Hiring Your Friends: Evidence from the Market for Financial Economists*

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ABSTRACT

We study connections in academic hiring in a sample of finance faculty hired after completing their doctoral studies. Departments hire individuals with school connections to other recently hired faculty at a higher rate than would otherwise be predicted. Similarly, schools exhibit an elevated propensity to hire individuals with last names that indicate a similar ethnic background to incumbent department members. School-connected hires tend to publish at a significantly higher rate than expected, while the opposite is true for ethnic-connected hires. These findings are consistent with the presence of positive information effects and negative favoritism effects associated with connected hiring.

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1. Introduction

A rich academic literature considers the process by which individuals secure jobs (e.g., Granovetter (1974)). Much of this work recognizes the fact that personal networks and connections often play a key role in the job search and matching process. Clearly the degree to which these factors aid in the efficiency of job matching has important implications for labor market design and hiring practices. Some authors have identified beneficial channels for hiring based on personal connections or networks, often emphasizing the potential for a decrease in noise as employees and employers evaluate a potential match. However, others have emphasized the potential costs of using personal networks in hiring arising from a loss in objectivity in evaluating connected job candidates as a result of either behavioral biases or agency problems. Who you know may matter for finding a job, but it is not clear if this results in better hiring decisions regarding what you know.

It is empirically challenging to identify the role of connections in the quality of the employee-employer match. Data on personal connections and networks are often incomplete, and objective measures of employee productivity are often unavailable. In a few cases, researchers have been able to locate both types of information for a specific labor market or firm, while in other cases researchers have been able to make indirect inferences by using information on career trajectories, wages, or subjective performance measures.

In this paper, we provide evidence on these issues by studying the academic labor market for newly minted financial economists. Similar to the goals of Oyer (2006, 2008) and Kim, Morse, and Zingales (2009), our hope is to provide both specific evidence to those interested in academic labor markets, but also more general insights that are likely to apply in other labor market settings with similar features. The key advantage of the academic labor market is that rich data on individual measures of productivity are available in the form of information on

research output. In addition, since we have data on the set of individuals in each hiring department, along with the individuals they hire, we are able to construct measures of connections or personal characteristics that may play a role in the hiring process.

We study a comprehensive sample of top-100 ranked finance departments from the early 1990s until the late 2000s. Within this sample, we examine the research performance of finance doctoral graduates during the six-year period after these individuals obtain their first tenure-stream faculty position. We first establish baseline models predicting research success, and then we ask whether measures related to connections between the employer and the hired employee offer incremental explanatory power in these predictions.

As a measure of whether there is a potential direct connection between a hiring department and a hired individual, we examine whether an incumbent member of the hiring department was awarded their doctoral degree from the same school as the new hire no more than four years earlier. If so, we refer to this as a (direct) school-connected hire. Consistent with the notion that connections matter in hiring decisions, we find that the rate of school connected hiring is approximately 50% higher than what would be predicted by chance, even after accounting for many of the stochastic features of the job matching process in this market. When we examine research outcomes, we find that school connected hires publish on the order of 30% more articles in elite finance journals compared to other hires, holding hiring school and doctoral program rankings fixed. This evidence from school connections suggests a bias towards hiring connected individuals which may aid in securing superior research talent.

As a measure of whether there may be a potential indirect connection between the employer and the hired candidate, we consider the role of ethnic clustering in hiring decisions. Using the computer algorithm employed by Pool, Stoffman, and Yonker (2015), we assign faculty last names into broad ethnic categories and characterize the ethnic composition of each

department at the time of the hiring decisions. If a department falls in the top decile for a given ethnicity based on a residual from an ethnicity prediction model and hires an individual from that group, we refer to this as an (indirect) ethnic-connected hire. Similar to school connections, the rate of ethnic connections in hiring is also over 50% greater than would be expected by chance, even after adjusting the data for certain observed stochastic patterns. Interestingly, however, when we consider research success, ethnic connections are associated with an approximately 20% lower level of publication success, holding other observables constant. Thus, while there also appears to be an ethnic factor in hiring, the evidence suggests a possible negative role for this factor in securing better-than-expected research talent.

For school-connected hiring, the direct nature of the connection suggests both the presence of superior information about the candidate (someone in the hiring department knows the hired candidate), but also possible favoritism (someone in the hiring department may push to hire a friend for non-merit based reasons). We refer to these, respectively, as the information factor and the favoritism factor. The positive net relation identified for these hires suggests that the information factor more than compensates for any favoritism. In the case of the ethnic-connected hires, information effects would appear to be negligible, but favoritism may be a major concern. The negative relation identified for these hires suggests a fairly strong negative role arising from favoritism. The finding that school-connected hiring more than overcomes this strong negative relation suggests that the overall information effect in using personal connections in hiring decisions can be quite substantial. While these results are derived in a specific labor market, they more generally suggest substantial benefits and costs in using connections to make hiring decisions in human-capital intensive organizations.

The rest of the paper is organized as follows. In section 2, we survey the associated literature, develop our hypotheses, and outline our empirical strategy. In section 3, we describe

the sample and examine summary statistics. In section 4, we investigate whether the rate of school and ethnic connections is inflated relative to what would be expected. Section 5 examines the role of connections in predicting subsequent research success. Concluding thoughts and observations appear in section 6.

2. Personal Networks in Hiring

2.1 Theoretical considerations

Job matching, as modeled by Jovanovic (1979) and others, can be a noisy process. Simon and Warner (1992) consider the role of personal networks in this search process by assuming that networks reduce noise in information flows between the employers and potential employees. This leads to a number of interesting implications regarding initial job matching and subsequent career trajectories which have been explored by several authors (e.g., Dustmann, Glitz, Schoenberg, and Brücker (2016) and Brown, Setren, and Topa (2016)). In the case of the research-oriented academic labor market, the value of an individual to a hiring organization is likely much more homogeneous than in other markets, as research production is highly individual and there are strong common elements in how competing schools value an individual's research output. If a personal network allows a hiring organization access to superior inside information on a candidate's abilities, we would expect this to lead to the hiring of candidates through the network with greater-than expected talents, holding all other observable data and motivations constant.

Turning to other possible influences of personal networks, a voluminous literature in sociology demonstrates that individuals tend to display homophily in many aspects of their daily lives (McPherson, Smith-Lovin, and Cook (2001)). Consistent with this behavior, several studies of hiring behavior detect evidence of a preference for hiring individuals who are similar

to individuals in the hiring organization (e.g., Giuliano, Levine, and Leonard (2009)). While in some cases this may reflect the aforementioned information benefits from hiring within a network, in other cases an independent preference to hire someone with a certain background or shared experience could lead to a lower hiring threshold and therefore lower ability workers, again holding all other observable data and motivations constant. Some evidence for this effect, which we refer to as favoritism, is provided by Beaman and Magruder (2012).

Some theories of personal networks in hiring also consider the role of networks in leading to a relatively more productive team (e.g., Kugler (2003)). If the way that individuals "fit" together has an effect on output, there could be an additional positive role for personal connections in hiring. This would appear to be a relatively less important factor in academic labor markets, given the highly individual nature of the research that is produced. In fact, Kim, Morse, Zingales (2009) present evidence suggesting that these types of school-related peer or team effects are not present in the labor market and time period we study. Nevertheless, we will briefly consider whether team production/peer effects may drive some of our findings.

2.2 Prior evidence on personal networks in hiring

Topa (2011) provides a general overview of the literature on role of job referrals in the labor market (see also Hoffman (2017)). With regard to the specific issue of the role of referrals from an employing firm's perspective, Fernandez, Castilla, and Moore (2000) and Castilla (2005) report that call center workers who are hired by referral tend to display relatively higher rates of productivity. Using an employer's subjective measure of productivity, Pinkston (2012) provides evidence that workers hired through prior employment networks tend to display superior performance, but this finding does not extend to workers hired through non-professional networks (i.e., friends and family). The Pinkston (2012) evidence suggests the presence of both

positive information effects and negative favoritism effects from referrals that vary with the type of connection.

Two important recent papers exploit rich datasets to closely examine the role of referrals from the perspective of an employer attempting to identify talent. In a study of 9 firms, Burks, Cowgill, Hoffman, and Housman (2015) present evidence that workers hired by referral sometimes outperform others, but only for a subset of the many measures they consider (notably including patenting activity by high-tech workers). They detect other benefits of hiring by referral including lower turnover and recruiting costs. In addition, they uncover a strong preference for firms to hire referred applicants over others. In a careful experiment using an online hiring marketplace, Pallais and Sands (2016) present compelling evidence that referred workers outperform others. This finding appears to be driven both by information effects and team production peer effects.[1]

Our study is closely related to these recent studies and thus has the potential to complement findings that others have recently reported. The distinguishing feature of our study is that we examine small organizations that are very human-capital intensive and for which identifying talent is likely the most important choice in determining organizational success. Since we have data on a large part of this market, we are able to study a comprehensive set of employees and employers, and thus some general inferences about how a labor market of this type clears may be ascertained. To the extent that some of our findings confirm or provide nuance to prior evidence, a more complete picture of the role of personal connections in labor market behavior may emerge.

[1] While relying on referrals may at times be useful in identifying superior candidates, interesting recent evidence by Hoffman, Kahn, and Li (2017) suggests that relying on subjective judgment (discretion) in some hiring decisions rather than objective data can lead to poorer hiring outcomes. This suggests that there are limits to the usefulness of soft information in at least some hiring settings.

2.3 Academic labor markets

Several prior studies examine the labor market for economists in general and/or financial economists in particular.[2] Collectively, these studies provide an overview of how the market for new economists functions (both in general and in the case of finance). In addition, they provide context for many of our later modeling choices in which we focus on publications in elite outlets as the primary measure of productivity.

Oyer (2006, 2008) presents evidence of a relatively efficient allocation of new Ph.D. economists to schools at any point in time, but with some persistent human-capital effects depending on exogenous elements of an individual's initial job assignment. Conley and Önder (2014) report that there is substantial noise in identifying research talent at the time the doctoral degree is granted. Chen, Liu, and Billger (2013) identify a growing international element to the U.S. academic labor market for economists. While some of the research on economists suggests the presence of substantive peer effects in research productivity, the findings of Kim, Morse, and Zingales (2009) suggests that these effects are minimal in the market for financial economists. They identify a sharp downward shift in peer or department-specific effects on research productivity starting in the 1990s, and they attribute this change to information technology developments that have lowered the costs of more geographically distant research collaborations.

Turning specifically to studies that examine how new doctoral graduates are allocated in the finance academic labor market, Flagg, Gilley and Park (2011) and Volkov, Chira, and Premti (2016) examine what factors predict faculty placements into relatively highly-ranked finance

[2] For a comprehensive overview of the market for economists, see Siegfried and Stock (1999). For an insightful discussion of some new developments in this market to enhance the efficiency of matches between schools and candidates, see Coles, et. al. (2010) and Coles, Kushnir, and Niederle (2013).

departments. Not surprisingly, the ranking of the doctoral program is a very strong predictor of placement success. However, several other observable measures of research potential (e.g., conference presentations) and demographic factors also appear to play a role. These studies present a picture of a market in which a candidate's most important objective is to land at a highly ranked school, while a school's main objective is to hire candidates with the most research potential. It appears that there is much noise or soft information in this process, and also that some idiosyncratic factors (e.g. geographical preferences of candidates, teaching preferences of schools) play a secondary role in the market clearing process.

If the new-hire academic market is efficient and driven mostly by the primary objectives of the prospective employee and employer (i.e., to secure the highest ranked job and most talented researcher respectively), we would expect little to matter in predicting post-hire research success except for the quality of the hiring department. As reported by Smeets, Warzynski, Coupé (2006) for the case of economists in general, and by Chan, Chen, and Fung (2009) in the case of the financial economist submarket, hiring department ranking is the most important predictor of a new faculty member's research productivity. However, both of these studies detect some residual positive role of the quality of the doctoral program in predicting research success (i.e., pedigree matters even after controlling for placement). This could arise either because of some market inefficiency, or alternatively the presence of substantive secondary objectives that occasionally results in a candidate accepting a position at a lower ranked school and/or an employer deliberately hiring a candidate with a different-than-usual expected research ability.

2.4 Empirical Strategy

To implement our investigation, we study the finance academic labor market. This choice is largely driven by the availability of detailed data on the composition of hiring

organizations and job candidates for a large number of years. The finance market is more homogeneous than the market for economists in general, so job matching based on desired areas of research emphasis is likely a smaller issue. In addition, doctoral programs in finance are much smaller than in economics, so for most hiring departments there is on average more heterogeneity in where doctoral degrees were earned. These features may enhance our ability to detect a role for connections in job matching.

While we do not provide a formal theoretical model, we scan sketch a framework for thinking about this market and how the factors discussed above may become evident in the data. In any given year, the set of available faculty positions and new doctoral degree faculty candidates can both be viewed as largely exogenous to the considerations we study. Hiring schools search primarily for the candidates with the highest research potential, with some idiosyncratic factors (teaching needs, department-specific research tastes) mattering to a secondary degree. Candidates primarily try to join the highest ranked department they can, with again some secondary factors playing a role (geographic preferences, match of research interests). The market clears in a relatively short period of time in the winter of each year, with schools and candidates collecting information by first reading application materials and then conducting conference and on-campus interviews. Much informal information is also shared via advisor phone calls to/from hiring schools and informal discussions between individual faculty at hiring schools.

If a hiring school has a direct connection with a candidate, they may have superior information on the researcher's potential talents. Thus, compared to the competition, they may have the ability to select better than average candidates from this pool. This informational channel suggests (a) an abnormally high preference to hire school-connected candidates, and (b) better post-hiring research performance for these individuals after they are hired, controlling for

other observables. While there are multiple ways to measure connections that may lead to enhanced information flows, a direct overlap between an incumbent faculty member and the candidate during their doctoral studies would appear to be a particularly useful channel to gather reliable information on research potential (creativity, work-ethic, technical skill, etc.).

Previously reported homophilic tendencies in hiring, coupled with substantial variation in ethnic origins of finance academics, suggests that ethnic networks may also play an important role in hiring decisions in this market. Common ethnic backgrounds may lead to somewhat enhanced information flows, although we would expect this relation to be small given the indirect nature of ethnic connections. On the other hand, favoritism concerns could be much more acute for ethnic connections, as individuals in hiring departments may be willing to sacrifice research potential on the margin to hire someone from a shared ethnic background. Assuming the information channel is small or negligible relative to the favoritism channel for these hires, we would expect to observe (a) an inflated preference to hire ethnic-connected candidates, and (b) poorer post-hire research performance for these candidates after controlling for other observables. We note that favoritism may also play a role in school-connected hiring, so our performance predictions for these hires depend on information factors dominating any favoritism effects.

Our discussion above focuses on the potential information benefits and favoritism costs associated with connection-influenced hiring decisions. These factors both arise because of a role for connections in raising or lowering expected research potential of new hires at the time of the hiring decision. In our empirical analysis, we will use early-career research productivity as a noisy measure of this research potential. It is possible that connections also play a causal role in affecting whether research potential is fully realized after the hire date. In particular, connected individuals may be more productive because of the relative closeness they have with others in

the hiring department (more mentoring, enhanced collaboration opportunities, etc.) These considerations would also predict better-than-expected performance by connected individuals, and peer effects of this type have been discussed and explored by prior authors in settings where team production is important.

While these peer effects are likely important in many settings, there are reasons to expect them to be relatively small in our investigation. First, the academic research process is highly individual. Second, the findings of Kim, Morse, and Zingales (2009) suggest minimal departmental effects for individual research productivity during our sample period. Nevertheless, we do consider this type of effect in our empirical analysis. First, if these effects are large and substantive, we would expect similar positive relations between both of our distinct measures of connections (school and ethnic) and subsequent researcher performance. Second, if connected hiring (particularly via school-connections) reflects a more general "nurturing" environment for young faculty in a department, we would expect to observe better-than-expected performance for the portfolio of other younger researchers in a department around the time of a connected hiring. As we report below, we find little evidence for this prediction in the data.

3. Sample Selection and Characteristics

3.1 Identifying departments, faculty, and rookie hires

We identify all U.S.-located finance departments ranked within the top one hundred departments based on publication output in the four elite journals tracked by Arizona State University in their well-known ranking of finance departments. We include a department if it achieves a top 100 rank based on either 1990-1999 or 2000-2009 publication output. This procedure yields a list of 102 schools, a sample that should include most domestic departments that place a heavy emphasis on research output when hiring new faculty.

For the identified set of departments, we identify the composition of the tenure-stream finance-department faculty each year from 1991 to 2006, where a year reference pertains to the start of the academic year in question (i.e., 1991 means September/Fall of 1991). This sample period is dictated by the availability of various Hasselback directories of finance departments which were published on an approximate bi-annual basis from the early 1990s until the late 2000s.[3] These directories include a list of the faculty at each department at the start of a given academic year, along with information on the year each individual began teaching at the school (start year) and the school and year where they received their doctoral degree (Ph.D school, Ph.D. year).

The intermittent nature of the Hasselback directories, coupled with missing starting year information for some faculty, requires an algorithm to interpolate the composition of the faculty in years between directories when an exact start date is unavailable. The algorithm we use is detailed in the appendix, but none of our main results are affected by modifications to this algorithm, as in most cases the composition of the faculty at any point in time is clear. In the limited number of cases in which we do not have a reported start year, an individual's starting year at a school is the first year that the algorithm assigns the individual to the school.

All tenure-stream faculty who start teaching at a school between two years before and one year after earning their Ph.D. degree are considered rookie hires. This allows for small errors/inconsistencies in reported dates, along with cases in which a person finishes the degree after starting employment, or alternatively secures a position shortly after the degree is completed. The final sample includes 740 rookie faculty hires from 1991 to 2006 in the 102 highly-ranked departments in our sample. Some basic sample summary statistics on the

[3] The Hasselback directories have been used in prior studies of finance departments. See, for example, Borokhovich, Bricker, Brunarski, and Simkins (1995) and Chan, Chen, and Steiner (2002).

departments in the sample aggregated across all sample years are reported in the first few rows of Table 1.

3.2 Measuring research output

Clearly a key factor predicting the research output of new faculty will be the research output of the existing faculty in the hiring department. Our goal is to understand whether a faculty member publishes more or less on the margin after controlling for departmental research profile (and time trends via year effects). To measure a department's research stature at any point in time, we aggregate the entire history of past publications of all individuals who are members of the department as of that point in time.[4] Our default measure is the aggregate number of past publications by all departmental faculty members in three elite finance journals, regardless of school affiliation at the time of the publication, normalized by the number of tenure-stream faculty members.[5] We do not adjust for number of coauthors, citations, or article length, as these adjustments would be quite cumbersome and surely would result in a quality metric that is highly correlated with this simpler variable.

We have experimented with using a slightly less selective set of five elite finance journals and a much broader set of 21 journals. The journals for each of these sets are discussed in the appendix and are identified from prior papers that have studied finance scholarly productivity. We comment on how these alterations affect our inferences when we present our empirical

[4] Note that this procedure gives departments "credit" for publications of an existing faculty member, even when the individual worked at a different school when the research was published. Given the data available to us, it is not feasible to track moves of all faculty across schools in all years. Moreover, in our observation, departmental research expectations and perceptions of department quality are often based on the past success of members of the faculty, independent of whether they were at the current employer when some of this success occurred.

[5] These journals are the *Journal of Finance*, the *Journal of Financial Economics*, and the *Review of Financial Studies*. These are widely recognized as the most elite influential finance journals and constitute 3 of the 4 journals that enter the Arizona State rankings.

findings. Fortunately, our key findings are not sensitive to the set of journals selected, allowing us to sidestep the delicate and at times controversial issue of what constitutes research excellence.

When we measure an individual rookie faculty member's early-career publication output, we follow Conley and Önder (2014) and use the total number of publications during an individual's first six years after the hire (a window corresponding to the tenure clock at many schools) in the same journals that are used to measure departmental quality. In many models, we also control for the quality of the Ph.D. program where an individual received their degree, using the publication output of the finance department at the degree granting school at the time the degree is earned. In cases in which an individual graduates from a non-sample department (foreign programs, unranked departments), we assign the Ph.D. program quality variables a value of 0 and include in the associated models a dummy variable indicating a missing doctoral program quality rating.[6]

Sample summary statistics regarding the measures of department quality and individual publication success are report in the latter rows of Table 1. There is substantial skewness in publication success, so in many cases the means are substantially larger than the medians. Also, not surprisingly, individuals tend to graduate from more elite programs than the department that hires them, so the doctoral program quality metrics substantially exceed the metrics for hiring departments.

3.3 Identifying school-connected rookie faculty hires

[6] In a few cases, the school an individual graduates from is missing in the directories. In all of these cases, we were able to fill in the missing information from internet searches.

For all rookie hires, we search for the presence of a faculty member at the hiring department who graduated from the same degree-granting institution. While there may be connections between rookie hires and individuals who graduated from the same program many years apart (e.g., common advisors, common acquaintances from the program), we expect school connections to be substantially stronger if the individuals overlapped with each other while in the program. Thus, our indicator variable for a school-connected hire assumes a value of 1 when there is at least one existing faculty member who graduated from the same school as the new hire within four years of the rookie hire's degree year. In our robustness checks, we experiment with alternative overlap windows. As we report in the first row of the first column of Table 2, the overall school connected frequency for sample rookie hires is 13.78%.

3.4 Identifying ethnically-connected rookie faculty hires

Following Pool, Stoffman, and Yonker (2015), we use each faculty member's last name and the online calculator they select to assign each last name to its most likely ethnic category of origin. While surely there will be noise and errors in this process, it provides an efficient and objective way of grouping faculty into broad ethnic origin groups. We use the most detailed ethnic categorization that is available for all last names, resulting in an assignment of every last name to one of eight categories. Since three of these categories have relatively small representation in the sample (African, Muslim, and Eastern European, all with under 5%), we group these together into a single group which we label "Other." The other five categories, all with substantial sample representation, are: British (38.29%), West European (15.09%), Greater East Asian (11.86%), Jewish (15.81%), and Indian Subcontinent (8.55%).

We are interested in whether there is a potential ethnic component to new faculty rookie hiring decisions and subsequent new faculty publication success. Our approach for identifying

hiring decisions with a potential ethnic influence is to first determine whether the department at the time of the hiring decision appears abnormally tilted towards a certain ethnicity based on faculty composition. We then examine whether a new hire is from that same ethnic category. To identify departmental ethnic tilt, we predict the expected fraction of the faculty in each ethnicity by conducting a sample wide predictive regression for each ethnicity. The dependent variable in these regressions is the percent of faculty in a given school-year of a given ethnicity, and the independent variables include the departmental research output metric, year dummies, region dummies (dividing the U.S. into six broad geographic regions), a large urban location dummy, and a faculty size measure (additional details in the appendix).

For each ethnicity, we categorize the department as tilted towards that ethnicity in a given year if the corresponding residual from the ethnic regression (actual rate minus predicted rate) is in the top decile. A rookie hire is then coded as an ethnically-connected hire if the individual is assigned to an ethnicity towards which the hiring department is tilted. As we report in the first row of the second column of Table 2, the overall ethnic-connected frequency for sample rookie hiring is 22.70%.

4. Connections and Hiring Decisions

Before turning to the relation between connected hiring and research performance, we consider the important preliminary question of whether we can detect a relation between our connections measures and abnormal rates of job matching. As discussed earlier, there is some evidence of this behavior in other labor markets, but little evidence from higher education markets. To conduct this analysis, we attempt to predict what the distribution of connections would look like if connections were irrelevant for job matching. We then examine whether the observed rate of connections is in the upper tail of this distribution.

In the case of school connections, we compare the sample rate of connected hiring to the rate that would be observed if rookie hires were reshuffled to alternative schools that share certain similarities with the actual school that they join. After reshuffling, we calculate the implied rate of school connected hiring based on these fake hiring outcomes, while maintaining many of the stochastic properties of the actual job assignment procedure.

The first reshuffle assigns every rookie hire to the closest hiring school in ranking in the same year within the five closest ranked degree granting schools supplying sample rookies in the observation year. The second reshuffle selects the school joined by the rookie from the closest ranked degree program in the same year within the five closest ranked hiring schools hiring sample rookies in the observation year. The third and fourth reshuffles are the same as the first and second respectively, but only after first imposing the additional requirement that the assigned school for the reshuffling is in the same broad geographic region as the actual hiring school. The fifth reshuffle simply assigns each rookie hire to the next closest ranked hiring school in the same year.[7]

The implied rates of school connected hiring for each of these job reshuffles are reported in column 1 of Table 2. As these figures indicate, in all cases the implied rates of school connected hiring based on reshuffling are substantially smaller than the actual school connection rate. In most cases, the actual rate is approximately 1.5 times the rate based on the reshuffles, suggesting a bias towards hiring individuals with school connections of substantial magnitude (on the order of 50%). We suspect that this inflated connection rate would be even greater if we

[7] See the appendix for details on the geographic assignment procedure. In reshuffles 1-5 we allow the possibility that multiple individuals take the same position if the position is the closest match according to the imposed criterion. If we instead use a randomization device to sequentially select unique alternative positions using the imposed criterion, the resulting figures are substantively unchanged.

could measure more subtle forms of connections in all hiring decisions, but characterizing more indirect connections is challenging.

To make statements about statistical significance, we create 1,000 reshufflings by randomly assigning rookie hires to schools (including potentially the one they actually join) within the set of schools that fall in the same tercile of hiring school rankings in the sample year while also hiring from the same tercile of doctoral programs in the sample year (resulting in 3 x 3 = 9 bins).[8] For each of these sample reshuffles, we calculate the implied rate of school connected rookie hiring that would have occurred if the individuals joined the school they were randomly assigned to. This provides us with an empirical distribution of school connected hiring rate under a null of no school relation factors in hiring.

As we report in column 1 of Table 2, the mean and median rates of school hiring in these sample reshuffles are substantially smaller than the rate we observe for actual hiring decisions (mean of 9.02%, median of 9.05%, actual rate of 13.78%). Again it appears that the actual rate is inflated on the order of 50%. Moreover, the actual rate is larger than what we observe *in all* 1,000 reshuffles, indicating that the inflated rate is highly significant as it lies in the far upper extreme of the tail of the derived distribution under the null.

In the case of ethnically-connected hires, we calculate the analogous statistics for the five individual reshuffles and the population of 1,000 random reshuffles. Again, the evidence of an ethnic dimension to hiring is compelling as indicated by the figures in column 2 of Table 2. The actual rate of ethnically connected hires is greater than what we find in any of the five individual reshuffles, and also for the entire set all of the 1,000 random reshuffles. Moreover, similar to the case of school connected hiring, the inflation in the actual rate of hiring in the direction of a

[8] In this randomization procedure, each individual is uniquely assigned to one of the filled positions in the department quality - doctoral quality bin to which they belong.

department's ethnic tilt relative to what would be predicted under these alternative assignments appears to be on the order of 50% when we use the random reshuffles (for example, a mean rate with random reshufflings within the 3 x 3 bins of 14.14% versus an actual rate of 22.78%). Again, this inflation rate appears highly significant in a statistical sense in that it falls above the maximum of the observed empirical distribution based on the set of 1,000 reshuffles.[9]

5. Connections and Performance

We now turn to the question of whether connections in hiring decisions are systematically informative in predicting publication success. Since our motivating discussion suggests potentially important differences between school and ethnic connections in hiring, we first conduct our analysis for school connections and then turn to ethnic connections. Our basic approach is to estimate regression models of an individual's publication success as a function of a connection dummy variable and other controls. These controls include hiring department quality, doctoral program quality, and year dummies.

We expect the departmental quality measure to be positive and highly significant, as higher ranked departments should both attract the highest research potential scholars and cultivate/incentivize the research efforts of these new hires to the greatest degree. The sign on the doctoral program quality variable is ambiguous, as it is unclear whether there should be any marginal information content in the quality of the doctoral program. Some prior research, discussed earlier, reports evidence of a positive residual role for doctoral program quality in predicting research success. This could arise if there are substantive frictions in the job matching

[9] One might be concerned that schools or ethnicities specialize in certain types of research, thus leading to an inflated rate of clustered hiring that has little do to with our hypotheses. To investigate, we have created 1,000 reshuffles using a procedure in which each hired individual is randomly assigned to a school that hired in their research area (four distinct areas, categorization discussed below) and that falls in the same hiring department-quality tercile. The results with this alteration are substantively unchanged from what we report in Table 2.

process so that research potential is not fully accounted for by hiring department quality. Conversely, if there is a bias against high research potential individuals from relatively lower schools because of behavioral or institutional factors, the coefficient on the doctoral program quality variable could actually be negative (i.e., holding hiring department quality constant, individuals graduating from lower ranked programs may actually perform better.)

5.1 School connections

As a benchmark initial model, we first estimate a linear regression predicting 6-year publication success of a new hire in the three selected elite journals as a function of hiring departmental quality (based on these same journals) and individual year dummies. As the coefficients in the first column of Table 3 indicate, new rookie hire publication success is, not surprisingly, positively and significantly related to the research stature of the hiring department. The point estimate indicates that expected publication output in a new hire's first six years after the hiring date is .261 articles greater for each additional article-per-faculty by existing faculty members at the time of the hire. This is a reasonably large effect given a sample mean publication success rate of rookie hires reported earlier in Table 1 of 1.19 articles during an individual's first six years in the profession.

When we add the Ph.D. program quality variable in column 2 of Table 3, the coefficient on this added variable is also positive and significant, but small in magnitude (.089). Thus, it does appear that there is marginal positive information content regarding eventual publication success in school-degree quality, even after controlling for hiring department quality. This could

reflect frictions in the matching process in which observably more promising candidates (based on school quality) sometimes systematically under-match to appropriate quality schools.[10]

In the model of column 3, we add the main variable of interest, the school connections variable. Interestingly, this variable is positive and significant, indicating that school connected individuals tend to publish .386 articles more on average than what would be predicted based on hiring school and degree-program school ranking (and year effects) alone. Measured relative to the mean expected publication rate of slightly over one (1.19 sample mean), the implied relation appears to be economically significant (over 30%). This positive and significant coefficient supports the information benefits hypothesis from connected hiring discussed earlier and represents one of the main findings of our study.

To explore the robustness of this finding, in column 4 we estimate a model that also includes a hiring school fixed effect. While the coefficient on this model is positive and of comparable magnitude to the column 3 estimate (.295), the precision of the estimate is much lower and consequently the estimated coefficient is not statistically significant. This is not surprising, as there is not a large level of within-school variation in school connected versus unconnected hiring given the generally sporadic nature of hiring decisions. We have experimented with including a year trend rather than year dummies in a regression with school fixed-effects, but the lack of precision issue remains with this alteration.

Given that the school connection coefficient is not significant when we hold hiring school identity constant, it is important that our models include all relevant school-related variables that may be correlated with the publication success of new hires. Toward that end, we have

[10] There are many frictions that could generate this result including incentive problems at top Ph.D. schools with multiple strong candidates, agency problems at hiring schools with some individuals seeking to avoid stronger candidates, or idiosyncratic geographic preferences by promising scholars that result in them at times choosing schools lower in the academic hierarchy than the highest rank school available to them. Our main findings regarding school/ethnic connections and research success are unaltered if we drop the Ph.D. quality variable.

experimented with including quadratic terms for both hiring school and Ph.D. school quality in the main column 3 model. The coefficient on the school connection variable remains positive and significant at the 5% level with these alterations.

It is possible that larger departments tend to have different success rates with new hires, even after controlling for departmental quality. Larger departments also have more potential for a school connected hire given their larger set of incumbent faculty. To investigate, we have experimented with modifying the column 3 model to also include the size of the department (measured as the number of tenure track faculty). Alternatively, we have included the number of faculty hired at that department in the prior two or three years as this variable may be more closely related both to school connected hiring and new faculty productivity. The results with these variables added, either one at a time or together, are substantively equivalent to what we report in column 3 of Table 3.

It is possible that researchers within certain subareas of finance tend to cluster in certain hiring schools and/or Ph.D. programs, and publication rates may be different for different subareas if some research genres have more publication obstacles or a different set of targeted publication outlets (e.g., economics journals). To allow for this possibility, we read the dissertation abstract of every new hire in our sample and assign their research area into one of four mutually exclusive bins based on an inspection of this abstract (empirical corporate, theoretical corporate, empirical investments, theoretical investments). The assignment procedure is admittedly subjective, but it was independently coded by at least two individuals familiar with the general language of academic finance (the authors and/or senior doctoral research assistants with essentially no disagreements in the selected assignment). When we add fixed effects for each of these research genres to the model, their inclusion has no substantive effect on the school connection coefficient in the column 3, Table 3 model.

One may be concerned about the reported standard errors given non-normality in the error term and skewness in publication rates. In particular, these features may reduce the accuracy of standard errors that are based on asymptotics in a sample of only moderate size. To account for this possibility, we create 1,000 samples with all data unaltered except the school connection indicator variable. This variable is then randomly assigned to assume a value of 1 for the same number of observations as in the actual data. We estimate the column 3, Table 3 model for each of these 1,000 samples and use the estimated coefficients on the school connection variable to derive a coefficient distribution under the null of no school connection effect. When we do this, the actual coefficient reported in column 3 of Table 3 lies in the top 1% of the derived coefficient distribution, consistent with the reported 5% two-sided significance levels reported in the table relying on the usual robust standard errors.

Since there are many potential alternative ways to measure a new hire's research productivity, we consider measures based on publications in the slightly larger set of five elite journals, and a much larger set of 21 journals (see appendix for details). To maintain consistency, in these models, the research productivity of hiring departments and Ph.D. programs is measured using the corresponding set of journals. As we report in column 5 and 6 of Table 3, our results using these larger sets of journals are similar to our earlier findings and suggest a positive and significant role for school connections in predicting publication success.

5.2 Ethnic connections

The preceding findings on school related connections are consistent with the notion that there are substantive information benefits of hiring someone who is directly connected to an existing faculty member via a relatively recent school connection. To the extent that there may also be some agency costs arising from favoritism or loss of objectivity in these types of hiring

decisions, the findings above suggest that the information benefits exceed these costs. We now turn to considering the role of ethnic connections with the hiring department in predicting publication success. As discussed earlier, for these hiring events, we expect information benefits to be either small or negligible, while favoritism costs are potentially quite substantial.

Our approach to investigating the role of ethnic connections in publication success parallels our school connection analysis. We estimate the same types of models with publication success of the new hire incorporated into the dependent variable and the ethnic connection variable as the key explanatory variable of interest. In these models, we include the previously discussed control variables related to hiring department and doctoral department research output along with year effects. In addition, since there may be differences in publication rates by ethnicities if they cluster into different subareas and/or target different outlets, we include in these models fixed effects for each of the six ethnic categories (estimates not tabulated, findings on the ethnic connection variable are not sensitive to inclusion of these effects).

In column 1 of Table 4, we present our baseline model of the role of ethnic connections in predicting new-hire publication success. Interestingly, the coefficient on the ethnic connections variable is negative and significant. The magnitude of the coefficient is comparable to that of the positive coefficient detected earlier for school connected hires. The coefficient predicts that new hires from ethnicity categories towards which a department is tilted tend to publish -.289 fewer articles on average than what would be predicted based on hiring school and degree-program school ranking alone (a greater than 20% reduction measured relative to the sample mean rate of 1.19 articles). This negative estimate relation is consistent with the favoritism costs hypothesis discussed earlier in which employers favor candidates with observable personal characteristics towards which a department may have a bias.

We have explored the robustness of the negative estimate on the ethnic connection variable in the column 1, Table 4 model using the same set of robustness checks discussed earlier. None of the untabulated robustness checks discussed above in the context of school connections reduces the significance on the estimated ethnic connection coefficient below the 10% level. Turning to some of the tabulated checks, in column 2 of Table 4 we include a hiring school fixed effects into the estimated ethnic connections model. As in the case of school connections, there appears to be insufficient variation within a school to precisely estimate an ethnic connection coefficient in this model. When we use the elite set of five journals or the broad set of 21 journals our results are quite similar to the elite three journals, as the ethnic connection variable in columns 3 and 4 of Table 4 remains negative and significant at the 5% and 10% levels respectively.

5.3 Possible peer/departmental effects

The preceding findings are consistent with information factors and favoritism factors that (a) lead to an employer preference to hire connected individuals, and (b) change the average anticipated research abilities of connected hires relative to others. Since information effects should result in better-than-average ability, while favoritism effects should result in an opposite outcome, it appears that there are substantive positive and negative elements to hiring connected individuals in the faculty market that we study. We suspect that information plays a larger role in school-connected hires while favoritism plays a larger role in ethnic-connected hires. The data line up nicely with this suspicion, as the net relation between research performance and connections is positive in the former case and negative in the latter.

In addition to the information and favoritism hypotheses, several papers surveyed earlier posit that connected hires may be more productive because the connection causally influences

the individual's productivity. This could arise if connected hires work better with other parts of the team (peer effects). Alternatively, connections may proxy for an omitted variable measuring how much the hiring organization supports its new hires, which in turn could causally result in increased productivity (a department nurturing effect).

While it is impossible to completely evaluate these alternative hypotheses, there are several reasons to suspect that they are not significant influences underlying our findings. First, the research process is highly individual, and thus peer/team effects are likely to be small compared to other contexts. Second, Kim, Morse, and Zingales (2009) find little evidence for the presence of substantive departmental effects on research productivity in finance research starting in the 1990s. Third, these effects would suggest a positive relation between both school and ethnic connected hires and performance, while we find a positive effect in the former case but a negative effect in the latter.

Given the positive relation we detect between connections and performance for school-connected hires, it remains possible that the school connection variable proxies for whether a school is particularly committed to the success of its younger faculty (thus deferring to them more in hiring decisions and mentoring them more in research). To investigate, we create an alternative dependent variable measuring the research success of a department's portfolio of other young researchers. In particular, we select all other rookies hired in the same department at most 3 years before the rookie hire (excluding the rookie herself). We then create a variable measuring the sum of the research output of this group in the elite three journals over the same 6-year window as the corresponding rookie hire, normalized by the number of members of the group.

When we regress this junior-faculty research success measure against the school-connection variable (of the sample rookie hire) as in column 3 of Table 3, the coefficient on the

connection variable is quite small in magnitude and statistically insignificant.[11] Our findings are similar if we use a 4 or 5 year window to identify a department's younger talent. Thus, it does not appear that school-connected hiring is associated with departments that have a portfolio of other young researchers that outperform expectations given the department's ranking. This casts doubt on the possibility that our findings on school connections and rookie publication success are driven by departmental nurturing/support effects.

6. Conclusion

We present evidence on the role of connections in hiring and post-hire employee productivity by studying the academic labor market for new doctoral graduates in financial economics. We consider direct connections based on whether an existing member of a hiring department recently graduated from the same school as a new hire, and indirect connections based on ethnic similarities in last names between hired candidates and the hiring department. We hypothesize that connections in this market may benefit the employer by increasing the precision of their information regarding a candidate. At the same time, connections may also entail costs, as the employer may lose objectivity in evaluating connected candidates leading to favoritism. We expect these information benefits to be relatively large and favoritism costs relatively small for school-connected hires, with the opposite expectation for ethnic-connected hires.

In a sample of 740 newly minted doctoral graduates from the 1990s and 2000s, we detect strong evidence that both types of connections increase the probability that a candidate is hired. The rate of both school and ethnic connected hiring appears to be about 50% higher than would

[11] Since we have multiple faculty grouped together in these models, we exclude a measure of the Ph.D. program quality in this regression. Our findings regarding school connections are unaltered if we instead include the equally-weighted average of Ph.D program quality for programs where these faculty earned their degrees.

be predicted given other features of the data. Similar to other markets, academics appear to display substantial homophily in their job matching decisions.

Turning to the consequences of this propensity to hire connected individuals, our evidence is consistent with the presence of substantive information benefits and favoritism costs associated with connected hiring. In particular, school connected hires appear to publish on the order of 30% more in elite publication outlets than would be expected based on other observables (hiring school quality, doctoral program quality, year), suggesting large information effects that substantially outweigh any favoritism. In contrast, ethnic connected hires publish on the order of 20% less in elite outlets than would otherwise be expected, again after controlling for observables. For these hires, any small information benefits that are present from connected hiring appear to be outweighed by favoritism costs. We also consider, but detect no evidence for, the possibility that the relation between research productivity and connections we identify is driven by peer or team production effects or an omitted departmental nurturing factor.

While these results are from a particular labor market, they complement recent evidence reported by Burks, Cowgill, Hoffman, and Housman (2015) and Pallais and Sands (2016) from other specialized hiring settings. Those authors detect some productivity benefits to hiring via connections, and they attribute those effects to information and/or peer benefits effects. Our results suggest that when team production is relatively unimportant, information benefits from connected hiring certainly can be quite substantial, at least in a market in which individual human capital is the key input into organizational success. However, as our ethnic connection results illustrate, favoritism effects can at times dominate information benefits, so a blanket recommendation to emphasize connected hiring of all types is far from warranted. Given our findings, further research into how firms balance these competing benefits and costs across types of firms, positions, and connections is certainly warranted.

Appendix

Faculty Composition Algorithm

The Hasselback directories were published from the early 1990s until 2008 and include information from surveys sent to departmental administrators/offices in all domestic finance departments. Inspection of the directories reveals that the reported composition of the faculty is for an academic year earlier than the year in the directory title (the actual year of the data is referred to as the directory year). The directories were published every two years or, in one case, three years apart.

If an individual tenure-stream faculty member is listed in two successive directories, we assume they were at the school for the entire intervening window. If an individual moves between schools and the directories list a start year for the new school, we assume the individual was at the new employer as of the start year, and at the prior employer up to the earlier of (a) the last year they are listed with the prior employer plus one, and (b) the start year at the new employer minus one.

The majority of cases are accounted for using the preceding algorithm and thus in most cases it is clear when a move was made from one department to another. However, there remain some cases with a slightly higher degree of ambiguity. If an individual moves between schools as revealed by two successive directories but the directories do not list a start year at the new school, we assume the individual was at the new employer as of the directory year and at the prior employer up to the last directory they are listed with the prior employer plus one year. If an individual is listed in a directory and never shows up again in any later directory, we assume the individual was at the employer for one additional year past the directory year listing. If an individual is listed in two non-consecutive directories, we assume they joined the new employer as of the start year (if reported) and otherwise as of the directory year. In these cases, we assume the individual was at the prior employer up to the last directory year they are listed with the prior employer plus one (unless this falls after the start year at the new employer). In any cases in which a person is not assigned to a school for a given year according to the above algorithm, we assign their location in that year as missing and do not attribute their human capital/publications/identity to any school.

The algorithm above is our default algorithm for assigning faculty to departments. However, we do experiment with some alternatives including: (a) the algorithm outlined above but ignoring all start dates and assuming the directory listing year is always the start date, (b) the algorithm outlined above but always assuming the individual left the prior employer in the last directory listing year rather than sometimes carrying this forward one year, and (c) the algorithm outlined above but assuming both that the directory listing year is always the start year and that the individual left the prior employer in the last directory listing year. As we mention in the text, none of our main findings in the paper are substantively changed using these alternative assignment algorithms.

Identifying Journals and Publications

The three publication outlets (JF, JFE, RFS) selected in our default performance metric are widely recognized as the most influential journals in the finance field. When we consider five journals, we add the *Journal of Financial and Quantitative Analysis* (JFQA) and the *Journal of Business* (JB). The JFQA is included as the fourth influential journal in the Arizona State rankings. The JB, which ceased publication right at the end of our sample period, was often included in rankings of highly regarded (top 5) finance journals. See, for example, Arnold, Butler, Crack, and Altintig (2003) and Kim, Morse, and Zingales (2009).

To obtain our comprehensive set of 21 journals, we start with the 16 "core journals" listed in Chan, Chen, and Steiner (2002). We drop from this list *Financial Analysts Journal* and *Journal of Portfolio Management* as data on these journals was not available from Research Papers in Economics (RePEc). This leaves us with a set of 14 journals. In addition to this list, we add the top three economics journals as identified by Kim, Morse, and Zingales (2009) (*American Economic Review, Quarterly Journal of Economics, Journal of Political Economy*), the two other highly ranked finance journals identified by Chen and Huang (2007) (*Journal of Corporate Finance, Journal of Financial Markets*), and the one other high impact economics journal identified by Arnold, Butler, Crack, and Altintig (2003) (*Econometrica).* Finally, we add the *Review of Finance* which is a newer journal with an impact factor that is higher than several others on our list. While no list is perfect, the resulting list of 21 journals should include the vast majority of the top and medium level outlets targeted by finance scholars.

For each individual, we identify all of their publications and the year of publication using the RePEc listing of publications by author. We exclude short notes, comments, and errata by only recording publications that are at least 10 pages in length.

Identifying Geographic Regions and Urban Areas

For some of the procedures described in the text, we utilize geographic information related to the school's location. In particular, we code a geographic region indicator based on which of six broad geographic regions contains the school's campus. The broad regions are as follows: Northeast (Washington D.C., Massachusetts, New York, Pennsylvania, New Hampshire, Virginia, New Jersey, Connecticut, Delaware, Maryland, Rhode Island), Midwest (Michigan, Missouri, Indiana, Iowa, Illinois, Minnesota, Wisconsin, and Ohio), Southeast (South Carolina, North Carolina, Georgia, Florida, Louisiana, Alabama, Kentucky, and Tennessee), Southwest (Arizona, Oklahoma, and Texas), Mountain (Utah and Colorado), and West Coast (California, Oregon, and Washington). We also code a large urban dummy variable based on whether or not the school is located within 50 miles of a city that is ranked in the Top 25 in population based on 2006 population.

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Table 1 – Sample Summary Statistics

	All Years: 1991-2006
Number of sample finance departments	102
Number of rookie hires	740
Mean department size	15.11
Median department size	14
Mean department quality	2.05
Median department quality	1.57
Mean quality of doctoral school	3.28
Median quality of doctoral school	3.16
Mean success of rookie hire	1.19
Median success of rookie hire	1.00

Note.- The sample includes all U.S. located finance departments ranked in the top 100 based on the Arizona State University Finance department rankings for either 1990-1999 or 2000-2009 with data available in the Hasselback finance faculty directories. We collect data on all departments as of the start of the academic year from 1991 until 2006. Rookie hires are all individuals who join a department no more than one year after or two years before completing their doctoral degree. Department size is the number of tenure-stream faculty members as of the start of the academic year for those schools. Departmental quality is the sum of all past publications by current faculty members in three elite finance journals (JF, JFE, RFS) as of the start of the academic year normalized by the number of faculty. Quality of the doctoral school is the same metric for the school that each rookie hire graduated from in the year that they graduate. Doctoral schools that are not ranked have missing values for this variable. Success of each rookie hire is an individual's aggregate number of publications in the three elite journals during the first six years in the profession after joining the hiring school. All sample summary statistics are calculated treating each rookie hire and the associated school/individual characteristics as a single observation.

Table 2 – Rate of Connected Hiring for Rookie Finance Faculty

	School Connected Hiring Rate (1)	Ethnic Connected Hiring Rate (2)
Rate in Actual Sample	13.78%	22.70%
Rate in sample reshuffle #1	9.88%	15.98%
Rate in sample reshuffle #2	8.36%	16.85%
Rate in sample reshuffle #3	11.10%	18.16%
Rate in sample reshuffle #4	9.15%	16.23%
Rate in sample reshuffle #5	8.54%	17.90%
Mean rate in 1,000 random sample reshuffles	9.02%	14.14%
Median rate in 1,000 random sample reshuffles	9.05%	14.18%
Number of 1,000 reshuffles with rate > actual rate	0	0

Note.- School connected hires are all cases in which a rookie hire is assigned to a school with an existing faculty member from the same doctoral program who graduated within 4 years of the rookie hire. Ethnic hires are all cases in which a rookie hire is assigned to a school with a tilt in ethnic composition that places the school in the top decile for the same ethnicity as the rookie hire. Ethnic tilt is based on the residuals from a regression model predicting departmental ethnic composition with all faculty last names are assigned to an ethnicity using an online calculator. The actual rates reported in the first row are for the true schools that rookie hires join. Other statistics are based on alternative job assignments that assign individuals to alternative employers. Sample reshuffle #1 assigns individuals to the closest hiring school in ranking within the destinations of the five closest-ranked degree granting schools supplying sample rookies in the observation year. Sample reshuffle #2 assigns individuals to the school joined by the rookie from the closest ranked degree program in the same year within the five closest ranked hiring schools hiring sample rookies in the observation year. Reshuffles #3 and #4 are analogous to the first and second reshuffles with the added requirement that the selected assigned school for the reshuffling is in the same broad geographic region as the actual hiring school. Reshuffle #5 simply assigns each hire to next closest ranked hiring school in the hiring year. The 1,000 reshufflings lines present statistics based on a 1,000 sample reshuffles in which each rookie is randomly assigned to a school within the set of schools that fall in the same tercile of hiring school rankings while also hiring from the same tercile of doctoral programs (3 x 3 = 9 bins). In each random reshuffling, we allow individuals to be assigned to the actual school that they join and the likelihood of assignment to each school in the bin is equal (i.e., we use a uniform distribution).

Table 3 – School Connections in Hiring and Rookie Finance Research Productivity

	(1)	(2)	(3)	(4)	(5)	(6)
School connection with hiring dept.			0.386**	0.295	0.412**	0.544**
			(0.181)	(0.201)	(0.200)	(0.247)
Hiring department quality	0.261***	0.247***	0.234***	0.023	0.147***	0.091***
	(0.044)	(0.041)	(0.040)	(0.150)	(0.034)	(0.029)
Ph.D. school quality		0.089***	0.085***	0.084**	0.073***	0.049
		(0.029)	(0.029)	(0.037)	(0.026)	(0.031)
Unranked Ph.D. program dummy		-0.287*	-0.257	-0.354*	-0.204	-0.214
		(0.168)	(0.161)	(0.190)	(0.199)	(0.280)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
School fixed effect	No	No	No	Yes	No	No
Number of Obs.	740	740	740	740	740	740
Pseudo R^2	0.118	0.145	0.152	0.578	0.109	0.064
Research Quality Measures	Elite 3	Elite 3	Elite 3	Elite 3	Elite 5	All 21

Note.- All coefficients are for linear regression models predicting each sample rookie finance faculty's publication output during their first six years at the hiring school. Robust standard errors clustered at the hiring school level are reported in parentheses under each coefficient estimate. In models 1-4, publication output for the dependent and independent variables is measured based on the number of publications in three elite finance journals, while in model 5 (model 6) output is based on publications in five elite (a broad set of 21) journals. The school connection variable is a dummy variable that assumes a value of 1 if the rookie graduated from a school from which an incumbent faculty member also graduated from within the prior four year period. Hiring department (Ph. D. school) quality is a variable measuring faculty size-normalized past publication output of the incumbent faculty at the hiring department (Ph.D. program the individual graduates from) as of the time of the hire. For Ph.D. programs without publication data we assign this variable a value of 0 and code the unranked program dummy variable as a 1. *Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level

Table 4 – Ethnic Connections in Hiring and Rookie Finance Research Productivity

	(1)	(2)	(3)	(4)
Ethnic connection with hiring department	-0.289** (0.130)	-0.102 (0.151)	-0.370** (0.145)	-0.296* (0.177)
Hiring department quality	0.253*** (0.039)	-0.001 (0.156)	0.164*** (0.033)	0.105*** (0.039)
Ph.D. school quality	0.080*** (0.029)	0.079** (0.035)	0.062** (0.026)	0.046 (0.030)
Unranked Ph.D. program dummy	-0.319* (0.175)	-0.385** (0.194)	-0.304 (0.208)	-0.305 (0.283)
Year dummies	Yes	Yes	Yes	Yes
School fixed effect	No	Yes	No	No
Ethnicity fixed effects	Yes	Yes	Yes	Yes
Number of Obs.	740	740	740	740
Pseudo R^2	0.494	0.588	0.505	0.554
Research Quality Measures	Elite 3	Elite 3	Elite 5	All 21

Note.- All coefficients are for linear regression models predicting each sample rookie finance faculty's publication output during their first six years at the hiring school. Robust standard errors clustered at the hiring school level are reported in parentheses under each coefficient estimate. In models 1-2 publication output for the dependent and independent variables is measured based on the number of publications in three elite finance journals, while in model 3 (model 4) output is based on publications in five elite (a set of 21) journals. The ethnic tilt variable is a dummy variable that assumes a value of 1 if the rookie has a last name that our ethnic calculator assigns to an ethnic category (six categories described in text and appendix) towards which the department lies in the top sample decile based on the residual from a regression model predicting a department's ethnic composition. Hiring department (Ph. D. school) quality is a variable measuring faculty size-normalized past publication output of the incumbent faculty at the hiring department (Ph.D. program the individual graduates from) as of the time of the hire. For Ph.D. programs without publication data we assign this variable a value of 0 and code the unranked program dummy variable as a 1. *Significant at the 10% level, **Significant at the 5% level, ***Significant at the 1% level