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Production in the Finance Literature, Institutional Reputation, and Labor Mobility in Academia: a Global Perspective

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Abstract

Academic institutions are ranked on a global scale in terms of finance literature productivity. Independent of how research productivity is measured, U.S. institutions are dominant in academic publishing; however, our results show that in recent years European and Asian institutions have improved significantly. Additionally, our study provides an interesting analysis of the relationship between the quality of human capital and the likelihood of an upward career move. Our results show that an individual who is able to relocate to a higher-ranked institution must exhibit a research record that is approximately two times stronger than that of an average faculty member at the destination institution. We further model the probability of an upward move in the academic labor market as a function of human capital using a logistic model. We proxy human capital by several variables including publications in sixteen core finance journals, publications in three top finance journals, the rank of the individual's Ph.D. granting institution, and the number of years of teaching experience. We empirically find that each of the research activity measures enhance the probability of successful moving to a higher ranked institution. On the other hand, we find that the length of an individual's teaching experience does not increase the probability of moving up to a higher ranked institution.

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I. Introduction

Research productivity has always been a topic of substantial interest to the academic community. These studies can be found in many disciplines. Some examples are Niemi (1987) and Borokhovich et al. (1995) in finance, Brown (1996) in accounting, Conboy et al. (1995), Scott and Mitias (1996), and Collins et al. (2000) in economics. There are several possible reasons for the interest in this topic. First, promotion/tenure, faculty compensations, and resource allocation decisions in academic institutions are often dependent on the productivity of the faculty while the quality and quantity of publications that the faculty produce are factors used to measure this productivity (Gomez-Mejia and Balkin 1992). Second, the ranking of academic institutions draws attention from faculty position applicants, college and graduate school bound students, and potential university donors. Popular publications, such as *US News and World Report*, offer guidance to these individuals by ranking colleges and universities with academic reputation among the ranking criteria. A recent article in the *Chronicle of Higher Education* (June 1, 2001, p.A8) reports that Ohio State University "taxes" departments in order to distinguish selected departments within their school as "top-notch". "Administrators (at Ohio State) believe the rankings are important because they give graduate students, the public, and state legislators a benchmark. 'They are an indication of what league you're in,' says Randall B. Ripley, Dean of the College of Social and Behavior Sciences." (p. A9)

Despite the interest in ranking academic programs, the assessments have consistently focused upon North American institutions. Moreover, few studies provide insights into other related issues beyond the ranking outcome. Therefore, the objective of our research is twofold. Our first objective is to study research productivity within the academic discipline of finance

using a global sample of institutions. Globalization has reduced barriers in almost every sector of the economy and the academic arena is no exception. Moreover, an examination of ranking academic departments on a global scale is not without precedence. For example, in January 2001, the *Financial Times* published its world rankings of the top 100 MBA programs. However, their ranking study is confined to MBA programs, with data gathered through opinion surveys from participating MBA programs; consequently, their study does not provide an assessment of finance programs on a global scale which is one contribution of our study.

Our second objective is to study labor mobility within the finance profession. To the best of our knowledge, this has yet to be investigated. Although there are many factors that affect an individual's ability or desire to relocate and to receive an offer, our focus is limited to a more narrow aspect of labor mobility. We focus on how an individual's human capital impacts that individual's occupational mobility. The quality of human capital is difficult to quantify for many occupations, but in academia it is more feasible. This is because one of the major quality indicators in academia is a researcher's publication record and that record can be objectively quantified and measured. Consequently, our study allows us to examine the role that a researcher's publication record plays in moving from a lower ranked institution to a higher ranked institution. We use alternative research publication measures to proxy the quality of an individual's human capital. These measures include, for example, the total published pages in a set of 16 core finance journals, the per year published pages from the same set of finance journals, and the weighted number of articles in the top three finance journals.

Besides the uniqueness of our study in developing global rankings and in investigating labor mobility, further strengths of our study include a substantial sample period and a careful accounting of articles with respect to co-authorships, co-affiliations, and differences in average

article lengths across journals. Our sample period extends from 1990 through 2001 while prior studies that rank institutions in finance have typically used more limited sample periods (e.g., 4-5 years). A benefit of our longer sample period is our ability to compare the research productivity during sub-sampling periods and, therefore, to assess a university's improvements in research productivity over time.

There are, however, caveats in our database and the derived results. First, because it is possible that a small number of authors from other disciplines may have contributed to the finance literature, the rankings of certain finance departments may be overstated. Second, because some individuals with a strong background in economics also publish finance research in elite economics journals, the lack of inclusion in our sample of these types of publications is likely to understate the total research productivity of these institutions.

The results of our research offer the following conclusions: (1) Top-ranked finance programs are still dominated by North American institutions. In effect, only three non-North American institutions (London Business School, Hong Kong University of Science and Technology, and City University Business School) are in the top-50 ranked institutions. (2) Non-North American institutions are catching up. There are a number of foreign institutions showing substantial increases in absolute total pages published over the second half of the sampling period. (3) There is a positive relationship between research variables that proxy the strength of an individual's human capital and the ability to move to a higher ranked institution.

The remainder of this research is organized as follows: Section II describes our database. Section III presents our findings on the global rankings of institutions, and the changes in research productivity over time. Section IV discusses and empirically analyzes labor mobility as

a function of variables that proxy for the strength of an individual's human capital. Conclusions are offered in Section V.

II. Sources of Data and Descriptive Statistics

The global research productivity data is hand collected using the hard copies from a set of 16 core finance journals from 1990-2001.[1] The data set includes each author's name, his or her affiliation, and the total page count of each article. These particular journals were chosen for several reasons. First, an almost identical set of journals has been used in prior studies (e.g., Borokhovich et al. 1995).[3] Among these 16 journals, many of them have been documented as the most influential journals in finance (see Alexander and Mabry, 1994). Second, in order for us to measure the longer-term effort by the institutions, the research outlets (the journals) need to exist for a minimum of 12 years. This screening process excludes some highly regarded newer finance journals (e.g., *Journal of Empirical Finance*). Third, the 16 journals include specialized journals, such as *Journal of Futures Markets, Journal of Portfolio Management,* and *Journal of International Money and Finance,* as well as journals with a general scope. Hence, we are able to measure the research productivity of faculty with respect to their different research interests.

While our database spans a 12-year period that allows us to conduct a more comprehensive analysis, there are caveats in the database and the derived results. First, while faculty in finance departments are the authors for most of the articles published in this set of journals, it is possible to find a small number of contributions made by authors from other

[1] The set of 16 finance journals are: *Journal of Finance (proceeding issues included), Journal of Financial Economics, Review of Financial Studies, Journal of Business, Journal of Financial and Quantitative Analysis, Financial Management, Journal of Financial Research, Journal of Banking and Finance, Journal of Portfolio Management, Financial Analysts Journal, Financial Review, Journal of Financial Intermediation, Journal of Financial Services Research, Journal of Futures Markets, Journal of International Money and Finance,* and *Journal of Business Finance and Accounting.*

disciplines, particularly economics, statistics, and/or accounting. This may be the case in selected situations because some universities do not have finance departments. Moreover, on many occasions, the authors' department affiliations are not specified in these journal articles and there are no reliable sources to identify the exact departmental affiliations of all authors. Therefore, the ranking performed in this study may overstate the ranking of a particular finance department. Nevertheless, we believe that publications of finance articles by other disciplines in the same university also contribute to the general reputation of a finance program in a university. A second related concern is that some authors also published finance research in economics, accounting, statistics, and other journals. It is practically impossible for us to search every article in a very large set of journals in other disciplines and decide which articles represent contributions to the financial literature. Exclusion of these papers undoubtedly will understate the true human capital of these researchers. For example, given the overlapping research topics in economics and finance, some individuals with strong background and interest in economics often also publish finance research in elite economic journals such as *American Economic Review* and the *Journal of Political Economy*. Since these people are disproportionately based at top-ranked institutions, the total publication record of these institutions may be understated.

Similar to earlier studies, three measurement adjustments have been made to the raw data. First, in cases where there are more than one author, we calculate a weighted number of articles published per author by dividing the article by the number of authors. Moreover, while it is not clear whether previous studies consider possible co-affiliation of an author, we make adjustments in such cases. Specifically, when an author is affiliated with more than one institution, the contribution is divided equally among the stated institutions.

[3] While Borokhovich et al. (1995) include *Journal of Money, Credit, and Banking,* we substitute it by the *Journal of Financial Intermediation* for the reason that the former publishes mostly monetary economics papers.

Second, manually collected data from each journal are checked for accuracy. It is quite common that an author uses slightly different names over his/her career. In cases where author names are similar but not identical, we conduct additional research to verify the identity of the authors and standardize the presentation of his/her name. In a few cases, there are name changes for the same university. We convert all the "different names" into a single name in such cases.

Third, we convert total page counts in each journal to JF-equivalent pages. Specifically, we randomly select three full text pages (no equations, no footnotes, and no graphs) from each journal and count the number of words on each page. Based on the counting and the three-page average, we obtain the number of words on a "typical" page for each journal. Next, we calculate an adjustment factor by using the words on each "typical" page in each journal as compared with a "typical" page in the *Journal of Finance*. For instance, the *Journal of Finance* has 582 words on a typical page while a typical page in the *Journal of Business* has only 492 words. Therefore, the *Journal of Business* total page count is converted to JF-equivalent pages by multiplying the *Journal of Business* page counts by 0.84536 (i.e., 492/582)[4].

Although there are different ways to rank the research productivity of an institution, we chose the JF-equivalent page count method for the following reasons: (1) A popular alternative quality measurement, the Social Science Citation Index (SSCI) impact factor, is not available for all finance journals. For example, the index is not available for the *Financial Analysts Journal*. (2) A finance journal's SSCI impact factor, even if available, may be affected by citations outside the finance field (Borokhovich et al, 2000). (3) Citation factors often are biased in favor of subject matter in the corporate finance area (Borokhovich et al, 2000). (4) Although adjusted article counts are also reported, we believe that adjusted page counts serve as a better

[4] *Financial Review* changed to a different printing style and font size in 1998. We adjusted its total pages separately with respect to articles published before and after 1998.

measurement. Borokhovich et al, (2000) find that, in general, shorter papers have less influence than full articles. Thus, we can mitigate the issue of differential quality across journals by using JF-equivalent page counts. Because papers published in the top tier journals are, on average, longer than articles in other journals, the adjusted page counts method implicitly takes journal influence into account. For example, a typical full-length *Journal of Finance* article runs 35 – 40 pages, while a typical *Financial Review* article has approximately 15 pages (or 11.5 JF-equivalent pages). (5) We use an institution's total adjusted page counts rather than "per capita productivity" because we believe institutional reputation is measured by its aggregate academic power to which total productivity contributes more strongly than per capita productivity.

In total, during the period of 1990 - 2001, the 16 journals contain 8,029 articles written by 6,538 authors from 923 universities and 860 non-academic institutions with 143,543.30 JF-equivalent pages. For the academic affiliations (including co-affiliated authors), there are 4,990 authors who wrote 6,536.35 weighted articles with 121,055.42 JF-equivalent pages.

Table 1 presents the summary statistics of research productivity by academic institutions and by academic authors. In this Table, we report the weighted number of articles published, the unweighted number of articles published, and the JF-equivalent page counts published as the productivity indicators. In Panel (A), the mean values of the weighted number of articles, the unweighted number of articles, and the JF-equivalent pages per academic institution are 7.08, 14.38, and 130.52, respectively. Judging from the significantly smaller median values, the distribution is highly skewed. For example, the median JF-equivalent page per institution is 25.11 pages, which is much smaller than the mean of 130.52 pages. The skewness and kurtosis statistics are all positive and large for all three research productivity measures.

Panel (B) of Table 1 summarizes research productivity by authors affiliated with academic institutions. Some of these authors may have both academic and non-academic dual-affiliations. From Panel (B), an average author would produce 1.31 weighted articles, 2.53 un-weighted articles, and 24.26 JF-equivalent pages during the period of 1990-2001. Similar to Panel (A), all three research productivity measures also suggest the positively skewed and very peaked empirical distributions.

Panel (C) gives further insight into the frequency of publications for individual authors. Among the 4,990 academic authors, 2,719 (54.49% of total) have published only one article (unweighted) during the 12-year period. When we add to that percentage those who have published two unweighted articles (17.15%), we find that more than 70% of all authors have published two articles or less during the 12-year period. Publishing seven or more articles in twelve years, therefore, places a researcher in the top six percentile of the productivity distribution. This result is similar to the findings of Zivney and Bertin (1992) who conclude that for any individual to publish one finance article per year in a larger set of academic journals would place him/her in the top five percent of all authors.[5]

III. Global Institutional Ranking

A. Global Institutional Ranking Based upon All 16 Journals

[5] An interesting question arises: What is the proportion of all finance faculty who have published at least one article during the twelve-year sample period? This statistic is difficult to estimate because one has to know the number of finance academics in the whole world. Hasselback (1999) provides some guidance; however, this source focuses on the North American universities and, therefore, will severely underestimate the finance community in the other parts of the world. Using this source, we estimate a number of statistics based only upon North American institutions. Excluding the non-academic and non-North American authors, approximately 56% of the North American faculty has published at least one article during the 12 years period. If the same approximation rules apply, then one can infer that roughly 25% of the North American finance faculty published two or more articles during the 12-year period. These statistics could not be generalized for the global sample for two reasons: (1) we do not know the true size of non-North American academics, and (2) North American academics are more heavily published than non-North American academics.

In this section, we rank academic institutions on a global scale according to their research productivity. The rankings are presented in Column (1) of Table 2.[6] The rankings are based upon JF-equivalent page counts.[7] Table 2 provides the top 100 institutions and the related information. The results of the remaining 823 institutions, not reported in this paper, are available on the authors' website. Columns (1) and (2) provides overall ranking of the institutions with country names (other than US) inside the parentheses. Not surprisingly, the North American universities dominate the top 100 ranking. Indeed, no universities outside of the US are in the top 20, and the highest rank for a Canadian university is the University of British Columbia at 26th. Moreover, the highest-ranking European university is London Business School that places 22nd and the highest ranked Pacific-Basin university is Hong Kong University of Science and Technology that places 40th. Among the top 100 universities, only 15 universities are outside North America (9 in Europe, 2 in the Middle East, and 4 in the Pacific-Basin). We also provide a diagram to show the distribution of the JF-equivalent pages of all 923 universities that published at least one article in the 16 finance journals. Figure 1 shows a plot of the cumulative percentage of JF-equivalent pages against the cumulative number of universities (arranged from highest to lowest rank). The cumulative distribution is highly skewed as evidenced by the initial steep slope and the subsequent flattening of the curve. Specifically, the top 11 universities account for 20% of all the JF-equivalent pages. The top 37, top 84, and top 179 universities account for approximately 40%, 60%, and 80% of all the JF-equivalent pages,

[6] Because the institutional affiliation is based upon the time when the research was published, it is possible that the research is credited to the author's old affiliation if the author relocates. Presumably, the author has incentive to notify the publisher for affiliation changes, but we could not rule out the possibility that this did not happen and the old affiliation still gets the credit. Of course, who should receive the credit is a philosophical issue. One could argue that old affiliation should receive the credit because the bulk of the work can be expected to have been conducted before the affiliation was changed.

[7] As discussed in Section II, the JF-equivalent page count is our preferred ranking method. However, the correlation coefficient between JF-equivalent page count ranking and weighted page count ranking is 96.7%.

respectively. This highly skewed cumulative distribution of research productivity is in line with recent findings in citation studies that suggest a small number of articles dominate the total citation counts (see Chung, Cox, and Mitchell (2001)).

We also examine the progress of the research productivity of the same 923 universities over the twelve years period. To examine this progress, we compare the research productivity of the first six years (1990-95) with that of the last six years (1996-2001) of the sample. The results are in Columns (5) and (7) of Table 2. Rankings within each sub-period are reported in Columns (4) and (6). Column (8) presents the absolute changes in JF-equivalent pages over the two sub-periods and Column (9) contains the ranking based on the improvement in the research productivity.[8] Based on Column (9), the top five most improved universities are Hong Kong University of Science and Technology, University of Pennsylvania, Yale University, London Business School, and Georgetown University. Although research in finance is still dominated by the North American institutions, there is a clear trend in the growing influence of European and Asian universities that may be expected to play an even larger role in the future.[9]

B. Global Institutional Ranking Based Upon the Top Three Journals

While Section A reports research productivity measured by publications in a set of 16 core journals, many major research universities give heavier weight to publications in the top three journals. Therefore, we also rank institutions based only upon the research output in *Journal of Finance, Journal of Financial Economics,* and *Review of Financial Studies*. These results are reported in Table 3, Columns (1) through (3). During the 12-year sample period, 319

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[8] We also examine research improvement based upon percentage changes in JF-equivalent pages. Though not reported, results are available in the authors' web site.

[9] There are a few schools that make significant improvements over the sub-periods but not included in Table 2 due to a relative low overall productivity. These schools include Hong Kong Polytechnic University (China) that ranked 12th in the improvement ranking (from 0.00 to 269.74 JF-pages), Tilburg University (Netherlands) ranked 14th (from

institutions have published at least one unweighted article in these three journals, and the remaining 604 institutions did not. It should be noted, however, that the institutional JF-equivalent page counts based upon the 16 journals are very highly correlated with the page counts based only upon the top-3 journals for these 319 institutions. Indeed, the rank correlation coefficient is 81.26%. Therefore, the top-ranked institutions do not differ significantly when the analysis is based upon all 16 journals or based only upon the top-3 journals if the institutions published at least one articles (unweighted) in the top-3 finance journals. When comparing Tables 2 and 3, the top ten universities are the same with a slight difference in relative ranking. Specifically, New York University and the University of Pennsylvania trade their 1-2 positions and Duke University and Ohio State University swap their 9-10 positions. Similar to the results reported in Table 2, only 14 universities ranked in the top-100 are outside North America (9 in Europe, 3 in the Pacific-Basin, and 2 in the Middle East).[10]

Similar to Table 2, we also re-examine the ranking of academic institutions based on the top-3 finance journals in the 1990-95 verse the 1996-2001 sub-periods. The results are presented in Table 3 Columns (4) to (9). Based on Column (9), the top-5 most improved universities are New York University, the University of Pennsylvania, Stanford University, the University of California-Davis, and the University of Maryland.

IV. Human Capital Endowment and Labor Mobility

In this section, we study the relationship between variables that proxy the quality of human capital and labor mobility in the finance discipline. Based on our database from 1990

28.96 to 275.26 JF-pages), and University of Exeter (UK) ranked 17th (from 38.87 to 258.39 JF-pages). Detailed disclosures can be found in the authors' web site.

[10] We also plot the distribution of the top-3 journal research productivity. Similar to Figure 1, the distribution is equally skewed. That is, we find 1.55%, 4%, 8.4%, and 17.76% of the 319 institutions published 20%, 40%, 60%, and 80% of the total JF-equivalent pages in the tpo-3 journals. The same statistics for the 16 core journals are 1.2%, 4%, 9.08%, and 19.35%, respectively. The graph, therefore, is identical to Figure 1.

through 2001, we are able to identify faculty who made career moves over the period by examining whether affiliation changes exist. For the purpose of our study, the institutions are classified into five different ranking levels according to their research record measured by their JF-equivalent page counts as reported in Table 2. We define Level 1 institutions as institutions that belong to the top 20 percentile of total JF-equivalent page counts. Because the JF-equivalent page count distribution is highly skewed, eleven institutions account for 20% of the total publications. The next 26 institutions published an additional 20% of the total JF-equivalent page counts and, therefore, are defined as the Level 2 universities. Following the same logic, institutions ranked from 38 to 84 are the Level 3 universities, institutions ranked from 85 to 179 are the Level 4 universities, and the remaining 744 institutions are the Level 5 universities.

Essentially, there are three types of career moves with respect to the ranking classes of the departing school and destination school: lateral move, downward move, or upward move. However, there is one caveat. We cannot identify individuals who may have moved but stopped publishing in the 16 core finance journals after their job changes. Panel (A) of Table 4 reports preliminary statistics. Among the 5,268 identifiable individual author-affiliations in academia[11], 1,549 did not change affiliations during the twelve years period; 254 made a lateral movement; 384 moved to a lower-level institution; 362 moved to a higher-level institution; 2,719 published only one article during the twelve years period and, therefore, we could not identify if a change in affiliation did occur. Because our analysis focuses on those individuals who moved to a higher-level institution, we do not believe individuals who have published only one article in twelve years have the human capital requirement to move to a higher-level institution. These 2,719 unidentifiable individuals, therefore, are not likely to be the upward movers and thus

[11] This number is more than the 4,990 reported in Table 1 because some individuals have made more than one career move. If someone made career moves N times during 1990-2001, we count them N times in Table 4.

should not bias our analysis. Panel (A) of Table 4 also reports the average number of publications across these categories. For the "non-movers", the average number of unweighted publications is 3.76. For the "movers", the average number of unweighted publications ranges from 5.67 to 5.91 articles. Similarly, the average number of weighted articles and JF-equivalent pages for the "non-movers" are also less than the "movers". Moreover, at the first glance, the results from Panel (A) show that more human capital is needed in order to move downward than upward since the average number of weighted articles, unweighted articles, and JF-equivalent pages are larger for the downward movers. This puzzle may be explainable. For example, an individual moving down from a Level 1 institution to a Level 3 institution may have more human capital than an individual moving up from a Level 4 institution to a Level 3 institution. Nevertheless, the results from Panel (A) are based upon an unfiltered sample, and we explain in the following sections how we further screen our sample for a cleaner definition of affiliation changes.

In Panel (B), we further report the publication record for those researchers who have not changed affiliations during the 12-year period, classified according to the levels of their employer. It is not surprising that all measures of research productivity increase monotonically for the individual researcher, as the rank of the institutions increase. More interesting, however, will be the comparison of these statistics with the same statistics for those researchers who relocated to higher ranked institutions as reported in Table 5.

Before reviewing Table 5, however, we present the issues that necessitate the filtering of the data set. First, since not all affiliation changes are career moves, we need to exclude those affiliation changes that are visiting appointments, part-time appointments, and moves between non-finance disciplines. These types of job changes may be expected to have different human capital

endowment requirements.[12] Second, after this screening process, our study is further confined to finance faculty who permanently move from a lower-level institution to a higher-level institution in a tenure or tenure-track position within the finance discipline. We focus only on upward movers since we cannot unambiguously relate human capital to downward (and lateral) movements because higher levels of human capital may not be a necessary condition for a downward movement as there are non-research reasons contributing to downward (and lateral) career moves. A faculty member with substantial human capital may make a downward or a lateral career move to take a more prestigious position or to live in a specific geographic location.[13] On the other hand, downward movers may change affiliations to a lower ranked institution due to a lack of required human capital. Yet, it is impossible to distinguish these two groups of downward movers ("non-research related" movers or "lack of human capital" movers) without controlling for other factors that contribute to the move.[14] For a faculty member to move to a higher-ranked institution, however, human capital is a necessary condition for the move irrespective of other non-human capital related motivations. Consequently, our sample is restricted based upon the following selection screening process: (1We only include authors that change to a higher-ranked institution. (2) We only include authors that have verifiable tenure or tenure-track appointments in the post-movement institutions. (3) We only include authors from

[12] One can easily see that this to be true by glancing over the job-listing directory organized by the Financial Management Association.

[13] Many in the finance profession may consider a distinguished professorship at an equal or emerging lower level school to also represent an upward move. Excluding these cases would undoubtedly reduce our sample size. However, it would be difficult to determine the nature of this type of job move without more detailed information and subjective judgment. We thank the editors for pointing out this caveat.

[14] Since more than 60% of the movers are either lateral or downward movers, and the research productivity of these movers are no less impressive than the upward movers (Table 4), future studies that examine the human capital requirement for these two categories of movers are interesting in its own right. Because of the confounding motivations for relocation decision, however, it would be necessary to separate voluntary from involuntary movers. Presumably, involuntary downward movers relocate because of the lack of human capital given the rank of their

whom we can verify the Ph.D. granting institutions, the exact year of the relocation, and the length of teaching experience.

This screening process yields 88 qualifying cases. In order to identify the relevant information set for this group of researchers, we examine personal web-pages of the authors, James R. Hasselback's *Finance Faculty Directory*, Heck's *Finance Literature Index*, the World-Wide finance faculty directory at Ohio State University, and the membership directory of the Financial Management Association International. In certain instances, we also sent e-mails to faculty for whom we could not verify whether they actually changed affiliation and/or the year they changed affiliation.

In Table 5, we provide summary information on the sample of 88 cases of upward career moves that met our selection requirements. Among these cases, there are 16 faculty that moved to Level 1 universities, 17 to Level 2 universities, 25 to Level 3 universities, and 30 to Level 4 universities. We focus on career JF-equivalent pages and the career weighted number of articles in top-3 finance journals. Career records are defined to include the relevant research productivity measures up through one year after the individual moves to the new affiliation. This is to account for the forthcoming articles when he/she interviews for the new position. These career records are compiled from the Heck's *Finance Literature Index* (before 1990) and the data set that generates Table 2. Panel (A) of Table 5 shows that, on average, the up-movers authored an average of 62.45 career JF-equivalent pages in the 16 finance journals, with a maximum of 504.11 pages and a minimum of 3.91 pages. The group, however, authored only a weighted 1.44 career top-3 finance journal articles. The average teaching period before the change of affiliation is 8.53 years with a standard deviation of 4.98 years.

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employers. The question then is how to identify who is an involuntary mover. Although interesting, we leave this topic to future studies.

Panel (B) gives a more detailed breakdown of the statistics. For example, the average JF-equivalent pages authored by the individuals who moved from a Level 3 institution to a Level 2 institution is 96.37 and the average number of top-3 finance journal articles is 2.68. On the other hand, the same statistics are 33.86 JF-equivalent pages and 0.34 top-3 finance journal articles for those who moved from Level 5 to Level 4 institutions. Both statistics show that the research output is more demanding as one moves from a lower ranked institution to a higher ranked institution. In other words, it generally takes more human capital to move to a higher ranked institution. The research requirement, however, is the highest for those who moved from Level 3 to Level 1 institutions. In most cases, it takes more absolute effort to move two ranking classes upward than to move one ranking class upward even if the destination rank is the same. For example, it takes more effort to move from a Level 3 institution to a Level 1 institution than from a Level 2 institution to a Level 1 institution. One of the exceptions is the case from Level 4 to Level 1 institution. This case only contains two observations although it represents a giant leap forward. Examining the data we find these two observations are each associated with a short employment history before the relocation. Therefore, other factors of human capital endowment such as the Ph.D. granting institution and the average publication per year probably play important roles in these instances.

In further comparing statistics reported in Panel (B) of Table 5 with Panel (B) of Table 4, we observe a very interesting phenomenon. It takes, on average, higher research productivity for a faculty member to move to a certain level institution than another faculty that stays at the same institution of the same rank. For example, the average JF-equivalent pages for a Level 1 institution is 60.55 pages (Table 4, Panel (B)) and it takes much more effort in order to be accepted into such an institution from a lower level one. As a matter of fact, it takes an average

of 104.22 (106.88) pages in order to move from a Level 3 (Level 2) institution to a Level 1 institution (Table 5, Panel (B)). This represents a nearly doubling of the research productivity relative to existing faculty at the destination university. This finding is not limited to Level 1 institutions; the same conclusions apply to all ranks of institutions. The higher threshold obviously deters many who wish to move upward and that potentially explains why there are only a limited number of individuals who are able to move from a lower ranked institution to a higher level institution. An entrenchment effect induced by the tenure system offers a potential explanation for this finding.

To further examine the relationship between a career move-up and human capital, we estimate an ordered logit model. The results are presented in Table 6. The dependent variable in the proportional ordered logit model is 1, 2, 3 or 4 that correspond to the ranking of the destination university. Several explanatory variables serve as proxies for a researcher's endowment of human capital including the individual's total career JF-equivalent page counts, the career per year JF-equivalent page counts, the career total weighted number of articles published in the top-3 journals, the rank of the Ph.D. granting institution (according to our ranking), the number of years of teaching experience, and a year dummy (d) equal to 0 if an individual moved during 1990-1995 and equal to 1 otherwise. We use alternative research productivity variables in the four different empirical models presented in Table 6.

In Model 1, we use the total career JF-equivalent pages as a measurement of research productivity. As expected, the research productivity variable is positive and statistically significant at the one percent level. The Ph.D. granting institution variable is measured as 1 for the highest quality and 5 for the lowest quality. Consequently, the statistically significant and negative sign on the parameter suggests that a higher-ranked (lower ordered) Ph.D. granting

institution does increase the odds of an upward move. Given the fact that the average teaching experience of the group is 8.5 years, the type of Ph.D. granting institution has a long-lasting effect on employment. In other words, the rank of the Ph.D. granting institution carries a value beyond the initial placement effect. The year dummy is not significant meaning that labor market conditions do not significantly change the odds of moving up to a higher ranked institution given a level of human capital. Interestingly, the parameter estimate on the years of teaching experience is negative and statistically significant at the 10% level. The negative sign suggests that the longer a faculty has been away from the environment of the Ph.D. program the more his or her human capital depreciates. Since the years of teaching experience is expected to be highly correlated with a researcher's age, the negative effect could potentially be an age effect. However, the lack of this personal information precludes us from separating these two effects. The model's predictive ability, measured by the rank correlation between observed responses and predicted probabilities, is 77.8%.

Model 2 uses JF-equivalent page counts per year as a measurement of research productivity. This variable also carries a positive sign, and is significant at the 1% level. Conclusions on all other variables remain the same except that now the teaching experience variable is not significant. Models 3 and 4 are similar to Models 1 and 2 except that in these models we add another variable to measure research productivity, namely, the total weighted number of articles in the top-3 finance journals. In Model 3, both measures of research productivity while carrying positive signs are statistically insignificant. We suspect this the result of multicollinearity in the regressors. The correlation analysis between the JF-equivalent pages and the weighed number of top-3 articles shows a simple correlation coefficient of 0.88.

Moreover, although not individually significant, the two productivity measures are jointly significant at the 1% level. We further address the multicollinearity issue in Model 4.

Model 4 includes both per year JF-equivalent pages and top-3 finance journal articles as a measurement of research productivity. These two research productivity measures are less correlated ($\rho = 0.46$) than the two used in Model 3, and thus lessen the multicollinearity problem. The parameter on the variable for the top-3 finance journal articles is significant at the 5% level and the per year JF-equivalent page variable is significant at the 10% level. This result is more consistent with the results found in Models 1 and 2 in which a researcher's career-long record is as important as his/her average annual productivity.

V. Conclusions

The purpose of this study is two-fold. In the first part of the paper, we provide an institutional ranking of research productivity in finance on a global scale. In the second part of the paper, we analyze several perspectives on an upward career move in the labor market in finance. We manually collect all publication records from a set of 16 core finance journals during the period from 1990 to 2001. Our major findings are: (1) Publications in the core finance journals are highly concentrated in a few institutions. For example, the first eleven institutions account for 20% of all publications while the first 37 institutions (out of 923 total institutions) account for 40% of all publications. (2) North American institutions (mainly U.S. institutions) are the major contributors to the finance literature. The top twenty institutions are entirely US institutions. (3) Comparing the first and the second half of the sample period, we find many of the most-improved-institutions are outside of North America. This suggests that research in finance is gaining momentum in Europe and Asia, possibly responding to the growth in the financial markets in those regions. (4) Labor turnover is quite low for the upward

movement market. Among a total of 4,990 academic authors, we are able to confirm only 88 individuals who successfully moved to a higher-level institution during the entire 12-year period. (5) Because of the higher threshold employed by many institutions for recruiting non-fresh Ph.D.s, an individual who is able to relocate to a higher-ranked institution must exhibit a research record that is approximately two times stronger than that of an average existing faculty member in the destination institution. We interpret this finding as a potential entrenchment effect induced by the tenure system. (6) The ability to move to a higher ranked institution is positively related to the total JF-equivalent page counts, the number of articles published in the top-3 finance journals, per year JF-equivalent page counts, and the Ph.D. granting institution rank. There is some evidence, however, that the ability to move to a higher ranked institution is negatively related to the years of teaching experience.

Potential caveats in our database and findings are: (1) It is possible that a small number of authors from other disciplines may have contributed to the finance literature. As a consequence, this may overstate the rankings of certain finance departments. (2) Some individuals with strong background in economics also publish finance research in elite economic journals. Since these individuals are disproportionately affiliated with top-ranked universities, excluding these publications is likely to understate the total research productivity of these institutions. (3) Many in our profession would consider a distinguished professorship at an equal or emerging lower level school to also represent an upward move. Excluding these cases reduces our sample size used to assess labor mobility.

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Table 1. Summary statistics of the research productivity in a set of 16 core finance journals from 1990 to 2001

This table contains some preliminary summary statistics of the research productivity that bases on a set of 16 core journals. These journals are *Journal of Finance*, *Journal of Financial Economics*, *Review of Financial Studies*, *Journal of Business*, *Journal of Financial and Quantitative Analysis*, *Financial Management*, *Journal of Financial Research*, *Journal of Banking and Finance*, *Journal of Portfolio Management*, *Financial Analysts Journal*, *Financial Review*, *Journal of Financial Intermediation*, *Journal of Financial Services Research*, *Journal of Futures Markets*, *Journal of International Money and Finance*, and *Journal of Business Finance and Accounting*. There are 4,990 academic authors in 923 academic institutions that published in the 16 core finance journals. Panel (C) suggests that there are only about 14% of the academic authors who have published at least five articles (unweighted) or more. The "sum" statistics are not identical in Panel (A) and Panel (B) because (1) some authors may have both academic and non-academic affiliations, and (2) some authors may have more than one academic affiliations.

Panel (A): By academic institutions

	Weighted number of articles	Unweighted number of articles	JF-equivalent page counts
Mean	7.08	14.38	130.52
Median	1.50	3.00	25.11
Standard Deviation	14.38	29.08	301.81
Kurtosis	33.73	38.16	40.68
Skewness	4.74	4.92	5.43
Minimum	0.08	1.00	1.00
Maximum	172.06	370.00	3521.86
Sum	6,531.70	13,272	120,467.92
Count	923	923	923

Panel (B): By academic authors

	Weighted number of articles	Unweighted number of articles	JF-equivalent page counts
Mean	1.31	2.53	24.26
Median	0.83	1	13.03
Standard Deviation	1.54	2.86	31.58
Kurtosis	18.61	18.15	22.08
Skewness	3.52	3.52	3.82
Minimum	0.20	1	0.65
Maximum	16.50	34	392.22
Sum	6,536.35	12,601	121,055.42
Number of authors	4,990	4,990	4,990

Panel (C): Number of unweighted publications for all authors in academic institutions

Number of unweighted publications (1990-2001)	Number of authors	% of total	Cumulative %
One publication	2,719	54.49	
Two publications	856	17.15	71.64
Three publications	437	8.76	80.40
Four publications	260	5.21	85.61
Five publications	186	3.73	89.34
Six publications	128	2.57	91.90
Seven publications	101	2.02	93.93
Eight publications	87	1.74	95.67
Nine publications	57	1.14	96.81
Ten to twelve publications	87	1.74	98.56
Thirteen or more	72	1.44	100.00
Total	4,990	100.00	

Table 2. Top 100 world research productivity ranking of academic institutions (1990-2001) based upon Journal of Finance-equivalent pages published in a set of 16 finance journals.

This table presents the top 100 most productive institutions in the world. The ranking in Column (1) is based on the weighted JF-equivalent pages in 1990-2001 shown in Column (3). The JF-equivalent pages are weighted by coauthorship and coaffiliations of the authors. While there are universities from other countries (as specified in Column (2)), the majority of the schools are from the North America (US and Canada). Columns (4) and (6) rank the universities based on the JF-equivalent pages in 1990-95 and 1996-2001. The absolute changes in JF-equivalent pages is in Column (8). Column (9) provides an improvement ranking based on the magnitude of absolute changes in JF-pages.

(1) Overall Ranking (1990-2001)	(2) Affiliation (countries if other than US)	(3) JF-pages (1990-2001)	(4) Ranking for 1990-95	(5) JF-pages (1990-95)	(6) Ranking for 1996-2001	(7) JF-pages (1996-2001)	(8) Absolute changes in JF-pages	(9) Ranking for improvement based on absolute changes
1	NYU	3521.86	1	1610.89	1	1910.97	300.08	7
2	U of Penn	3179.40	2	1407.12	2	1772.29	365.17	2
3	U of Chicago	2343.71	3	1241.12	4	1102.59	-138.53	86
4	Harvard U	2260.55	5	1085.21	3	1175.34	90.13	46
5	U of Michigan	2117.43	4	1232.35	7	885.08	-347.27	99
6	UCLA	1984.69	6	941.85	5	1042.84	100.98	39
7	Columbia U	1801.16	10	855.86	6	945.30	89.44	47
8	Northwestern U	1561.61	9	859.48	10	702.13	-157.35	89
9	Ohio State U	1557.12	7	866.40	11	690.72	-175.68	90
10	Duke U	1543.13	8	864.11	12	679.02	-185.09	94
11	Cornell U	1482.96	12	720.26	9	762.71	42.45	55
12	U of Illinois	1445.88	11	834.03	16	611.85	-222.18	96
13	Stanford U	1347.52	20	521.97	8	825.55	303.58	6
14	U of Rochester	1222.36	13	688.35	25	534.01	-154.34	88
15	MIT	1145.63	21	513.90	15	631.73	117.82	33
16	Indiana U	1128.72	19	527.31	17	601.41	74.10	49
17	U of Southern California	1126.57	17	562.68	20	563.90	1.22	66

18	UC-Berkeley	1097.39	18	555.77	22	541.62	-14.16	71
19	Boston College	1029.80	16	606.87	34	422.93	-183.94	93
20	U of Texas-Austin	1012.76	32	367.83	13	644.93	277.11	9
21	Virginia Tech	1004.73	15	625.12	41	379.61	-245.51	97
22	London Business School (UK)	955.71	35	311.35	14	644.36	333.01	4
23	U of Florida	946.53	26	412.32	24	534.21	121.89	31
24	U of British Columbia (Canada)	940.18	14	668.46	66	271.72	-396.74	100
25	Purdue U	922.60	31	380.02	21	542.58	162.56	21
26	Rutgers U	905.27	23	439.14	28	466.14	27.00	59
27	U of North Carolina	873.49	33	363.95	26	509.54	145.59	27
28	Vanderbilt U	871.79	25	420.08	31	451.71	31.63	56
29	U of Washington	843.26	29	390.10	30	453.16	63.06	52
30	Yale U	824.30	57	234.33	18	589.97	355.64	3
31	Arizona State U	823.10	22	460.32	45	362.79	-97.53	82
32	U of Maryland	788.28	48	251.70	23	536.58	284.87	8
33	U of Georgia	753.65	28	404.53	48	349.12	-55.41	78
34	Carnegie Mellon U	701.38	37	302.39	37	399.00	96.61	41
35	UW-Madison	699.37	24	437.99	69	261.38	-176.62	91
36	SMU	676.68	34	314.96	46	361.72	46.76	53
37	U of Notre Dame	674.17	53	241.57	32	432.60	191.03	18
38	Baruch College	666.65	56	235.32	33	431.32	196.00	16
39	Georgetown U	665.73	87	170.82	27	494.91	324.09	5
40	Hong Kong University of Science and Technology (Hong Kong)	657.43	147	85.80	19	571.63	485.83	1
41	Penn State U	650.49	75	193.48	29	457.01	263.52	12
42	Emory U	635.90	54	241.22	38	394.68	153.47	25
43	City U Business School (UK)	625.10	46	258.03	44	367.07	109.04	34
44	Georgia State U	611.19	40	293.77	53	317.42	23.65	60
45	U of Houston	610.86	49	251.22	47	359.64	108.42	36
46	Washington U	610.18	58	233.49	42	376.70	143.21	28

47	Michigan State U	601.68	63	220.14	40	381.54	161.40	22
48	U of Iowa	596.79	73	197.46	36	399.33	201.87	15
49	Florida Atlantic U	594.95	82	181.88	35	413.07	231.20	13
50	Texas A&M U	589.36	39	299.37	59	290.00	-9.37	69
51	U of Missouri	576.08	60	228.59	49	347.49	118.89	32
52	Southern Illinois U	565.08	43	274.55	58	290.53	15.97	61
53	U of Virginia	558.71	88	167.55	39	391.16	223.61	14
54	LSU	553.94	30	382.15	109	171.79	-210.36	95
55	U of Miami	549.67	44	271.42	64	278.25	6.83	64
56	U of Oklahoma	518.47	55	237.07	62	281.40	44.33	54
57	Iowa State U	515.33	42	283.99	78	231.34	-52.66	77
58	Lancaster U (UK)	513.68	84	178.13	51	335.56	157.43	23
59	U of Strathclyde (UK)	513.48	41	284.98	79	228.49	-56.49	79
60	Dartmouth College	508.57	69	206.49	56	302.08	95.60	42
61	U of Minnesota	494.92	66	212.82	61	282.10	69.28	50
62	Fordham U	491.61	51	243.35	72	248.25	4.90	65
63	Santa Clara U	486.78	90	166.54	52	320.24	153.70	24
64	Florida State U	486.64	38	300.67	99	185.97	-114.71	84
65	Boston U	477.27	27	408.78	222	68.49	-340.29	98
66	U of South Carolina	476.97	76	192.36	60	284.61	92.25	43
67	Chinese University of Hong Kong (Hong Kong)	472.13	131	100.05	43	372.08	272.03	11
68	U of Manchester (UK)	467.74	85	172.81	57	294.94	122.13	30
69	U of Alabama	463.97	36	308.03	120	155.94	-152.10	87
70	U of New South Wales (Australia)	456.98	65	213.65	75	243.33	29.68	57
71	Wilfrid Laurier U (Canada)	445.72	50	247.71	91	198.01	-49.70	76
72	Rice U	438.94	109	136.73	55	302.22	165.49	19
73	U of Utah	430.36	92	164.19	68	266.17	101.98	38
74	UC-Irvine	424.51	59	229.39	95	195.12	-34.28	74
75	Tulane U	416.43	125	112.27	54	304.16	191.89	17

76	UC-Davis	414.41	172	69.04	50	345.37	276.33	10
77	London School of Economics (UK)	405.81	99	153.05	71	252.76	99.72	40
78	Loyola U-Chicago	403.18	52	241.89	117	161.29	-80.59	81
79	Bentley College	401.15	97	154.47	73	246.68	92.21	44
80	Princeton U	396.57	91	164.29	77	232.28	67.99	51
81	U of Arizona	396.55	77	191.60	89	204.94	13.34	63
82	U of Toronto (Canada)	394.49	71	204.54	97	189.95	-14.59	72
83	U of Alberta (Canada)	393.65	121	115.29	63	278.36	163.07	20
84	U of Kansas	388.36	74	196.56	96	191.81	-4.75	67
85	SUNY-Binghamton	385.37	83	178.93	87	206.44	27.51	58
86	National U of Singapore (Singapore)	383.85	108	137.49	74	246.36	108.87	35
87	Clemson U	380.50	45	259.51	149	120.99	-138.52	85
88	Temple U	377.88	67	211.52	113	166.37	-45.15	75
89	Northern Illinois U	376.73	102	150.20	81	226.53	76.33	48
90	McGill U (Canada)	364.42	78	190.69	106	173.74	-16.95	73
91	Tel-Aviv U (Israel)	364.24	79	185.70	104	178.54	-7.16	68
92	HEC (France)	363.65	62	221.63	131	142.01	-79.62	80
93	INSEAD (France)	356.41	80	185.14	110	171.27	-13.87	70
94	North Carolina State U	348.24	61	228.11	152	120.13	-107.98	83
95	Hebrew U (Israel)	347.31	89	166.76	103	180.55	13.78	62
96	Simon Fraser U (Canada)	337.25	123	115.24	82	222.01	106.77	37
97	U of Tennessee	332.68	47	256.78	210	75.89	-180.89	92
98	Case Western Reserve U	332.61	141	91.77	76	240.83	149.06	26
99	U of Colorado	331.25	119	119.86	86	211.38	91.52	45
100	Erasmus U (Netherlands)	327.20	132	99.81	80	227.39	127.58	29

Table 3. World research productivity (1990-2001) by JF-equivalent pages in top three finance journals (*Journal of Finance*, *Journal of Financial Economics*, and *Review of Financial Studies*)

This table provides a ranking of world research productivity by JF-equivalent pages in top-3 finance journals only. There are 319 academic institutions that publish at least one unweighted articles in the top three finance journals. In other words, there are 604 academic institutions that did not publish any articles in the top three journals. Among the 319 academic institutions that published at least one unweighted article in top-3 finance journals, the rank correlation coefficient between JF-equivalent pages in the top-3 and in the 16 finance journals is 81.26% and the rank correlation coefficient between the number of weighted articles in the top-3 and the 16 finance journals is 80.54%. While there are universities from other countries (as specified in column (2)), the majority of the schools are from the North America (US and Canada). Columns (1), (4), and (6) rank the universities based on the JF-equivalent pages in 1990-2001, 1990-95, and 1996-2001, respectively. The absolute changes in JF-equivalent pages are in Column (8). Column (9) provides an improvement ranking based on the magnitude of absolute changes in JF-pages.

(1) Overall Ranking (1990-2001)	(2) Affiliation (countries if other than US)	(3) JF-pages (1990-2001)	(4) Ranking for 1990-1995	(5) JF-pages (1990-95)	(6) Ranking for 1996-2001	(7) JF-pages (1996-2001)	(8) Absolute changes in JF-pages	(9) Ranking for improvement based on absolute changes
1	U of Penn	2059.95	3	824.81	1	1235.14	410.32	2
2	NYU	2013.63	4	791.64	2	1221.99	430.34	1
3	U of Chicago	1899.91	1	1044.23	3	855.68	-188.55	97
4	Harvard U	1601.52	5	773.46	4	828.06	54.60	47
5	U of Michigan	1426.49	2	836.56	8	589.92	-246.64	100
6	UCLA	1285.68	6	596.86	5	688.82	91.96	31
7	Columbia U	1076.87	11	450.37	7	626.50	176.13	11
8	Northwestern U	1061.97	7	558.77	10	503.20	-55.58	90
9	Duke U	1056.12	10	518.35	9	537.77	19.42	62
10	Ohio State U	1006.44	9	546.59	12	459.85	-86.75	94
11	U of Rochester	1002.84	8	551.28	13	451.56	-99.72	96
12	Stanford U	973.45	18	291.88	6	681.57	389.69	3
13	U of Southern California	837.19	12	432.59	16	404.60	-27.99	80
14	MIT	812.03	15	376.08	14	435.95	59.88	42
15	Cornell U	769.63	17	308.03	11	461.60	153.57	14

16	U of Illinois	619.45	16	332.97	26	286.48	-46.49	88
17	Carnegie Mellon U	618.42	21	254.95	18	363.47	108.52	25
18	U of British Columbia (Canada)	615.43	13	421.25	37	194.18	-227.07	99
19	UC-Berkeley	593.01	19	287.89	23	305.12	17.22	64
20	U of North Carolina	568.59	32	154.33	15	414.26	259.93	6
21	Arizona State U	566.56	20	286.00	28	280.57	-5.43	75
22	Boston College	560.50	14	386.32	42	174.18	-212.14	98
23	U of Florida	499.69	27	183.96	22	315.72	131.76	19
24	London Business School (UK)	489.97	31	158.29	21	331.68	173.38	12
25	U of Maryland	472.21	40	97.78	17	374.43	276.65	5
26	Purdue U	462.93	24	197.55	29	265.39	67.84	38
27	U of Texas-Austin	457.16	38	107.65	19	349.51	241.86	7
28	Yale U	455.34	35	120.39	20	334.95	214.56	8
29	Vanderbilt U	434.12	34	133.95	25	300.17	166.22	13
30	U of Washington	423.63	26	184.77	30	238.86	54.10	48
31	Washington U	383.94	25	191.82	38	192.12	0.30	73
32	Penn State U	358.78	47	76.13	27	282.65	206.52	9
33	Indiana U	358.07	33	138.56	33	219.51	80.96	36
34	U of Iowa	347.82	36	118.82	31	229.00	110.18	24
35	Virginia Tech	347.79	22	207.00	48	140.80	-66.20	91
36	SMU	341.13	30	160.68	41	180.45	19.77	61
37	UW-Madison	332.57	23	200.93	52	131.64	-69.29	93
38	U of Georgia	320.28	28	180.96	50	139.32	-41.64	87
39	UC-Davis	308.62	208	4.00	24	304.62	300.62	4
40	U of Notre Dame	297.66	46	76.48	32	221.17	144.69	18
41	Dartmouth College	269.62	44	80.63	40	188.99	108.37	26
42	Princeton U	253.96	41	96.38	44	168.32	71.94	37
43	UC-Irvine	252.75	29	171.59	64	81.15	-90.44	95
44	Tulane U	251.25	54	60.45	39	190.80	130.35	20
45	Georgetown U	242.53	67	46.67	35	195.87	149.20	16

46	U of Virginia	241.49	66	46.98	36	194.51	147.54	17
47	Hong Kong University of Science and Technology (Hong Kong)	234.14	107	22.50	34	211.64	189.14	10
48	U of Minnesota	231.84	39	102.38	53	129.46	27.08	58
49	U of Utah	221.40	51	68.79	47	152.61	83.82	35
50	Emory U	207.96	70	41.00	45	166.96	125.96	21
51	U of Arizona	195.01	79	35.13	46	159.88	124.75	22
52	U of Oregon	194.72	112	21.12	43	173.60	152.48	15
53	Rice U	187.12	64	47.13	49	139.99	92.86	29
54	Michigan State U	186.25	62	48.35	51	137.89	89.54	32
55	U of Colorado	173.78	59	53.67	55	120.11	66.44	39
56	Tel-Aviv U (Israel)	169.54	45	80.28	63	89.26	8.97	69
57	LSU	163.37	37	115.90	93	47.48	-68.42	92
58	Georgia State U	156.53	42	94.37	77	62.16	-32.21	81
59	INSEAD (France)	142.69	49	72.08	67	70.60	-1.48	74
60	U of Toronto (Canada)	140.87	94	27.63	57	113.25	85.62	34
61	McGill U (Canada)	139.85	96	26.02	56	113.84	87.82	33
62	U of Missouri	139.44	73	38.91	60	100.53	61.62	41
63	Baruch College	138.18	50	71.91	71	66.27	-5.64	77
64	U of Alberta (Canada)	134.03	191	6.00	54	128.03	122.03	23
65	HEC (France)	133.04	43	93.33	102	39.71	-53.63	89
66	UC-Riverside	131.44	74	37.00	61	94.44	57.44	45
67	Iowa State U	125.96	53	61.75	73	64.21	2.46	71
68	U of Oklahoma	122.48	48	73.21	86	49.28	-23.93	79
69	Rutgers U	122.39	58	54.99	70	67.41	12.42	66
70	Hebrew U (Israel)	113.51	68	44.87	69	68.64	23.77	59
71	U of Auckland (New Zealand)	111.63	82	33.10	65	78.53	45.43	51
72	UC-San Diego	111.52	52	63.52	91	48.00	-15.52	78
73	U of Houston	109.66	72	39.00	66	70.66	31.66	55
74	U of Miami	109.52	199	4.67	58	104.85	100.18	28

75	Case Western Reserve U	103.86	71	40.67	76	63.19	22.52	60
76	U of Texas-Dallas	102.41	n/a	n/a	59	102.41	102.41	27
77	U of Pittsburgh	101.71	69	44.11	81	57.60	13.49	65
78	London School of Economics (UK)	101.69	61	50.52	84	51.17	0.65	72
79	U of Western Ontario (Canada)	101.06	75	36.86	74	64.20	27.34	57
80	Clemson U	96.35	60	50.97	95	45.38	-5.59	76
81	Norwegian School of Management (Norway)	92.60	n/a	n/a	62	92.60	92.60	30
82	Simon Fraser U (Canada)	86.81	105	22.87	75	63.94	41.07	52
83	Santa Clara U	80.81	152	11.67	68	69.15	57.48	44
84	Queen's U (Canada)	80.77	56	56.82	131	23.95	-32.88	82
85	SUNY-Buffalo	80.57	77	36.00	97	44.57	8.57	70
86	Texas A&M U	79.15	55	59.98	150	19.16	-40.82	86
87	U of Rhode Island	76.80	57	55.46	135	21.34	-34.12	85
88	U de Toulouse (France)	75.94	125	14.76	78	61.18	46.43	50
89	George Mason U	69.14	88	30.00	103	39.14	9.14	68
90	ESSEC (France)	66.24	n/a	n/a	72	66.24	66.24	40
91	Wayne State U	64.94	210	4.00	79	60.94	56.94	46
92	Bentley College	63.07	119	17.42	94	45.65	28.22	56
93	U of Bern (Germany)	62.76	63	47.95	166	14.81	-33.14	84
94	U of Amsterdam (Netherlands)	62.10	133	13.16	87	48.94	35.77	54
95	Washington State U	61.19	113	21.12	101	40.07	18.95	63
96	Northeastern U	60.94	65	47.00	169	13.94	-33.06	83
97	Loyola U-Chicago	60.39	182	6.67	83	53.72	47.05	49
98	California Institute of Technology	59.77	101	24.20	109	35.57	11.37	67
99	Chinese University of Hong Kong (Hong Kong)	58.72	159	10.45	89	48.27	37.81	53
100	College of William and Mary	58.14	n/a	n/a	80	58.14	58.14	43

Table 4. Summary Statistics of Changing Academic Affiliations

This table presents some summary statistics of changing academic affiliations. Academic institutions are classified into five levels. These five classes are based on the cumulative percentile of the JF-equivalent pages in Table 2. Essentially, the top 20% of the institutions in Table 2 are considered to be Level 1. The next 20% of the institutions are considered to be in Level 2. Levels 3, 4, and 5 are similarly defined. If an author made multiple affiliation changes over the period of 1990-2001, we counted him or her multiple times. Hence, the total (5,268) is larger than the 4,990 reported in Table 1. In Panel (A), "equal level" means the author move to a school that has the same level as his or her original school. Similarly, a "higher" or "lower level" school has the same interpretation.

Panel (A): Descriptive statistics

		Wt. articles		Unwt. Articles		JF-equivalent pages	
Type of affiliation changes (1990-2001)	**Freq.**	**Average**	**Std dev**	**Average**	**Std dev**	**Average**	**Std dev**
Stay at the same institutions	1,549	1.95	1.55	3.76	2.81	35.71	32.08
Change to the institution of equal level	254	2.82	2.41	5.67	4.70	52.66	50.28
Change to a lower level institution	384	3.01	2.26	5.91	4.18	57.74	48.42
Change to a higher level institution	362	2.94	2.16	5.67	4.13	54.26	47.05
Only one publication (only published one articles and cannot determine the affiliation change)	2,719	0.52	0.23	1	N/A	9.44	6.16
Total	5,268						

Panel (B): Productivity for those who stay at the same institution

		Wt. articles		Unwt. Articles		JF-equivalent pages	
Stay at the same institutions (1990-01)	**Freq.**	**Average**	**Std dev**	**Average**	**Std dev**	**Average**	**Std dev**
Level 1	204	2.65	2.31	4.76	4.15	60.55	52.07
Level 2	281	2.10	1.52	3.98	2.72	43.62	34.78
Level 3	314	2.16	1.74	4.15	3.30	37.30	28.45
Level 4	406	1.83	1.15	3.70	2.18	29.43	19.13
Level 5	345	1.38	0.87	2.69	1.34	20.51	13.48
Total	1,549						

Table 5: Statistics for Individuals Who Move to a Higher Ranked Institution

This Table reports descriptive statistics on research productivity for a sample of 88 career move-up faculty. Five institutional rankings are defined based upon the research productivity measures reported in Table 1. Essentially, the top 20% of the institutions in Table 2 are considered to be Level 1. The next 20% of the institutions are considered to be in Level 2. Levels 3, 4, and 5 are similarly defined. Years of teaching experience is measured by the time span between receiving a Ph.D. degree and moving to a different institution. Some individuals may begin their teaching before receiving a Ph.D. but still counted as one-year teaching experience. The career page count includes the lifetime productivity of the faculty member up through one year after the move.

Panel (A): Summary statistics of career move-up faculty

	Number of career weighted JF, JFE, and RFS articles (up to 1 yr after the move)	Career total number of JF-equivalent page counts from 16 journals (up to 1 yr after the move)	Per year career Average of JF-equivalent page counts (up to 1 yr after the move)	Years of teaching experience when moved
Mean	1.44	62.45	8.16	8.53
Median	0.59	42.61	6.32	8.00
Standard Deviation	2.04	66.96	6.80	4.98
Kurtosis	6.16	21.40	3.25	1.39
Skewness	2.35	3.78	1.71	1.11
Minimum	0.00	3.91	0.44	1
Maximum	10.16	504.11	31.64	26
Number of faculty	88	88	88	88

Panel (B): A detail breakdown of career move-up faculty.

Type of move (from a lower level to a higher level university)	**Number of faculty**	**Career JF-equivalent pages in 16 finance journals up to one year after the move**		**Career total number of weighted JF, JFE and RFS articles**	
		Mean	Std dev.	Mean	Std dev.
From 2 to 1	11	104.22	140.75	2.79	3.10
From 3 to 1	3	106.88	64.02	3.77	2.86
From 4 to 1	2	44.51	8.84	1.17	0.70
From 3 to 2	13	96.37	64.72	2.68	2.80
From 4 to 2	4	70.96	33.26	1.40	0.79
From 4 to 3	17	55.19	44.71	1.31	1.31
From 5 to 3	8	56.13	37.92	1.22	1.87
From 5 to 4	30	33.86	27.12	0.34	0.51

Table 6. An ordered logistic model of finance faculty upward mobility

This table presents an ordered logistic model of finance faculty upward mobility. Generally, a positive coefficient means that a high value of the explanatory variable will improve the odds of moving from a lower ranked university to a higher ranked university. Because higher ranked Ph.D. granting institution is ordered lower, a negative coefficient actually improves the odds. The results suggest that a higher research productivity and a better Ph.D. grant institution contribute to higher odds in moving to a higher level institutions and the larger number of years of post-Ph.D. teaching experience contributes less odds in moving to a better institution. Wald $\chi 2$ statistics are in the parentheses. *, **, and *** denote significance at the 10%, 5%, and 1% level, respectively.

	Dependent variable: move up destinations (1, 2, 3, or 4); with 1 as the highest level			
	Model 1	**Model 2**	**Model 3**	**Model 4**
Explanatory variables	**Estimated coefficient**	**Estimated coefficient**	**Estimated coefficient**	**Estimated coefficient**
Intercept 1	-0.3118 (0.1976)	-1.6056 (3.5436)*	-0.3951 (0.3128)	-1.2672 (2.1086)
Intercept 2	0.9932 (2.0777)	-0.3256 (0.1576)	0.9368 (1.8432)	0.0944 (0.0125)
Intercept 3	2.6272 (12.5405)***	1.2646 (2.2875)	2.5800 (12.0329)***	1.7510 (4.0598)**
Total career JF-equivalent pages (up to one year after the move)	0.0186 (11.3882)***		0.0100 (1.1800)	
Per year career JF-equivalent pages since receiving Ph.D. (up to one year after the move)		0.1240 (11.4079)***		0.0728 (2.9907)*
Total career weighted number of articles in JF, JFE or RFS (up to one year after the move)			0.2732 (1.3301)	0.3360 (4.3442)**
Ph.D. granting institution ranking (from 1 to 5; with 1 as the highest level)	-0.7813 (14.4117)***	-0.7584 (13.8457)***	-0.7352 (12.4064)***	-0.7043 (11.6381)***
Year dummy (for 1990-95, d=0; for 1996-01, d=1)	-0.3549 (2.2375)	-0.1837 (0.1854)	-0.2235 (0.2569)	-0.0854 (0.0394)
Year of teaching experience when the faculty moves	-0.0945 (3.5995)*	0.0599 (1.8539)	-0.0935 (3.5358)*	-0.0223 (0.1687)
-2 log likelihood function	200.97	202.06	199.65	197.61
Score test for the proportional odds assumption (χ^2)	9.73	3.66	13.60	9.28
Model predictive ability	77.8%	75.5%	78.5%	78.0%
No. of observations	88	88	88	88

Figure 1. Cumulative percentage of world research productivity in JF-equivalent pages (1990-2001) for 923 academic institutions in 16 finance journals