Online Appendix for

"Decentralized Investment Management: Evidence from the Pension Fund Industry"

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This on-line appendix contains 3 sections:

1. **Additional Tables:** This section reports the additional tables mentioned in the main paper.

2. **Simulating Segregated Fund Manager Fees:** This section shows how we constructed the fees for our set of pension fund managers – these fees are not publicly available – using a combination of two other datasets. The first dataset contains fees charged by the same set of fund managers on funds that are sold to retail customers. The second dataset provided us with the information needed to rescale the retail fees into estimates of the institutional fees that the fund managers would have charged to institutional clients such as pension funds.

3. **Summary of a Survey of Pension Fund Industry Professionals:** This section summarizes the views of pension professionals about the key empirical findings in our study.

I. Additional Tables

This section of the online appendix presents additional tables mentioned in the paper:

1. Table A1. Pre-Fee Return Performance by Asset Class: First Subsample (March 1984-March 1994)

2. Table A2. Pre-Fee Return Performance by Asset Class: Second Subsample (April 1994-March 2004)

   Tables A1 and A2 look at the performance of the fund managers when the sample period is split into two halves. The alpha estimates are on average higher in the second subsample than the first. One possible explanation for this is that the proportion of specialist managers in the dataset is much higher in the second period than the first and the proportion of balanced managers is correspondingly lower. Since specialist managers are appointed because of their anticipated superior investment skills over those of balanced managers, the switch from specialist to balanced managers over the sample period would appear to be a rational decision by pension fund sponsors.

3. Table A3. Annual Fees by Mandate and Asset Class

   Table A3 shows the distribution of annual fees by asset class and mandate type. The fees are generally higher for specialist and multi-asset managers than for balanced managers.

4. Table A4. Pre-Fee Measures of Security Selection and Market Timing Skills by Mandate Type: First Subsample (March 1984-March 1994)

5. Table A5. Pre-Fee Measures of Security Selection and Market Timing Skills by Mandate Type: Second Subsample (April 1994-March 2004)

   Tables A4 and A5 look at the active management skills of the fund managers when the sample period is split into two halves. The total performance of specialist and multi-asset managers is generally higher in the second subsample than the first. The total performance of balanced managers is not statistically different from zero in both periods.

6. Table A6. Robustness Checks: Pre-Fee Measures of Security Selection and Market Timing Skills with Augmented Factors

7. Table A7. Robustness Checks: Pre-Fee Measures of Security Selection and Market Timing Skills for U.K. Equities

8. Table A8. Robustness Checks: Pre-Fee Measures of Security Selection and Market Timing Skills for International Equities

   Tables A6 - A8 reports some robustness checks of the performance evaluation models. Table A6 shows the results from including an international equity factor in the U.K. equities model, an international bond factor in the U.K. bonds model, and a U.S. momentum factor in the international equities model. Table A7 shows the results from including timing factors for the Fama-French and momentum factors in the U.K. equities model. Table A8 shows the results from including timing factors for the market and Fama-French factors in the international equities model. In general, the additional factors do not make a significant qualitative difference to our results.

9. Table A9. Pre-Fee Persistence in Performance by Mandate Type

   Table A9 tests for the persistence in above-median performance over non-overlapping 3-year periods. Specialist and multi-asset managers generally show statistically significant persistence in performance in Jensen's alpha, market timing and in the Treynor-Mazuy (TM) total performance measure. Balanced managers, by contrast, typically have no persistence in performance under any of these measures.

10. Table A10. Pre-Fee Persistence in Performance by Mandate Type: Tercile and Decile Results

    Table A10 looks at performance persistence in more detail by sorting the managers into terciles or deciles and then recording their performance in the first and second period. The table shows, for example, that the percentage of specialist managers in U.K. equities with alphas in the top tercile in the first period who retain their top position in the second period is 47% and this is statistically significantly higher than the 33% who would be expected to stay in the top tercile by chance. The corresponding figure for balanced managers is just 33%. The tercile alpha, market-timing and TM performance persistence of specialists generally exceeds that of balanced managers in all three asset classes. The decile results are less clearcut, except for the performance persistence of the alphas.

11. Table A11. The Probability of Switching from Single to Multiple Managers: The Effect of Fund Size and Past Performance

    Table A11 presents the results from a logit model explaining the probability of switching from single to multiple managers (in each asset class) in terms of fund size and past performance. The estimation strategy uses time-fixed effects. Increasing fund size is a strong predictor of this type of switch in the three main classes, but especially in U.K. bonds. Poor past performance also increases the probability of switching from single to multiple managers.

12. Table A12. Pre-Fee Performance, Fund Size and the Number of Managers

    Table A12 presents the results from a two-stage procedure capturing the effect of fund size and number of managers on fund performance. Panel A shows that there is evidence of pre-fee diseconomies-of-scale at the fund level in seven of nine asset-class/mandate types. However, the effect is economically small; for instance, a fund/balanced manager pairing in U.K. equities that is 10 times the size of another such pairing exhibits an estimated relative alpha decrease of only about 16 bps/year. Second, there is no evidence that a larger number of managers results in increased pre-fee performance, as indicated by the largely negative values of the regression coefficient, γ. In Panel B we find statistically significant evidence of economies-of-scale at the fund management company (FMC) level, since five out of nine coefficients, δ, are positive and significant at the 1% confidence level. This suggests that large FMCs do provide better performance. We also find that there is evidence of a positive competition effect among specialists, as the coefficient, γ, is positive and economically large for each asset class (and is highly significant in the case of U.K. bonds, where a fund moving from one to two managers experiences an increase in risk-adjusted return of 52 bps/yr). However, there is no consistent positive competition effect among multiple managers operating under either multi-asset or balanced mandates, again indicating that skills, even under competition, are only prevalent among specialist managers.

Table A1. Pre-Fee Return Performance by Asset Class

First Subsample (March 1984-March 1994)

Panel A: Mean Returns

Asset Class	1%	5%	10%	25%	50%	75%	90%	95%	99%	mean
UK Equities	5.64%	11.21%	12.93%	16.01%	18.50%	21.19%	24.04%	26.33%	31.79%	18.54%
UK Bonds	6.07%	8.41%	9.66%	10.70%	11.56%	12.90%	14.48%	15.90%	21.06%	11.91%
International Equities	-0.19%	5.88%	8.63%	12.09%	15.12%	17.94%	21.69%	24.02%	27.53%	15.01%

Panel B: Alpha Estimates

Asset Class	1%	5%	10%	25%	50%	75%	90%	95%	99%	mean
UK Equities	-7.50%	-4.77%	-3.55%	-1.72%	-0.25%	1.01%	2.46%	3.68%	6.66%	-0.40%
UK Bonds	-3.99%	-1.63%	-0.87%	0.03%	0.79%	1.49%	2.18%	2.73%	3.84%	0.72%
International Equities	-15.23%	-9.52%	-6.91%	-2.28%	1.58%	4.87%	7.88%	9.70%	14.80%	1.01%

Panel C: Beta Estimates

Asset Class	1%	5%	10%	25%	50%	75%	90%	95%	99%	mean
UK Equities	0.84	0.93	0.96	1.00	1.03	1.07	1.11	1.14	1.26	1.03
UK Bonds	0.66	0.91	1.00	1.09	1.17	1.25	1.33	1.39	1.54	1.17
International Equities	0.44	0.63	0.72	0.83	0.93	1.06	1.19	1.29	1.49	0.95

Note: This table presents the raw return performance as well as the risk-adjusted return performance for the three main asset classes held by the pension funds, namely U.K. equities, U.K. bonds and international equities. All results are based on quarterly data over the period from 1984-1994. Panel A reports percentiles for the distribution of mean returns measured across funds. Panels B and C present alpha and beta estimates. For U.K. equities, we use a four-factor model that includes the return on a broad market portfolio, a size factor, a value factor and a momentum factor. For U.K. bonds, we use a two-factor model that includes the returns on a broad market portfolio of U.K. government bonds and on U.K. government perpetual bonds (consols). Finally, for international equities, we use a four-factor model based on return indices for North America and the Europe Australasia Far Eastern Ex U.K. (EAFEX) area, augmented by a size and a small cap factor. These are Equations (1) - (3) in Section II.B. All returns are measured in percent per annum.

Table A2. Pre-Fee Return Performance by Asset Class

Second Subsample (April 1994-March 2004)

Panel A: Mean Returns

Asset Class	1%	5%	10%	25%	50%	75%	90%	95%	99%	mean
UK Equities	-4.73%	-0.03%	4.79%	8.42%	11.71%	14.28%	16.13%	17.66%	20.36%	10.90%
UK Bonds	4.21%	5.16%	6.09%	7.52%	9.02%	10.60%	12.95%	13.48%	14.40%	9.09%
International Equities	-5.90%	0.85%	2.38%	5.03%	7.93%	11.41%	13.88%	14.96%	18.16%	8.02%

Panel B: Alpha Estimates

Asset Class	1%	5%	10%	25%	50%	75%	90%	95%	99%	mean
UK Equities	-4.09%	-2.17%	-1.48%	-0.36%	0.34%	1.45%	2.72%	3.82%	6.78%	0.56%
UK Bonds	-1.71%	-0.74%	-0.35%	0.04%	0.62%	1.31%	1.98%	2.47%	4.00%	0.74%
International Equities	-10.06%	-5.74%	-3.59%	-1.07%	1.02%	3.31%	6.40%	9.18%	15.78%	1.28%

Panel C: Beta Estimates

Asset Class	1%	5%	10%	25%	50%	75%	90%	95%	99%	mean
UK Equities	0.63	0.80	0.85	0.94	1.00	1.03	1.09	1.13	1.27	0.98
UK Bonds	0.38	0.65	0.75	0.91	1.06	1.18	1.27	1.33	1.49	1.03
International Equities	0.12	0.63	0.81	0.94	1.00	1.07	1.16	1.26	1.47	0.98

Note: This table presents the raw return performance as well as the risk-adjusted return performance for the three main asset classes held by the pension funds, namely U.K. equities, U.K. bonds and international equities. All results are based on quarterly data over the period from 1994-2004. Panel A reports percentiles for the distribution of mean returns measured across funds. Panels B and C present alpha and beta estimates. For U.K. equities, we use a four-factor model that includes the return on a broad market portfolio, a size factor, a value factor and a momentum factor. For U.K. bonds, we use a two-factor model that includes the returns on a broad market portfolio of U.K. government bonds and on U.K. government perpetual bonds (consols). Finally, for international equities, we use a four-factor model based on return indices for North America and the Europe Australasia Far Eastern Ex U.K. (EAFEX) area, augmented by a size and a small cap factor. These are Equations (1) - (3) in Section II.B. All returns are measured in percent per annum.

Table A3. Annual Fees by Mandate and Asset Class

Panel A: Specialist Mandates

Asset Class	1%	5%	10%	25%	50%	75%	90%	95%	99%	mean	mean_w
UK Equities	0.00%	0.05%	0.13%	0.20%	0.33%	0.42%	0.52%	0.55%	0.59%	0.32%	0.21%
UK Bonds	0.00%	0.00%	0.01%	0.07%	0.13%	0.20%	0.27%	0.29%	0.34%	0.14%	0.07%
International Equities	0.15%	0.18%	0.27%	0.41%	0.52%	0.58%	0.62%	0.63%	0.67%	0.48%	0.41%

Panel B: Multi-Asset Mandates

Asset Class	1%	5%	10%	25%	50%	75%	90%	95%	99%	mean	mean_w
UK Equities	0.08%	0.21%	0.24%	0.30%	0.36%	0.41%	0.44%	0.45%	0.45%	0.35%	0.28%
UK Bonds	0.10%	0.24%	0.28%	0.33%	0.35%	0.41%	0.41%	0.41%	0.41%	0.35%	0.30%
International Equities	0.09%	0.21%	0.25%	0.31%	0.35%	0.39%	0.41%	0.41%	0.41%	0.34%	0.27%

Panel C: Balanced Mandates

Asset Class	1%	5%	10%	25%	50%	75%	90%	95%	99%	mean	mean_w
UK Equities	0.03%	0.11%	0.16%	0.26%	0.35%	0.38%	0.41%	0.42%	0.45%	0.31%	0.21%
UK Bonds	0.03%	0.12%	0.22%	0.31%	0.35%	0.39%	0.41%	0.41%	0.41%	0.33%	0.26%
International Equities	0.03%	0.12%	0.21%	0.30%	0.35%	0.38%	0.41%	0.41%	0.41%	0.32%	0.24%

Note: This table presents the annualized estimated fees across specialist, multi-asset and balanced mandates for the three main asset classes held by the pension funds, namely U.K. equities, U.K. bonds and international equities. All results are based on quarterly data over the period from 1984-2004. Panel A reports results for specialist mandates. Panels B and C present results for multi-asset and balanced mandates, respectively. The columns "**mean**" and "$\textbf{mean}_w$" report simple and value-weighted average fees.

Table A4. Pre-Fee Measures of Security Selection and Market Timing Skills by Mandate Type
First Subsample (March 1984-March 1994)

UK Equities

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.31%	0.223
Market Timing Beta	0.253	0.029
TM Total Performance	1.04%	0.003

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.13%	0.395
Market Timing Beta	-0.112	0.816
TM Total Performance	-0.17%	0.659

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	-0.43%	0.901
Market Timing Beta	0.120	0.000
TM Total Performance	0.06%	0.411

UK Bonds

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.71%	0.045
Market Timing Beta	0.070	0.460
TM Total Performance	0.62%	0.067

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	-0.76%	0.889
Market Timing Beta	-0.310	0.575
TM Total Performance	-0.33%	0.716

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.75%	0.106
Market Timing Beta	0.534	0.032
TM Total Performance	0.94%	0.036

International Equities

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	3.39%	0.026
Market Timing Beta	-0.939	1.000
TM Total Performance	-1.22%	0.780

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	4.48%	0.013
Beta (Market Timing)	-1.241	1.000
TM Total Performance	-1.58%	0.852

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.85%	0.236
Market Timing Beta	-0.676	1.000
TM Total Performance	-2.71%	0.976

Note: This table reports evidence of security selection and market timing skills for three types of manager, namely specialists, multi-asset managers (managing more than one asset class, but fewer than all asset classes) and balanced managers (managing all asset classes). For each mandate type, we show the average estimates of Jensen's alpha from the factor models for each asset class described in Equations (1) - (3) in Section II.B. Finally, we report the beta coefficient on the market-timing term along with the Treynor-Mazuy (TM) total performance measure. *P*-values are based on a non-parametric bootstrap that uses a one-sided test for the ability of funds to generate alphas, betas or TM measures in excess of the mean values estimated using the actual data sample. Jensen's alphas and the TM measures are reported in percent per annum.

Table A5. Pre-Fee Measures of Security Selection and Market Timing Skills by Mandate Type
Second Subsample (April 1994-March 2004)

UK Equities

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.79%	0.012
Market Timing Beta	0.007	0.461
TM Total Performance	0.92%	0.004

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.50%	0.005
Market Timing Beta	0.007	0.423
TM Total Performance	0.48%	0.005

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.55%	0.026
Market Timing Beta	-0.121	0.950
TM Total Performance	0.38%	0.083

UK Bonds

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	1.27%	0.000
Market Timing Beta	-0.409	0.664
TM Total Performance	1.00%	0.001

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.90%	0.000
Market Timing Beta	0.745	0.097
TM Total Performance	0.60%	0.004

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.51%	0.000
Market Timing Beta	-2.046	1.000
TM Total Performance	0.09%	0.306

International Equities

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	1.97%	0.005
Market Timing Beta	0.248	0.082
TM Total Performance	2.16%	0.001

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	1.53%	0.016
Beta (Market Timing)	-0.089	0.791
TM Total Performance	1.12%	0.044

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.90%	0.238
Market Timing Beta	-0.115	0.624
TM Total Performance	-0.30%	0.581

Note: This table reports evidence of security selection and market timing skills for three types of manager, namely specialists, multi-asset managers (managing more than one asset class, but fewer than all asset classes) and balanced managers (managing all asset classes). For each mandate type, we show the average estimates of Jensen's alpha from the factor models for each asset class described in Equations (1) - (3) in Section II.B. Finally, we report the beta coefficient on the market-timing term along with the Treynor-Mazuy (TM) total performance measure. *P*-values are based on a non-parametric bootstrap that uses a one-sided test for the ability of funds to generate alphas, betas or TM measures in excess of the mean values estimated using the actual data sample. Jensen's alphas and the TM measures are reported in percent per annum.

Table A6. Robustness Checks: Pre-Fee Measures of Security Selection and Market Timing Skills with Augmented Factors

UK Equities

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.67%	0.012
Market Timing Beta	0.076	0.119
TM Total Performance	0.84%	0.001

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.51%	0.003
Market Timing Beta	-0.009	0.622
TM Total Performance	0.49%	0.003

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.19%	0.213
Market Timing Beta	0.046	0.005
TM Total Performance	0.37%	0.045

UK Bonds

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	1.33%	0.000
Market Timing Beta	-0.063	0.520
TM Total Performance	1.15%	0.000

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.98%	0.000
Market Timing Beta	0.802	0.072
TM Total Performance	0.77%	0.000

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.80%	0.000
Market Timing Beta	-0.790	1.000
TM Total Performance	0.44%	0.021

International Equities

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	2.36%	0.002
Market Timing Beta	-0.043	0.612
TM Total Performance	1.92%	0.002

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	2.08%	0.001
Beta (Market Timing)	-0.345	1.000
TM Total Performance	1.15%	0.037

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.65%	0.257
Market Timing Beta	-0.565	1.000
TM Total Performance	-1.77%	0.966

Note: This table reports robustness checks for Table 3 in the main paper: i.e., it reports evidence of security selection and market timing skills for three types of manager, namely specialists, multi-asset managers (managing more than one asset class, but fewer than all asset classes) and balanced managers (managing all asset classes). The U.K. equity factor model reported as Equation (1) in Section II.B in the main paper is augmented with an international equity factor, the U.K. bond factor model reported as Equation (2) is augmented with an international bond factor and the international equities factor model reported as Equation (3) is augmented with the U.S. momentum factor from Fama and French (http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html). For each mandate type we show the average estimates of Jensen's alpha, the beta coefficient on the market-timing term along with the Treynor-Mazuy (TM) total performance measure. *P*-values are based on a non-parametric bootstrap that uses a one-sided test for the ability of funds to generate alphas, betas or TM measures in excess of the mean values estimated using the actual data sample. Jensen's alphas and the TM measures are reported in percent per annum.

Table A7. Robustness Checks: Pre-Fee Measures of Security Selection and Market Timing Skills for UK Equities

UK Equities (SMB)

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	1.03%	0.001
Market Timing Beta	-0.12	0.945
TM Total Performance	0.88%	0.004

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.35%	0.019
Market Timing Beta	0.06	0.041
TM Total Performance	0.46%	0.005

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.08%	0.358
Market Timing Beta	0.20	0.133
TM Total Performance	0.12%	0.307

UK Equities (HML)

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.75%	0.003
Market Timing Beta	0.11	0.211
TM Total Performance	0.98%	0.000

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.33%	0.031
Market Timing Beta	0.01	0.409
TM Total Performance	0.45%	0.008

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.03%	0.459
Market Timing Beta	0.15	0.087
TM Total Performance	0.00%	0.525

UK Equities (MOM)

Specialist Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.59%	0.032
Market Timing Beta	0.12	0.114
TM Total Performance	0.95%	0.001

Multi-Asset Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	0.18%	0.155
Beta (Market Timing)	0.08	0.032
TM Total Performance	0.47%	0.002

Balanced Mandates

	Avg. Coefficient	P-Value
Jensen's Alpha	-0.03%	0.544
Market Timing Beta	0.16	0.048
TM Total Performance	0.13%	0.294

Note: This table reports evidence of security selection and market timing skills for three types of manager, namely specialists, multi-asset managers (managing more than one asset class, but fewer than all asset classes) and balanced managers (managing all asset classes). For each mandate type, we show the average estimates of Jensen's alpha, the beta coefficient on the market-timing term and the Treynor-Mazuy (TM) total performance measure. The factor models used are variations of the U.K. equities model reported in Equation (1) in Section II.B., where we test for timing in the SMB (left panel), HML (center panel) and momentum (MOM) (right panel) factors. *P*-values are based on a non-parametric bootstrap that uses a one-sided test for the ability of funds to generate alphas, betas or TM measures in excess of the mean values estimated using the actual data sample. Jensen's alphas and the TM measures are reported in percent per annum.

Table A8. Robustness Checks: Pre-Fee Measures of Security Selection and Market Timing Skills for International Equities

Int Equities (NA)

Specialist Mandates

	Avg. Coef.	P-Value
J. Alpha	2.09%	0.003
Mkt. Tim. Beta	-0.13	0.907
TM Tot. Perf.	1.61%	0.013

Multi-Asset Mandates

	Avg. Coef.	P-Value
J. Alpha	1.46%	0.032
Mkt. Tim. Beta	-0.20	0.996
TM Tot. Perf.	0.91%	0.104

Balanced Mandates

	Avg. Coef.	P-Value
J. Alpha	0.17%	0.416
Mkt. Tim. Beta	-0.46	0.999
TM Tot. Perf.	-1.75%	0.952

Int Equities (EAFEX)

Specialist Mandates

	Avg. Coef.	P-Value
J. Alpha	2.44%	0.000
Mkt. Tim. Beta	-0.22	0.983
TM Tot. Perf.	1.34%	0.032

Multi-Asset Mandates

	Avg. Coef.	P-Value
J. Alpha	1.91%	0.003
Mkt. Tim. Beta	-0.32	0.999
TM Tot. Perf.	0.81%	0.123

Balanced Mandates

	Avg. Coef.	P-Value
J. Alpha	-0.43%	0.648
Mkt. Tim. Beta	-0.38	1.000
TM Tot. Perf.	-2.22%	0.978

Int Equities (SMB)

Specialist Mandates

	Avg. Coef.	P-Value
J. Alpha	1.10%	0.078
Mkt. Tim. Beta	1.54	0.086
TM Tot. Perf.	1.60%	0.014

Multi-Asset Mandates

	Avg. Coef.	P-Value
J. Alpha	0.52%	0.223
Mkt. Tim. Beta	-0.37	0.755
TM Tot. Perf.	1.00%	0.086

Balanced Mandates

	Avg. Coef.	P-Value
J. Alpha	-0.97%	0.811
Mkt. Tim. Beta	-3.96	1.000
TM Tot. Perf.	-1.85%	0.963

Int Equities (HML)

Specialist Mandates

	Avg. Coef.	P-Value
J. Alpha	1.54%	0.020
Mkt. Tim. Beta	-0.08	0.732
TM Tot. Perf.	1.40%	0.023

Multi-Asset Mandates

	Avg. Coef.	P-Value
J. Alpha	1.05%	0.089
Mkt. Tim. Beta	-0.13	0.896
TM Tot. Perf.	0.82%	0.153

Balanced Mandates

	Avg. Coef.	P-Value
J. Alpha	0.53%	0.308
Mkt. Tim. Beta	-0.98	1.000
TM Tot. Perf.	-1.56%	0.923

Note: This table reports evidence of security selection and market timing skills for three types of manager, namely specialists, multi-asset managers (managing more than one asset class, but fewer than all asset classes) and balanced managers (managing all asset classes). For each mandate type, we show the average estimates of Jensen's alpha, the beta coefficient on the market-timing term and the Treynor-Mazuy (TM) total performance measure. The factor models used are variations of the international equities model reported in Equation (3) in Section II.B., where we test for timing in the NA, EAFEX, SMB and HML factors in the panels from left to right. *P*-values are based on a non-parametric bootstrap that uses a one-sided test for the ability of funds to generate alphas, betas or TM measures in excess of the mean values estimated using the actual data sample. Jensen's alphas and the TM measures are reported in percent per annum.

Table A9. Pre-Fee Persistence in Performance by Mandate Type

Panel A: Jensen's Alpha

Specialist Mandates

	$\hat{\lambda}_0 + \hat{\lambda}_1$	$\hat{\lambda}_1$	**S.E.** $\hat{\lambda}_1$	**t-stat**	R^2
UK Equities	0.667	0.246	0.105	2.340	0.060
UK Bonds	0.882	0.282	0.180	1.566	0.108
Int. Equities	0.324	-0.143	0.104	-1.376	0.019

Multi-Asset Mandates

	$\hat{\lambda}_0 + \hat{\lambda}_1$	$\hat{\lambda}_1$	**S.E.** $\hat{\lambda}_1$	**t-stat**	R^2
UK Equities	0.456	0.166	0.086	1.926	0.030
UK Bonds	0.805	0.224	0.110	2.045	0.060
Int. Equities	0.298	-0.049	0.088	-0.561	0.003

Balanced Mandates

	$\hat{\lambda}_0 + \hat{\lambda}_1$	$\hat{\lambda}_1$	**S.E.** $\hat{\lambda}_1$	**t-stat**	R^2
UK Equities	0.516	0.002	0.023	0.096	0.000
UK Bonds	0.493	0.008	0.036	0.226	0.000
Int. Equities	0.502	-0.037	0.025	-1.509	0.001

Panel B: β_5 (Market Timing)

Specialist Mandates

	$\hat{\lambda}_0 + \hat{\lambda}_1$	$\hat{\lambda}_1$	**S.E.** $\hat{\lambda}_1$	**t-stat**	R^2
UK Equities	0.596	0.167	0.106	1.579	0.028
UK Bonds	0.722	0.278	0.204	1.361	0.074
Int. Equities	0.492	0.079	0.112	0.703	0.005

Multi-Asset Mandates

	$\hat{\lambda}_0 + \hat{\lambda}_1$	$\hat{\lambda}_1$	**S.E.** $\hat{\lambda}_1$	**t-stat**	R^2
UK Equities	0.491	-0.088	0.090	-0.987	0.008
UK Bonds	0.689	0.133	0.120	1.115	0.018
Int. Equities	0.400	-0.069	0.093	-0.746	0.005

Balanced Mandates

	$\hat{\lambda}_0 + \hat{\lambda}_1$	$\hat{\lambda}_1$	**S.E.** $\hat{\lambda}_1$	**t-stat**	R^2
UK Equities	0.523	0.030	0.023	1.285	0.001
UK Bonds	0.504	0.045	0.035	1.268	0.002
Int. Equities	0.507	0.015	0.025	0.591	0.000

Panel C: TM

Specialist Mandates

	$\hat{\lambda}_0 + \hat{\lambda}_1$	$\hat{\lambda}_1$	**S.E.** $\hat{\lambda}_1$	**t-stat**	R^2
UK Equities	0.732	0.278	0.106	2.615	0.077
UK Bonds	0.810	-0.024	0.181	-0.131	0.001
Int. Equities	0.372	-0.098	0.103	-0.959	0.010

Multi-Asset Mandates

	$\hat{\lambda}_0 + \hat{\lambda}_1$	$\hat{\lambda}_1$	**S.E.** $\hat{\lambda}_1$	**t-stat**	R^2
UK Equities	0.510	0.173	0.090	1.913	0.029
UK Bonds	0.783	0.129	0.113	1.140	0.020
Int. Equities	0.313	-0.088	0.089	-0.987	0.008

Balanced Mandates

	$\hat{\lambda}_0 + \hat{\lambda}_1$	$\hat{\lambda}_1$	**S.E.** $\hat{\lambda}_1$	**t-stat**	R^2
UK Equities	0.523	0.005	0.023	0.195	0.000
UK Bonds	0.492	0.071	0.035	1.998	0.005
Int. Equities	0.467	-0.084	0.025	-3.424	0.007

Note: This table reports the results from a regression of an indicator tracking above-median performance (estimated over a three-year period) for a particular fund/manager pairing on a constant and the fund/manager pairing's prior performance (estimated over the previous three-year period). The performance is based on the following equation (in the case of U.K. equities):

$$r_{ift} = \alpha_{if} + \beta_{1if} r_{mt} + \beta_{2if} SMB_t + \beta_{3if} HML_t + \beta_{4if} MOM_t + \beta_{5if} r_{mt}^2 + \epsilon_{ift}$$

There are similar equations described in the text for U.K. bonds and international equities. We estimate the following:

$$I_{\{\hat{\alpha}_{if} > \bar{\alpha}\}} = \lambda_0 + \lambda_1 I_{\{\hat{\alpha}_{if,-1} > \bar{\alpha}_{-1}\}} + \eta$$

A positive and significant estimate of λ_1 indicates persistence in performance. Panel A tests for persistence in the manager's alpha α_{if}. Panel B tests for persistence in the manager's market timing coefficient β_{5if}; finally, panel C tests for persistence in the manager's TM performance measure, i.e. $\alpha_{if} + \beta_{5if} \cdot Var(r_m)$.

Table A10. Pre-Fee Persistence in Performance by Mandate Type: Tercile and Decile Results

Panel A: Jensen's Alpha

Specialist Mandates

	Terciles		Deciles	
	Avg.	p-value	Avg.	p-value
UK Bonds	0.48	0.071	0.26	0.038
UK Equities	0.47	0.005	0.22	0.003
Int. Equities	0.37	0.219	0.15	0.094

Multi-Asset Mandates

	Terciles		Deciles	
	Avg.	p-value	Avg.	p-value
UK Bonds	0.54	0.000	0.18	0.041
UK Equities	0.38	0.138	0.13	0.128
Int. Equities	0.40	0.062	0.08	0.267

Balanced Mandates

	Terciles		Deciles	
	Avg.	p-value	Avg.	p-value
UK Bonds	0.39	0.001	0.14	0.011
UK Equities	0.33	0.293	0.10	0.374
Int. Equities	0.30	0.001	0.10	0.480

Panel B: β_5 (Market Timing)

Specialist Mandates

	Terciles		Deciles	
	Avg.	p-value	Avg.	p-value
UK Bonds	0.44	0.132	0.07	0.309
UK Equities	0.40	0.089	0.08	0.229
Int. Equities	0.41	0.057	0.16	0.060

Multi-Asset Mandates

	Terciles		Deciles	
	Avg.	p-value	Avg.	p-value
UK Bonds	0.31	0.306	0.07	0.157
UK Equities	0.41	0.037	0.06	0.048
Int. Equities	0.31	0.300	0.08	0.159

Balanced Mandates

	Terciles		Deciles	
	Avg.	p-value	Avg.	p-value
UK Bonds	0.36	0.070	0.12	0.018
UK Equities	0.35	0.111	0.11	0.061
Int. Equities	0.36	0.023	0.13	0.000

Panel C: TM

Specialist Mandates

	Terciles		Deciles	
	Avg.	p-value	Avg.	p-value
UK Bonds	0.52	0.035	0.11	0.429
UK Equities	0.46	0.009	0.11	0.357
Int. Equities	0.31	0.303	0.07	0.175

Multi-Asset Mandates

	Terciles		Deciles	
	Avg.	p-value	Avg.	p-value
UK Bonds	0.35	0.403	0.15	0.110
UK Equities	0.46	0.003	0.18	0.009
Int. Equities	0.33	0.449	0.11	0.374

Balanced Mandates

	Terciles		Deciles	
	Avg.	p-value	Avg.	p-value
UK Bonds	0.35	0.118	0.13	0.004
UK Equities	0.37	0.001	0.11	0.029
Int. Equities	0.34	0.289	0.09	0.076

Note: The performance is based on the following equation (in the case of U.K. equities):

$$r_{ift} = \alpha_{if} + \beta_{1if} r_{mt} + \beta_{2if} SMB_t + \beta_{3if} HML_t + \beta_{4if} MOM_t + \beta_{5if} r_{mt}^2 + \epsilon_{ift}$$

There are similar equations described in the text for U.K. bonds and international equities. We compute the frequency of equal alpha/market-timing/TM tercile (decile) rank for consecutive sub-periods for each fund/manager pairing and we average the results across funds and managers pairings. We then conduct a test of whether the conditional probability of staying in the same tercile (decile) is greater than $\frac{1}{3}$ ($\frac{1}{10}$).

Table A11. The Probability of Switching from Single to Multiple Managers: The Effect of Fund Size and Past Performance

Panel A. Aggregate Results

	δ	t-test(δ)	γ	t-test(γ)
UK Equities	0.08	2.26	-8.24	-1.21
UK Bonds	0.21	5.95	-12.90	-1.46
Int. Equities	0.13	3.50	-4.52	-1.46

Panel B. Results by Mandate Types

Specialist Mandates

	δ	t-test(δ)	γ	t-test(γ)
UK Equities	0.16	1.99	19.61	3.58
UK Bonds	0.59	3.74	-17.21	-0.54
Int. Equities	0.09	1.21	-2.15	-0.38

Multi-Asset Mandates

	δ	t-test(δ)	γ	t-test(γ)
UK Equities	0.42	2.58	-19.39	-0.84
UK Bonds	0.45	3.11	-45.00	-1.69
Int. Equities	0.48	2.96	-11.29	-0.87

Balanced Mandates

	δ	t-test(δ)	γ	t-test(γ)
UK Equities	0.15	3.17	-4.74	-0.55
UK Bonds	0.20	4.94	5.63	0.50
Int. Equities	0.20	4.28	-3.82	-1.03

Note: This table reports the results of a logit model of a fund's probability of switching from employing a single to multiple managers in a given asset class as a function of the fund's size (δ) and past performance (γ). Size is measured as the log fund size relative to the average fund size across all funds in existence at time t. Performance is measured as the average annual return in excess of the benchmark for each fund over the course of the previous year. Time-fixed effects are used. Panel A reports aggregate results while Panel B reports the results for specialist, multi-asset and balanced mandates, respectively.

Table A12. Pre-Fee Performance, Fund Size and the Number of Managers

Panel A: Scale-Economies at Fund Level

Specialist

	δ	t-test δ	γ	t-test γ	Obs.
UK Equities	0.0002648	1.81	0.0001358	0.98	11017
UK Bonds	0.0001032	1.07	0.0000964	0.73	4066
Int. Equities	-0.0009035	-3.81	-0.0000473	-0.21	8731

Multi-Asset

	δ	t-test δ	γ	t-test γ	Obs.
UK Equities	-0.0001081	-1.35	-0.0000974	-1.18	13338
UK Bonds	-0.0000242	-0.42	-0.0000424	-0.67	10488
Int. Equities	-0.0001358	-0.83	-0.0001523	-0.88	12302

Balanced

	δ	t-test δ	γ	t-test γ	Obs.
UK Equities	-0.0001768	-5.14	-0.0001818	-4.75	73045
UK Bonds	-0.0000452	-1.61	-0.0000203	-0.55	56889
Int. Equities	-0.0001441	-2.00	-0.0000886	-1.09	69958

Panel B: Scale-Economies at Manager Level

Specialist

	δ	t-test δ	γ	t-test γ	Obs.
UK Equities	0.00000	-0.03	0.00033	1.19	11017
UK Bonds	0.00050	7.08	0.00131	3.27	4066
Int. Equities	0.00071	3.40	0.00080	1.82	8731

Multi-Asset

	δ	t-test δ	γ	t-test γ	Obs.
UK Equities	0.00024	4.22	-0.00004	-0.23	13338
UK Bonds	0.00008	1.82	-0.00015	-1.08	10488
Int. Equities	-0.00026	-2.25	-0.00005	-0.12	12302

Balanced

	δ	t-test δ	γ	t-test γ	Obs.
UK Equities	0.00049	16.20	-0.00043	-5.82	73045
UK Bonds	-0.00013	-5.01	0.00012	1.69	56889
Int. Equities	0.00085	13.38	-0.00010	-0.63	69958

Note: This table presents the results from a two-stage procedure capturing the effect of fund size and number of managers on fund performance. First, we compute risk-adjusted returns using the factor models for each asset class described in the note to Table 2. In Panel A, we present a measure of risk-adjusted returns that controls for managers' skills across funds and we regress this measure on the log fund-size relative to the average fund size and a variable indicating the number of managers active in each asset class, without including a constant. In Panel B, we regress risk-adjusted returns on a constant, the log size of the manager across all funds and a variable indicating the number of managers active in each asset class. The coefficient for the size variable is δ, while the coefficient for the number of managers is γ.

II. Simulating Segregated Fund Manager Fees

The actual fees charged by fund managers to institutional clients such as pension funds under segregated mandates are not publicly disclosed. We therefore had to construct a set of simulated fund manager fees for each pension fund mandate using a dataset provided by Defaqto on retail investment fees charged by the same fund managers. Most fund managers manage both retail and institutional funds. We then used the Mercer (2006) global investment management fee survey to transform the Defaqto retail fees to segregated pension fund fees for each fund management company (FMC). We constructed a dataset of separate fees for each pension fund mandate by asset class, type of mandate (multi-asset/balanced and specialist), identity of manager and size of mandate. CAPS provided us with the identities of the FMCs behind the FMC codes in their dataset. In undertaking these simulations, it was necessary to make the assumption that the ordering of fees charged by the FMCs to retail customers carried over to their institutional clients.

Defaqto is a commercial company providing product analysis, research and data for clients in a range of financial services markets. For example, Defaqto is the data collection agent for the U.K.'s financial regulator Comparative Tables Service. The Defaqto dataset on retail investment products is an unbalanced panel for 3,589 unit trusts and OEICs (open-ended invstment trusts) – both are types of mutual funds – of annual management fees reported on a monthly basis from 31 January 1998 – 31st March 2004, which overlaps for the last six years of our CAPS dataset. We averaged these monthly fees over each quarter. There are a total of 33,384 retail fund-quarter observations over the six-year period (fee observations on retail funds are not reported for every month). As well as the annual management fee, the Defaqto dataset also has information on the name of the investment fund, the FMC that manages the fund, the size of the fund, and the IMA (Investment Management Association) defined sector to which these funds belong. We matched the relevant IMA sectors in the Defaqto dataset with the seven asset classes in the CAPS dataset.

We then performed a textual search to match the names of the FMC in the Defaqto dataset with the FMC names in the CAPS dataset. There are often multiple retail investment products sold by each FMC in each IMA sector, and we identified the largest retail fund by size (i.e., assets under management, AUM) in each case. This resulted in 1,739 retail fund-quarters, with an average of 72 retail FMCs each quarter.

Having identifed the largest retail fund by size (AUM^{Max}), we need to allow for scale effects. We ran a pooled regression of the retail management fee $Fee_{i,j}^{Defaqto}$ of FMC i for each asset class j on the natural log of $AUM_{i,j}^{Max}$ and saved the regression coefficient δ_j ($\delta_j \in (0,1)$ if there are economies of scale in fees). We then adjust the fee for each fund manager as follows:

$$Fee_{i,j}^{Defaqto,\ AUM\_adjusted} = Fee_{i,j}^{Defaqto}\left(1+\delta_j\left(\log AUM_{i,j}^{Max} - \log \overline{AUM_j}\right)\right) \qquad \text{(A1)}$$

where $\overline{AUM}_j$ is the median fund size across fund managers in asset class j. This adjustment assumes that any scale effects are constant across managers within each asset class.

Having constructed the size-adjusted management fee for a retail product for each FMC for each of the seven CAPS asset classes, we rescale the retail fees into segregated institutional fees using the Mercer global investment management fee survey. The Mercer report is an anonymous bi-annual survey of fees on more than 20,000 asset management products from over 4,000 FMCs. The survey covers both pooled retail and separately managed segregated accounts, and provides estimates of the distribution of fees charged in a range of mandate size bands (<£25m, £50m, £75m, £100m, £150m, £200m, and >£250m). The survey reveals that fund management fees typically exhibit economies of scale with lower fee rates for larger mandate sizes.

In order to maintain the cross-sectional dispersion in fees derived from the Defacto dataset, we calculate the spreads between the 95th and 5th percentiles for each asset class j for both the Defacto and Mercer datatsets: $Spread_j^{Defaqto} = 95\%\ Fee_j^{Defaqto} - 5\%\ Fee_j^{Defaqto}$ and $Spread_j^{Mercer} = 95\%\ Fee_j^{Mercer} - 5\%\ Fee_j^{Mercer}$. Using these, we define

$$\gamma_j = \frac{Spread_j^{Mercer}}{Spread_j^{Defaqto}}.$$

We derived the 2004 (end of sample) adjusted management fee for fund manager i in asset class j for a mandate of median size as:

$$Fee_{i,j}^{Rescaled} = \gamma_j\left(Fee_{i,j}^{Defaqto,\ AUM\_adjusted} - \overline{Fee}_j^{Defaqto,\ AUM\_adjusted}\right) + \overline{Fee}_j^{Mercer} \qquad \text{(A2)}$$

where: $Fee_{i,j}^{Defaqto,\ AUM\_adjusted}$ is the size-adjusted fee charged by fund manager i in asset class j in the retail dataset computed in equation (A1), $\overline{Fee}_j^{Defaqto,\ AUM\_adjusted}$ is the median fee in asset class j among size-adjusted fees, and $\overline{Fee}_j^{Mercer}$ is the median fee from the Mercer survey. The transformation in equation (A2) ensures that the rescaled fees have the same mean and spread as in the Mercer survey. We winsorize the resulting distribution so that fund managers whose fees are below the 5% level have their fees set equal to the 5% level. Similarly, fund managers whose fees are above the 95% level have their fees set equal to those of the 95% ranked fund manager.

Equation (A2) allows us to simulate segregated fund manager fees over the sample 1998-2004. Table A13 shows the distribution of these simulated fees by mandate type (balanced and specialist), and for the specialist mandates by sector. The numbers in the table are annual fees in basis points, so that the average fee for balanced mandates is 34 basis points per annum (0.34%) and N is the number of fund-quarter observations from 1984-2004.

Table A13: Distribution of Simulated Fees by Mandate Type and specialist Mandates by Sector (Basis Points Per Annum)

Balanced and Multi-Asset Mandates

Sector	N	Mean	St Dev	25%	50%	75%
All	5,268	34	10	26	35	44

Specialist Mandates

Sector	N	Mean	St Dev	25%	50%	75%
UK Bonds	4,457	22	6	15	22	26
UK Equities	5,916	42	17	34	40	58
Cash	3,159	29	32	12	13	22
Index-Linked Bonds	486	28	13	13	30	40
Property	405	17	21	20	28	30
International Bonds	2,998	37	7	28	36	43
International Equities	5,752	52	15	44	58	62

Equation (A1) makes no allowance for any time trend in fees or for the size of the pension fund mandate. We need to make adjustments for both of these effects. To obtain projections in fees back in time from 2004, we applied the time trend in pension fund fees reported in French (2008, Table III, Investment Management Cost in DB Plans) assuming this trend is the same for all managers in a given asset class:

$$\Delta Trend_t = Fees_t - Fees_{2004} \tag{A3}$$

French (2008) reports declining fees over time, so $\Delta Trend_t$ is positive for $t < 2004$ and equals

zero when $t = 2004$.[2]

We now match these simulated fees for each fund manager to the individual fund manager mandates in the CAPS dataset. For any mandates for which a matching retail fund manager is not available (which covers about 40 per cent of observations), we assume that they charge the median fee for that asset class. To allow for economies of scale in the mandate size, we again use the Mercer survey which shows the fee as a function of size of mandate. We convert all fund sizes (i.e., starting market values or smv) in our CAPS dataset to 2004 pounds sterling. For every quarter, we compute the median smv value in 2004 pounds sterling and use the corresponding range of mandate size bands from the Mercer data to match the fees. Table A14 shows the distribution of fees as a function of mandate size for each asset class from the Mercer survey.

Table A14: Simulated Fees by Mandate Size (in millions of 2004 pounds) from the Mercer Survey

Balanced and Multi-Asset Mandates

Sector	**<£25**	**£26-£50**	**£51-£75**	**£76-£100**	**£101-£150**	**£151-£200**	**>£200**
All	49	43	37	35	32	30	29

Specialist Mandates

Sector	**<£25**	**£26-£50**	**£51-£75**	**£76-£100**	**£101-£150**	**£151-£200**	**>£200**
UK Bonds	40	27	23	22	21	20	19
UK Equities	75	70	60	56	52	50	49
Cash	19	14	13	13	12	12	12
Index-Linked Bonds	30	23	20	19	18	17	17
Property	20	23	25	25	25	25	25
International Bonds	47	42	37	36	33	30	29
International Equities	74	68	61	58	53	50	50

Finally, we compute an AUM-adjustment factor for individual fund manager i by calculating the difference between the median fee for the corresponding mandate and the median mandate in asset class j:

$$\Delta AUM_{i,j} = Fee^{Mercer}_{median}(AUM_{i,j})|_{smv_i 2004} - Fee^{Mercer}_{median}(\overline{AUM_j}) \tag{A4}$$

where $Fee^{Mercer}_{median}(AUM_{i,j})|_{smv_i 2004}$ is the median fee in the Mercer survey for that fund's mandate size band and $Fee^{Mercer}_{median}(\overline{AUM_j})$ is the median fee in the Mercer survey at the median AUM_j value for asset class j. Adding (A2) - (A4), we obtain the simulated instutional fee

[2]We had access to data on fees charged by 80 U.K. pooled pension funds monitored by CAPS over the period 1984-2004 which indicates that fees were rising slightly over this period for this group of funds. We therefore experimented with a rising time trend as well as a zero trend. There were only very marginal changes in the results.

derived from the rescaled retail fee with appropriate trend and size adjustments:

$$Fee_{i,j,t}^{Institutional} = Fee_{i,j}^{Rescaled} + \Delta Trend_t + \Delta AUM_{i,j} \quad \text{(A5)}$$

These fees are simulated for each of the 535,080 mandate-quarters in the CAPS dataset. Table A15 shows the distribution of the simulated fees by mandate type. The median fee for U.K. equities is 0.0010 per cent per quarter (or 42 basis points per annum), for U.K. bonds it is 0.0004 per cent per quarter (or 16 bp per annum), and for international equities it is 0.0013 per cent per quarter (or 53 bp per annum).

Table A15: Distribution of Simulated Fees Matched to CAPS Mandate-Quarters by Mandate Type and Sector (Basis Points Per Annum)

Balanced and Multi-Asset Mandates

Sector	N	Mean	St Dev	25%	50%	75%
All	476,550	38	9	35	41	44

specialist Mandates

Sector	N	Mean	St Dev	25%	50%	75%
UK Bonds	5,785	17	10	10	16	25
UK Equities	14,525	40	17	31	42	50
Cash[3]	13,898	20	20	14	16	18
Index-Linked Bonds	3,910	19	7	13	20	22
Property	5,922	31	4	29	31	33
International Bonds	2,351	36	7	32	37	41
International Equities	12,139	50	14	43	53	60

[3]The mean fee for cash lies outside the interquartile range; this is explained by a small number of retail fund managers in the Defaqto datset charging very high fees in this asset class

II.A. Comparison with Other Sources of Pension Fund Fees

In order to assess how closely our simulated fees correspond with actual fees, we present some survey evidence on pension fund fees for segregated mandates.

II.A.1. Myners Report 2001

In 2001, HM Treasury sponsored a study of institutional fund management. Table A16 is taken from Table 5.3 in Myners (2001) and reports the ranges of fees charged in different countries for £100 million segregated pension fund mandates in equities and bonds, respectively.

The columns in Table A16 indicate median fees of 40 basis points per annum for a U.K. equity mandate and 18 basis points per annum for a U.K. bond mandate. These fees are within 2 basis points of those reported in Table A15. The distribution of fees for these two asset classes are also similar as can be seen by comparing fees at the 25, 50 and 75 percentile

Table A16: Management Fees Charged in Different Countries for £100 million Segregated Pension fund mandate (Myners, 2001)

Basis Points Per Annum

	Canada		**UK**	
	Equities	**Bonds**	**Equities**	Bonds
Upper quartile	28	22	48	23
Median fee	24	18	40	18
Lower quartile	21	16	30	17

	Australia		**US**	
	Equities	**Fixed interest**	**Equities**	**Fixed interest**
Upper quartile	47	22	50	30
Median fee	44	19	42	26
Lower quartile	40	18	33	23

points for the two asset classes in each table (e.g., (31: 42: 50) for U.K. equities from our simulation exercise in Table A15 and (30: 40: 48) from the Myners Report in Table A16).

II.A.2. Morningstar Pension Fund Fee Survey

We were able to obtain information from Morningstar on a survey that they undertake on an annual basis of fees charged by fund managers of segregated pension fund mandates by size of mandate. Summary data from this survey by asset class is given in Table A17.

Table A17: Segregated Pension Fund Manager Fees by Size (in millions of pounds) of Mandate from Morningstar (Basis Points Per Annum)

Balanced and Multi-Asset Mandates

Sector	**Sample size**	**<£25**	**£26-£50**	**£51-£75**	**£76-£100**	**£101-£150**	**£151-£200**	**>£200**
All	24	63	58	58	58	58	58	53

Specialist Mandates

Sector	**Sample size**	**<£25**	**£26-£50**	**£51-£75**	**£76-£100**	**£101-£150**	**£151-£200**	**>£200**
UK Bonds	11	30	30	25	20	20	20	20
UK Equites	17	55	45	40	40	35	35	35
WOR/I	2	18	10	8	8	8	8	8
WOR/P	4	45	45	45	45	45	45	45
International Bonds	7	35	35	35	30	30	30	30
International Equities	28	67	60	53	50	50	50	48

Comparing Table A17 with the simulated fees in Table A14, we observe that, for balanced mandates, our simulated fees are slightly lower than those in the Morningstar survey. The simulated specialist fees for U.K. bonds, international bonds and international equities are very similar to those in the Morningstar survey, while the simulated specialist fees for U.K. equity mandates are slightly higher than those in the Morningstar survey.

References

French, K. (2008) The Cost of Active Investing, *Journal of Finance*, 63, 1537-1573.

Mercer (2006), *Global Investment Management Fee Survey.*

Myners, P. (2001), *Institutional Investment in the United Kingdom: A Review*, HM Treasury, London, March.

III. Summary of a Survey of Pension Fund Industry Professionals

We conducted a survey at the request of the Editor to assess whether our interpretations of the findings in our paper were consistent with views held by pension fund industry professionals. The survey was conducted in July and August 2011 by telephone or written response. We interviewed a total of 9 professionals, comprising 2 representatives from pension funds (a senior manager and a head of innovation), 2 pension fund investment managers, 2 consultants, the head of research and a senior investment adviser at a trade association representing investment managers, and a senior policy adviser at a trade association representing pension funds.

We summarise here the responses to 7 questions that we asked.

1. In your experience, why do pensions funds decentralize? Is it purely performance-related or are there other considerations?

The consensus (supported by 8 out of 9 respondents) is that decentralization is mainly performance related: it is hard to find one balanced fund manager with skills across all assets classes. However, there also seems to be an unwillingness to fire managers.

"*It began in the late 70s/early 80s and was largely performance related. It began to be recognized that you could not be an expert in all asset classes. Having one manager managing the whole fund meant putting all your eggs in one basket. What do you do when some asset classes are underperforming? Peer-group performance assessment was coming to an end and U.K. pension funds could now invest overseas. It began to be recognized that there were centres of excellence in different investment management houses and pension funds began to seek the best in class for each asset category. This coincided with the switch to external market benchmarks in each asset class*" (Head of research at a fund managers trade association).

Although fund managers do get fired, there appears to be a reluctance to sack managers. So instead of sacking a poorly performing manager, an additional manager is hired. There appear to be strong behavioural reasons for this approach: "*The trustees and decision makers want to avoid 'finger print risk'. They want to create a distance between the outcome and their responsibility for it. We hired the best fund managers: if they can't get it right, who can?*

Don't blame us. The trustees try to create a Teflon shield to protect themselves" (Pension fund).

"*Consultants drive change*" (Fund manager) and since they will be making the same recommendation to trustees in different plans at the same time, the whole decentralization process will happen at the same time. "*Some consultants have set up a manager-of-manager service and so will be recommending use of this service*" (Fund manager) which again encourages decentralization.

2. Does the pension fund's chief investment officer and/or consultant consider shifts in risk when decentralizing? How do they monitor and control this? Is it purely through tracking error?

All respondents agreed that using multiple managers helps to diversify risk as well as improve performance:

- "*Employing managers with different styles will result in lower risk*" (Fund manager).
- "*The key is to diversify across manager risk – this is a big driver*" (Fund manager).
- "*The introduction of specialists should lead to better performance overall for the fund (net of fees). This is related to alpha-beta separation. Where markets are regarded as efficient, e.g., U.K./U.S. large cap equities, the trend is to go for passive mandates. This leaves specialists in less efficient asset classes who are given high-alpha mandates. Portfolio alpha should go up if this strategy is successful*" (Head of research at a fund managers trade association).

  There is less agreement on how risks are monitored and controlled and the role of tracking error in this:

- "*Tracking error is the principal measure used to monitor and control risk*" (Consultant). "*Large funds will have a risk measurement system that monitors the performance of the fund managers on a daily basis and controls through tracking error against the contracted mandate*" (Fund manager).

- "*Tracking error can actually undermine active management. This is because it is difficult to get alpha outperformance when there is a cap on tracking error. This has led to unconstrained portfolio management. Performance will still be measured relative to an index but will not be constrained by a tracking error limit on the benchmark. For example, the target might be an index + 2%. This would be hard to achieve if there was a tracking error constraint that effectively forced you to hold stocks in the index that you did not want to hold*" (Head of research at a fund managers trade association).

- "*Tracking error is useless. If you want to redeploy risk to give a higher return, your positions will be negatively correlated with the index. The incremental risk from doing this will be low, but the tracking error will be high. For example, during the tech stock bubble, the index was volatile and overvalued, so shorting tech stocks reduced risk, but increased tracking error*" (Fund manager).

  Some respondents preferred other risk measures, such as VaR-related measures, to tracking error. "*Instead, look at how the new position incrementally adds to (or reduces) risk. Also look at tail loss or expected shortfall in a VaR context. Also look at leverage (short cash) especially when doing ALM. Cash is not the risk free asset in ALM. So being short cash and going long bonds can reduce risk on an ALM basis*" (Fund manager).

  However, it is also recognized that "*small funds can't really control for risks: they will just be sent performance results once a quarter and that is that*" (Fund manager). "*For very small funds, the consultant will recommend that they get out of the big decision business. We will help with the SAA, but then you go passive on the rest*" (Consultant).

3. Why do funds go from balanced to specialist managers? Is it driven by performance in a particular dominant asset class, such as U.K. equities (i.e., does the CIO decide to switch to specialists mainly as a result of poor existing performance in the dominant asset class) or are there other reasons?

There appears to be a variety of reasons for this, of which poor performance in an asset class (and not necessarily the dominant one) is just one:

- "*Underperformance in U.K. equities led to the beginning of the trend towards specialists*" (Head of research at a fund managers trade association).

- "*Poor performance is usually first recognized in one of the smaller asset classes such as international equities which prompts the decision to look for a specialist there first*" (Consultant).

- "*When an industry grows and matures, it specializes. It is natural to decentralize*" (Fund manager).

- "*Specialists serve the consulting model. They decide who gets what. Blame avoidance (for the consultants) is also critical*" (Fund manager).

- "*The unbundling of fees: until the late 80s, one fee covered everything; but with unbundling, consultants were aware of specialist managers for specialist tasks, at difference prices*" (Fund manager).

- "*Changes in key personnel at a particular asset manager can also impact on the retention/removal of investment managers over time*" (Senior policy advisor at a trade association representing pension funds).

- "*In our case, it is driven by the risk budget. We make the policy decision as to which markets we will be passive in and which active. The U.S. public equities market will be passively managed, since we do not believe that we will have any comparative advantage in picking winners. But we will be active in Canadian and European equities and so we will allocate some of the risk budget to these two sectors. This allocation of the risk budget will, in turn, be used to decide on the specialist active manager to appoint for Canadian and European equities*" (Pension fund).

Developments on the liability side are also important:

- "*Better liability management (separation of matching and alpha components) and more confidence in meeting alpha targets could lead to a switch to specialists*" (Consultant).

- "*A big change in strategic asset allocation, say from equities to bonds as a result of the maturity of a pension plan, would be used as an opportunity to switch to specialist managers*" (Head of research at a fund managers trade association).

- "*Also asset allocation handled centrally off, say, liabilities or a fixed asset-mix benchmark, rather than allowing balanced manager to decide on whole asset allocation*" (Pension fund).

4. Why do funds go from specialist to multiple specialists?

There appear to be three reasons for this: diseconomies of scale, increasing specialization, and the desire to diversify fund manager risk:

- "*It's due to the size of assets and diseconomies of scale in both the asset class and the investment management house*" (Head of research at a fund managers trade association).
- "*This began in the U.S. in response to the research on decomposing risk factors. Niche fund managers began offering new specialisms: growth, value, small cap, large cap, absolute return*" (Consultant).
- "*It is better to have five managers one of whom is underperformining than one fund manager who is underperforming*" (Pension fund).

5. Why do funds go from single balanced to multiple balanced?

A number of respondents could not see the sense of this ("*No clue - its a stupid decision*" (Consultant)). Others mentioned: "*reluctance to sack manager*" (Fund manager); diseconomies of scale: "*size of mandates meant that there was a desire to add an additional balanced manager*" (Fund manager); and "*risk diversification across managers*" (Pension fund).

6. What is the role of fund size in all of this: both diseconomies of pre-fee performance and economies of fees? Are there rules-of-thumb for switching that you know about?

The consensus view (held by 7 out of 9 respondents) is that fund size is very important, and more important than fees:

- "*After a certain size, funds consider splitting. But danger of overdiversifying and paying higher fees than you need*" (Consultant).

- "*There are economies of scale in fees, but that might not compensate for poor performance as a result of fund size*" (Head of research at a fund managers trade association).

- "*There is certainly recognition about economies in fees, but [we] will not let that override a belief that there would be better performance if the fund was spread over a number of managers*" (Pension fund)

  A dissenting view was this: "*Beware when it comes to causality issues related to scale. Large funds can get access to more opportunities, but small funds can be more nimble. The quality of the board of trustees (i.e., the quality of governance) is potentially more important than size. A small fund could do better than a large fund if it has good trustees and vice versa. In general, though, the quality of the trustees is poor*" (Pension fund).

"*No rules of thumb about switching - consultants will advise*" (Fund manager).

7. Are the above decisions made solely internally within each fund or is there evidence of copycat or herding behaviour?

There is a clear consensus (by 6 out of 9 respondents) on herding behaviour and also on who is responsible for the herding behaviour:

- "*Yes, herding is reinforced by investment consultants*" (Fund manager).

- "*The U.K. market is most intermediated in the world - the investment consultants drove almost all of this and there was definite herding there!*" (Consultant).

- "*Herding is very important due to both career risk and business risk. Failure is very visible. In practice it is very difficult to deviate. There is a gravity pull towards the average. It is the industrial packaging approach to investment management: do not take too much risk and do not end up in the lower end of the rankings*" (Pension fund).

  Some respondents had different views:

- "*If there are good governance structures in place, then a pension fund would only be looking at its own liabilities which is a purely internal analysis. With other funds, there is a lot of peer-group obsession. We do not want to look different*" (Consultant).

- "*There is a question mark over what herding actually means. If there is a paradigm shift towards LDI, does this mean everyone is herding if they switch at the same time?*" (Head of research at a fund managers trade association).