

Online Appendix for
Who is internationally diversified?
Evidence from the 401(k) plans of 296 firms*

Geert Bekaert^{a,b}, Kenton Hoyem^c, Wei-Yin Hu^c, Enrichetta Ravina^{a,*}

^a Columbia Business School, 3022 Broadway, New York, NY, 10024, United States

^b NBER, 1050 Massachusetts Ave, Cambridge, MA, 02138, United States

^c Financial Engines, Inc., 1050 Enterprise Way, Sunnyvale, CA, 94089, United States

Table A1

Firm Characteristics

Panel A presents the mean, median, standard deviation and 25th and 75th percentiles for firms in our sample. Panels B and C present these same statistics for all firms in Compustat and the S&P 500, respectively. Firm age in these two cases is calculated as number of years in Compustat. Panel D presents the same summary statistics separately for the private firms and public firms in our sample. There are 178 private firms, 108 public firms and 4 firms who switch from public to private or private to public in the sample. The 25th percentile is an average of the 24th, 25th and 26th percentiles, the median is the average of the 49th, 50th, and 51st percentiles and the 75th percentile is the average of the 74th, 75th, and 76th percentile. The sample period is 2005 to 2011.

Panel A: Sample firms

Variable	Mean	Median	Std Dev	p25	p75
<i>Assets (USD mn)</i>	43,139	4,096	223,921	1,268	25,007
<i>Debt (USD mn)</i>	25,214	1,770	187,098	573	6,084
<i>Net Income (USD mn)</i>	284	129	3,483	6	696
<i>Sales (USD mn)</i>	9,484	2,919	17,361	1,150	9,457
<i>Capex (USD mn)</i>	725	149	1,202	48	873
<i>Leverage (%)</i>	30.64	27.91	20.61	17	40
<i>Sales/Assets (%)</i>	105.96	78.26	119.92	39	128
<i>Profitability (%)</i>	2.84	2.74	9.67	1	6
<i>Investment Intensity (%)</i>	4.18	3.53	3.28	2	6
<i>ROA</i>	3.02%	2.71%	9.40%	1%	6%
<i>ROE</i>	0.60%	3.93%	21.96%	1%	7%
<i>Annual Return (%)</i>	10.95%	7.37%	27.64%	1%	17%
<i>Number of Employees</i>	18,623	4,650	48,093	1,722	14,730
<i>Firm Age (years)</i>	69	65	45	28	103
<i>Plan size (USD mn)</i>	456.93	332.79	720.04	161.64	487.01

*Corresponding author. *E-Mail:* er2463@gsb.columbia.edu (E. Ravina)

Panel B: Compustat firms

Variable	Mean	Median	Std Dev	p25	p75
<i>Assets (USD mn)</i>	14,550	401	121,056	51	2,054
<i>Debt (USD mn)</i>	4,063	42	44,738	1	457
<i>Net Income (USD mn)</i>	180	3	1,516	-5	46
<i>Sales (USD mn)</i>	2,790	124	13,590	15	893
<i>Capex (USD mn)</i>	204	5	1,202	0	44
<i>Leverage (%)</i>	111.43	15.55	3280.24	1.86	35.58
<i>Sales/Assets (%)</i>	106.36	53.69	5353.48	11.15	111.22
<i>Profitability (%)</i>	-424.14	0.99	54130.84	-9.62	5.83
<i>Investment Intensity (%)</i>	6.10	2.35	50.08	0.48	6.29
<i>ROA</i>	-4.24	0.01	541.31	-0.10	0.06
<i>ROE</i>	-8.4	3.9	45.4	-16.1	5.9
<i>Annual Return (%)</i>	5.65	0.14	79.28	-25.31	22.78
<i>Number of Employees</i>	8,058	475	36,694	93	3,046
<i>Firm Age (years in Compustat)</i>	14	9	14	5	20

Panel C: S&P 500 firms

Variable	Mean	Median	Std Dev	p25	p75
<i>Assets (USD mn)</i>	76,341	14,604	236,713	5,839	42,443
<i>Debt (USD mn)</i>	22,956	3,196	93,858	1,041	8,342
<i>Net Income (USD mn)</i>	1,301	576	4,033	246	1,340
<i>Sales (USD mn)</i>	17,891	7,785	33,907	3,557	16,411
<i>Capex (USD mn)</i>	1,001	271	2,322	99	931
<i>Leverage (%)</i>	23.93	21.34	17.73	10.53	34.16
<i>Sales/Assets (%)</i>	83.75	67.31	72.35	36.51	107.12
<i>Profitability (%)</i>	5.84	5.41	8.00	2.22	9.57
<i>Investment Intensity (%)</i>	4.17	3.05	4.54	1.28	5.57
<i>ROA</i>	5.84	5.41	8.00	2.22	9.57
<i>ROE</i>	7.90	7.37	39.16	3.10	12.34
<i>Annual Return (%)</i>	6.45	5.32	39.96	-14.65	24.49
<i>Number of Employees</i>	44,355	18,028	101,793	6,900	43,836
<i>Firm Age (years in Compustat)</i>	35	35	19	14	45

Panel D: Sample firms, private versus public.

Public Firms

Variable	Mean	Median	Std Dev	p25	p75
<i>Assets (USD mn)</i>	54,858	265,475	6,879	2,483	32,060
<i>Debt (USD mn)</i>	28,917	201,979	1,836	608	7,084
<i>Net Income (USD mn)</i>	421	4,170	227	54	1,114
<i>Sales (USD mn)</i>	12,453	19,712	4,106	1,742	14,065
<i>Capex (USD mn)</i>	750	1,229	166	53	907
<i>Leverage (%)</i>	28.95	19.73	26.66	16.83	37.79
<i>Sales/Assets (%)</i>	81.22	52.76	70.15	38.93	113.74
<i>Profitability (%)</i>	2.69	7.74	2.96	1.01	6.27
<i>Investment Intensity (%)</i>	4.20	3.25	3.52	1.95	5.91
<i>ROA</i>	2.85%	7.30%	2.88%	1.16%	6.23%
<i>ROE</i>	2.38%	15.15%	4.32%	1.36%	9.08%
<i>Annual Return (%)</i>	10.51%	27.91%	7.22%	1.41%	16.64%
<i>Number of Employees</i>	35,200	70,626	12,061	4,648	30,658
<i>Firm Age (years)</i>	80	47	81	40	120

Private Firms

Variable	Mean	Median	Std Dev	p25	p75
<i>Assets (USD mn)</i>	18,112	64,988	1,034	169	4,314
<i>Debt (USD mn)</i>	3,672	4,145	1,811	410	5,729
<i>Net Income (USD mn)</i>	-32	549	6	-12	117
<i>Sales (USD mn)</i>	2,274	4,060	883	171	2,248
<i>Capex (USD mn)</i>	724	1,136	54	34	1,208
<i>Leverage (%)</i>	43.99	23.38	45.65	24.32	57.91
<i>Sales/Assets (%)</i>	173.22	203.11	108.07	41.70	254.94
<i>Profitability (%)</i>	3.38	13.59	2.24	-0.67	5.40
<i>Investment Intensity (%)</i>	4.60	3.67	3.70	1.94	6.93
<i>ROA</i>	3.65%	13.48%	1.97%	-0.68%	5.19%
<i>ROE</i>	-13.90%	49.60%	-0.65%	-6.48%	3.86%
<i>Annual Return (%)</i>	8.99%	17.44%	9.48%	-8.69%	26.17%
<i>Number of Employees</i>	7,279	13,255	2,556	783	6,543
<i>Firm Age (years)</i>	63	42	62	26	94

Table A2

Employee characteristics.

Panel A presents the mean, median, standard deviation and 25th and 75th percentiles for all individuals in the sample between 2005 and 2011. The data include both stock market participants and non-stock market participants. Panel B presents the same statistics for individual statistics in the Current Population Survey between 2006 and 2011. In order to extract tenure data, we use the January CPS Displaced Worker, Employee Tenure and Occupational Mobility Supplement for years 2006, 2008, and 2010, while 2007, 2009, and 2011 data come from the January CPS. The summary statistics reported in this panel are the average of the annual statistics. Panel C presents the same statistics for individuals in our sample with a managed account. All variables are defined in the Appendix.

Panel A: All Employee across firms

Variable	Mean	Median	Std Dev	p25	p75
<i>Salary</i>	46,205	39,687	48.014	18,879	63,890
<i>Total Account Value</i>	62,798	22,255	113,850	5,332	73,334
<i>Contribution Rate</i>	5.89%	5.00%	6.16%	0%	8.00%
<i>Tenure</i>	10.55	7.25	10.64	2.02	16.22
<i>Age</i>	46	46	12	37	54
<i>Cohort</i>	1963	1963	12	1955	1972

Panel B: Current Population Survey (CPS)

Variable	Mean	Median	Std Dev	p25	p75
<i>Salary</i>	45,437	37,175	30,045	19,432	79,980
<i>Tenure</i>	7.7	5.0	8.2	1.42	19.6
<i>Age</i>	41	42	12	28	48

Panel C: Employees with managed accounts

Variable	Mean	Median	Std Dev	p25	p75	# Obs
<i>Cohort</i>	1962	1961	11	1955	1972	1,611,453
<i>Age</i>	46	47	11	38	55	1,611,453
<i>Annual Salary</i>	56,160	47,625	42,147	27,040	60,807	1,363,806
<i>Total Account Value</i>	59,639	27,735	91,565	8,636	98,662	1,611,552
<i>House Value (Census)</i>	234,266	178,300	159,756	149,000	366,500	1,587,840
<i>Tenure</i>	8.1	3.7	9.2	4.4	20.6	1,476,011
<i>Contribution Rate (%)</i>	7	6	6	3	9.78	1,363,806

Table A3

Controlling for the international funds offered and their quality

This table reports the full set of coefficients for the regressions reported in Panel B of Table 9 in the text. The table repeats the regressions in column 4 of Table 3, columns 2 and 5 of Table 5 and of Table 6, controlling directly for the number and quality of the international funds offered by the plan in a more recent subsample. All variables are defined in the Appendix. t-statistics are in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. Standard errors are clustered at the firm level. The sample period is 2005 to 2011.

Variable	Idiv (1)	Idiv (2)	Idiv (3)	Idiv (4)	Idiv (5)
<i>% in Target Date Fund</i>	0.0630*** [8.213]	0.0581*** [7.571]	0.0637*** [7.242]	0.0595*** [7.695]	0.0594*** [7.700]
<i>Intl Div. Benchmark</i>	0.163 [1.240]	0.274** [1.985]	0.255** [2.023]	0.258* [1.897]	0.262* [1.925]
<i>Trend</i>	0.0892 [0.536]	-0.0408 [-0.248]	-0.0968 [-0.612]	-0.0611 [-0.383]	-0.0695 [-0.440]
<i>Trend²</i>	0.00398 [0.713]	0.00795 [1.385]	0.00980* [1.755]	0.00855 [1.503]	0.00885 [1.565]
<i>Cohort</i>	0.165*** [12.57]	0.143*** [8.414]	0.144*** [8.815]	0.138*** [8.734]	0.142*** [8.832]
<i>Advice Dummy</i>				2.608*** [3.362]	10.37*** [5.815]
<i>Non-Stale Advice Dummy</i>				3.182** [2.578]	
<i>Advice Dummy*Cohort</i>					-0.0654*** [-3.185]
<i>ln(Annual Salary)</i>		0.0439 [0.161]	-0.0242 [-0.0841]	-0.00239 [-0.00872]	0.00971 [0.0350]
<i>ln(Annual Salary)²</i>		0.220*** [4.551]	0.219*** [4.847]	0.215*** [4.441]	0.216*** [4.324]
<i>Adv. Dmy*ln(Annual Salary)</i>					-0.513 [-1.035]
<i>Adv. Dmy*ln(Annual Salary)²</i>					0.0576 [0.546]
<i>ln(Account Value)</i>		0.0934 [0.720]	0.0796 [0.663]	0.0702 [0.565]	0.0533 [0.437]
<i>ln(Account Value)²</i>		-0.0664*** [-3.717]	-0.0572*** [-3.182]	-0.0778*** [-4.536]	-0.0727*** [-4.317]
<i>Adv. Dmy*ln(Account Value)</i>					0.258* [1.713]
<i>Adv. Dmy*ln(Account Value)²</i>					-0.0951*** [-3.085]
<i>ln(House Value Zillow)</i>		0.695** [2.382]		0.697** [2.448]	0.709** [2.472]
<i>ln(House Value Census)</i>			0.872*** [2.660]		

<i>Fraction of Intl Eq Funds</i>	0.177***	0.204***	0.202***	0.198***	0.199***
	[2.850]	[3.403]	[3.362]	[3.505]	[3.517]
<i>Expense Ratio of Intl - Domestic</i>	-4.305**	-3.950**	-4.240**	-3.929**	-3.877**
	[-1.998]	[-2.068]	[-2.227]	[-2.059]	[-2.032]
<i>Turnover of Intl - Dom Eq Funds</i>	-0.212	-0.135	-0.112	-0.158	-0.199
	[-0.268]	[-0.158]	[-0.133]	[-0.182]	[-0.227]
<i>Alpha Intl- Alpha Dom Eq Funds</i>	8.889	11.77	30.00	6.374	6.258
	[0.134]	[0.154]	[0.425]	[0.0822]	[0.0806]
<i>Fund Age of Intl/Dom Eq Funds</i>	-0.178	-0.192	-0.222	-0.200	-0.187
	[-0.360]	[-0.401]	[-0.470]	[-0.429]	[-0.400]
<i>High Fee Plan Dummy</i>	3.009**	2.408*	2.583**	2.497*	2.471*
	[2.541]	[1.820]	[2.062]	[1.956]	[1.921]
<i>Total Plan Assets</i>	5.98e-07*	8.18e-08	2.02e-07	2.60e-07	2.36e-07
	[1.815]	[0.135]	[0.507]	[0.476]	[0.424]
Constant	-11.71	-27.61***	-28.20***	-26.07***	-26.82***
	[-1.452]	[-2.854]	[-2.984]	[-2.813]	[-2.873]
Observations	16,299,381	9,983,354	12,163,670	9,983,354	9,983,354
Adjusted R ²	0.066	0.058	0.065	0.065	0.065

Table A4

Subsamples: income, wealth, access to advice and international diversification.

This table repeats the analysis in Table 10 of the paper with additional controls. Panel A reports the results for individual level regressions of international diversification on the percent invested in a target dated fund, the international diversification benchmark, a quadratic time trend and birth year cohort, salary and account value controls for different subsamples. Column 2 excludes observations with (a) tenure 0-3, age>35, (b) tenure 4-5, age>40, (c) tenure 6-10, age>45, (d) tenure 11-15, age>50, (e) tenure 16-20, age>55, (f) those with missing tenure. Column 3 excludes observations with salaries \geq 100,000 and account balances \geq 200,000, along with those that have missing information for either variable. Column 4 is a combination of the exclusion rules specified in columns 2 and 3. Column 5 excludes observations with bond allocations over 50% and column 6 uses international stocks as the dependent variable. Panel B repeats these regressions further controlling for access to online advice. All variables are defined in the Online Appendix. t-statistics are in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. Standard errors are clustered at the firm level. The sample period is 2005 to 2011.

Panel A: Subsamples with income and wealth controls.

Variable	Idiv (1)	Idiv (2)	Idiv (3)	Idiv (4)	Idiv (5)	Intl Stock (6)
<i>% in Target Date Fund</i>	0.0543*** [10.89]	0.0417*** [6.258]	0.0538*** [10.82]	0.0412*** [6.239]	0.0509*** [10.01]	0.0743*** [18.99]
<i>Intl Div. Benchmark</i>	0.317*** [3.522]	0.322*** [2.655]	0.297*** [3.473]	0.295** [2.598]	0.312*** [3.450]	0.347*** [4.308]
<i>Trend</i>	0.0589 [0.593]	0.0588 [0.481]	0.0504 [0.507]	0.0486 [0.400]	0.109 [0.981]	-0.321*** [-3.932]
<i>Trend²</i>	0.00242 [0.561]	0.00221 [0.382]	0.00306 [0.718]	0.00310 [0.549]	0.000616 [0.132]	0.0125*** [3.514]
<i>Cohort</i>	0.148*** [9.208]	0.121*** [13.76]	0.150*** [9.158]	0.122*** [13.84]	0.148*** [10.49]	0.224*** [12.11]
<i>ln(Annual Salary)</i>	0.185* [1.886]	0.292* [1.780]	0.182* [1.845]	0.293* [1.807]	0.187* [1.928]	0.222* [1.801]
<i>ln(Annual Salary)²</i>	0.186*** [8.601]	0.149*** [4.646]	0.187*** [7.879]	0.148*** [4.317]	0.181*** [8.281]	0.165*** [7.944]
<i>ln(Account Value)</i>	0.0551 [0.339]	-0.170 [-1.577]	0.0660 [0.412]	-0.156 [-1.490]	0.0697 [0.381]	0.252** [2.306]
<i>ln(Account Value)²</i>	-0.0331** [-2.045]	-0.0416** [-2.169]	-0.0403** [-2.262]	-0.0498** [-2.305]	-0.0413** [-2.499]	-0.00535 [-0.460]
<i>ln(House Value Zillow)</i>	0.653***	0.684***	0.653***	0.689***	0.643***	0.637***

	[4.837]	[4.835]	[4.545]	[4.820]	[4.562]	[5.131]
<i>Constant</i>	-25.33***	-21.88**	-24.07***	-20.29**	-24.80***	-35.56***
	[-3.823]	[-2.487]	[-3.755]	[-2.409]	[-3.728]	[-5.882]
Observations	10,621,481	6,040,610	10,216,034	5,813,961	9,898,960	11,642,469
Adjusted R^2	0.120	0.094	0.122	0.096	0.126	0.138
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Subsample	Whole sample	Age-tenure screen	Salary-acct value screen	Age/tenure & salary/acct	Exclude high bond alloc.	Intl stock as dep var

Panel B: Subsamples with income and wealth, and access to online advice controls

Variable	Idiv (1)	Idiv (2)	Idiv (3)	Idiv (4)	Idiv (5)	Intl Stock (6)
<i>% in Target Date Fund</i>	0.0554*** [10.84]	0.0427*** [6.480]	0.0550*** [10.77]	0.0422*** [6.467]	0.0519*** [10.06]	0.0754*** [19.17]
<i>Intl Div. Benchmark</i>	0.322*** [3.636]	0.326*** [2.712]	0.301*** [3.585]	0.299*** [2.653]	0.316*** [3.550]	0.351*** [4.38]
<i>Trend</i>	0.0200 [0.203]	0.0225 [0.180]	0.0121 [0.122]	0.0125 [0.101]	0.0687 [0.627]	-0.349*** [-4.24]
<i>Trend²</i>	0.00349 [0.820]	0.00317 [0.540]	0.00412 [0.980]	0.00407 [0.711]	0.00172 [0.374]	0.0132*** [3.73]
<i>Cohort</i>	0.146*** [9.391]	0.122*** [13.74]	0.147*** [9.331]	0.123*** [13.67]	0.147*** [10.65]	0.218*** [12.15]
<i>Advice Dummy</i>	7.396*** [5.385]	5.783*** [3.968]	7.116*** [4.895]	5.653*** [4.023]	8.194*** [6.070]	2.961*** [2.92]
<i>Advice Dummy*Cohort</i>	-0.0450*** [-3.536]	-0.0399** [-2.348]	-0.0422*** [-3.396]	-0.0388** [-2.444]	-0.0563*** [-4.751]	0.0118 [0.86]
<i>ln(Annual Salary)</i>	0.150 [1.504]	0.289* [1.822]	0.149 [1.484]	0.292* [1.871]	0.157 [1.609]	0.193* [1.65]
<i>ln(Annual Salary)²</i>	0.185*** [8.052]	0.146*** [4.418]	0.185*** [7.348]	0.143*** [4.091]	0.181*** [7.762]	0.161*** [7.44]
<i>Adv. Dmy*ln(Annual Salary)</i>	-0.0793 [-0.327]	-0.535** [-2.183]	-0.0843 [-0.326]	-0.584** [-2.486]	-0.139 [-0.553]	-0.144 [-0.66]
<i>Adv. Dmy*ln(Annual Salary)²</i>	-0.0285 [-0.675]	0.0569 [1.178]	-0.0209 [-0.506]	0.0717* [1.679]	-0.0329 [-0.780]	0.0168 [0.55]
<i>ln(Account Value)</i>	0.0135 [0.0935]	-0.198* [-1.853]	0.0213 [0.149]	-0.189* [-1.809]	0.0272 [0.166]	0.208** [2.11]
<i>ln(Account Value)²</i>	-0.0468*** [-3.115]	-0.0562*** [-2.691]	-0.0528*** [-3.145]	-0.0627*** [-2.719]	-0.0558*** [-3.706]	-0.00938 [-0.85]
<i>Adv. Dmy*ln(Account Value)</i>	0.323** [2.500]	0.530** [2.523]	0.355*** [3.270]	0.597*** [3.927]	0.351*** [2.640]	0.322*** [3.17]
<i>Adv. Dmy*ln(Account Value)²</i>	-0.0356* [-1.813]	-0.0355 [-1.394]	-0.0413 [-1.527]	-0.0492 [-1.282]	-0.0324* [-1.673]	-0.0711*** [-3.92]
<i>ln(House Value Zillow)</i>	0.700*** [5.479]	0.703*** [4.745]	0.697*** [5.153]	0.706*** [4.743]	0.690*** [5.147]	0.670*** [5.66]
<i>Constant</i>	-25.76*** [-3.956]	-22.25** [-2.493]	-24.43*** [-3.888]	-20.61** [-2.414]	-25.27*** [-3.867]	-35.57*** [-5.92]
Observations	10,621,481	7,425,729	10,621,481	7,425,729	9,898,960	11,642,469
Adjusted R ²	0.126	0.108	0.126	0.108	0.132	0.143
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Subsample	Whole sample	Age-tenure screen	Salary-acct value screen	Age/tenure & salary/acct	Exclude high bond alloc.	Intl stock as dep var

Table A5

Tobit Regressions.

The table repeats the regressions in column 4 of Table 3, columns 2 and 5 of Table 5 and of Table 6 using a Tobit specification. All variables are defined in the Appendix. t-statistics are in brackets. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. Standard errors are clustered at the firm level. The sample period is 2005 to 2011.

Variable	(1) Idiv	(2) Idiv	(3) Idiv	(4) Idiv	(5) Idiv
<i>% in Target Date Fund</i>	0.0885*** [8.190]	0.0833*** [7.544]	0.0898*** [7.604]	0.0851*** [7.610]	0.0849*** [7.597]
<i>Intl Div. Benchmark</i>	0.184 [0.988]	0.402** [2.180]	0.356** [2.108]	0.371** [2.111]	0.374** [2.140]
<i>Trend</i>	0.224 [1.032]	0.0573 [0.282]	0.0202 [0.104]	0.0766 [0.378]	0.0673 [0.334]
<i>Trend²</i>	0.00162 [0.242]	0.00526 [0.753]	0.00684 [1.015]	0.00454 [0.630]	0.00492 [0.687]
<i>Cohort</i>	0.229*** [10.01]	0.197*** [7.528]	0.202*** [7.719]	0.188*** [7.467]	0.196*** [7.420]
<i>Advice Dummy</i>				3.217*** [4.769]	12.01*** [5.219]
<i>Non-Stale Advice Dummy</i>				3.600*** [3.245]	
<i>Advice Dummy*Cohort</i>					-0.0990*** [-3.859]
<i>ln(Annual Salary)</i>		0.148 [0.692]	0.0687 [0.280]	0.0835 [0.400]	0.0877 [0.412]
<i>ln(Annual Salary)²</i>		0.222*** [4.447]	0.218*** [4.369]	0.213*** [4.248]	0.212*** [4.037]
<i>Advice Dummy*ln(Annual Salary)</i>					0.0102 [0.0270]
<i>Advice Dummy*ln(Annual Salary)²</i>					0.0234 [0.343]
<i>ln(Account Value)</i>		0.231 [1.366]	0.228 [1.412]	0.206 [1.213]	0.195 [1.171]
<i>ln(Account Value)²</i>		-0.0497** [-2.163]	-0.0399* [-1.710]	-0.0684*** [-3.139]	-0.0642*** [-2.909]
<i>Advice Dummy*ln(Account Value)</i>					0.169 [0.770]
<i>Advice Dummy*ln(Account Value)²</i>					-0.0921*** [-2.589]
<i>ln(House Value Zillow)</i>		0.836** [2.098]		0.858** [2.161]	0.875** [2.188]
<i>ln(House Value Census)</i>			1.266** [2.441]		
<i>Constant</i>	-15.69 [-1.537]	-39.43*** [-3.144]	-41.97*** [-3.225]	-37.13*** [-3.170]	-38.03*** [-3.215]
<i>Observations</i>	17,082,302	10,621,481	12,883,608	10,621,481	10,621,481

Table A6

Variable Description.

A 401(k) *plan* is a defined contribution retirement savings plan offered by many US *firms* to their employees (401(k) refers to the subsection of the Internal Revenue Code which defines the plans). Employee contributions are made as deductions from their paychecks and are placed in an individual *account* for each employee within the plan. The firm typically provides a range of investment options from which each employee can chose. Savings in these accounts receive a variety of different preferential tax treatments and may also receive matching contributions from the firm.

Individual Level Variables	Description
International Diversification (idiv)	Allocation to international equities over allocation to all equities. The total equity allocation is defined as the combination of investments in Large Cap Stocks, Small and Mid-Cap Stocks, Individual Stocks, Company Stock and International Stocks. This series is individual specific. Source: Financial Engines.
Cohort	The cohort variable is defined as the individual's birth year minus 1900. The cohort is set to 1993 if the individual is born after 1990 and to 1940 if the individual is born before 1945. This data is individual specific. Source: Financial Engines.
Age	Age is defined as the difference between the observation date and the individual's birth date. Source: Financial Engines.
Total Account Value (log)	Total account values represent the balance in the 401(k) account. This value is first deflated to 2005 prices using the Consumer Price Index for All Urban Consumers and then the natural logarithm is taken. Source: Financial Engines and US Department of Labor: Bureau of Labor Statistics.
House Value - Zillow (log)	The natural logarithm of house values deflated to 2005 prices using the Consumer Price Index for All Urban Consumers. We match the Zillow average house value in a ZIP code to each individual based on the ZIP code they live in according to Financial Engines. Source: Zillow, US Department of Labor: Bureau of Labor Statistics, Financial Engines.
House Value - Census (log)	The natural logarithm of median house values in dollars at the ZIP code level. This variable is matched to the individual data using the ZIP code where the user lives. Source: US Census Bureau, 2008-2012 American Community Survey - Table B25077: Median Housing Value of Owner-Occupied Housing Units (Dollars).
Annual Salary (log)	Annual Salary represents the dollar amount an individual is paid by the company. The dollar amount is first deflated to 2005 prices using the Consumer Price Index for All Urban Consumers and then the natural logarithm is taken. Source: Financial Engines and US Department of Labor: Bureau of Labor Statistics.

% Target Date Fund	Amount allocated to target dated funds as a percentage of the individual's total account value. This data is individual specific. Source: Financial Engines.
International Diversification Benchmark	The ratio of international market cap (MSCI Market Cap All Countries ex-US) to the sum of international and domestic market cap (MSCI Market Cap All Countries). We obtain daily data from MSCI and match the ratio of market caps to the date on which the individual's data point is drawn. Source: MSCI and Financial Engines.
Relative Returns	International stock returns (MSCI All Countries ex-US returns) in excess of US stock returns (MSCI US) between the period t-1 and t. For each individual, we calculate the cumulative international stock return between t-1 and t, the cumulative return for US stocks between t-1, and t and take the difference. Note that t is defined as the day on which the individual is observed, while t-1 is the previous observation (in annualized percent). Source: MSCI and Financial Engines.
MN Experienced Returns	Following the methodology proposed by Malmendier and Nagel (2011), the experienced returns measure is the weighted average of past returns with weights that depend on an individual's age at time t, how many years ago the return was realized and a parameter that controls for the shape of the weighting function. This paper builds experienced returns based on international stock returns in excess of US stock returns (in annualized percent).
Return Chasing	This variable is constructed using the same methodology as MN Experienced Returns, but uses international stock returns as the relevant past returns.
Flight to Safety	We borrow the flight to safety (FTS) dummy variable for the United States from Baele et al. (2013). They use data on bond and stock returns to measure the occurrence of stress periods in which stock markets decline and liquid benchmark bonds increase in value.
Advice Dummy	Dummy variable equal to 1 if the individual has signed the investor service agreement to obtain online advice from Financial Engines. Source: Financial Engines.
Not Stale Advice Dummy	Dummy variable equal to 1 if the individual has accessed the online advice website within the past year. Source: Financial Engines.
Total Equity	Allocation to equities in the overall 401(k) portfolio. The total equity allocation is defined as the combination of investments in Large Cap Stocks, Small and Mid-Cap Stocks, Individual Stocks, Company Stock and International Stocks.

This series is individual specific. Source: Financial Engines.

International Equity

Allocation to international equity in the overall 401(k) portfolio. This series is individual specific. Source: Financial Engines.

ZIP Code Variables	Description
Bachelor's Degree or Higher	Bachelor's degree or higher as a percentage of population over 25 years old. Bachelor's degree or higher is the sum of people with a bachelor's degree (hd01_vd22), master's degree (hd01_vd23), professional school degree (hd01_vd24) and doctorate degree (hd01_vd25). This is divided by the total population 25 years and over in the area (hd01_vd01). Census labels are in parentheses. Data is at a ZIP code level. Source: US Census Bureau, 2008-2012 American Community Survey - Table B15003: Educational attainment for the population over 25 years and over.
Advanced Degree	Master's degree or higher as a percentage of population over 25 years old. Master's degree or higher is the sum of people with a master's degree (hd01_vd23), professional school degree (hd01_vd24) and doctorate degree (hd01_vd25). This is divided by the total population 25 years and over in the area (hd01_vd01). Census labels are in parentheses. Data is at a ZIP code level. Source: US Census Bureau, 2008-2012 American Community Survey - Table B15003 - Educational attainment for the population over 25 years and over.
Less than college degree	Less than college degree as a percentage of population over 25 years old. Less than college degree is the sum of people with a regular high school diploma (hd01_vd17), GED high school diploma (hd01_vd18), some college - less than 1 year (hd01_vd19), some college - more than 1 year (hd01_vd20) and associate's degree (hd01_vd21). This sum is divided by the total population 25 years and over in the area (hd01_vd01). Census labels are in parentheses. Data is at a ZIP code level. Source: US Census Bureau, 2008-2012 American Community Survey - Table B15003: Educational attainment for the population over 25 years and over.
Bachelor's Degree	Bachelor's degree as a percentage of population over 25 years old. This variable is defined as people with a bachelor's degree (hd01_vd22) divided by the total population 25 years and over in the area (hd01_vd01). Census labels are in parentheses. Data is at a ZIP code level. Source: US Census Bureau, 2008-2012 American Community Survey - Table B15003: Educational attainment for the population over 25 years and over.

Foreign Born Population	Foreign-born population over total population. This variable is defined as Total Foreign Born Population (hd01_vd01) over total population in the area (hc01_vc03). Census labels are in parentheses. Data is at a ZIP code level. Source: US Census Bureau, 2007-2011 American Community Survey - Tables B05007: Place of birth by year of entry by citizenship status for the foreign-born population and DP05: ACS demographic and housing estimates.
Foreign Born Population - Latin America	Foreign-born population from Latin America over total population. This variable is defined as the Latin American born population (hd01_vd28) over total population in the area (hc01_vc03). Census labels are in parentheses. Data is at a ZIP code level. Source: US Census Bureau, 2007-2011 American Community Survey - Tables B05007: Place of birth by year of entry by citizenship status for the foreign-born population and DP05: ACS demographic and housing estimates.
Foreign Born Population - Europe	Foreign-born population from Europe over total population. This variable is defined as the European born population (hd01_vd02) over total population in the area (hc01_vc03). Census labels are in parentheses. Data is at a ZIP code level. Source: US Census Bureau, 2007-2011 American Community Survey - Tables B05007: Place of birth by year of entry by citizenship status for the foreign-born population and DP05: ACS demographic and housing estimates.
Foreign Born Population - Asia	Foreign-born population from Asia over total population. This variable is defined as the Asian born population (hd01_vd15) over total population in the area (hc01_vc03). Census labels are in parentheses. Data is at a ZIP code level. Source: US Census Bureau, 2007-2011 American Community Survey - Tables B05007: Place of birth by year of entry by citizenship status for the foreign-born population and DP05: ACS demographic and housing estimates.
Foreign Born Population - Other	Foreign-born population from a region other than Asia, Europe and Latin America over total population. This variable is defined as the “Other” born population (hd01_vd82) over total population in the area (hc01_vc03). Census labels are in parentheses. Data is at a ZIP code level. Source: US Census Bureau, 2007-2011 American Community Survey - Tables B05007: Place of birth by year of entry by citizenship status for the foreign-born population and DP05: ACS demographic and housing estimates.
State Exports/GDP	Export of goods measured as a share of gross domestic product at the state level (ratio is average of 2008-2011 annual data). Source: US Census Bureau and Bureau of

Economic Analysis.

State Openness	The sum of exports and imports of goods measured as a share of gross domestic product at the state level (ratio is average of 2008-2011 annual data). Source: US Census Bureau and Bureau of Economic Analysis.
GDP per capita	Per capita real GDP by state (chained 2005 dollars), 2005 to 2011 average. Data is annual. Source: Bureau of Economic Analysis.
GDP growth	Real GDP by state (millions of chained 2005 dollars). We take the 2000 to 2005 and 2006 to 2011 growth rates. Data is annual. Source: Bureau of Economic Analysis.
Rural	Rural is a categorical variable that takes values 1 to 4 in integer units, with 1 representing the most urban areas and 4 the most isolated. The variable is constructed from the RUCA 2.0 variable in the ZIP RUCA Code data set. More specifically, a ZIP code is classified in the following way: (i) urban if RUCA2.0 is 1.0, 1.1, 2.0, 2.1, 3.0, 4.1, 5.1, 7.1, 8.1, or 10.1, (ii) large rural city/town if RUCA2.0 is 4.0, 4.2, 5.0, 5.2, 6.0, or 6.), (iii) small rural town if RUCA2.0 is 7.0, 7.2, 7.3, 7.4, 8.0, 8.2, 8.3, 8.4, 9.0, 9.1, 9.2, and isolated if RUCA2.0 is 10.0, 10.2, 10.3, 10.4, 10.5, or 10.6. Source: RUCA Rural Health Research Center.
Urban	The variable Urban is a dummy variable equal to 1 if RUCA2.0 is equal to 1.0, 1.1, 2.0, 2.1, 3.0, 4.1, 5.1, 7.1, 8.1, or 10.1 (these are the metropolitan areas in the ZIP RUCA Code data set). Data is at the ZIP code level. Source: RUCA Rural Health Research Center.
Large Rural	The variable Large Rural is a dummy variable equal to 1 if RUCA2.0 is equal to 4.0, 4.2, 5.0, 5.2, 6.0, or 6.1 (these are the large rural city/town areas in the ZIP RUCA Code data set). Data is at the ZIP code level. Source: RUCA Rural Health Research Center.
Small Rural	The variable Small Rural is a dummy variable equal to 1 if RUCA2.0 is equal to 7.0, 7.2, 7.3, 7.4, 8.0, 8.2, 8.3, 8.4, 9.0, 9.1, 9.2 (these are the small rural town areas in the ZIP RUCA Code data set). Data is at the ZIP code level. Source: RUCA Rural Health Research Center.
Isolated	The variable Isolated is a dummy variable equal to 1 if RUCA2.0 is equal to 10.0, 10.2, 10.3, 10.4, 10.5, or 10.6 (these are the isolated small rural areas in the ZIP RUCA Code data set). Data is at the ZIP code level. Source: RUCA Rural Health Research Center.
Long distance minutes	Number of long distance hours from land lines and mobile phones scaled by total population. Data is at the state level

and is the average of the annual data for the 2000-2011 period. Source: FCC.

Distance to International Cities

Distance to international cities is the cumulative distance from each ZIP code to London, Tokyo, Toronto and Mexico City (in miles). To calculate the distance from a ZIP code to each city, we apply the haversine formula using the latitude and longitude of each point. This formula calculates the great-circle distance between two points (the shortest distance over the earth's surface), giving an 'as-the-crow-flies' distance between the ZIP code and the city. We then add the four distances to produce the ZIP code's distance to international cities. Source: federalgovernmentZIPcodes.us.

Financial Literacy

Mean number of correct quiz answers in financial knowledge survey. Multiple choice quiz questions include calculations involving interest rates and inflation, the relationship between bond prices and interest rates, risk and diversification, and the impact of short-term rates on life of a mortgage. Data is at the state level. Source: 2012 National Financial Capability Study Data Tables.

House Value - Zillow (log)

The natural logarithm of house values at the ZIP code level deflated to 2005 prices using the Consumer Price Index for All Urban Consumers. We take the average of the deflated monthly data for the period that the ZIP code is in the sample (ranges between 2006-2011). Source: Zillow and US Department of Labor: Bureau of Labor Statistics.

House Value - Census (log)

The natural logarithm of median house values in dollars at the ZIP code level. Median house values over USD 1 million are reported as +1,000,000. Since this only affects 158 ZIP codes we set them simply to 1,000,000. Source: US Census Bureau, 2008-2012 American Community Survey - Table B25077: Median Housing Value of Owner-Occupied Housing Units (Dollars).

Firm Variables	Description
Private	Dummy variable that takes the value of 1 if the firm is private and 0 if the firm is public. Source: Capital IQ.
Foreign Headquarter Dummy	Dummy variable that takes the value of 1 if firm's ultimate parent is based in a country outside of the United States. Source: Capital IQ.
Foreign Subsidiary Dummy	Dummy variable equal to 1 if firm has a subsidiary in a country outside of the United States. Source: Orbis.
% Foreign Subsidiaries	Number of foreign subsidiaries over the total number of subsidiaries in the firm. If company has no subsidiaries, this variable takes the value of zero. Source: Orbis.

Industry Openness	The sum of exports and imports of goods measured as a share of gross output by industry (ratio is average of 2000-2011 annual data). Industry is classified at the 3-digit NAICS level. Source: US Census Bureau and Bureau of Economic Analysis.
Firm Age (log)	Firm age is calculated as the difference between the current fiscal year and the year the firm was founded. Source: Capital IQ.
Number of Employees (log)	Number of employees in the firm. Use data from Capital IQ only when Compustat data is missing. Given that Compustat reports number of employees in thousands, we multiply the data item “emp” by 1000 in order to be consistent with Capital IQ. We take the average of the annual data for the period that the firm is in the sample (ranges between 2005 and 2011). Source: Compustat and Capital IQ.
Assets (log)	Firm assets in USD million, data item “at” in Compustat, deflated to 2005 prices using the Consumer Price Index for All Urban Consumers. Use data from Capital IQ only when Compustat data is missing. We take the average of the annual data for the period that the firm is in the sample (ranges between 2005 and 2011). Source: Compustat, Capital IQ and US Department of Labor: Bureau of Labor Statistics.
Leverage	Firm total debt over assets, data items (dlc + dltt)/at in Compustat. Use data from Capital IQ only when Compustat data is missing. We take the average of the annual data for the period that the firm is in the sample (ranges between 2005 and 2011). Source: Compustat and Capital IQ.
Sales/Assets	Firm sales over assets, data items “sales” and “at” in Compustat. Use data from Capital IQ only when Compustat data is missing. We take the average of the annual data for the period that the firm is in the sample (ranges between 2005 and 2011). Source: Compustat and Capital IQ.
Profitability	Firm net income over assets, data items “ni” and “at” in Compustat. Use data from Capital IQ only when Compustat data is missing. We take the average of the annual data for the period that the firm is in the sample (ranges between 2005 and 2011). Source: Compustat and Capital IQ.
Investment Intensity	Firm capex over assets, data items “capx” and “at” in Compustat. Use data from Capital IQ only when Compustat data is missing. We take the average of the annual data for the period that the firm is in the sample (ranges between 2005 and 2011). Source: Compustat and Capital IQ.

Plan Variables	Description
Fraction of International Equity Funds	Number of international over Domestic equity funds. The funds are classified as international based on the Lipper categories covering international equity funds, emerging market funds, area or country specific funds. Source: Financial Engines.
Expense Ratio of Intl-Expense Ratio of Domestic Eq Funds	Difference of the median expense ratio of the international funds and the median expense ratio of the domestic fund offered by the company's plan(s). Source: Financial Engines.
Turnover of Intl/ Domestic Eq Funds	Ratio of the median turnover of the international funds and the median turnover of the domestic fund offered by the company's plan(s). Source: Financial Engines.
Alpha of Intl-Domestic Eq Funds	Difference between the median alpha of the international funds and the median alpha of the domestic fund offered by the company's plan(s). Alphas are calculated relative to a benchmark computed using style analysis with 15 asset classes. Source: Financial Engines.
Fund Age of Intl/ Domestic Eq Funds	Ratio of the median age of the international funds and the median age of the domestic fund offered by the company's plan(s). Source: Financial Engines.
High Fee Plan Dummy	Dummy variable equal to 1 if the plan scores below the median quality in terms of fees for both the international and the domestic funds, compared to the universe of funds the same categories. Source: Financial Engines and Authors' calculations.
Total Plan Assets	Total asset aggregated across all the plans offered by the firm (USD mn). Source: Financial Engines.