

Performance Isn't Everything: Personal Characteristics and Career Outcomes of Mutual Fund Managers

Anna Scherbina

with Brad Barber and Bernd Schlusche

May 7, 2018

Q Group Spring Seminar

Objectives

- Mutual fund managers are among the highest compensated finance professionals
 - Why are some populations underrepresented?
 - Are underrepresented populations treated fairly?
 - Focus predominately on female managers
- Objectives of the paper:
 - Do managers' personal characteristics affect their career outcomes?
 - Why there are so few women in finance?
- Mutual fund industry provides an ideal setting for a study of whether personal characteristics influence career outcomes
 - Managers' career trajectory is observable
 - Skill is observable
 - No self-selection in reporting
 - A large cross-section and time series of fund managers and mutual fund families

Preview of the results

- Past performance is a strong predictor for career outcomes
 - However:
- Female managers are significantly more likely to prematurely leave the industry for non-performance-related reasons
- Women are less likely to get promoted and manage less money
- Female co-managers fare worse than female solo managers
- Women are not obviously singled out for poor (good) performance
 - But evidence that female solo managers leave disproportionately following low fund flows
- Among identical co-managers, women have worse career outcomes

Preview of the results: other manager characteristics

- Age discrimination?
 - Young managers more likely to be promoted and less likely to leave the industry prematurely relative to mid-career peers
- Managers from top schools are more likely to be promoted
 - Solo managers from top schools more likely to be promoted following high returns
- Foreign managers less likely to be promoted

Prior literature on workplace discrimination

- Literature from Economics and Organizational Behavior:
 - The influence of gender, race, age or, generally, underrepresented minority status on entry into the profession, salaries, promotions, workplace attitudes and marketplace negotiations
 - Studies are based on data from sports industry, surveys, lab experiments, or unique natural experiments
 - The literature differentiates between statistical and taste-based discrimination

The influence of gender: Taste-based discrimination?

“The Implications of Marriage Structure for Men’s Workplace Attitudes, Beliefs, and Behaviors toward Women” by Desai, Chugh and Brief (*Administrative Science Quarterly*, 2014) (data: A survey of 993 males in heterosexual marriages)

- Men in traditional marriages:
 - view the presence of women in the workplace unfavorably
 - perceive that organizations with a large number of women operate less smoothly
 - deny qualified female employees opportunities for promotions more frequently than do other married male employees (based on experiment with fake resumes)
- Causality?
 - men who are single and subsequently enter traditional marriages become less positive on women in the workplace

The influence of gender (continued)

“Orchestrating Impartiality: The Impact of ‘Blind’ Auditions on Female Musicians” by Goldin and Rouse (*AER*, 2000) (data: roster and audition records)

- Using individual fixed effects, find that a screen increases the odds that female musicians will advanced in auditions and be hired

The influence of gender (evidence from academia)

- “Does Science Promote Women? Evidence from Academia 1973-2001” by Ginther and Kahn (2006) (data: Survey of Doctoral Recipients in Science, Life Science, Physical Science and Engineering)
 - Women are slightly less likely to get tenure in Life Science
 - Women are less likely to be promoted to full professor in Science and Life Science
 - Productivity: government support, total papers, and total publications
- Other papers:
 - In social sciences and humanities, females have a lower chance of being promoted and lower salaries, after controlling for productivity, demographic characteristics, and family status
 - Salary gap increases at the full professor status (12% unexplained salary gap at full professor level)

The influence of gender: Working in teams

“Recognition for Group Work” by Sarsons

- Women assistant professors in economics are less likely to get tenure the more they co-author, but this finding does not apply to men

Evidence from the University of Chicago MBAs

“Dynamics of the Gender Gap for Young Professionals in the Financial and Corporate Sectors” by Bertrand, Goldin and Katz (*American Economic Journal: Applied Economics*, 2010)

- Data: web-based survey of the 1990-2006 graduating classes + school transcripts
 - Survey questions: annual earnings on first and last year of each job, hours worked, reason for choosing/leaving a job, marital status, spouse's education, employment status and earnings, no. of children
 - 31% response rate
 - 24% of Chicago MBA graduates female
- Female graduates earn less on the first job, and the wage gap increases over time

The influence of gender (continued)

“Gender Gaps in Performance: Evidence from Young Lawyers” by Azmat and Ferrer (JPE, forthcoming) (data: longitudinal survey data from *After the JD* from the American Bar Foundation and other legal associations)

- Female lawyers earn less and are less likely to be promoted to partner level
- There is a gap between male and female lawyers in hours billed and new client revenue, as well as in career aspirations
- Difference in performance has a substantial explanatory effect on the observed gender differences in earnings and promotions

Related mutual fund literature

- Khorana (*JFE*, 1996)
 - 1979-1992, 339 manager replacements. Prob. of replacement is negatively related to current and previous year's return
- Chevalier and Ellison (*QJE*, 1999)
 - 1992-1994; only solo managers of growth and growth and income funds
 - annual data, 1,320 manager-fund years; 242 terminations, 38 promotions
 - terminations are sensitive to fund alpha and this sensitivity is higher for younger managers; no significance for promotions
 - fund flows not considered

Related mutual fund literature (continued)

- Hu, Hall, and Harvey (2000)
 - 1976-1996, only growth mutual funds (216 funds); 307 manager changes; 41 promotions and 41 demotions
 - demotions are significantly negatively related to previous year (year- t) returns (returns over years $t - 1$ and $t - 2$ are insignificant); no relation to fund flows
 - promotions are positively associated with year $t - 1$ returns (returns in years t to $t - 2$ are insignificant; no relation to fund flows)
- Evans (2009)
 - 1995-2002, US domestic equity funds; 1,041 promotions and 964 demotions
 - fund alphas are significant predictors of promotions and demotions; fund flows are not

Our paper

- “Because performance is easy to measure, mutual funds are the fairest employers” (from a MF manager interview)
- Are promotions and demotions in the mutual fund industry explained by nothing else but performance measures?
 - still a question of skill vs. luck
 - managers’ personal attributes may influence how their performance is perceived
- The answer will shed light on how career trajectories are determined in less transparent organizations

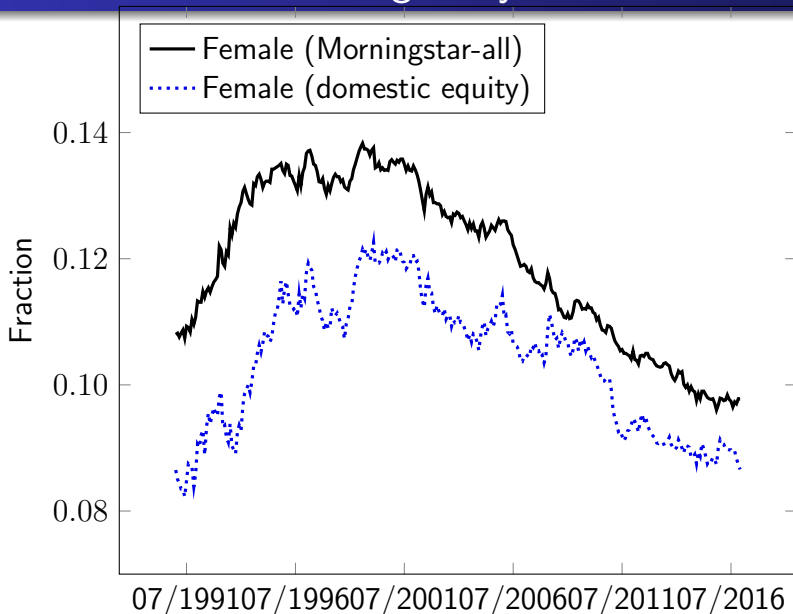
Datasets

- Morningstar datasets:
 - ① Manager information:
 - name, gender, birth year, BA school, MBA school, MA school, PhD school, Other degree school, years of graduation, CFA certificate
 - ② Manager employment history in the mutual fund industry:
 - employment start and end at each mutual fund
 - no other employment is observable
 - ③ Fund information
- CRSP Mutual Fund Dataset (monthly):
 - Fund TNAs, returns, fees, investment objective, mutual fund family
- Remove index funds
- Main analysis 1992-2016, dictated by the availability of fund returns data from CRSP

Determining manager characteristics

- Morningstar: 20,840 unique managers (July 1924 - March 2017)
- School information is available for 67.76% of managers
- Country of origin: based on school location
- Age: based on DOB or year of graduation (BA: 22 y.o., MBA, MA, Other degree: 26 y.o., Ph.D.: 29 y.o.)
 - Age is available for 33.29% of managers
- Months of experience: number of months since first started managing funds
- Advanced degree: MBA, MA, Other degree, or Ph.D.
- Top school: Top-10 university, college or MBA program

Fraction of female managers by date



Fraction of female managers in U.S., by country

- Gender gap measure from World Economic Forum, Global Gender Gap Report 2016

Country	Fract. female	Fem.repr. rank	Total mgrs	Global Gender Gap Index				
				Overall	Econ	Edu	Health	Polit
Mexico	0.000	10	11	66	122	51	1	34
Denmark	0.000	10	7	19	34	1	106	29
Chile	0.000	10	4	70	119	38	39	39
Pakistan	0.000	10	3	143	143	135	124	90
...								
United States	0.117	6	12,452	45	26	1	62	73
...								
Czech Republic	1.000	1	2	77	89	1	40	85
Latvia	1.000	1	1	18	18	1	1	38
Lithuania	1.000	1	1	25	25	1	40	43

Do women self-select into finance based on culture? Suggestive evidence from U.S. mutual funds

$$\text{Female repr. rank}_{Country} = \alpha + \beta \times \text{Gender Gap Measure}_{Country} + \epsilon$$

- Overall gender gap index: $\beta = 0.021$ (t-stat= 1.98)
- Economic gender gap: $\beta = 0.033 \times 10^{-3}$ (t-stat= 3.16)
- Educational gender gap: $\beta = 0.032 \times 10^{-3}$ (t-stat= 3.32)
- Health gender gap: $\beta = 0.022$ (t-stat= 2.23)

Comparison between male and female managers

- Date range: January 1992 - December 2016

	Male	Female	Diff	<i>t</i> -stat
Fract. of mgr-months	0.877	0.123		
No. of unique mgrs	11,119	1,550		
Years in industry	10.015	8.986	-1.029	(-62.63)
Age	48.159	45.913	-2.246	(-58.46)
Age first started	32.455	31.653	-0.802	(-2.49)
Under 35 y.o.	0.054	0.055	0.001	(0.87)
Over 55 y.o.	0.218	0.119	-0.099	(-63.13)

Comparison between male and female managers

	Male	Female	Diff	<i>t</i> -stat
Foreign	0.123	0.146	0.022	(2.13)
MBA	0.405	0.343	-0.062	(-5.02)
MA	0.128	0.132	0.003	(0.40)
PhD	0.032	0.027	-0.004	(-1.03)
Other degree	0.031	0.016	-0.015	(-4.46)
Top school	0.387	0.395	0.008	(0.52)
CFA	0.417	0.378	-0.039	(-3.08)
No. of sole-managed funds	0.557	0.478	-0.079	(-14.54)
No. of co-managed funds	2.820	2.730	-0.089	(-7.28)
Managed TNA (\$,mil.)	1,438	1,117	-321	(-28.97)
No. of mgrs in fund family	43.884	48.616	4.733	(34.80)
Prob. empl. gap \geq 6 months	0.001	0.001	-0.000	(-0.60)
Length of empl. gap (yrs)	2.147	2.236	0.089	(0.68)

Fund types

Fund category	Fraction female
Domestic equity	0.10
Soc. resp. & tax-managed	0.21
Industry-focused equity	0.18
Real estate	0.06
Corporate bonds	0.11
Government bonds	0.14
Commodity	0.05
International	0.13

Defining firings, demotions and promotions

- **Permanent departures (firings):**
 - Permanently disappear from the dataset and be <55 years old or <25 years of experience
- **Career changes: Growth in the number of managed funds**
 - Number of co-managed funds calculated as $\frac{1}{num_managers}$

Example:

- If a manager sole-manages fund A and co-manages fund B with one manager, total number of managed funds = 1.5
- If the manager leaves the sole-managed fund and gains no additional funds, growth = $\frac{-1}{1.5} = -.67$ (**demotion**)
- If the manager instead gains another sole-managed fund, growth = $\frac{1}{1.5} = 0.67$ (**promotion**)

Measuring performance

Calculated over the trailing 12 months

- **Returns: CAPM alpha**
- **Fund Flows:** Change in the fund TNA that is unexplained by the return:

$$Fund\ Flow_t = \frac{TNA_t - TNA_{t-1}(1 + ret_t)}{TNA_{t-1}} \times 100\%$$

- Frazzini and Lamont (2008): fund flows are related to investor sentiment
 - Rank CAPM alphas and fund flows within each IOC, 1 to 10
- For managers with multiple funds, weigh performance in each by $\frac{1}{num_managers}$

Example: sole manager of fund A and one of 2 co-mgrs of fund B

- weight on fund A: $\frac{1}{1+1/2}$
- weight on fund B: $\frac{1/2}{1+1/2}$

The sample

- Keep only fund families with ≥ 5 managers and 5 funds
 - Number of unique fund families: 359
 - Average number of managers per fund family: 25.27
 - Average number of funds per fund family: 23.66
- All analysis at monthly frequency

Fund Flow regressions

$$\text{Fund Flow}_{i,t+1} = \beta X_{it} + \epsilon_{i,t+1}$$

- Remove socially responsible funds, only consider sole-managed funds
 - $\beta(\text{Female}) = -0.0007$; $t\text{-stat} = -1.70$
 - Other personal characteristics are insignificant
 - (except $\beta(\text{PhD}) = 0.0015$; $t\text{-stat} = 2.37$)
- This is consistent with Niessen-Ruenzi and Ruenzi (2013) on manager gender and fund flows
- In contrast to Kumar, Niessen-Ruenzi and Spalt (2013) on foreign-sounding names

Fund return regressions

$$\text{Fund Return}_{i,t+1} = \beta X_{it} + \epsilon_{i,t+1}$$

- All personal characteristics are insignificant

Explaining permanent departures from industry before retirement age (firings)

$$Pr(Y = 1|X)_{it} = \beta X_{i,t-1} + \epsilon_{it}$$

X variables:

- 1 Manager performance measures over prior 1, 2, 3 years
- 2 Managers' personal characteristics (gender, origin, educational background, years in industry, etc.)
- 3 Early career dummy: ≤ 10 years in industry; late career dummy: ≥ 20 years in industry
- 4 Other controls: Total managed TNA, IOC fund flow trend; return volatility; exp. ratio; fund family characteristics (total number of funds, total number of managers, total fund family TNA), or fund family FE; Year FE
- 5 Linear probability model; logit and probit produce very similar results

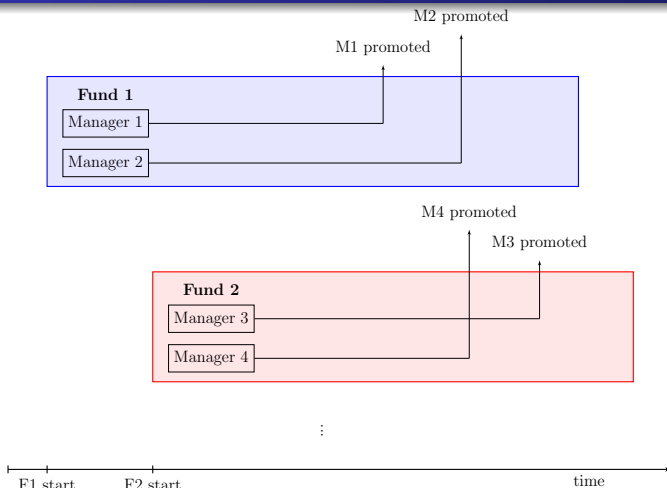
Results: Permanent premature departures from industry (firings) (Table IV)

- All managers (Panel A1):
 - Female dummy is positive and highly significant in all specs:
 - $\beta(Female) = 0.0024$ (t -stat=9.95) to 0.0033 (t -stat=10.98) \Rightarrow 38%-52% higher odds of being fired relative to male managers in a given month
 - $\beta(Female)$ declines with years of experience for solo managers, does not for co-managers (Panels A2 and A3)
 - Women do not appear to be disproportionately fired for poor performance: interactions with low FFlow and low Alpha not significantly positive (Panel B)
 - except for solo managers (interaction with low FFlow is positive)
 - Women are not disproportionately fired early or later in career
 - No other personal characteristics matter
 - Coeff. on past fund returns and fund flows significantly negative

Results: Growth in managed funds (promotions and demotions) (Table V)

- All managers (Panel A):
 - $\beta(\text{Female}) = -0.0047$ ($t\text{-stat}=-3.92$) to -0.0011 ($t\text{-stat}=-0.75$) for ≥ 10 yrs.experience \Rightarrow women have lower fund growth than men by 0.11% to 0.47%
 - Women are *not* disproportionately demoted due to bad performance
- Detailed regressions from Panel B:
 - Women are *not* disproportionately more likely to be demoted/promoted early or late in career
 - Foreign managers have significantly fewer and managers from Top Schools have significantly more promotions
- Past fund returns and fund flows significant positive predictors of promotion

Identical co-managers



- Same fund, same start month, no other responsibilities
- Same probability of being promoted/fired? Conditional on promotion, who is promoted faster?

Identical co-managers

- 139 cohorts of mixed-gender co-managers with close start dates at the same fund and no prior track record
- 375 unique managers (43% female)
- **Promotion**: become a solo manager or get additional funds to co-manage
- **Demotion**: exit the mutual fund industry

Identical co-managers

$$\text{Prob}(\text{CareerOutcome}_{ij}) = \sum_{i=1}^N \alpha_i \text{Cohort}_i + \beta_j X_{ij} + \epsilon_{ij}$$

- **Demotion:** $\beta(\text{Female})=0.101$ ($t\text{-stat}=3.07$) \Rightarrow females are 10.1% more likely to be fired than identical managers
- **Promotion:** $\beta(\text{Female})=-0.056$ ($t\text{-stat}=-1.57$) \Rightarrow females are 5.6% less likely to be promoted than identical managers
- No significant difference in time to promotion

Different professional networks? Explaining disappearance from the industry around fund family mergers and liquidations

- Managers need to find new jobs in other fund families
- Professional networks are important
- Do manager characteristics explain the subsequent disappearance from the industry, in addition to past performance?
- 11 fund family mergers and liquidations in the sample, involve 114 managers
- Probability that any manager permanently disappears around the event is 51%
- The increased probability female manager permanently disappears is 2%, t -statistic=0.13
- The increased probability foreign manager permanently disappears is 30%, t -statistic=1.71

Conclusion

- Prior literature in Economics and Organizational Behavior documents discrimination in workplace and in marketplace
 - This literature predominately focuses on the evidence from sports and academia (where skill and output are individual and measurable), rare natural experiments, surveys, and experimental evidence
 - Some more recent literature relies on self-reported survey data
- We study career outcomes in the mutual fund industry, where performance is transparent

Conclusion (continued)

- Evidence: performance measures are important determinants of career outcomes
- Female managers are more likely to be fired and less likely to be promoted
- The effect of gender is smaller for solo managers, especially with industry experience
- Older managers have worse career outcomes (age discrimination?)
- Professional networks seem to matter
- Promotion and demotion decisions fairly efficient but some room for judgment