, Credit and Banking*, *Journal of Banking and Finance*, *Journal of Financial Research*, *Financial Management*, and *Financial Review* to the Top 3 journals.

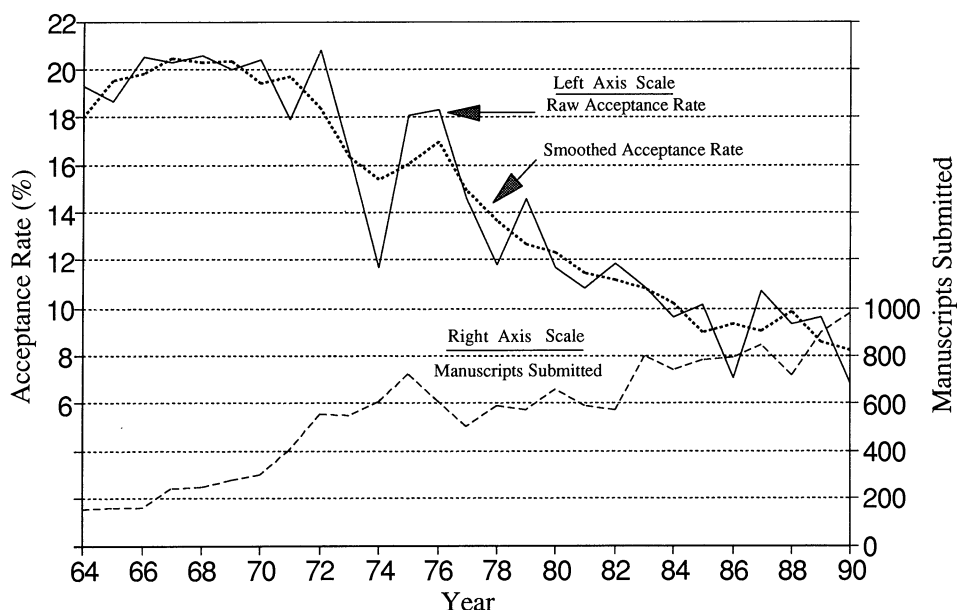


Figure 3. Historical acceptance rates at and number of manuscripts submitted to the *Journal of Finance*. The Figure shows both the acceptance rates reported by the Managing Editors of the *Journal of Finance* in their annual reports (the 'raw' rates), well as the 'smoothed rate' which is computed as the average of the raw acceptance rate for the current year together with the raw rates for the immediately preceding and succeeding years. The Figure also shows the number of manuscripts submitted annually as reported by the Managing Editors.

same time, the number of submissions has climbed more than fourfold. Initially, editors were able to increase the number of papers accepted by eliminating the many pages previously used for book reviews and dissertation abstracts and adding a fifth issue. These additional degrees of freedom were apparently exhausted by the early 1970's. As a result, the total number of articles published in the *Journal of Finance* has not increased despite the increase in finance research indicated by the growing number of submissions. Generalizing from Figure 2, other finance journals have mirrored this trend.

This imbalance between supply and demand of papers is not as apparent in other academic areas.¹⁰ For example, Barschall (1988) has reported that the number of pages in leading American physics journals has doubled or tripled (depending upon the journal) over the past 10 years in spite of a reportedly growing shortage of technical Ph.D.'s. On the other hand, because finance is a new discipline, the number of finance faculty members certainly has been

¹⁰ Price (1986) finds that the annual number of articles published in a healthy scientific field approximates 7% of the entire historical bibliography in the field each year. Thus, with more than 14,000 articles in the finance canon as found in Heck (1989), we should have expected about 1,000 articles would be published in those 19 journals in 1988. There were only 508 papers published in 1988.

increasing over the past 25 years (relatively few retirements and deaths compared with an increasing number of new graduates coupled with the growth in the number of employers). Furthermore, many of the leading physics journals publish articles which typically are only two or three *Financial Management*-equivalent pages long. Barschall reports that a set of leading physics journals published over 213,000 pages in 1987 alone! This implies a total of perhaps 50,000 articles were published in these journals as opposed to a total of 319 articles in the top 8 finance journals in 1987. It seems likely that the number of academic institutions producing physics research is not substantially larger than those producing finance research (all of the approximately 250 AACSB graduate accredited schools require publication in refereed journals). Thus, even allowing for the substantial governmental laboratories publications and the larger department sizes for physics compared with finance, it is apparent that the number of publications per person in finance is quite low when compared with physics. At least part of this shortfall may be due to the restricted number of publication outlets in finance (and business research publications generally).¹¹ Tollison and Goff (1986) note that the editorial presumption is in favor of publication in physics, whereas it is biased toward rejection in economics; they note that a typical physics paper is several times more likely to be published than a typical economics paper. King and Roderer (1982) report an average acceptance rate of 90% for physics journals.

C. Lifetime Publication Distributions

Table III presents the number of publications in the 19 finance journals listed in Heck (1989) credited to the 1137 graduates, many of whom never publish. Each cell in the body of this table, and the similarly formatted Tables IV and V, shows the number of graduates having at least the number of publications indicated at a given point in time relative to their respective graduation years. The time dimension of the tables may be interpreted as event time where the event date is graduation ($t = 0$). In particular, the rows of each table correspond to the number of years after graduation. That is, if one graduated in a particular year (as determined from the *Journal of*

¹¹ An exhaustive search of the business journals indexed in Dialog's Management Contents and ABI/Inform databases found no studies reporting individual annual research productivity in other business disciplines. We believe that although immediate comparison with other areas in business is important, one should not let these sibling rivalries obscure the reality that finance scholars are also competing in the larger world of academe which includes physical scientists having much greater average publication rates. It is not uncommon for top administrators making resource and tenure decisions to come from the physical sciences; such administrators may be unimpressed with the relatively modest numbers of articles published by typical finance researchers. Endler, Rushton, and Roediger (1978) found that the average publication rate for publishing academic psychologists was 1.8 articles per year in journals indexed by the *Social Science Citation Index*. These results are similar to those of Levin and Stephan (1991) who found that publishing physicists averaged 2.1 articles per year in journals indexed by the *Science Citation Index*. Thirteen of the nineteen finance journals are currently indexed in the *SSCI*.

Table III
Number of Business Finance & Investments Graduates with
Publications in 19 Finance Journals Relative to Their
Year of Graduation

This table shows the number of individuals who have published at least the number of articles shown at the top of the column through the time shown in the 'Years after Graduation' column.

Years after Graduation	Total Grads	Total Ever Publish	Number of Publications in 19 Finance Journals															
			≥ 1	≥ 2	≥ 3	≥ 4	≥ 5	≥ 6	≥ 7	≥ 8	≥ 9	≥ 10	≥ 11	≥ 12	≥ 13	≥ 14	≥ 15	
− 14	1137	521	1															
− 12	1137	521	2															
− 10	1137	521	2	1														
− 8	1137	521	2	1	1													
− 7	1137	521	2	1	1	1												
− 6	1137	521	6	1	1	1												
− 5	1137	521	8	3	1	1												
− 4	1137	521	11	4	1	1												
− 3	1137	521	17	4	1	1	1											
− 2	1137	521	33	6	2	1	1	1										
− 1	1137	521	51	8	4	1	1	1										
0	1137	521	94	19	5	2	1	1										
1	1137	521	163	40	16	7	2	1	1									
2	1087	514	255	83	33	20	12	5	4	1								
3	1031	503	333	152	75	39	23	14	9	5	2	1						
4	981	483	367	192	117	68	44	28	16	11	6	2	1	1	1			
5	938	469	388	226	149	99	62	41	28	24	14	9	4	4	1			
6	907	450	392	237	172	120	80	54	38	32	21	17	11	9	5	4	2	
7	874	437	399	257	188	141	99	73	50	36	31	24	16	13	9	6	6	
8	870	433	404	272	195	152	122	83	64	50	37	29	23	17	12	8	7	
9	814	399	382	257	188	150	122	84	66	52	42	34	26	24	15	11	8	
10	769	368	354	242	173	140	115	88	64	47	44	34	27	27	22	14	11	
11	709	338	326	222	163	130	112	84	68	49	42	36	29	25	23	20	16	
12	660	310	300	210	154	124	109	84	71	52	41	36	32	28	24	21	17	
13	617	287	277	194	141	114	100	79	67	51	44	34	32	28	26	22	20	
14	559	258	249	174	127	106	89	72	63	48	40	32	28	25	25	23	20	
15	493	227	222	152	108	91	78	63	55	45	33	28	26	24	21	19	17	
16	412	185	183	123	86	70	61	51	48	39	31	28	23	20	18	17	15	
17	352	161	160	105	76	62	56	49	45	37	29	25	20	20	17	15	13	
18	284	128	128	84	63	49	42	40	37	33	28	24	21	20	18	15	14	
19	232	102	102	65	50	36	30	29	27	24	19	18	16	15	15	13	12	
20	177	76	76	53	40	29	25	24	22	20	19	17	13	13	13	12	10	
21	139	59	59	43	32	23	20	19	18	16	15	13	9	9	9	8	6	
22	105	44	44	35	25	18	15	15	13	11	11	9	8	6	5	5	4	
23	72	26	26	19	12	7	5	5	4	4	4	4	4	4	4	4	3	
24	45	17	17	12	9	5	4	4	3	3	3	3	3	3	3	3	3	
25	18	9	9	7	5	2	1	1	1	1	1	1	1	1	1	1	1	

‘Total Grads’ is the total number of graduates in the sample with at least the number of years experience shown in the ‘Years after Graduation’ column. ‘Total Ever Publish’ is the number of graduates with at least the number of years experience shown in the ‘Years after Graduation’ column who have published at least one article in the 19 finance journals during their career. The data sources are the ‘Doctoral Dissertations Accepted’ columns in the 1965–1989 issues of the *Journal of Business* for the graduates and the *Finance Literature Index* (1989) for the 19 finance journals.

Years after Graduation	Total Grads	Total Ever Publish	Number of Publications in 19 Finance Journals																
			≥ 16	≥ 17	≥ 18	≥ 19	≥ 20	≥ 21	≥ 22	≥ 23	≥ 24	≥ 25	≥ 26	≥ 27	≥ 28	≥ 29	≥ 30		
− 14	1137	521																	
− 12	1137	521																	
− 10	1137	521																	
− 8	1137	521																	
− 7	1137	521																	
− 6	1137	521																	
− 5	1137	521																	
− 4	1137	521																	
− 3	1137	521																	
− 2	1137	521																	
− 1	1137	521																	
0	1137	521																	
1	1137	521																	
2	1087	514																	
3	1031	503																	
4	981	483																	
5	938	469																	
6	907	450	1																
7	874	437	3	2	1														
8	870	433	6	5	5	3	1	1											
9	814	399	7	5	4	4	3	3	1	1									
10	769	368	8	6	6	4	3	3	3	2	1	1							
11	709	338	12	8	6	5	5	3	3	2	1	1	1						
12	660	310	16	12	9	6	6	4	3	3	2	2	1	1	1				
13	617	287	18	16	12	9	5	6	4	4	4	2	1	1	1				
14	559	258	17	16	12	9	6	5	5	4	4	2	2	1					
15	493	227	13	13	12	9	4	4	4	4	4	4	4	3	1				
16	412	185	12	10	9	7	6	4	3	3	3	3	3	3	3	1			
17	352	161	12	9	8	8	7	6	4	3	3	3	3	3	3	3	2		
18	284	128	12	10	8	8	8	7	6	5	3	3	3	3	3	3	2		
19	232	102	11	10	8	8	7	8	7	5	3	3	3	2	2	2	2		
20	177	76	9	9	8	7	7	7	7	5	3	2	2	2	2	2	2		
21	139	59	5	5	5	3	3	3	3	3	3	3	1	1	1	1	1		
22	105	44	3	3	3	2	1	1	1	1	1	1							
23	72	26	2	2	2	2	1												
24	45	17	2	2	2	2	1	1											
25	18	9	1	1	1	1	1	1	1	1									

Table IV

Number of Business Finance & Investments Graduates with Publications in Top 3 Finance Journals Relative to Their Year of Graduation

This table shows the number of individuals who have published at least the number of articles shown at the top of the column through the time shown in the 'Years after Graduation' column.

Years after Graduation	Total Grads	Total Ever Publish	Number of Publications in Top 3 Finance Journals																
			≥ 1	≥ 2	≥ 3	≥ 4	≥ 5	≥ 6	≥ 7	≥ 8	≥ 9	≥ 10	≥ 11	≥ 12	≥ 13	≥ 14	≥ 15		
− 6	1137	333	2																
− 5	1137	333	3	1															
− 4	1137	333	4	1															
− 3	1137	333	6	1															
− 2	1137	333	16	2															
− 1	1137	333	25	2															
0	1137	333	47	7	1														
1	1137	333	93	22	1														
2	1087	330	153	45	12	7	1												
3	1031	323	203	82	28	14	6	4	2										
4	981	315	237	108	55	28	12	6	3	2	2	2							
5	938	308	254	131	76	45	23	11	6	3	2	2	1	1					
6	907	299	265	136	95	61	36	20	10	7	4	2	1	1					
7	874	291	272	146	105	70	46	29	18	8	7	3	1	1	1	1			
8	870	287	273	158	111	76	54	36	24	16	12	10	2	2	2	1	1		
9	814	264	254	153	106	73	52	37	29	21	15	11	7	4	2	2	1		
10	769	244	237	142	99	73	50	37	31	21	18	14	9	6	4	2	2		
11	709	224	218	131	92	69	51	38	31	22	18	17	11	8	6	4	3		
12	660	206	201	119	86	64	47	36	30	23	17	16	11	9	8	5	4		
13	617	192	189	109	79	61	44	36	29	21	17	15	11	10	8	8	7		
14	559	175	172	98	70	55	39	31	27	21	15	14	9	7	7	6	5		
15	493	155	153	83	59	47	33	27	23	17	14	13	8	7	5	5	4		
16	412	121	121	65	48	40	29	24	22	19	14	12	7	6	5	5	4		
17	352	110	110	60	46	38	29	22	20	18	12	11	6	6	5	5	5		
18	284	88	88	47	36	32	27	21	19	16	11	11	7	7	5	5	5		
19	232	68	68	37	28	23	20	16	14	14	9	9	5	5	4	4	4		
20	177	55	55	31	24	21	18	14	13	13	9	8	4	4	3	3	3		
21	139	43	43	25	19	16	13	11	10	10	7	6	4	4	2	2	2		
22	105	33	33	18	13	11	8	6	6	6	5	4	3	3	2	1	1		
23	72	19	19	7	5	4	3	3	3	3	2	2	1	1	1	1			
24	45	15	15	6	5	4	3	3	3	3	2	2	1	1	1	1			
25	18	8	8	2	2	2	1	1	1	1	1	1	1	1	1	1	1		

Business listing), then any articles published during that same year would be credited during year 0, any articles published the following year would be credited in year 1, and so on. The columns contain the cumulative number of graduates with at least as many publications as the heading of the column

'Total Grads' is the total number of graduates in the sample with at least the number of years experience shown in the 'Years after Graduation' column. 'Total Ever Publish' is the number of graduates with at least the number of years experience shown in the 'Years after Graduation' column who have published at least one article in the Top 3 finance journals during their career. The data sources are the 'Doctoral Dissertations Accepted' columns in the 1965-1989 issues of the *Journal of Business* for the graduates and the *Finance Literature Index* (1989) for the Top 3 finance journals: the *Journal of Finance*, *Journal of Financial Economics*, and *Journal of Financial and Quantitative Analysis*.

Years after Graduation	Total Grads	Total Ever Publish	Number of Publications in Top 3 Finance Journals																									
			≥ 16	≥ 17	≥ 18	≥ 19	≥ 20	≥ 21	≥ 22	≥ 23	≥ 24	≥ 25	≥ 26	≥ 27	≥ 28	≥ 29	≥ 30											
− 6	1137	333																										
− 5	1137	333																										
− 4	1137	333																										
− 3	1137	333																										
− 2	1137	333																										
− 1	1137	333																										
0	1137	333																										
1	1137	333																										
2	1087	330																										
3	1031	323																										
4	981	315																										
5	938	308	1	1																								
6	907	299	1	1																								
7	874	291	1	1	1	1																						
8	870	287	2	2	2	1	1	1																				
9	814	264	7	4	2	2	1	1	1	1	1	1																
10	769	244	9	6	4	2	2	2	2	2	1	1	1	1														
11	709	224	2	2	2	2	2	1	1	1	1																	
12	660	206	4	2	2	2	2	2	2	2	1	1	1	1	1													
13	617	192	5	4	3	2	2	2	2	2	1	1	1	1	1	1												
14	559	175	5	4	3	1	1	1	1	1	1	1	1	1	1	1	1											
15	493	155	4	4	3	2	1	1	1	1	1	1	1	1	1	1	1	1										
16	412	121	4	4	3	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	352	110	4	4	4	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
18	284	88	5	4	4	3	3	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
19	232	68	4	4	4	3	3	3	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	177	55	3	3	3	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	139	43	2	2	2	2	2	1	1																			
22	105	33	1	1	1	1	1	1	1	1																		
23	72	19																										
24	45	15																										
25	18	8	1																									

denotes *to that point in their careers*. Thus, in Table III, the column showing 10 cumulative publications indicates that 1 person had at least 10 publications through their third year after graduation, 2 had at least 10 publications showing on their vitae at $t = 4$ (4 years after graduation), and 9 had at least

Table V
Number of Business Finance & Investments Graduates with Publications in 128 Leading Finance, Accounting, Economics & Business Journals Relative to Their Year of Graduation

This table shows the number of individuals who have published at least the number of articles shown at the top of the column through the time shown in the ‘Years after Graduation’ column.

Years after Graduation	Total Grads	Total Ever Publish	Number of Publications in 128 Journals												
			≥ 1	≥ 2	≥ 3	≥ 4	≥ 5	≥ 6	≥ 7	≥ 8	≥ 9	≥ 10	≥ 11	≥ 12	≥ 13
– 14	1137	650	1												
– 12	1137	650	2												
– 10	1137	650	2	1											
– 8	1137	650	2	1	1	1									
– 7	1137	650	4	1	1	1	1								
– 6	1137	650	9	1	1	1	1								
– 5	1137	650	12	3	1	1	1								
– 4	1137	650	19	4	1	1	1								
– 3	1137	650	26	5	1	1	1	1							
– 2	1137	650	44	8	2	1	1	1	1						
– 1	1137	650	71	11	5	1	1	1	1						
0	1137	650	125	25	11	3	1	1	1						
1	1137	650	215	58	25	9	2	1	1	1					
2	1087	641	331	124	54	30	15	8	7	3					
3	1031	627	428	222	122	71	36	21	11	9	6	3	1		
4	981	601	464	278	170	108	74	51	32	19	14	9	6	3	2
5	938	580	482	312	209	148	105	77	56	44	26	17	12	11	7
6	907	561	493	328	236	177	133	96	80	62	48	35	21	16	13
7	874	545	494	345	258	197	155	124	94	83	63	49	39	26	20
8	870	541	504	356	272	209	168	144	114	100	81	66	48	39	28
9	814	500	475	335	259	204	166	144	116	96	84	74	57	44	37
10	769	466	448	318	239	191	158	135	113	92	80	70	59	52	42
11	709	425	411	298	223	177	150	129	112	96	81	70	65	54	44
12	660	390	379	278	211	165	142	125	107	93	80	74	64	55	46
13	617	361	352	258	197	158	130	114	101	86	75	70	62	56	45
14	559	324	316	232	177	147	120	103	93	82	68	63	58	50	40
15	493	288	283	204	159	128	104	93	83	75	61	57	52	42	36
16	412	237	236	165	129	104	87	75	67	61	51	48	44	39	34
17	352	202	201	142	113	91	79	68	59	53	46	43	40	37	31
18	284	161	161	114	91	72	59	53	46	42	39	37	37	35	31
19	232	129	129	90	72	57	47	40	36	31	28	26	26	25	23
20	177	98	98	67	52	41	36	30	27	25	24	22	22	20	19
21	139	75	75	52	40	32	28	26	22	20	20	18	18	16	16
22	105	55	55	43	32	25	21	20	17	15	15	14	14	12	12
23	72	35	35	26	18	13	9	8	7	5	5	5	5	5	5
24	45	21	21	16	12	9	7	6	5	3	3	3	3	3	3
25	18	11	11	8	7	5	3	3	3	1	1	1	1	1	1

10 articles at $t = 5$ (5 years after graduation). The column titled "Total Ever Publish" gives the number of graduates with the appropriate years of experience who will *ever* publish an article (through the period of time of this study). Thus, 10 years after graduation, 368 (of the 769 graduates with at least 10 years experience) are in the population of "publishers"; at that time, 354 have indeed published at least one article, and 14 still have their first article in their futures. Table IV gives similar reference points for those publishing in the Top 3 finance journals. Overall, Table IV indicates that approximately one third of the graduates publish in the Top 3 journals whereas Table III shows approximately one half of the total graduates publish in the 19 finance journals.

Some evaluators of vitae are suspicious of jointly authored papers. A common rule of thumb has been to weight each individual's contribution to the paper by the inverse of the number of authors. Sauer (1988) finds from salary data that this $1/n$ weight approximates the market evaluation of coauthorship. Thus, a dual-authored paper would count as one-half publication for each author. We found that the distribution of weighted publications has the same general shape as in Table III, but is shifted to the left.¹²

We found that the typical author has about one and one-half times as many unweighted publications as weighted publications. For example, for year 5, 62 authors have at least 5 unweighted publications in Table III, whereas 66 have at least 3 weighted publications. The ratio, $5/3$, varies by years and faculties, but this generally in the range of 1.5–1.7. Only the most prolific authors, those approaching the 95th percentile, show a tendency to average twice as many unweighted papers as weighted papers. This implies that prolific authors are more likely to leverage their labor by engaging in joint authorships. An alternative explanation which is not mutually exclusive with the first interpretation is that the more prolific authors are more likely to attract eager coauthors.¹³

Chung and Cox (1990) have recently examined the relative proportions of authors with varying numbers of lifetime publications in finance journals. They conclude that there is some support for a $1/n^2$ empirical weighting rule called Lotka's Law. That is, they find that the number of people with 2 articles is approximately $1/4$ the number with only 1. This finding does not appear to hold for graduates in business finance and investments for either the set of 19 finance journals or the *Journal of Finance*. We find that the number of authors with only one publication is considerably smaller than Lotka's Law would suggest, while the number with multiple publications is correspondingly greater.¹⁴ One explanation for this discrepancy may be that

¹² A supporting table in the same format as Table III is available from the authors.

¹³ Price (1986, p. 160) notes that the incidence of coauthorship is positively related to the amount of economic support received by the researchers.

¹⁴ The frequencies of lifetime publications in finance journals for our graduates are (from 1 up): 171, 86, 50, 35, 34, 26, 23, 15, 13, 15, 5, 8, 6, 4, etc. with a total of 521 publishers. Lotka's Law predicts that 60.8% of the total or 317 would have only one publication. The frequencies for the *Journal of Finance* articles only are 122, 49, 27, 15, 9, 6, 5, 3, etc., with a total of 243 authors.

graduates in business finance and investments are more prolific than other publishers in finance journals. Because we have no direct evidence to support that explanation, we suggest that this finding indicates that graduates in business finance and investments are more likely to submit their papers to finance journals than are other authors with some interest in finance. In particular, it seems likely that many of the one-time publishers in finance journals are those with only a tangential interest in finance; thus, their publications are likely to be concentrated in some other area.

Of course, a great number of finance-related papers are published in highly regarded accounting, economics, or business journals. The authors in our sample published a total of 3658 papers, of which 1124 were in journals other than the 19 finance journals analyzed in Table III. Table V results from including these additional 109 publication outlets, and, not surprisingly, this table bears a qualitative resemblance to Table III. However, an additional 129 (650 – 521) business finance and investments graduates who never published any articles in the 19 finance journals published at least one article in a nonfinance journal. Given this larger base of “publishers” and the greater number of journals available for publishing their research, Table V reveals that more articles are necessary to qualify for the 90th percentile than shown in Table III. At the fifth year, 7 publications in any of the 128 journals considered in this study would place one in the 90th percentile of publishers. The ratio of 7 publications in Table V to 6 finance publications in Table III indicates that researchers tend to focus more on finance journals in the early years of their careers, since this ratio is less than the overall ratio of 3658 articles in the 128 journals to 2534 articles in the 19 finance journals.

D. Publications and Tenure Decisions

Another popular notion is that academics cease publishing upon the receipt of tenure. Although we cannot directly test this hypothesis, the data presented in Table V can be analyzed to shed light on this contention. For each year in Table V, the number of publications required to be at the 50th, 75th, and 90th percentiles of “publishers” was computed, interpolating between observations where necessary. These numbers are graphically presented in Figure 4.¹⁵ The median publisher indeed shows a leveling off in publications at about the eighth year after graduation. The initially more successful 75th percentile publishers show a decreased rate of productivity around the same time, but still have a positive productivity throughout their careers. The 90th percentile individuals show not only a greater initial rate of productivity but continue at a high rate for many years. The plateau between years 13 and 16 for this group is at least in part due to the increased granularity in the observations caused by the smaller population being spread out over a greater number of publications.

¹⁵ This figure was constructed using the same method as described in footnote 7 for Figure 1.

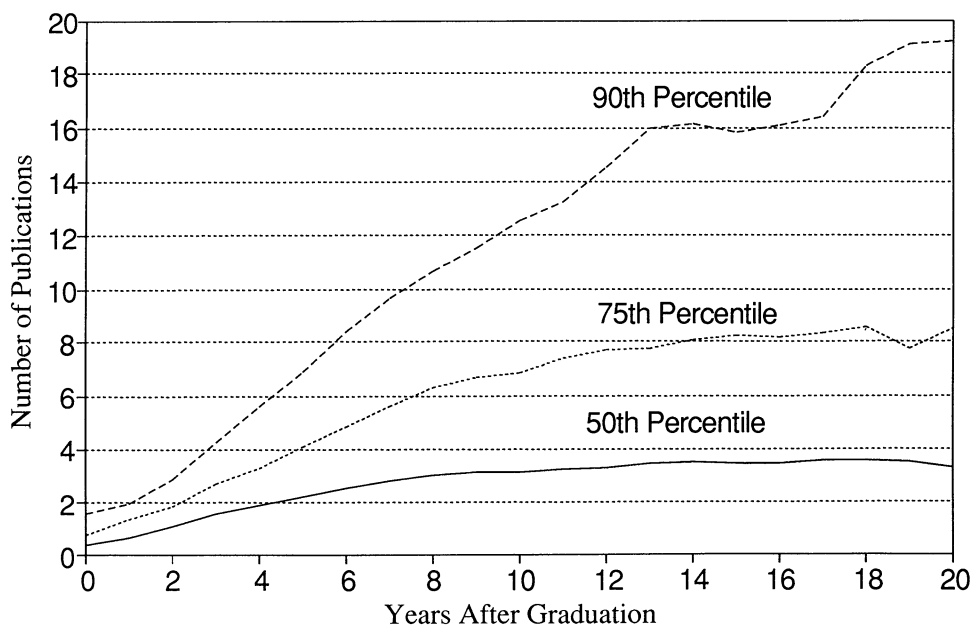


Figure 4. Number of publications in 128 journals required to rank at the 50th, 75th, and 90th percentiles of publishing graduates. For each year in Table V, the number of publications required to be at the 50th, 75th, and 90th percentiles of publishing graduates (those who ever publish in one of the 128 journals) was computed, interpolating between observations where necessary and assuming that productivity is continuous over time.

A particularly interesting statistic to many people is the number of publications a person has at the time a tenure decision is made. Under AAUP guidelines, this decision will generally be made in the person's sixth year after graduation.¹⁶ For a 1984 graduate, the decision will be finalized by the spring of 1990; this implies that the decision process will begin by the end of 1989 which is denoted as year 5 in the tables. Thus, year 5 would show the articles in print at the time tenure consideration begins, and year 6 should reasonably show the publications "in press" or "accepted" at the time the tenure decision process is occurring.

Table III can be used to quickly evaluate rules of thumb such as "average two publications per year to receive tenure." There were 9 graduates with at least 10 finance publications at the fifth year checkpoint, and 9 had 12 articles through the sixth year. Compared with the 469 "publishers" and 938 "graduates" in their fifth year, we see that the person averaging two finance

¹⁶ More accurately, the decision is made by the end of six years of tenure track employment. An exhaustive check of the *Journal of Business* "Positions Accepted" for the period 1962–1984 found assistant professor or instructor positions listed for 265 of the 1137 graduates in our study. 30 (44, 82, 57, 19) of these positions were accepted in two years before (one year before, the year of, one year after, or two years after) graduation. The average time before graduation that these positions were accepted was 0.19 years.

publications per year is exemplary indeed, ranking in the 98th percentile of publishers and 99th percentile of graduates.

If one is employed by a school in the “top 25” of the 250 accredited business schools, then one might expect that performance at or above the 90th percentile of publishing graduates would be required for reasonable tenure probability. Table III shows that if only finance journals count, then one should have slightly less than 6 publications through year 5 and about 6.5 through year 6 to be in the 90th percentile of publishers. For comparison purposes, the average accredited school looking for a 50th percentile publisher should expect approximately 2 publications in the 19 finance journals through the sixth year.

III. Efficacy of Tenure Screens

A. Description of Prototypical Tenure Screens Examined

Many readers, after examining their own relative status in the Tables, may want to determine the relevancy of their school’s tenure benchmarks in relation to the school’s ranking in the profession. To aid in this analysis, we have examined several variations on a systematic decision rule which capture much of the richness of tenure deliberation committees. The efficacy of a tenure screen in separating future producers from future nonproducers of finance research depends upon three primary variables which interact with each other. These three variables are 1) the length of the probationary period, 2) the number of articles published at the time of the tenure decision, and 3) the level or perceived quality of journal in which the tenure candidate has published. For example, a straightforward screen might require 6 articles in the 19 finance journals within the six years after graduation. The hope of the committee is that those passing the screen will continue to be productive researchers in the future. By varying the three factors in the screen, we are able to assess the predictive ability of alternative screens.

The traditional probationary period, which has the weight of state law in many public institutions, has been seven years following the hiring decision. Because a year’s notice of noncontinuation is generally required, this means that the tenure decision is made during the sixth year of employment. However, a number of (primarily private) institutions have moved to a ten-year probationary period, with a decision made in the eighth year. Furthermore, institutions commonly evaluate the progress of faculty members prior to the actual tenure decision which suggests a shorter time period may be of interest. To examine the effect of the varying time dimension, we have used three-, six-, and eight-year tenure windows.

The number of publications required and the level of journal are generally perceived to be interrelated. That is, fewer articles in higher level journals may be required, whereas a greater number of articles may be expected if more journals are considered (e.g., 3 in the Top 3 journals or 6 in the Top 8). Although the stated number of articles rarely dips as low as one or two, we

examined the predictive power of varying the number of articles from one through eight.

The set of journals which are evaluated in our hypothetical screens consist of the Top 3 journals and the Top 8 journals defined previously, the nineteen journals in Heck's *Finance Literature Index*, which we refer to as the "19 finance journals," and the entire set of 128 journals examined in this study.

Because we are examining the future publication records after the tenure period, we limit the sample to those who graduated prior to 1979 so that all graduates had at least ten years total experience and therefore some post-tenure experience. Furthermore, since those who have never published are unlikely to be considered seriously for tenure at accredited institutions, we eliminated those who have no publications in any of the 128 journals through the year of the tenure screen. For the remaining graduates, we computed the number of publications after the 3 (6 or 8) year tenure screen window through the 10th (15th or 20th) year after graduation for each of the people with 10 (15 or 20) years post-graduation experience. Table III indicates a total of 769 (493 or 177) graduates in our sample with at least 10 (15 or 20) years experience, but only 368 (227 or 76) of the graduates ever published in a finance journal. Even some of these authors had not published within the tenure screen window. For example, only 297 of the 368 graduates ever publishing had published an article in any of the 128 journals through their third post-graduation year.¹⁷

For each screen, we computed the average number of publications per post-tenure year for each person in the sample described above. Consider a graduate who published 5 articles in a particular set of journals in the first 6 years and had a total of 8 articles at the end of 10 years. Thus, the publisher had 3 (8 - 5) articles in the 4 (10 - 6) years after tenure, or 0.75 articles per year after tenure and through the tenth year after graduation. Table VI presents this type of data aggregated for the sample. The Table has two columns for each screen, one containing average publication rates in the *post-tenure* period for those who pass the screen, the other reporting results for those who fail to meet the screening criteria. The primary variables of the tenure screens are identified across the top of each Panel, while the data below present the number of individuals passing or failing the screen, together with their cross-sectional average post-tenure publication rates in each of the journal sets; the classification success of the screen for predicting who will or will not publish again in any of the 128 journal within the relevant time period; and the highest individual average yearly post-tenure productivity in the 128 journals set for those periods following the tenure screen window through the 10th, 15th, and 20th years. These statistics can be used to evaluate the efficacy of the tenure screen for correctly classifying future producers of finance research.

¹⁷ The sum of those with 10 years of experience passing and failing the three-year screens in Table VI, Panel A (described below), is 297 (e.g., 228 + 69).

B. Effects of Varying the Length of the Probationary Period and the Number of Articles

Panel A of Table VI presents the results of varying the time element and number of publications required by the tenure screening rule. Initially, the journal set used in setting the screens includes all 19 finance journals. (Qualitatively similar results were found using either the Top 3 or Top 8 finance journals in the screens.) Generally, the screens appear to work fairly well in that the average future productivity is invariably higher for those passing the screen. In particular, those passing the screens based on number of publications in the 19 finance journals tend to have high future productivity regardless of the set of journals examined, while those failing the screens tend to have substantially fewer future articles in each set of journals.

Presumably, the purpose of using a tenure screening rule such as those examined here is to predict whether a person will be productive after tenure. The predictive ability as indicated by classification success is below the conventional 95% level for all of the screens evaluated through the tenth year after graduation. Classification success for those passing the screen is lowest for the 1 article in 6 years and 2 articles in 8 years screens. For all screens some highly productive (as indicated by 'Highest Average') future publishers are mistakenly classified as 'fails.' The classification success for those failing the screen is substantially lower than the classification success for those passing the screen partly because a classification error results in the 'fail' case when the person publishes even one article in any of the 128 journals after the screening window. This level of post-tenure window publication productivity may well be below that required to pass the screen. This will cause the classification success for the 'fail' classification to be downward biased. An offsetting bias, not detectable from examining the Table, involves those who have published *nothing* within the tenure screen window (and are therefore not considered by the screen) but do publish after the screen window. These individuals are not correctly classified as future publishers because they were eliminated from consideration by the requirement that they have published something within the tenure screen window.¹⁸

Panel A also indicates that extending the probationary period while maintaining a constant quantity requirement (e.g., 2 articles in 3, 6, or 8 years) increases the classification success for those failing the screen. This means that those who failed to meet the publishing expectations after an extended probationary period are indeed unlikely to be future publishers.

¹⁸ Comments by the referee on an earlier version have helped us to clarify this point. A similar table including all publishing graduates instead of just those publishing within the tenure screen window shows a substantial amount of the latter sort of classification error. Ben-Zion and Eliezer (1979) examined two even simpler screens for tenure over a much earlier time period, 1910–1939, and found substantial amounts of both types of classification error. Their screens required graduates to have either one article in three years or two articles in five years. They found that more than 20% of the economics Ph.D.'s who wrote at least eleven articles in 25 years would have failed each of the two screens. Thus, an employer inevitably faces substantial risk when making the tenure decision early in the careers of the employees.

Table VI
Efficacy of Various Mechanical Tenure Screens for Predicting Post-Tenure Publication Success

The table shows the ability of various mechanical tenure screens to accurately predict future publication success. Each screen is identified by the number of publications required to pass the screen, the number of years after graduation in which the required number of articles must be achieved, and the ‘Journal set’ in which the required number of articles must be published. ‘Pass/Fail screen’ provides column headings for the remaining items. ‘Observations’ is the number of persons passing or failing the screen with the indicated number of years post-gradua-

Panel A: Effects of varying number of publications required and tenure period on predictive ability of screen												
Tenure screen												
# Publications	1		2		3		1		2		4	
# Years	3		3		3		6		6		6	
Journal set	19 Finance		19 Finance		19 Finance		19 Finance		19 Finance		19 Finance	
Pass/Fail screen	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Average yearly publications after tenure screen through tenth year after graduation in various sets of journals												
Observations	228	69	99	198	47	250	315	87	184	218	87	315
Average Top 3	0.24	0.06	0.39	0.11	0.46	0.15	0.18	0.02	0.28	0.04	0.42	0.07
Average Top 8	0.36	0.09	0.53	0.18	0.67	0.22	0.28	0.04	0.42	0.07	0.62	0.13
Average 19 finance	0.45	0.13	0.66	0.23	0.84	0.29	0.37	0.05	0.53	0.10	0.77	0.17
Average 128	0.64	0.31	0.90	0.39	1.12	0.46	0.53	0.15	0.74	0.21	1.05	0.28
Classification success	77.6%	44.9%	87.9%	35.9%	89.4%	31.2%	59.0%	69.0%	71.7%	63.3%	86.2%	56.5%
Highest average	3.29	2.71	3.14	3.29	3.14	3.29	3.50	1.25	3.50	2.00	3.50	2.50
Average yearly publications after tenure screen through fifteenth year after graduation in various sets of journals												
Observation	137	47	56	128	25	159	187	58	104	141	43	202
Average Top 3	0.18	0.03	0.30	0.07	0.36	0.10	0.13	0.02	0.21	0.03	0.40	0.04
Average Top 8	0.28	0.06	0.44	0.13	0.62	0.17	0.22	0.04	0.35	0.05	0.60	0.09
Average 19 finance	0.35	0.09	0.54	0.18	0.75	0.21	0.29	0.05	0.44	0.08	0.72	0.13
Average 128	0.51	0.25	0.77	0.30	1.05	0.35	0.42	0.15	0.62	0.16	1.00	0.22
Classification success	75.9%	40.4%	85.7%	34.4%	96.0%	32.1%	63.6%	51.7%	79.8%	54.6%	95.3%	47.5%
Highest average	3.17	1.75	2.42	3.17	2.42	3.17	3.22	1.00	3.22	1.44	3.22	2.00
Average yearly publications after tenure screen through twentieth year after graduation in various sets of journals												
Observations	43	8	18	33	10	41	60	16	35	41	16	60
Average Top 3	0.22	0.01	0.35	0.10	0.46	0.12	0.16	0.02	0.26	0.02	0.49	0.04
Average Top 8	0.33	0.01	0.51	0.16	0.67	0.19	0.25	0.02	0.40	0.03	0.68	0.07
Average 19 finance	0.39	0.01	0.58	0.20	0.78	0.23	0.30	0.03	0.48	0.05	0.80	0.10
Average 128	0.56	0.30	0.85	0.30	1.21	0.32	0.43	0.09	0.67	0.09	1.09	0.16
Classification success	76.7%	50.0%	83.3%	33.3%	90.0%	31.7%	63.3%	62.5%	80.0%	61.0%	100.0%	53.3%
Highest average	2.06	0.47	2.06	1.71	2.06	1.71	2.21	0.43	2.21	1.14	2.21	1.64

tion experience and who have at least one article in any of the 128 journals at the tenure screen date. 'Average' is the cross-sectional average annual post-tenure publication rate in the sets of Top 3, Top 8, 19 finance, or 128 journals for those passing (failing) the screen. 'Classification success' for those passing (failing) the screen is the percentage who publish (fail to publish) in any of the 128 journals after the screen period through the post-graduation year shown in the heading. 'Highest average' is the annual post-tenure publication rate in the 128 journals for the person with the highest rate passing (failing) the screen. 'a' indicates that the number of people passing the screen was insufficient for providing meaningful statistics for the screen.

Panel A: Effects of varying number of publications required and tenure period
on predictive ability of screen

Tenure screen										
# Publications	6		2		4		6		8	
# Years	6		8		8		8		8	
Journal set	19 Finance		19 Finance		19 Finance		19 Finance		19 Finance	
Pass/Fail screen	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Average yearly publications after tenure screen through tenth year after graduation in various sets of journals										
Observations	39	363	219	210	119	310	61	368	36	393
Average Top 3	0.53	0.11	0.23	0.02	0.35	0.04	0.48	0.07	0.63	0.08
Average Top 8	0.84	0.17	0.37	0.05	0.54	0.09	0.75	0.13	0.99	0.15
Average 19 finance	1.00	0.22	0.49	0.07	0.68	0.13	0.95	0.17	1.22	0.20
Average 128	1.35	0.35	0.66	0.15	0.92	0.22	1.22	0.28	1.59	0.30
Classification success	92.3%	51.5%	58.0%	78.6%	77.3%	74.2%	88.5%	67.9%	91.7%	64.6%
Highest average	3.50	2.75	4.00	2.00	4.00	2.50	4.00	2.50	4.00	2.50
Average yearly publications after tenure screen through fifteenth year after graduation in various sets of journals										
Observation	21	224	126	139	64	201	33	232	18	247
Average Top 3	0.46	0.07	0.16	0.01	0.28	0.02	0.46	0.03	0.68	0.04
Average Top 8	0.73	0.13	0.29	0.03	0.46	0.06	0.69	0.08	0.98	0.09
Average 19 finance	0.87	0.17	0.39	0.05	0.59	0.09	0.84	0.12	1.17	0.14
Average 128	1.20	0.28	0.53	0.11	0.80	0.15	1.10	0.20	1.48	0.22
Classification success	100.0%	43.8%	70.6%	62.6%	89.1%	58.2%	100.0%	53.4%	100.0%	50.2%
Highest average	3.22	2.00	3.71	1.29	3.71	1.57	3.71	1.57	3.71	2.14
Average yearly publications after tenure screen through twentieth year after graduation in various sets of journals										
Observations	a		38	49	22	65	13	74	a	
Average Top 3			0.21	0.01	0.32	0.02	0.46	0.03		
Average Top 8			0.34	0.02	0.51	0.04	0.72	0.06		
Average 19 finance			0.44	0.03	0.65	0.06	0.92	0.09		
Average 128			0.61	0.08	0.88	0.11	1.15	0.16		
Classification success			73.7%	61.2%	95.5%	60.0%	100.0%	54.1%		
Highest average			2.17	0.67	2.17	1.17	2.17	1.17		

Panel B: Effects of varying number of publications required and journal set of acceptable journals													
Tenure screen													
#Publications	1		2		3		1		2		3		
#Years	6		6		6		6		6		6		
Journal set	Top 3		Top 3		Top 3		Top 8		Top 8		Top 8		
Pass/Fail screen	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Fail
Average yearly publications after tenure screen through tenth year after graduation in various sets of journals													
Observations	213	189	106	296	70	332	273	129	159	243	101	301	
Average Top 3	0.26	0.04	0.41	0.06	0.48	0.08	0.21	0.03	0.31	0.04	0.39	0.07	
Average Top 8	0.37	0.12	0.56	0.12	0.63	0.15	0.32	0.06	0.46	0.08	0.59	0.11	
Average 19 finance	0.45	0.21	0.66	0.17	0.75	0.20	0.40	0.09	0.57	0.12	0.72	0.16	
Average 128	0.64	0.39	0.89	0.29	0.99	0.34	0.58	0.18	0.79	0.23	0.95	0.28	
Classification success	62.9%	50.8%	77.4%	56.1%	87.1%	54.5%	60.8%	64.3%	73.0%	60.5%	85.1%	58.1%	
Highest average	3.50	3.25	3.50	2.50	3.50	2.75	3.50	1.50	3.50	2.00	3.50	2.50	
Average yearly publications after tenure screen through fifteenth year after graduation in various set of journals													
Observations	130	115	58	187	38	207	170	75	91	154	58	187	
Average Top 3	0.17	0.02	0.32	0.04	0.41	0.05	0.14	0.01	0.27	0.03	0.31	0.04	
Average Top 8	0.28	0.06	0.47	0.09	0.58	0.10	0.24	0.04	0.47	0.05	0.51	0.08	
Average 19 finance	0.35	0.10	0.55	0.13	0.69	0.15	0.31	0.06	0.59	0.09	0.62	0.11	
Average 128	0.50	0.19	0.71	0.25	0.88	0.26	0.44	0.15	0.83	0.17	0.83	0.21	
Classification success	65.4%	46.1%	80.4%	46.5%	89.5%	46.4%	62.9%	46.7%	78.0%	50.6%	89.7%	49.2%	
Highest average	3.22	1.44	3.22	2.33	3.22	2.33	3.22	1.00	3.22	1.44	3.22	2.33	
Average yearly publications after tenure screen through twentieth year after graduation in various set of journals													
Observations	44	32	20	56	15	61	54	22	31	45	22	54	
Average Top 3	0.21	0.03	0.39	0.04	0.46	0.05	0.18	0.02	0.29	0.03	0.34	0.05	
Average Top 8	0.32	0.03	0.56	0.07	0.65	0.09	0.27	0.02	0.44	0.04	0.51	0.07	
Average 19 finance	0.39	0.05	0.64	0.11	0.76	0.12	0.34	0.03	0.53	0.05	0.62	0.09	
Average 128	0.53	0.11	0.80	0.20	0.90	0.22	0.46	0.10	0.72	0.10	0.78	0.18	
Classification success	68.2%	56.3%	80.0%	50.0%	86.7%	49.2%	63.0%	54.5%	77.4%	55.6%	86.4%	53.7%	
Highest average	2.21	1.14	1.93	2.21	1.93	2.21	2.21	0.43	2.21	1.14	1.93	2.21	

However, extending the tenure screening window beyond the traditional six years while maintaining the constant quantity requirement reduces the classification success of predicting future publishers. Considering the two publications in three-, six-, or eight-year screens shown in Panel A reveals

Panel B: Effects of varying number of publications required and journal set of acceptable journals

Tenure screen										
# Publications	5		1		2		4		6	
# Years	6		6		6		6		6	
Journal set	Top 8		19 Finance		19 Finance		19 Finance		19 Finance	
Pass/Fail screen	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Average yearly publications after tenure screen through twentieth year after graduation in various sets of journals										
Observations	44	358	315	87	184	218	87	315	39	363
Average Top 3	0.63	0.09	0.18	0.02	0.28	0.04	0.42	0.07	0.53	0.11
Average Top 8	0.89	0.15	0.28	0.04	0.42	0.07	0.62	0.13	0.84	0.17
Average 19 finance	1.01	0.21	0.37	0.05	0.53	0.10	0.77	0.17	1.00	0.22
Average 128	1.27	0.35	0.53	0.15	0.74	0.21	1.05	0.28	1.35	0.35
Classification success	90.9%	52.2%	59.0%	69.0%	71.7%	63.3%	86.2%	56.5%	92.3%	51.5%
Highest average	3.00	3.50	3.50	1.25	3.50	2.00	3.50	2.50	3.50	2.75
Average yearly publications after tenure screen through fifteenth year after graduation in various set of journals										
Observations	24	221	187	58	104	141	43	202	21	224
Average Top 3	1.32	0.05	0.13	0.02	0.21	0.03	0.40	0.04	0.46	0.07
Average Top 8	1.89	0.11	0.22	0.04	0.35	0.05	0.60	0.09	0.73	0.13
Average 19 finance	0.96	0.15	0.29	0.05	0.44	0.08	0.72	0.13	0.87	0.17
Average 128	2.69	0.26	0.42	0.15	0.62	0.16	1.00	0.22	1.20	0.28
Classification success	95.8%	43.9%	63.6%	51.7%	79.8%	54.6%	95.3%	47.5%	100.0%	43.8%
Highest average	3.22	2.33	3.22	1.00	3.22	1.44	3.22	2.00	3.22	2.00
Average yearly publications after tenure screen through twentieth year after graduation in various set of journals										
Observations	a		60	16	35	41	16	60	a	
Average Top 3			0.16	0.02	0.26	0.02	0.49	0.04		
Average Top 8			0.25	0.02	0.40	0.03	0.68	0.07		
Average 19 finance			0.30	0.03	0.48	0.05	0.80	0.10		
Average 128			0.43	0.09	0.67	0.09	1.09	0.16		
Classification success			63.3%	62.5%	80.0%	61.0%	100.0%	53.3%		
Highest average			2.21	0.43	2.21	1.14	2.21	1.64		

that the number of future nonpublishers passing the screen substantially increases as indicated by the decline in classification success. In addition, the rate of future productivity declines as the number of years in the tenure screen window increase. Maintaining a fixed number of publications but

Panel C: Combined Tenure Screens				
Tenure screen	1/4		2/6	
# Publications	6		6	
# Years				
Journal set	Top 3/19 Finance		Top 3/19 Finance	
Pass/Fail screen	Pass	Fail	Pass	Fail
Average yearly publications after tenure screen through tenth year after graduation in various sets of journals				
Observations	81	321	32	370
Average Top 3	0.45	0.07	0.60	0.11
Average Top 8	0.50	0.12	0.88	0.17
Average 19 finance	0.81	0.17	1.02	0.23
Average 128	1.00	0.28	1.35	0.37
Classification success	88.9%	56.4%	93.8%	50.8%
Highest average	3.50	2.50	3.50	2.75
Average yearly publications after tenure screen through fifteenth year after graduation in various sets of journals				
Observations	40	205	17	228
Average Top 3	0.43	0.04	0.48	0.07
Average Top 8	0.64	0.09	0.76	0.14
Average 19 finance	0.76	0.13	0.90	0.18
Average 128	1.06	0.22	1.17	0.29
Classification success	97.5%	47.3%	100.0%	43.0%
Highest average	3.22	2.00	3.22	2.33
Average yearly publications after tenure screen through twentieth year after graduation in various sets of journals				
Observations	15	61	a	
Average Top 3	0.52	0.04		
Average Top 8	0.72	0.07		
Average 19 finance	0.85	0.10		
Average 128	1.16	0.16		
Classification success	100.0%	52.5%		
Highest average	2.21	1.64		

Panel D: Early Publication Screen

Early Publication Screen: At least one article in any of 19 finance journals through year of graduation (year 0)

Average yearly publications after hiring screen through 10th or 15th year after graduation in various sets of journals

Pass/Fail Screen	Publishers Only				All Graduates			
	10 years		15 years		10 years		15 years	
	Pass	Fail	Pass	Fail	Pass	Fail	Pass	Fail
Observations	55	411	25	263	55	714	25	468
Average Top 3	0.28	0.13	0.25	0.10	0.28	0.08	0.25	0.06
Average Top 8	0.39	0.21	0.34	0.17	0.39	0.12	0.34	0.10
Average 19 finance	0.48	0.27	0.41	0.22	0.48	0.15	0.41	0.14
Average 128	0.62	0.43	0.57	0.36	0.62	0.25	0.57	0.20
Classification success	80.0%	4.4%	72.0%	1.9%	80.0%	46.4%	72.0%	44.9%
Highest average	2.90	2.60	2.53	2.60	2.90	2.60	2.53	2.60

extending the tenure time period obviously results in a lower pre-tenure productivity rate and those passing the relaxed screen show a lower average post-tenure productivity rate. It is the pre-tenure flow (rate of publications), not the stock (total publications published), which appears to be a predictor of the future flow.¹⁹

C. Effect of Varying the Number of Acceptable Journals

Panel B of Table VI shows the effect of varying the set of acceptable journals from the Top 3 through the Top 8 to the complete set of 19 finance journals while holding the probationary period constant at six years. Regardless of the set of journals used in the screen, it is apparent from the low classification success rates that requiring only one article in six years is inadequate to reliably predict future publishers.

With a six-year tenure window, two publications in the Top 3 journals, three articles in the Top 8 journals, or 4 pieces in the 19 finance journals are approximately equally effective in predicting future productivity in terms of having similar numbers classified as passing and failing. Also, these three screens result in similar post-tenure publication rates in each of the four sets of journals for both those passing and failing the screens. As Panel B reveals, however, all of these screens result in substantial numbers of classification errors for both those passing and failing the screens, together with extreme errors evidenced by the 'Highest Average' rates for those failing the screens.

Panels A and B provide strong evidence that the rate of publication productivity before the tenure decision is a good predictor of the post-tenure rate of productivity. In particular, note that the pre-tenure rate required to

¹⁹ However, see subsection III.F below for other evidence on a delayed start in publishing.

pass the screen is approximately equal to the average post-tenure rate in similar journals. For example, in Panel B, those passing a screen of 3 articles in the Top 3 journals within 6 years (a pre-tenure rate of 0.5 articles per year) have an average post-tenure publication rate of 0.48 articles per year in the Top 3 journals. The median productivity (not shown in the Table but available upon request) is somewhat lower than the average.

D. Effect of Combining Screens for Quality and Quantity

One common attempt to deal with the tradeoff between quality and quantity is to impose a combined screen. Such a screen would require a modest number of articles in top tier journals and a larger number of total publications. We report the results of two such combined screens in Panel C of Table VI.

The first combined screen requires one publication in the Top 3 journals (a “quality” screen) and a total of four articles in the set of 19 finance journals (a “quantity” screen) within a six-year window after graduation. A comparison of this combined screen with its individual component screens from Panel B shows that the combined screen in Panel C is quite similar to the 4 articles in 19 finance journal screen (Panel B) in terms of the number of people passing the combined screen as well as the efficacy of predicting future productivity. Because the six articles in 19 journals columns in Panel B are so similar to the right-hand columns in Panel C, the same conclusion holds for the second combined screen of two publications in the Top 3 journals and a total of six articles in the 19 finance journals: the quantity requirement (6 in 19) again subsumes the quality screen (2 in Top 3).

Adding the quality screen to the quantity screen results in a negligible increase in predictive ability over that of the quantity screen as shown in Panel B. In contrast, the quantity screen results in dramatically increased predictive ability over the quality screen. This observation leads to the conclusion that repeated publication in any of the 19 finance journals is a better predictor of future publishing activity in those journals than is an occasional publication in a top journal. The publication of one or two articles in any journal may not be sufficient to establish beyond a reasonable doubt an individual’s research orientation. On the other hand, repeated publications result in more reliable estimates of ones unknown average productivity.

The comparison of Panels B and C supports the conclusion that the 19 finance journals are a quality set in and of itself. Most repeat publishers have some articles in the top journals; even those who don’t have top journal articles have clearly learned how to publish. On the other hand, a limited number of publications, no matter what the level, does not establish with a high degree of confidence the potential for continued success in publication.

E. Early Publishers

Instead of making the continuation decision at the end of some period of time, some employers try to maximize the chance of making the correct

personnel decision *ex ante* by hiring those who published before graduation. A substantial minority of authors have articles published before graduation. Panel D of Table VI considers a screen which classifies those graduates who have published an article in any of the 19 finance journals through year '0' as passing the early publication screen. A substantial number of classification errors result from the early publication screen, with 28% (100%–72%) of the 15-year veteran early publishers failing to publish subsequent to graduation. Apparently, the early publication will turn out to be some graduates' only publication. On average, however, the early publishers have higher post-graduation productivity rates than the late publishers. While the prolific authors tend to come from early publishers group, a substantial number of the future prolific publishers failed to have an article before year 1; failing to hire such people would eliminate many future productive researchers.²⁰

Also presented in Panel D are the post-graduation publications for all those who did not publish before graduation. This larger group includes the finance doctorates who never published in any of the 128 journals. As such, the 'fail' columns in the 'All Graduates' portion of Panel D is markedly inferior to the 'pass' columns. This indicates that if an employer has no idea whether a prospective employee will publish, that hiring an early publisher may be safer than hiring at random, even with the large proportion of future nonpublishers in the 'pass' group. However, if one believes that one possesses the ability to predict whether a graduate will be a publisher, but not the quality or quantity of publications, then the left half of Panel D suggests that focusing on pre-graduation publications may be counterproductive because of the extremely high frequency of classification errors.

F. Delayed Publishers

Finally, we made a detailed examination of the records of those who began their publishing careers relatively late. Most people who fail to publish in the first six years never publish. Of course, there is a self-selection bias at work here; those who were initially unsuccessful at publishing are more likely to be denied tenure and move to a school with less research support and emphasis which would in turn reduce the likelihood of future publications, even if native ability were held constant.²¹ Nonetheless, a number of people do establish a credible research record after a delayed start. Four individuals from this initially less productive group eventually established themselves by publishing at least two articles in the top three journals; two individuals had two, one had four, and another had six articles in the top three journals. These people would be rejected by almost any mechanical tenure screen.

²⁰ Merton (1960) notes that rewarding precocity, which may or may not be the precursor of later ability, has the effect of reducing the total output of society.

²¹ Merton (1968) refers to this as the 'Matthew Effect': "For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath."

IV. Summary

We have provided for the first time comprehensive publications performance data for finance doctorates. Publications data have been gathered from 128 finance, accounting, economics, and business journals over the period 1963–1988 for a sample of 1137 doctoral graduates in business finance and investments from 67 institutions. Unlike previous studies which profiled top researchers exclusively, we provide complete productivity distributions which enable all readers to determine their relative standing in the profession. Further analyses of these distributions have allowed us to examine the efficacy of various hiring, promotion and tenure criteria in terms of predicting future productivity. While some simple screens or mechanical rules (e.g., five articles in six years) are somewhat effective in predicting future productivity, many researchers who become productive later in their careers are incorrectly screened from tenure thus presenting significant transactions costs and lost future productivity to both the individual and the employer. In addition, many graduates who pass the mechanical screens cease to publish following tenure. Thus, knowledge of the number of articles and where the articles appeared is insufficient for reliably predicting future research productivity. Likewise, pre-degree publications are not a particularly useful predictor of future productivity.

The various finance publication outlets and their availability have been considered as a significant factor affecting productivity. Following rapid growth in the number of journals and articles published in the 1960's and 1970's, the 1980's were a period of constant output despite the increasing number of individuals in the finance profession. This increase and the resulting increased competition has caused a sharp decline in the acceptance rates at the *Journal of Finance* which has not been offset by a significant increase in articles published in other finance publication outlets.

Perhaps the most interesting conclusion reached by our study is that, contrary to conventional wisdom, publication productivity of finance graduates is not increasing. We find that finance graduates from different eras have similar lifetime productivity profiles. Our data indicate that publishing one article per year in any finance journal (or finance, accounting, economics, or business journal) over any prolonged period of time is a truly remarkable feat. Given the limitations on journal space available for finance papers, only the top 10% of the publishers (top 5% of the graduates) will be able to meet this criterion. We hope our results will provide accurate benchmarks for faculty and administrators who want to compare and evaluate research productivity in the finance area.

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