

Where the Boys Are – *Gender, Risk Taking and Authority in Institutional Equity Management*

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Practitioner's Digest

Attend any gathering of investment professionals and it's likely that fewer than 15% of the attendees will be women. Odds are even lower that you will encounter a female senior investment professional. Other than outright discrimination, why might such a strong gender gap exist? We find this employment disparity cannot be explained by gender-related differences in investment skill, departure rates, or in asset gathering capability. However female investment professionals do appear to be somewhat more conservative than men, suggesting that at least some of the employment gap may be attributable to self-selection away from a career that emphasizes and rewards risk taking.

This observation has important implications for both diversity outreach and career counseling because a stronger emphasis on skills development may not be the best way to draw more women into the profession. Instead, a more comprehensive approach may be required – one that also addresses gender-related differences in risk tolerance.

Key Words:

gender, risk, skill, investment management, discrimination

Abstract

This paper examines the gender distribution of key investment professionals with decision making and oversight authority in institutional equity management. We find that women are heavily underrepresented among almost all key positions – not just within portfolio management. We find no evidence that this is attributable to differences in skill, or the consequence of any relationship between gender and either asset gathering capability or departure rates. However, we do find some evidence of self-selection away from a risky career as women tend to be more highly represented in lower-risk strategies; appear somewhat more benchmark-oriented; exhibit lower tracking error, and exhibit less idiosyncratic risk than their male counterparts. This observation has important ramifications for both career counseling and diversity outreach programs.

Introduction

Professional investment management is a male dominated profession. In theory this could be the consequence of gender-related differences in productivity-related attributes; self-selection away from an undesirable career; or, reflect widespread discrimination against women. Putting aside overt discrimination, there are two economically plausible rationales for this disparity. One possibility has to do with to the relationship between risk taking and gender. Because investors gravitate toward strategies that offer higher returns, women might find limited career prospects in investment management if they are relatively uncomfortable taking the risks necessary to attract institutional assets (i.e., self-selection). A second explanation relates to institutional investor preferences regarding organizational stability. Specifically, institutional investors place a high premium on the stability of investment organizations. If female professionals exhibit a higher propensity to leave a position, they may be less likely desirable to employ (i.e., lower productivity). This paper examines empirical evidence both of these hypotheses.

Data supporting the first explanation is mixed. Barber and Odean (2001) find that female individual investors trade less and, consequently, tend to outperform men after accounting for trading costs – a result they attribute to gender-related differences in self-confidence. Sunden and Surette (1998) find similar gender-related differences in risk taking within retirement savings accounts. Dwyer, Gilkeson and List (2002) provide evidence that female mutual fund investors tend to make more risk-averse decisions, although such behavior is diminished after controlling for investor knowledge. Less is known about professional investors. Atkinson, Baird and Frye (2003), for example, find that fixed income mutual fund performance does not vary with the gender of the manager although they did find an association between gender and asset flows. Beckmann and Menkhoff (2008) provide survey data on a global sample of 649 fund managers in various countries that suggest that female managers are more risk averse but not by enough to materially affect expected portfolio performance. Finally, Green, Jegadeesh and Tang (2007) find that female security analysts make less accurate earnings forecasts than their male counterparts, suggesting that they may be less skillful investors.

Gender-related differences in risk attitudes have been shown to exist both outside of investment management and outside of the United States. For example, Robb and Watson (2011) find that the difference in risk taking is a significant determinant of the observed performance differential between male and female owned firms. Dawson and Henley (2012) use survey data to show that gender-related

differences in risk attitudes appear to contribute to lower interest in venture creation among women in the UK.

This paper attempts to extend prior research in two ways. First, the focus is on gender-related employment differentials and not just investment performance. Secondly, to examine this question, we depart from the studies of mutual fund portfolio managers and, instead, utilize a thinly-studied database of institutional investment strategies and the teams that manage them. This unique database allows us to study a broader group of specialists – key investment professionals with decision making and oversight responsibility – a group that may include the CIO, Director of research, and other senior executives who can materially shape the culture and strategies employed by an investment manager.

I. The data

This paper utilizes data contained in the eVestment Analytics (EVA) database. The EVA database is a subscription service providing comprehensive information on institutional investment strategies and the organizations that manage them². Because institutional investors are relatively sophisticated, they demand much more comprehensive information concerning investment strategy, organizational structure, and team members than might be found in a typical mutual fund prospectus. The EVA database responds to this need by listing manager-preferred performance benchmarks, narratives on strategy design and trading, and the education, experience, titles and roles of “key professionals” – a broad group of professionals who are designated by their firms as being responsible for portfolio design, oversight, management and performance. Because institutional investors often use EVA data to identify prospective investment managers and to evaluate existing ones, there is widespread voluntary submission by most major US institutional asset managers.

This data offers several advantages. For example, reported results are for composites of institutional separate accounts. Institutional separate accounts are generally less subject to frequent and/or unanticipated subscription and redemption activity. They are also less exposed to tax or regulatory rules that tend to affect the investment management of mutual funds. Additionally, investment returns in EVA are stated both gross and net of investment management fees and are compiled using consistent standards. Consequently, cross-sectional variations in expenses or investment management and

² Throughout this paper the term “strategy” refers to a specific approach utilized by an institutional investment manager as reported by EVA. Performance data in the EVA database consists of returns on an institutional “composite” for each strategy, representing the aggregate performance of one, or more, similarly managed portfolio(s).

distribution fees need not distort performance comparisons. Finally, key investment decisions, such as cash levels and portfolio turnover, are more likely driven by manager choice rather than by operational, legal, or other structural considerations³.

Gender representation in institutional investment management

As of December 2010, the database contained data on 3,205 domestic equity strategies, employing a total of 9,305 “key investment professionals” including 1,711 who had departed their positions⁴. The gender of each professional was most often identified via a prefix field (e.g., “Mr.”). However we resorted to several other techniques to identify gender when this field was missing or otherwise unenlightening⁵.

Table-1 shows the distribution of all key investment professionals by gender, position or authority. Women are clearly under-represented in all (non-support) professional categories and are proportionally more likely to be employed as support staff, analysts, or as marketing/client service professionals. Women are relatively less likely to manage portfolios, or to hold executive positions.

Gender and investment authority

To examine the relationship between gender and investment performance, we focus on a subset of key investment professionals: ***key professionals with investment authority and/or oversight responsibility***. This emphasis accomplishes two things. First, it controls for experience, as key investment professionals with authority tend to be seasoned practitioners. Secondly, because almost all modern investment strategies are managed by teams, this emphasis allows us to focus on those team members who likely bear the heaviest performance responsibility.

³ The database also maintains data on closed and defunct strategies, and lists key professionals who have left each strategy – both of which reduce the potential impact of survivorship bias. Nonetheless, submission to EVA is voluntary and firms may cease submitting performance for strategies that are struggling, or may otherwise provide an embarrassment. They may also elect not to provide certain data items (e.g., strategy-level assets) that they consider to proprietary, or that may reveal trade secrets.

⁴ “Key professionals” were designated as such by contributing firms. Some firms designated executives, client service and/or marketing professionals as “key” while others identified only portfolio managers and/or analysts. The total number of observations included information on “key professionals” associated with 103 strategies that are either defunct, or closed to new investors. Departed individuals are included in the subsequent analysis because they may have influenced performance during the study interval.

⁵ If a gender identifying prefix was unavailable or ambiguous (e.g., “Dr.”), we employed a variety of techniques including (a) querying a database of names that we compiled from various global sources, or (b) searching the investment manager’s web site and social networks for photos (typically when first names were initials, or were gender-ambiguous).

For purposes of this study, we identified key investment professionals with authority via a joint examination of individual roles and titles. Specifically, investment authority is indicated by such titles as “Chief Investment Officer,” “CEO”, or “Director of Research”. We also consider titles that include descriptors equivalent to “Lead”, “Leader,” “Head of...” or “Managing Director”, as indicative of authority. Next, we also required the EVA role classification to be jointly consistent with the key professional’s title. For example, a title of “Head of Investments” coupled with a role of “Support Services” would not indicate investment authority. We similarly excluded several CEO’s who were identified with the role of “Marketing/Client Service”. This analysis yielded 2,270 key professionals with investment authority⁶.

Table-2 repeats the information shown in Table-1 for key professionals **with authority**. Results are directionally similar – women in authority are heavily underrepresented in all job categories. Women are also proportionally more likely to be traders or analysts than men. Figure-1 shows the distribution of the number of key professionals associated with each strategy. There is a marked difference in the distribution by gender. More than 82% of strategies have no female key professionals whereas only a tiny fraction of strategies are managed entirely by women. The median strategy has 2 male key professionals and no women. Women in authority are also less likely to have an advanced degree (i.e., MA and above) than their male counterparts, as shown in Table-3. Table-4 shows that women in authority have similar median firm tenure, although women have less industry experience than their male counterparts. Both experience distributions are skewed, as men tend to have a higher mean experience than women, suggesting a few long-tenured males. Although the difference in industry experience is statistically significant, the difference is small enough to be of questionable practical import at such experience levels.

⁶ The EVA database includes separate fields listing each professional’s role (e.g., “portfolio manager”) and each professional’s title (e.g., “Managing Director and Lead Portfolio Manager”). There were 2,334 unique titles in our sample. The role and title classifications are independent. Some firms, for example, classify their CIO, as an analyst while others classify the CIO as a portfolio manager. Although either classification might be accurate depending upon the firm, the CIO clearly has greater oversight responsibility over approach, professional staff, and general strategy design than a typical security analyst. A position of “portfolio manager” does not connote authority unless supported by an appropriate title. Personnel with ambiguous titles such as “team member”, “associate”, or “vice president” are not considered to have authority. Neither do security analysts or traders, unless corresponding titles connote authority (e.g., CIO). These rules tend to exclude junior portfolio managers and ancillary team members. Because they possess limited investment authority, we exclude all client-service, marketing, operations, compliance, administrative and finance-related positions -- even if their title indicates a lead role in those areas.

Table 1
Position vs Gender – All Key Professionals
12/31/2010⁷
Institutional Investment Strategies

Position	Employed			Departed		
<i>Count</i>			Total			Total
<i>Percent of employed, or departed</i>			Employed			Departed
<i>Row percent for employed or departed</i>	Female	Male		Female	Male	
<i>Column percent</i>						
Support Staff	19**	17	36	8**	5	13
	0.25	0.22	0.47	0.47	0.29	0.76
	52.78	47.22		61.54	38.46	
	1.82	0.26		2.47	0.36	
Marketing/Client Service	68**	210	278	28**	56	84
	0.90	2.77	3.66	1.64	3.27	4.91
	24.46	75.54		33.33	66.67	
	6.52	3.21		8.64	4.04	
Analyst	343**	1,768	2,111	122	499	621
	4.52	23.28	27.80	7.13	29.16	36.29
	16.25	83.75		19.65	80.35	
	32.89	26.99		37.65	35.98	
Trader	56**	178	234	20**	52	72
	0.74	2.34	3.08	1.17	3.04	4.21
	23.93	76.07		27.78	72.22	
	5.37	2.72		6.17	3.75	
Portfolio Manager	349**	2,850	3,199	105**	541	646
	4.60	37.53	42.13	6.14	31.62	37.76
	10.91	89.09		16.25	83.75	
	33.46	43.50		32.41	39.01	
Director of Research	12	112	124	2**	35	37
	0.16	1.47	1.63	0.12	2.05	2.16
	9.68	90.32		5.41	94.59	
	1.15	1.71		0.62	2.52	
CIO	37**	404	441	5**	52	57
	0.49	5.32	5.81	0.29	3.04	3.33
	8.39	91.61		8.77	91.23	
	3.55	6.17		1.54	3.75	
Senior Management	46**	509	555	5	51	56
	0.61	6.70	7.31	0.29	2.98	3.27
	8.29	91.71		8.93	91.07	
	4.41	7.77		1.54	3.68	
Other	113**	503	616	29	96	125
	1.49	6.62	8.11	1.69	5.61	7.31
	18.34	81.66		23.20	76.80	
	10.83	7.68		8.95	6.92	
Total	1,043**	6,551	7,594	324**	1,387	1,711
	13.73	86.27	100.00	18.94	81.06	100.00

⁷ EVA provides titles and “primary role” for each professional-strategy pair. There were over 2,300 unique titles contained in the EVA database. These titles and primary roles were individually analyzed, adjusted for consistency and mapped to these 9 broad categories.

** Significantly different from men in either employed, or departed classifications at 95%.

The study interval spans the financial crisis during which the EVA data indicates that 349 key professionals with authority departed their positions. Most importantly, however, the difference in departure rates between men and women was statistically insignificant⁸. Although we will focus on the relationship between gender and firm stability later in the paper, this result provides some evidence that women in key positions do not appear to pose a risk to organizational stability.

Most professionals are associated with more than one strategy. Consequently, Table-5 shows the distribution of gender by investment approach⁹ for all 5,812 professional-strategy pairs. Female professionals are much more likely to be associated with Index and Enhanced Index strategies rather than with more aggressively managed specialty (e.g., REIT and Long-Short), or style-oriented (e.g., Value, or Growth) alternatives. The higher relative representation among lower risk strategies is consistent with empirical findings for risk taking and gender among retail investors – women tend to be associated with less aggressive strategies.

⁸ We identified 40 key professionals with authority (35 men and 5 women) who changed firms during this interval and are included in both employed and departed totals -- a gender distribution of job-switchers that was approximately the same as the overall distribution.

⁹ The Passive category includes several “fundamental” index strategies that, although passively managed, are positioned as alternatives to conventional benchmarks. Consequently, the index category will appear to have higher tracking error vs. benchmark than one would ordinarily expect from conventional index funds.

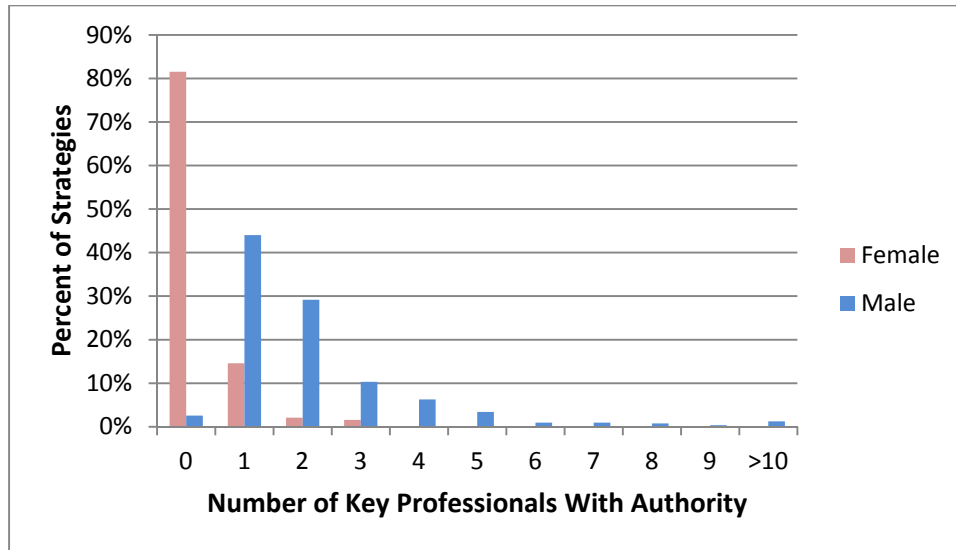
Table 2
Position vs Gender –Key Professionals With Authority
12/31/2010¹⁰
Institutional Investment Strategies

Position	Employed			Departed		
<i>Count</i>			Total			Total
<i>Percent of employed, or departed</i>			Employed			Departed
<i>Row percent for employed or departed</i>	Female	Male		Female	Male	
<i>Column percent</i>						
Analyst	26**	91	117	5	21	26
	1.35	4.74	6.09	1.43	6.02	7.45
	22.22	77.78		19.23	80.77	
	13.68	5.26		11.11	6.91	
Trader	12**	36	48	4	11	15
	0.62	1.87	2.50	1.15	3.15	4.30
	25.00	75.00		26.67	73.33	
	6.32	2.08		8.89	3.62	
Portfolio Manager	52	529	581	23	126	149
	2.71	27.54	30.24	6.59	36.10	42.69
	8.95	91.05		15.44	84.56	
	27.37	30.56		51.11	41.45	
Director of Research	12	112	124	2	35	37
	0.62	5.83	6.45	0.57	10.03	10.60
	9.68	90.32		5.41	94.59	
	6.32	6.47		4.44	11.51	
CIO	37	404	441	5	52	57
	1.93	21.03	22.96	1.43	14.90	16.33
	8.39	91.61		8.77	91.23	
	19.47	23.34		11.11	17.11	
Senior Management	46	506	552	4	49	53
	2.39	26.34	28.74	1.15	14.04	15.19
	8.33	91.67		7.55	92.45	
	24.21	29.23		8.89	16.12	
Other	5	53	58	2	10	12
	0.26	2.76	3.02	0.57	2.87	3.44
	8.62	91.38		16.67	83.33	
	2.63	3.06		4.44	3.29	
Total	190**	1,731	1,921	45**	304	349
	9.89	90.11	100.00	12.89	87.11	100.00

¹⁰ Table-2 shows the distribution of position by gender for key professionals with authority. All support and client service professionals are assumed not to have investment authority, so there are no entries for these positions.

** Significantly different from men at 95%.

Figure 1
Distribution of Key Professionals with Authority by Gender¹¹
Institutional Investment Managers 12/31/2010



¹¹ Figure 1 shows the distribution of key professionals with authority across strategies. More than 90% of strategies have fewer than 2 female key professionals.

Table 3
Education vs Gender¹²
Key Professionals with Authority as of 12/31/2010
Institutional Investment Managers

Degree <i>Frequency Percent Row Pct Col Pct</i>	Gender		
	Female	Male	Total
Associate	1 0.04 100.00 0.43	0 0.00 0.00 0.00	1 0.04
Bachelors	91 4.01 11.71 38.72	686 30.22 88.29 33.71	777 34.23
Masters	5 0.22 5.95 2.13	79 3.48 94.05 3.88	84 3.70
JD	2 0.09 6.25 0.85	30 1.32 93.75 1.47	32 1.41
MBA	103 4.54 9.34 43.83	1,000 44.05 90.66 49.14	1,103 48.59
PhD	12 0.53 8.70 5.11	126 5.55 91.30 6.19	138 6.08
NA	21 0.93 15.56 8.94	114 5.02 84.44 5.60	135 5.95
Total	235** 10.35	2,035 89.65	2,270 100.00

¹² The EVA database contains fields for degrees at up to 3 institutions. Data is supplied in un-standardized free-format by contributing investment managers. This data was standardized and screened for the highest degree attained. Includes departed individuals. ** Significantly different from men at 95% when comparing the aggregate numbers of graduate vs undergraduate degrees.

Table 4
Investment Experience vs Gender¹³
Key Professionals With Authority
Employed as of 12/31/2010
Institutional Investment Managers

	Firm Tenure		Industry Tenure	
	Mean	Median	Mean	Median
Gender				
Female	13.1	13.0	23.5**	24.0
Male	14.2	13.0	25.7	25.0
All	14.1	13.0	25.5	25.0

¹³ The EVA database contains contributing firm-supplied data on the years each professional started in the industry and with the firm. Because the database does not contain departure dates, Table 4 shows summary data only for those individuals who were still working at the end of the study interval. Firm start dates are substituted for industry start dates if industry start dates are missing, consequently industry tenure is likely to be biased downward. There is no reason, however, to believe that this should bias the distribution between genders. ** Statistically significant from men at 95%.

Table 5
Investment Approach vs Gender¹⁴
Key Professionals with Investment Authority
Professional-Strategy Pairs
Institutional Investment Managers 12/31/2010

Investment Approach	Gender		
	Female	Male	Total
Passive	40**	137	177
	0.69	2.36	3.05
	22.60	77.40	
	6.63	2.63	
Enhanced Index	63	437	500
	1.08	7.52	8.60
	12.60	87.40	
	10.45	8.39	
Core	147	1,297	1,444
	2.53	22.32	24.85
	10.18	89.82	
	24.38	24.90	
Value	189	1,741	1,930
	3.25	29.96	33.21
	9.79	90.21	
	31.34	33.42	
Growth	149	1,416	1,565
	2.56	24.36	26.93
	9.52	90.48	
	24.71	27.18	
Specialty	15	181	196
	0.26	3.11	3.37
	7.65	92.35	
	2.49	3.47	
Total	603**	5,209	5,812
	10.38	89.62	100.00

¹⁴ Table-5 aggregates 40 unique EVA “primary universe” categories (e.g., “Large-Cap Enhanced Index”, or “Mid-Cap Value” etc.), into 6 broad style groups. The Specialty category includes REIT, Sector-oriented and Short-enabled (e.g., Market neutral and 130:30) strategies. Because most professionals are associated with more than one strategy, the data in Table-5 represents results for professional-strategy pairs. ** Significantly different from men at 95%.

II. Gender, authority and investment performance

Gender and performance vs manager-preferred benchmark

One possible explanation for the low representation of women in the investment profession is that they might be less skilled than their male counterparts. Table-6 addresses this by comparing investment performance characteristics by gender for each key professional-strategy pair. The data show that, with two notable exceptions, women perform on a par with men.

Table 6
Investment Performance vs Gender¹⁵
Key Professionals with Investment Authority
Institutional Investment Managers 12/31/2010

Mean <i>t</i> -statistic	Gender							
	Female				Male			
	Tracking Error	Average Annual Alpha	IR	Annual Turnover	Tracking Error	Average Annual Alpha	IR	Annual Turnover
Passive	0.24	0.12	0.94	11.52	0.35	0.06	0.83	10.96
	3.56	3.64	7.66	6.95	3.14	1.27	10.04	10.92
Enhanced Index	2.51	-0.55	-0.23	94.81	2.79	-0.16	-0.14	84.28
	8.66	-2.67	-2.68	13.56	26.41	-1.52	-4.38	34.79
Core	4.89	0.47	0.08	75.76	5.00	0.39	0.06	83.31
	28.10	2.32	2.00	14.09	66.49	5.07	4.25	43.34
Growth	6.09	0.14	-0.03	90.54	5.98	0.34	0.05	85.68
	21.88	0.49	-0.77	13.83	78.18	4.21	3.37	45.04
Value	6.20	1.65	0.22	57.79	6.06	1.43	0.20	56.75
	27.65	7.43	6.52	19.74	84.06	19.72	17.54	54.62
Specialty	3.44**	1.62	0.48	55.09	5.02	1.07	0.23	131.37
	5.75	2.23	2.21	1.38	1.58	5.45	5.97	9.01
All	4.98**	0.67	0.14	71.51	5.30	0.69	0.11	74.29
	36.22	5.59	5.59	27.44	121.96	17.18	14.34	79.87

Fist, although within-category performance characteristics were generally indistinguishable between genders, female Specialty professionals exhibited a significantly lower tracking error (TE) than their male counterparts (3.44% versus 5.02%). However, there were only 9 women in this category and, similar to

¹⁵ Results in Table 6 are calculated using 60 months of benchmark-adjusted gross returns. To mitigate survivorship bias, we included results for all strategies that reported returns for at least 48 months and performance associated with departed professionals. Tracking error (TE) is calculated as the annualized standard deviation of monthly excess-of-benchmark returns. Alpha equals the annualized average of monthly excess-of-benchmark returns. The information ratio (IR) is the average of annualized alpha to annualized tracking error. Median 5 year turnover was calculated for each strategy. Turnover values in Table 6 represent the average of these strategy medians within each category. ** Significantly different from men at 95%.

the overall results, this finding probably has more to do with self-selection within this relatively more heterogeneous category.

More importantly, however, the aggregate tracking error for women was significantly lower than for men (4.98% versus 5.30%). Although this finding is consistent with prior findings that women tend to take fewer risks than their male counterparts, the actual explanation for this result is somewhat more subtle. Specifically, the aggregate result is primarily a consequence of the higher proportion of women affiliated with lower risk passive and enhanced index strategies. Within investment categories, with the exception of Specialty strategies, there is no statistically meaningful difference in tracking error.

Therefore, after controlling for approach, women and men appear to generally take the same risks. One explanation for this result is that women self-select specializations based on risk tolerance. If women tend to be more risk averse, a greater proportion will select careers associated with low risk strategies. Nonetheless, because there is heterogeneity in risk aversion, some risk tolerant women might gravitate toward riskier approaches and exhibit performance characteristics similar to men.

In contrast to findings for individual investors, there is no evidence that overconfidence causes men to trade more aggressively than women. Although women exhibited lower overall turnover, turnover was higher within 4 of the 6 investment approaches. None of these differences in turnover, however, were statistically meaningful.

Gender and risk adjusted performance

Because of intra-category differences in aggressiveness, it's possible that simply classifying funds by approach and manager preferred portfolio benchmark provides only a weak proxy for risk when measuring skill and risk taking. Consequently, we also investigated performance by gender after specifically controlling for common risk factor exposures. To do this, we first estimated time series regressions for each strategy using the well-known Fama-French-Carhart (1997) four-factor risk model. Specifically, we estimated the following time series regression for each strategy:

$$[1] \quad (R_{i,t}) = \alpha_i + \beta_{1,i} (MKT_t) + \beta_{2,i} (HML_t) + \beta_{3,i} (SMB_t) + \beta_{4,i} (MOM_t) + e_{i,t}$$

Where $R_{i,t}$ is the monthly excess return on strategy i ; MKT_t is the excess market return; HML_t is the return on portfolios of high minus low B/P stocks; SMB_t is the return on portfolios of small minus large capitalization stocks; MOM_t is the return on portfolios of high minus low momentum stocks, and $\alpha_i, \beta_{1,i}, \beta_{2,i}, \beta_{3,i}, \beta_{4,i}$ are coefficients to be estimated.

The betas ($\beta_{1,i}$ - $\beta_{4,i}$) in equation [1] represent the exposures to underlying systematic risk factors, while the intercept (α_i) represents the gross monthly alpha for each strategy after controlling for active exposure to common factor risks. The root mean square error for each strategy regression (RMSE_i) provides a proxy for idiosyncratic risk – variability in strategy performance that is not explained by exposure to common risk factors and is presumably attributable to active decisions made by the management team. We then averaged these estimated coefficients for each strategy-professional pair to generate the results shown in Table-7.

Table 7
5-Factor Adjusted Investment Performance vs Gender¹⁶
Key Professionals with Investment Authority
Institutional Investment Managers 12/31/2010

Mean t-statistic	Gender											
	Female						Male					
	Intercept	Mkt-Rf	HML	SMB	MOM	RMSE	Intercept	Mkt-Rf	HML	SMB	MOM	RMSE
Passive	-0.06 -5.88	0.97 184.78	0.06 2.45	0.18 3.01	0.01 4.15	0.62 15.40	-0.05 -9.24	0.98 181.38	0.06 4.49	0.13 4.17	0.01 4.55	0.66 24.27
Enhanced Index	-0.11 -5.83	0.97 116.01	0.08 4.75	0.14 2.79	0.02 2.48	0.82 13.53	-0.08 -10.36	0.98 286.35	0.08 14.77	0.07 4.50	0.01 4.39	0.83 41.4
Core	-0.02 -1.10	0.97* 114.83	-0.05 -3.76	0.21 6.67	0.03 3.63	1.20 28.94	-0.03 -4.20	0.95 256.16	-0.02 -5.96	0.21 18.91	0.03 11.39	1.22 74.99
Growth	0.02 0.88	1.04 94.90	-0.30* -17.64	0.27 10.70	0.07 7.18	1.55 22.94	0.02 2.67	1.04 282.41	-0.26 -62.01	0.31 32.09	0.05 19.00	1.59 86.77
Value	0.05* 2.81	0.95 140.71	0.04* 2.85	0.13* 5.06	-0.00* -0.88	1.42 33.60	0.00 0.54	0.95 351.58	0.13 28.08	0.20 21.15	-0.04 -14.76	1.42 103.84
Specialty	0.08 1.26	0.69 4.43	0.41 2.94	0.27 2.32	-0.13 -2.18	3.14 5.58	0.08 4.99	0.58 14.37	0.35 10.07	0.27 10.01	-0.11 -7.67	3.11 23.60
All	0.00 0.42	0.98* 185.47	-0.05* -4.68	0.19* 12.82	0.02* 5.64	1.31* 42.15	-0.01 -2.12	0.96 40.03	-0.01 -3.44	0.22 41.14	0.01 4.37	1.40 129.18

The data in Table-7 tend to corroborate the findings presented in Table-6. Specifically, women exhibit indistinguishable risk-adjusted performance (i.e., α_i) to men within all approaches except Value, where they significantly outperform. Within-risk-category differences in idiosyncratic risk (RMSE) were indistinguishable from men. However, women exhibited lower aggregate RMSE. This result is

¹⁶ Fama-French-Carhart 4-factor return regressions were run for each of 3,074 strategies with at least 48 months of gross returns. The dependent variable was gross returns less the corresponding risk free rate. Table 7 presents mean values for estimated regression parameters for each professional-strategy pair. All individuals are associated with at least one investment strategy although some individuals are associated with multiple strategies. Values in Table-7 are not annualized. Values in parentheses are t-statistics. * Significantly different from men at 95%.

directionally similar to the results shown in Table-6 and also appears driven by the higher proportion of women associated with lower risk strategies. Finally, where significant differences in factor risk exposures (β_i) occur, women generally tend to exhibit lower active risk relative to benchmark, or to the market. For example, women exhibit a smaller active exposure to LMH, SMB and MOM in Value strategies and also exhibit a beta closer to 1.0 in Core strategies – results that corroborate the idea that women tend to select and manage strategies with a more conservative approach toward career risk. In aggregate, women demonstrated a significantly lower (more negative) exposure the value risk factor and a smaller positive exposure to the small size factor – both suggesting that women are somewhat less tolerant of factor risk.

One possible explanation for the gender disparity in the profession is that women do not, or cannot, devote the time away from families that is required to provide successful investment performance. If women are less productive, however, then we would expect to see the associated investment strategies underperform. The data presented in Tables 6 and 7 do not support this hypothesis.

Taken together, these results lend some support to the premise that women may be more risk averse than their male counterparts. Overall, women tend to be more heavily represented in lower-risk strategies, appear somewhat more benchmark-oriented, exhibit lower tracking error and assume less idiosyncratic risk. There is no evidence, however, that female investment professionals underperform men – especially when performance is adjusted for differences in risk taking.

III. Gender and asset growth

An alternative possibility is that women might be less desirable to employ because organizational stability is important to investors and women may be perceived, rightly or wrongly, as more likely to leave their positions for personal reasons. To shed some light upon this, we examine the relationship between asset growth and gender. The simple notion is that the profitability of a strategy to an investment management firm is directly proportional to the level of underlying assets. Therefore, if the presence of women on an investment management team negatively impacts asset gathering, there might be a rationale for investment managers to hire and promote fewer of them into key positions.

To test this we ran the following cross-sectional regression:

$$[2] \Delta AUM_i = \theta_0 + \theta_1(\alpha_i) + \theta_2(RMSE_i) + \theta_3(OWNER_i) + \theta_4(FIRMEXP_i) + \theta_5(ADVDEGREE_i) + \theta_6(LOWAUM_i) \\ + \theta_7(STABILITY_i) + \theta_8(FEMALE_i) + e_i$$

Where ΔAUM_i equals the net 5-year subscriptions for strategy_i; α_i is the estimated alpha and $RMSE_i$ is the root mean square error from equation [1] for strategy_i; $OWNER_i$ is the percentage of key professionals for strategy_i with an ownership stake; $FIRMEXP_i$ is the logarithm of average years of firm experience of key professionals for strategy_i; $ADVDEGREE_i$ is the proportion of key professionals with a PhD, or CFA; $LOWAUM_i$ equals 1.0 if average strategy_i assets are less than \$10M and 0 otherwise; $STABILITY_i$ equals the percentage of key professionals for strategy_i who did not depart over the interval; $FEMALE_i$ is the percentage of key professionals for strategy_i who are female; and $\theta_0 - \theta_8$ = Coefficients to be estimated.

With the exception of gender, each of these characteristics tend to be cited by institutional investment consultants as key attributes that they consider when evaluating investment managers for possible asset placements. A-priori, we expect asset growth to be positively related to alpha; ownership positions held by key professionals; professional education and the experience of the investment management team. Conversely, investors are less likely to make meaningful investments in strategies with low AUM; strategies exhibiting high idiosyncratic risk; or, in strategies exhibiting high turnover among key professionals. Finally, the sign and magnitude of the coefficient on female representation, θ_8 , should indicate whether there is a meaningful difference in asset gathering capabilities between men and women after controlling for other attributes that influence the attractiveness of the strategy to institutional investors.

The coefficients for equation [2] are shown in Table-8. Most of the estimated coefficients for the variables in equation [2] are significant and consistent with expectations. However, there are two exceptions that are somewhat related. First, the coefficient on the amount of advanced training (θ_5) is positive, but insignificant, suggesting that education is not a significant help in asset gathering. This could occur because the entire sample consists of successful seasoned professionals with an average of 25 years of experience - a level of experience at which realized performance probably trumps education in asset gathering. More surprisingly, however, the coefficient on years of experience with the firm (θ_4) is significantly negative. The average professional had over 25 years of investment experience and, as that number grows, some of these seasoned professionals may be nearing retirement age – something

that institutional consultants often consider to be a risk to prospective investors. Alternatively, it could simply suggest that older professionals are less inclined to seek out new investors for their strategies.

Most importantly, however, the coefficient on the proportion of women among key professionals with authority (θ_8) is positive and not statistically different from zero, indicating that the number of female team member does not appear to be a detriment to asset gathering after controlling for other strategy characteristics.

When considered in tandem with the earlier finding that there was no meaningful gender-related difference in the departure rates of key professionals with authority, this result suggests that women do not pose a potential negative impact on either organizational stability or profitability.

Table 8
Asset Growth vs Strategy and Firm Characteristics¹⁷
Institutional Investment Managers 12/31/2010

Variable	Parameter Estimate	Standard Error	t Value
Intercept	0.233	0.185	1.26
FF Alpha	1.514	0.139	10.91**
RMSE	-0.198	0.044	-4.46**
Owner	0.069	0.023	2.97**
Firmexp	-0.200	0.050	-4.02**
Advdegree	0.050	0.073	0.68
Lowaum	-0.779	0.159	-4.89**
Stability	0.437	0.118	3.69**
Female	0.037	0.151	0.24

Item	Coefficient
R-Square	.132
Adj. R-sq	.127
F	26.03
Number of observations	1375
RMSE	1.058
Dependent Mean	-.0.121

¹⁷ Net subscriptions/redemptions between December 2005 and December 2010 were calculated for each strategy and regressed in a cross-sectional regression against: the intercept of a Fama-French-Carhart 4-factor return regression (FF-Alpha); the root mean square error of the Fama French return regression (RMSE); the proportion of key professionals with an ownership position in the firm (OWNER); average years of investment experience among key professionals (FIRMEXP); the percent of key professionals with advanced investment training (CFA designation, or PhD (ADVDEGREE); a dummy if average AUM between 12/2005 and 12/2010 < \$10M (LOWAUM); staff stability, as measured by the percent not departed (STABILITY); and, finally, the percentage of key professionals with authority who were female (FEMALE).

Conclusions

Institutional equity management remains a highly male-dominated business. Men significantly outnumber women in virtually all job categories and in all major investment approaches. Our study finds (a) no performance-related support for gender-related differences in employment; (b) no evidence that women in positions of authority are more likely to leave their positions than men, and (c) no evidence that the presence of female key professionals inhibits asset gathering.

Although we can't fully explain the sizable employment differential, female investment professionals exhibit subtle differences in risk taking – specifically, a slightly lower average active exposure to idiosyncratic risk, closer-to-benchmark exposure to systematic risk factors and a propensity to be associated with lower-risk strategies. Although these attributes may be indicative of gender-related differences in risk tolerance, we cannot rule out the possibility that they may also be the consequence of optimal behavior in response to environmental challenges faced by women. For example, women could react to more tenuous career prospects by “hedging their bets” and sticking with investment approaches that entail less employment risk, even though they are fully capable of performing in more rough and tumble investment strategies.

These findings suggest that the gender distribution in the investment management business is the consequence of something other than investment skill, leaving open a definitive answer to the question of why there are so few women. An analysis of the gender distribution of applicants to various investment management positions may shed more light on whether the lack of women is the consequence of self-selection, or attributable to some other factor. Additionally, this study only investigates the relationship between gender and performance for US-based equity managers. A broader investigation of gender and investment professionals in different cultures, or across asset categories, or using Blinder-Oaxaca techniques, may reveal more about gender-related employment differentials.

This line of research also has important policy implications. Because the gender gap in investment management cannot be explained by skill differentials, it's unlikely that it can be reduced via a stronger emphasis on technical training. Our research suggests that an alternative approach – one that recognizes differences risk attitudes – may be required to induce more women to pursue careers in investment management.

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