
Morningstar Portfolio Risk Scoring

Empirical Analysis

Morningstar, Inc.

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Overview

In this document we present a wide range of analyses of empirical results from the Morningstar Portfolio Risk Scoring system. We calculate the Morningstar Portfolio Risk Score and Alignment Score for large representative samples of managed products in the United States, Canada, the United Kingdom, the eurozone, and Australia. The analysis is organized by country/region as follows:

Section 1: United States

Section 2: Canada

Section 3: United Kingdom

Section 4: Eurozone

Section 5: Australia

For each country/region, there are three primary subsections. In subsection “a”, for each Morningstar Category in our sample, we present the average Morningstar Portfolio Risk Score as well as the fifth, 25th, 50th, 75th, and 95th percentiles of the Morningstar Portfolio Risk Score. Subsection “b” does the same thing for the Alignment Score.

The results are relatively intuitive. Funds in bond-centric categories receive lower-risk scores; funds in equity-centric categories receive higher-risk scores; and funds in niche or sector categories receive even higher-risk scores. In terms of the Alignment Scores, funds from categories representing diversified asset-allocation funds consistently have Excellent (0 to 4) and Good (4 to 8) Alignment Scores, while funds from niche and sector categories have poor Alignment scores. All calculations are based on data as of October 2022.

United States – Section 1a | Morningstar Portfolio Risk Score by Category

For each of the Morningstar Categories with more than 20 funds in our sample of the category, Exhibit 1 presents the average Morningstar Portfolio Risk Score as well as the Morningstar Portfolio Risk at the fifth, 25th, 50th, 75th, and 95th percentiles of the Morningstar Portfolio Risk Score within each category.

Exhibit 1 United States | Morningstar Portfolio Risk Score by Category

Category	# of Portfolios	Avg	Morningstar Portfolio Risk Score Percentile				
			5%	25%	50%	75%	95%
US Fund Allocation--15% to 30% Equity	291	24	16	20	22	26	42
US Fund Allocation--30% to 50% Equity	789	42	26	35	39	47	67
US Fund Allocation--50% to 70% Equity	1404	59	44	53	58	64	83
US Fund Allocation--70% to 85% Equity	964	76	62	71	76	81	97
US Fund Allocation--85%+ Equity	619	92	76	86	93	99	107
US Fund Bank Loan	85	43	28	37	42	49	58
US Fund China Region	129	112	96	108	113	117	126
US Fund Commodities Broad Basket	48	117	92	105	110	125	172
US Fund Communications	99	113	91	101	109	116	153
US Fund Consumer Cyclical	308	131	102	112	123	142	197
US Fund Consumer Defensive	155	105	85	91	98	112	159
US Fund Corporate Bond	364	23	5	13	21	31	54
US Fund Diversified Emerging Mkts	817	104	95	101	103	107	117
US Fund Diversified Pacific/Asia	61	95	90	93	95	97	102
US Fund Emerging Markets Bond	142	74	44	67	76	82	101
US Fund Energy Limited Partnership	58	211	139	191	211	232	262
US Fund Europe Stock	211	120	108	115	120	127	134
US Fund Financial	320	124	103	114	122	128	148
US Fund Foreign Large Blend	933	102	94	100	103	105	112
US Fund Foreign Large Growth	465	104	95	100	103	107	116
US Fund Foreign Large Value	369	108	96	103	107	112	122
US Fund Foreign Small/Mid Blend	95	105	100	102	104	107	112
US Fund Foreign Small/Mid Growth	123	105	94	100	104	107	119
US Fund Foreign Small/Mid Value	77	106	97	100	106	110	120
US Fund Global Large-Stock Blend	601	97	79	96	99	102	112
US Fund Global Large-Stock Growth	318	103	93	98	102	106	119
US Fund Global Large-Stock Value	273	105	89	97	103	109	135
US Fund Global Real Estate	85	113	99	108	113	118	130
US Fund Global Small/Mid Stock	162	109	100	103	107	113	132
US Fund Health	361	102	88	92	97	106	130
US Fund High Yield Bond	329	50	25	44	51	58	71
US Fund High Yield Muni	104	36	16	33	38	42	46
US Fund Industrials	243	121	98	112	118	128	152
US Fund Inflation-Protected Bond	150	26	10	19	26	27	36
US Fund Infrastructure	181	110	92	96	99	128	136
US Fund Intermediate Core Bond	197	22	10	15	20	27	36
US Fund Intermediate Core-Plus Bond	73	20	4	15	19	23	36
US Fund Intermediate Government	47	21	13	16	21	24	28
US Fund Japan Stock	80	99	94	97	100	101	105
US Fund Large Blend	2540	102	89	99	102	105	115
US Fund Large Growth	1747	106	97	102	105	108	121
US Fund Large Value	1850	107	95	102	106	110	122

Source: Morningstar. Continued to next page.

Exhibit 1 United States | Morningstar Portfolio Risk Score by Category

Category	# of Portfolios	Avg	Morningstar Portfolio Risk Score Percentile				
			5%	25%	50%	75%	95%
US Fund Long Government	65	75	31	70	73	87	120
US Fund Long-Short Equity	119	76	32	56	72	93	128
US Fund Long-Term Bond	720	33	7	22	35	43	58
US Fund Mid-Cap Blend	651	115	103	110	115	118	132
US Fund Mid-Cap Growth	733	115	102	109	113	118	134
US Fund Mid-Cap Value	554	118	102	111	115	121	146
US Fund Multisector Bond	187	36	18	26	32	42	61
US Fund Multistrategy	63	40	21	27	33	50	84
US Fund Muni California Intermediate	89	26	4	18	27	38	40
US Fund Muni California Long	66	37	27	36	38	40	45
US Fund Muni Massachusetts	21	25	1	21	32	34	36
US Fund Muni National Interm	512	24	5	17	22	29	49
US Fund Muni National Long	695	34	6	25	36	41	62
US Fund Muni National Short	180	10	2	7	11	13	17
US Fund Muni New Jersey	24	30	13	28	32	34	39
US Fund Muni New York Intermediate	40	29	15	20	30	38	39
US Fund Muni New York Long	50	39	36	37	38	40	44
US Fund Muni Pennsylvania	29	28	5	21	33	36	40
US Fund Muni Single State Interm	136	23	9	19	23	27	34
US Fund Muni Single State Long	58	35	28	33	35	36	39
US Fund Muni Single State Short	20	13	5	11	12	14	21
US Fund Muni Target Maturity	21	15	2	6	11	21	36
US Fund Natural Resources	67	157	104	127	146	179	232
US Fund Nontraditional Bond	126	37	15	22	30	44	79
US Fund Options Trading	138	53	28	40	49	60	73
US Fund Pacific/Asia ex-Japan Stk	83	101	92	98	100	104	109
US Fund Real Estate	317	109	101	106	109	111	123
US Fund Short Government	70	10	5	7	9	14	15
US Fund Short-Term Bond	329	12	6	9	11	15	17
US Fund Small Blend	815	120	108	116	118	121	130
US Fund Small Growth	632	119	108	115	119	122	132
US Fund Small Value	513	126	110	118	122	126	153
US Fund Static Large Growth	75	102	94	99	104	106	110
US Fund Static Large Value	55	104	95	101	103	107	113
US Fund Static Mid-Cap Equity	60	113	101	109	113	117	125
US Fund Static Non US Equity	135	101	96	100	101	103	111
US Fund Static Real Estate	25	105	93	106	108	108	109
US Fund Static Small-Cap Equity	65	118	111	116	118	121	126
US Fund Static US Government	39	21	1	10	26	27	28
US Fund Tactical Allocation	443	68	28	49	65	81	122
US Fund Target-Date 2000-2010	76	32	21	23	30	36	46
US Fund Target-Date 2015	70	37	28	32	38	40	51
US Fund Target-Date 2020	106	43	32	39	43	46	58
US Fund Target-Date 2025	124	50	37	47	51	54	63
US Fund Target-Date 2030	175	59	42	55	59	63	74
US Fund Target-Date 2035	200	69	53	65	69	74	82
US Fund Target-Date 2040	225	77	63	73	78	82	90
US Fund Target-Date 2045	245	83	68	79	85	88	93
US Fund Target-Date 2050	242	86	75	83	88	91	95
US Fund Target-Date 2055	257	88	77	84	89	92	96
US Fund Target-Date 2060	253	88	77	84	89	92	96
US Fund Target-Date 2065+	161	89	77	85	90	93	96
US Fund Target-Date Retirement	71	34	19	24	30	37	71

Source: Morningstar. Continued to next page.

Exhibit 1 United States | Morningstar Portfolio Risk Score by Category

Category	# of Portfolios	Avg	Morningstar Portfolio Risk Score Percentile				
			5%	25%	50%	75%	95%
US Fund Technology	613	116	102	108	113	120	144
US Fund Trading--Inverse Equity	89	279	98	156	244	368	524
US Fund Trading--Leveraged Equity	117	310	146	202	262	388	556
US Fund Ultrashort Bond	68	4	0	1	3	5	7
US Fund Utilities	175	97	90	92	94	98	110
US Fund World Large Stock	49	101	94	97	99	103	114

Source: Morningstar.

United States – Section 1b | Alignment Score by Category

For each Morningstar Category in our sample with at least 20 funds, Exhibit 2 presents the average Alignment Score as well as the Alignment Score at the fifth, 25th, 50th, 75th, and 95th percentiles of the Alignment Score. The Alignment Score by RBSA measures the mismatch between funds and the asset-allocation benchmarks that the MPRS uses to assess their risk. These mismatches are due to both asset-allocation misfit and idiosyncratic risk. The Alignment Score by HBSA measures the mismatch between funds and the benchmarks in terms of their factor exposures and idiosyncratic risk. Notice categories like Energy Limited Partnership or Inverse Equity have much higher alignment scores than the Allocation categories.

Exhibit 2 United States | Alignment Score by Category

Category	Alignment Score Percentile					
	Avg	5%	25%	50%	75%	95%
US Fund Allocation--15% to 30% Equity	4	0	1	2	4	13
US Fund Allocation--30% to 50% Equity	2	0	1	1	3	8
US Fund Allocation--50% to 70% Equity	3	1	1	1	3	9
US Fund Allocation--70% to 85% Equity	2	1	1	1	2	9
US Fund Allocation--85%+ Equity	3	1	1	1	2	11
US Fund Bank Loan	25	18	22	24	28	32
US Fund China Region	93	57	87	96	105	119
US Fund Commodities Broad Basket	75	50	67	72	76	115
US Fund Communications	37	11	16	28	47	93
US Fund Consumer Cyclical	40	10	17	27	45	115
US Fund Consumer Defensive	38	14	18	31	46	89
US Fund Corporate Bond	35	5	13	22	49	119
US Fund Diversified Emerging Mkts	36	25	32	36	39	45
US Fund Diversified Pacific/Asia	48	36	43	49	52	63
US Fund Emerging Markets Bond	34	23	31	34	37	49
US Fund Energy Limited Partnership	119	64	102	118	134	170
US Fund Europe Stock	29	24	27	29	31	36
US Fund Financial	24	10	14	18	28	52
US Fund Foreign Large Blend	22	14	20	22	25	29
US Fund Foreign Large Growth	21	14	17	21	25	30
US Fund Foreign Large Value	24	18	22	24	27	32
US Fund Foreign Small/Mid Blend	21	17	20	21	23	29
US Fund Foreign Small/Mid Growth	23	12	18	22	26	30
US Fund Foreign Small/Mid Value	24	19	22	24	25	30
US Fund Global Large-Stock Blend	5	1	1	3	6	17
US Fund Global Large-Stock Growth	9	3	4	6	12	22
US Fund Global Large-Stock Value	9	3	5	7	11	25
US Fund Global Real Estate	33	29	31	33	35	38
US Fund Global Small/Mid Stock	12	3	5	9	14	27
US Fund Health	30	14	19	22	32	68
US Fund High Yield Bond	18	12	14	16	20	29
US Fund High Yield Muni	65	19	57	72	82	96
US Fund Industrials	23	6	10	15	29	62
US Fund Inflation-Protected Bond	36	11	21	36	37	59
US Fund Infrastructure	22	10	13	17	22	49
US Fund Intermediate Core Bond	29	6	18	24	38	59
US Fund Intermediate Core-Plus Bond	24	2	11	18	25	65
US Fund Intermediate Government	27	11	18	24	31	40
US Fund Japan Stock	88	82	85	87	91	97

Source: Morningstar. Continued on next page.

Exhibit 2 United States | Alignment Score by Category

Category	Alignment Score Percentile					
	Avg	5%	25%	50%	75%	95%
US Fund Large Blend	7	2	4	5	7	13
US Fund Large Growth	11	4	7	9	12	21
US Fund Large Value	9	4	5	7	9	14
US Fund Long Government	173	29	165	172	196	276
US Fund Long-Short Equity	36	6	18	32	46	90
US Fund Long-Term Bond	57	8	24	56	79	130
US Fund Mid-Cap Blend	11	5	7	8	11	22
US Fund Mid-Cap Growth	14	6	8	11	14	26
US Fund Mid-Cap Value	16	6	8	10	12	69
US Fund Multisector Bond	16	6	10	13	18	29
US Fund Multistategy	18	7	10	13	22	41
US Fund Muni California Intermediate	40	5	21	34	69	74
US Fund Muni California Long	68	38	65	70	75	90
US Fund Muni Massachusetts	41	2	25	51	58	65
US Fund Muni National Interm	32	5	20	25	40	71
US Fund Muni National Long	56	7	29	58	72	123
US Fund Muni National Short	12	2	8	12	16	20
US Fund Muni New Jersey	46	14	42	51	56	68
US Fund Muni New York Intermediate	46	18	23	47	70	73
US Fund Muni New York Long	72	63	68	71	74	88
US Fund Muni Pennsylvania	46	5	25	56	63	73
US Fund Muni Single State Interm	30	9	22	27	39	55
US Fund Muni Single State Long	59	42	56	61	65	70
US Fund Muni Single State Short	15	6	13	14	16	25
US Fund Muni Target Maturity	21	3	7	13	24	65
US Fund Natural Resources	61	21	29	49	85	133
US Fund Nontraditional Bond	21	7	11	18	25	51
US Fund Options Trading	15	5	8	10	14	26
US Fund Pacific/Asia ex-Japan Stk	42	22	34	44	51	61
US Fund Real Estate	23	17	21	21	23	36
US Fund Short Government	12	5	8	10	16	18
US Fund Short-Term Bond	13	6	9	13	17	20
US Fund Small Blend	14	7	8	10	12	21
US Fund Small Growth	15	8	10	12	14	31
US Fund Small Value	21	9	11	13	15	68
US Fund Static Large Growth	8	1	4	9	12	13
US Fund Static Large Value	5	4	4	5	6	10
US Fund Static Mid-Cap Equity	8	5	6	8	11	15
US Fund Static Non US Equity	21	3	19	21	25	38
US Fund Static Real Estate	20	15	19	19	21	26
US Fund Static Small-Cap Equity	9	7	7	9	11	13
US Fund Static US Government	30	1	11	36	37	41
US Fund Tactical Allocation	24	3	9	17	33	64

Source: Morningstar. Continued on next page.

Exhibit 2 United States | Alignment Score by Category

Category	Alignment Score Percentile					
	Avg	5%	25%	50%	75%	95%
US Fund Target-Date 2000-2010	1	0	0	0	1	2
US Fund Target-Date 2015	2	0	0	1	1	2
US Fund Target-Date 2020	2	0	0	1	1	5
US Fund Target-Date 2025	1	0	1	1	1	3
US Fund Target-Date 2030	2	0	1	1	1	4
US Fund Target-Date 2035	1	1	1	1	1	3
US Fund Target-Date 2040	1	1	1	1	1	2
US Fund Target-Date 2045	1	1	1	1	1	2
US Fund Target-Date 2050	1	1	1	1	1	2
US Fund Target-Date 2055	1	1	1	1	1	2
US Fund Target-Date 2060	1	1	1	1	1	2
US Fund Target-Date 2065+	1	1	1	1	1	2
US Fund Target-Date Retirement	1	0	0	1	1	5
US Fund Technology	23	8	13	17	23	60
US Fund Trading--Inverse Equity	294	103	169	264	379	552
US Fund Trading--Leveraged Equity	183	39	75	128	255	449
US Fund Ultrashort Bond	6	0	1	3	5	8
US Fund Utilities	34	20	28	33	37	50
US Fund World Large Stock	6	1	2	4	8	21

Source: Morningstar.

Canada – Section 2a | Morningstar Portfolio Risk Score by Category

For each of the Categories as determined by the Canadian Investment Funds Standards Committee, or CIFS, at least 20 funds in our sample in Exhibit 4 present the average Morningstar Portfolio Risk Score as well as the fifth, 25th, 50th, 75th, and 95th percentiles of the Morningstar Portfolio Risk Score within each category.

Exhibit 3 Canada | Morningstar Portfolio Risk Score by Category

Category	# of Portfolios	Avg	Morningstar Portfolio Risk Score Percentile				
			5%	25%	50%	75%	95%
Canada Fund 2025 Target Date Portfolio	49	39	17	31	41	47	56
Canada Fund 2030 Target Date Portfolio	35	50	29	45	50	57	66
Canada Fund 2035 Target Date Portfolio	36	63	47	58	65	70	75
Canada Fund 2035+ Target Date Portfolio	220	77	50	69	82	88	96
Canada Fund Alternative Equity Focused	37	127	45	70	117	149	268
Canada Fund Asia Pacific Equity	19	99	92	96	99	99	108
Canada Fund Canadian Corporate Fixed Income	43	19	13	17	20	21	23
Canada Fund Canadian Dividend & Income Equity	153	99	89	96	99	103	108
Canada Fund Canadian Equity	487	106	91	99	102	104	128
Canada Fund Canadian Equity Balanced	95	36	19	26	34	40	56
Canada Fund Canadian Fixed Income	288	28	19	26	27	28	37
Canada Fund Canadian Focused Equity	194	99	90	97	100	104	106
Canada Fund Canadian Focused Small/Mid Cap Equity	20	107	95	101	101	107	128
Canada Fund Canadian Money Market	63	0	0	0	0	0	0
Canada Fund Canadian Neutral Balanced	222	54	37	49	54	58	69
Canada Fund Canadian Short Term Fixed Income	89	10	2	9	10	12	18
Canada Fund Canadian Small/Mid Cap Equity	87	107	99	103	107	110	119
Canada Fund Emerging Markets Equity	123	103	97	101	103	105	110
Canada Fund European Equity	50	116	106	111	113	115	123
Canada Fund Financial Services Equity	31	120	110	112	116	130	137
Canada Fund Global Corporate Fixed Income	28	39	18	30	43	49	52
Canada Fund Global Equity	743	97	83	93	98	101	109
Canada Fund Global Equity Balanced	419	70	54	64	70	75	87
Canada Fund Global Fixed Income	86	24	10	18	22	27	37
Canada Fund Global Fixed Income Balanced	132	32	21	24	33	38	45
Canada Fund Global Infrastructure Equity	45	95	91	91	94	96	103
Canada Fund Global Neutral Balanced	328	54	38	50	55	59	66
Canada Fund Global Small/Mid Cap Equity	91	111	92	101	105	108	121
Canada Fund High Yield Fixed Income	79	60	32	48	61	70	93
Canada Fund International Equity	325	102	88	100	103	106	113
Canada Fund Miscellaneous - Income and Real Property	20	72	36	59	68	88	119
Canada Fund Natural Resources Equity	31	138	121	133	137	141	162
Canada Fund North American Equity	46	111	82	95	98	104	123
Canada Fund Real Estate Equity	43	99	92	97	99	102	107
Canada Fund Sector Equity	91	108	88	93	107	114	150
Canada Fund Short-term Target Date Portfolio	35	42	30	36	39	50	50
Canada Fund Tactical Balanced	67	58	25	47	58	68	89
Canada Fund US Equity	617	104	89	99	101	103	115
Canada Fund US Small/Mid Cap Equity	73	113	104	107	111	116	136

Source: Morningstar.

Canada – Section 2b | Alignment Score by Category

For each of the Categories as determined by the Canadian Investment Funds Standards Committee, or CIFSC, with more than at least 20 funds, Exhibit 5 presents the average Alignment Score as well as the fifth, 25th, 50th, 75th, and 95th percentiles of the Alignment Score.

Exhibit 4 Canada | Alignment Score by Category

Category	Alignment Score Percentile					
	Avg	5%	25%	50%	75%	95%
Canada Fund 2025 Target Date Portfolio	3	1	1	1	2	11
Canada Fund 2030 Target Date Portfolio	5	0	1	1	1	32
Canada Fund 2035 Target Date Portfolio	1	0	1	1	1	1
Canada Fund 2035+ Target Date Portfolio	1	0	1	1	1	2
Canada Fund Alternative Equity Focused	72	20	27	49	91	245
Canada Fund Asia Pacific Equity	40	29	33	35	39	66
Canada Fund Asia Pacific ex-Japan Equity	34	28	29	30	38	47
Canada Fund Canadian Corporate Fixed Income	21	11	17	21	23	26
Canada Fund Canadian Dividend and Income Equity	4	2	3	4	5	7
Canada Fund Canadian Equity	10	2	3	4	6	20
Canada Fund Canadian Equity Balanced	3	1	1	2	3	7
Canada Fund Canadian Fixed Income	38	16	32	35	39	60
Canada Fund Canadian Fixed Income Balanced	5	2	3	3	5	9
Canada Fund Canadian Focused Equity	4	1	2	3	6	8
Canada Fund Canadian Focused Small/Mid Cap Equity	12	5	7	8	10	25
Canada Fund Canadian Money Market	0	0	0	0	0	0
Canada Fund Canadian Neutral Balanced	2	1	1	1	2	3
Canada Fund Canadian Short Term Fixed Income	6	0	4	5	7	10
Canada Fund Canadian Small/Mid Cap Equity	10	5	7	10	11	16
Canada Fund Emerging Markets Equity	27	20	24	26	30	35
Canada Fund Energy Equity	31	17	27	31	33	47
Canada Fund European Equity	26	17	22	23	24	29
Canada Fund Financial Services Equity	17	9	11	14	24	29
Canada Fund Global Corporate Fixed Income	16	7	13	15	17	25
Canada Fund Global Equity	6	1	3	4	8	17
Canada Fund Global Equity Balanced	2	0	1	1	2	8
Canada Fund Global Fixed Income	30	6	20	25	36	59
Canada Fund Global Fixed Income Balanced	2	0	1	1	2	5
Canada Fund Global Infrastructure Equity	10	6	7	10	12	15
Canada Fund Global Neutral Balanced	2	0	1	1	2	5
Canada Fund Global Small/Mid Cap Equity	17	3	4	8	14	25
Canada Fund Greater China Equity	92	69	80	93	104	114
Canada Fund High Yield Fixed Income	23	14	17	21	26	34
Canada Fund International Equity	16	11	14	16	19	24
Canada Fund Miscellaneous - Income and Real Property	29	7	20	27	35	46
Canada Fund Natural Resources Equity	28	15	18	22	37	60
Canada Fund North American Equity	23	2	5	7	9	22
Canada Fund Real Estate Equity	16	13	14	15	17	21
Canada Fund Sector Equity	26	9	18	22	31	61
Canada Fund Short-term Target Date Portfolio	1	1	1	1	1	2
Canada Fund Tactical Balanced	12	2	5	8	14	28
Canada Fund US Equity	15	7	9	10	13	22
Canada Fund US Small/Mid Cap Equity	16	10	12	16	19	24

Source: Morningstar.

United Kingdom – Section 3a | Morningstar Portfolio Risk Score by Category

For each of the Morningstar Categories with more than 20 funds, Exhibit 7 presents the average Morningstar Portfolio Risk Score as well as the fifth, 25th, 50th, 75th, and 95th percentiles of the Morningstar Portfolio Risk Score within each category.

Exhibit 5 United Kingdom | Morningstar Portfolio Risk Score by Category

Category	# of Portfolios	Avg	Morningstar Portfolio Risk Score Percentile				
			5%	25%	50%	75%	95%
EAA Fund Asia ex-Japan Equity	30	99	96	98	100	100	103
EAA Fund Europe ex-UK Equity	131	118	110	115	116	121	129
EAA Fund Europe ex-UK Small/Mid-Cap Equity	25	120	115	116	120	122	132
EAA Fund GBP Allocation 0-20% Equity	84	32	8	18	23	39	78
EAA Fund GBP Allocation 20-40% Equity	134	31	13	26	31	36	42
EAA Fund GBP Allocation 40-60% Equity	272	48	34	43	49	55	61
EAA Fund GBP Allocation 60-80% Equity	411	67	52	61	67	72	80
EAA Fund GBP Allocation 80%+ Equity	418	80	51	73	82	88	99
EAA Fund GBP Corporate Bond	85	50	30	44	49	55	79
EAA Fund GBP Diversified Bond	27	38	13	32	38	44	64
EAA Fund GBP Flexible Allocation	73	69	33	55	67	82	109
EAA Fund GBP Government Bond	64	49	15	40	44	67	78
EAA Fund GBP Inflation-Linked Bond	21	82	17	82	89	98	99
EAA Fund Global Emerging Markets Equity	111	101	94	99	101	104	108
EAA Fund Global Flexible Bond - GBP Hedged	50	786	10	35	45	58	72
EAA Fund Global Large-Cap Growth Equity	84	99	89	95	97	102	112
EAA Fund Miscellaneous Region	260	133	98	111	128	144	189
EAA Fund Other Allocation	20	61	10	41	69	86	102
EAA Fund Other Equity	231	105	91	97	101	112	126
EAA Fund UK Equity Income	104	116	103	111	117	122	130
EAA Fund UK Flex-Cap Equity	95	119	103	112	119	125	136
EAA Fund UK Large-Cap Equity	193	113	102	107	113	118	127
EAA Fund UK Mid-Cap Equity	20	123	105	122	126	130	132
EAA Fund UK Small-Cap Equity	94	115	102	108	114	122	129

Source: Morningstar. Continued on next page.

United Kingdom – Section 3b | Alignment Score by Category

For each Morningstar Category with more than 20 funds in our sample, Exhibit 8 presents the average Alignment Score as well as the fifth, 25th, 50th, 75th, and 95th percentiles of the Alignment Score.

Exhibit 6 United Kingdom | Alignment Score by Category

Category	Alignment Score Percentile					
	Avg	5%	25%	50%	75%	95%
EAA Fund Asia ex-Japan Equity	34	23	31	35	38	42
EAA Fund Europe ex-UK Equity	15	12	13	14	16	20
EAA Fund Europe ex-UK Small/Mid-Cap Equity	16	13	15	16	18	20
EAA Fund GBP Allocation 0-20% Equity	7	1	2	2	4	13
EAA Fund GBP Allocation 20-40% Equity	3	1	1	2	3	6
EAA Fund GBP Allocation 40-60% Equity	2	1	1	1	2	6
EAA Fund GBP Allocation 60-80% Equity	2	1	1	1	2	7
EAA Fund GBP Allocation 80%+ Equity	3	1	1	2	3	7
EAA Fund GBP Corporate Bond	23	10	17	20	23	61
EAA Fund GBP Diversified Bond	26	5	11	22	30	54
EAA Fund GBP Flexible Allocation	17	7	11	16	22	31
EAA Fund GBP Government Bond	86	12	69	74	113	161
EAA Fund GBP Inflation-Linked Bond	108	10	114	120	135	137
EAA Fund Global Emerging Markets Equity	25	20	23	25	28	32
EAA Fund Global Flexible Bond - GBP Hedged	15	6	11	14	18	27
EAA Fund Global Large-Cap Growth Equity	9	3	5	7	10	21
EAA Fund Miscellaneous Region	45	10	19	32	55	114
EAA Fund Other Allocation	5	1	2	3	7	12
EAA Fund Other Equity	19	3	6	13	21	76
EAA Fund UK Equity Income	12	9	11	12	14	19
EAA Fund UK Flex-Cap Equity	13	8	10	13	16	18
EAA Fund UK Large-Cap Equity	12	8	9	11	12	17
EAA Fund UK Mid-Cap Equity	16	14	15	16	18	21
EAA Fund UK Small-Cap Equity	18	12	14	16	19	27

Source: Morningstar. Continued on next page.

Eurozone – Section 4a | Morningstar Portfolio Risk Score by Category

For each of the Morningstar Categories with more than 20 funds, we present the average Morningstar Portfolio Risk Score as well as the fifth, 25th, 50th, 75th, and 95th percentiles of the Morningstar Portfolio Risk Score within each category.

Exhibit 7 Eurozone | Morningstar Portfolio Risk Score by Category

Category	# of Portfolios	Avg	Morningstar Portfolio Risk Score Percentile				
			5%	25%	50%	75%	95%
EAA Fund Asia ex-Japan Equity	170	97	90	95	97	99	104
EAA Fund CHF Cautious Allocation	78	23	7	15	22	26	39
EAA Fund CHF Moderate Allocation	91	47	32	40	43	50	78
EAA Fund Convertible Bond - Europe	71	47	37	43	47	50	58
EAA Fund Convertible Bond - Global, EUR Hedged	115	66	47	56	65	72	87
EAA Fund Emerging Europe Equity	21	123	108	118	124	128	134
EAA Fund Equity Market Neutral EUR	20	37	12	15	18	34	101
EAA Fund EUR Aggressive Allocation	132	83	57	71	82	95	113
EAA Fund EUR Aggressive Allocation - Global	476	76	55	67	74	84	101
EAA Fund EUR Bond - Long Term	44	75	39	56	62	80	147
EAA Fund EUR Cautious Allocation	224	27	8	17	27	32	48
EAA Fund EUR Cautious Allocation - Global	394	24	8	17	23	29	46
EAA Fund EUR Corporate Bond	360	28	10	24	28	32	41
EAA Fund EUR Corporate Bond - Short Term	84	10	3	6	8	11	22
EAA Fund EUR Diversified Bond	379	17	7	10	16	22	30
EAA Fund EUR Diversified Bond - Short Term	150	7	4	5	6	7	13
EAA Fund EUR Flexible Allocation	325	72	31	52	67	88	119
EAA Fund EUR Flexible Allocation - Global	593	65	11	47	66	88	109
EAA Fund EUR Flexible Bond	202	31	7	15	28	44	67
EAA Fund EUR Government Bond	255	23	10	20	24	27	33
EAA Fund EUR Government Bond - Short Term	42	8	6	7	8	9	12
EAA Fund EUR High Yield Bond	171	59	36	52	59	64	77
EAA Fund EUR Inflation-Linked Bond	54	18	10	12	19	20	26
EAA Fund EUR Moderate Allocation	164	52	30	45	51	58	75
EAA Fund EUR Moderate Allocation - Global	565	49	28	40	47	54	79
EAA Fund EUR Money Market	92	1	0	1	1	1	5
EAA Fund EUR Subordinated Bond	72	59	40	52	58	67	84
EAA Fund EUR Ultra Short-Term Bond	75	5	1	3	4	6	9
EAA Fund Europe Equity Income	86	107	98	103	106	110	117
EAA Fund Europe ex-UK Equity	85	107	101	105	106	110	118
EAA Fund Europe ex-UK Small/Mid-Cap Equity	27	107	100	104	107	110	113
EAA Fund Europe Flex-Cap Equity	143	108	94	103	107	113	124
EAA Fund Europe Large-Cap Blend Equity	622	104	94	102	104	107	113
EAA Fund Europe Large-Cap Growth Equity	95	102	92	100	102	106	111
EAA Fund Europe Large-Cap Value Equity	81	112	97	108	112	116	122
EAA Fund Europe Mid-Cap Equity	69	109	96	106	109	113	116
EAA Fund Europe Small-Cap Equity	141	109	93	105	110	113	119
EAA Fund Eurozone Flex-Cap Equity	57	109	95	106	110	112	122
EAA Fund Eurozone Large-Cap Equity	423	111	99	108	112	115	118
EAA Fund Eurozone Mid-Cap Equity	37	108	92	106	110	112	118
EAA Fund Eurozone Small-Cap Equity	45	105	88	98	107	114	117
EAA Fund Finland Equity	32	111	101	110	112	113	116
EAA Fund Fixed Term Bond	135	39	3	12	38	62	86
EAA Fund France Equity	97	114	97	111	115	117	120
EAA Fund France Small/Mid-Cap Equity	74	104	88	99	105	110	116
EAA Fund GBP Allocation 20-40% Equity	32	30	15	21	29	38	46
EAA Fund GBP Allocation 40-60% Equity	74	48	31	41	48	53	68
EAA Fund GBP Allocation 60-80% Equity	72	70	56	65	69	74	84
EAA Fund GBP Allocation 80%+ Equity	64	76	49	69	77	83	96
EAA Fund GBP Government Bond	30	39	14	27	42	46	69

Source: Morningstar. Continued on next page.

Exhibit 7 Eurozone | Morningstar Portfolio Risk Score by Category

Category	# of Portfolios	Avg	Morningstar Portfolio Risk Score Percentile				
			5%	25%	50%	75%	95%
EAA Fund Germany Equity	74	114	106	112	115	117	126
EAA Fund Germany Small/Mid-Cap Equity	33	115	98	109	118	120	129
EAA Fund Global Bond	56	15	7	10	17	19	25
EAA Fund Global Bond - EUR Biased	31	12	7	8	11	14	20
EAA Fund Global Bond - EUR Hedged	191	22	5	10	13	23	44
EAA Fund Global Corporate Bond - EUR Hedged	97	35	10	32	36	41	47
EAA Fund Global Emerging Markets Bond - EUR Biased	225	77	44	67	77	85	102
EAA Fund Global Emerging Markets Corporate Bond - EUR Biased	84	69	39	55	68	82	106
EAA Fund Global Emerging Markets Equity	597	99	89	97	98	101	107
EAA Fund Global Flexible Bond - EUR Hedged	222	38	10	26	37	48	66
EAA Fund Global High Yield Bond - EUR Hedged	160	62	37	55	62	69	85
EAA Fund Global Inflation-Linked Bond - EUR Hedged	47	23	8	11	26	33	37
EAA Fund Global Large-Cap Blend Equity	1486	95	82	93	96	98	105
EAA Fund Global Large-Cap Growth Equity	415	98	90	94	98	101	110
EAA Fund Guaranteed Funds	172	17	3	6	8	14	70
EAA Fund Italy Equity	57	109	90	104	110	115	118
EAA Fund Long/Short Equity - Europe	45	60	13	45	58	77	111
EAA Fund Macro Trading EUR	78	59	10	30	38	56	184
EAA Fund Multistrategy EUR	126	37	9	23	32	44	69
EAA Fund Other Allocation	1131	62	4	37	64	88	113
EAA Fund Other Equity	2171	102	89	96	100	107	118
EAA Fund Property - Indirect Europe	47	139	120	135	141	144	158
EAA Fund Spain Equity	79	134	110	125	134	140	168
EAA Fund Systematic Trend EUR	20	87	12	49	101	115	165
EAA Fund Target Date 2021 - 2025	27	27	5	12	29	39	50
EAA Fund Target Date 2026 - 2030	34	49	9	28	52	64	93
EAA Fund Target Date 2031 - 2035	21	54	25	44	51	70	83
EAA Fund Target Date 2046+	41	85	66	82	84	97	99
EAA Fund UK Equity Income	30	105	92	101	106	110	118
EAA Fund UK Flex-Cap Equity	43	109	97	102	108	114	121
EAA Fund UK Large-Cap Equity	90	105	96	102	104	108	115
EAA Fund US Flex-Cap Equity	43	107	95	101	107	112	123
EAA Fund USD Aggressive Allocation	93	73	54	64	71	80	97
EAA Fund USD Flexible Allocation	98	65	12	49	63	86	106
EAA Fund USD Moderate Allocation	113	51	32	42	50	55	74

Source: Morningstar. Continued on next page.

Eurozone – Section 4b | Alignment Score by Category

For each Morningstar Category with at least 20 funds in our sample, Exhibit 11 presents the average Alignment Score as well as the fifth, 25th, 50th, 75th, and 95th percentiles of the Alignment Scores.

Exhibit 8 Eurozone | Alignment Score by Category

Category	Alignment Score Percentile					
	Avg	5%	25%	50%	75%	95%
EAA Fund Asia ex-Japan Equity	39	29	35	38	42	50
EAA Fund CHF Cautious Allocation	6	2	3	4	5	18
EAA Fund CHF Moderate Allocation	4	1	2	2	4	8
EAA Fund Convertible Bond - Europe	12	9	10	13	14	17
EAA Fund Convertible Bond - Global, EUR Hedged	23	11	17	22	27	39
EAA Fund Emerging Europe Equity	28	22	24	27	32	37
EAA Fund Equity Market Neutral EUR	33	11	13	17	26	84
EAA Fund EUR Aggressive Allocation	3	1	1	2	4	7
EAA Fund EUR Aggressive Allocation - Global	3	1	1	2	3	7
EAA Fund EUR Bond - Long Term	112	49	75	97	132	228
EAA Fund EUR Cautious Allocation	4	1	2	3	5	8
EAA Fund EUR Cautious Allocation - Global	4	1	1	3	4	9
EAA Fund EUR Corporate Bond	10	3	7	9	11	16
EAA Fund EUR Corporate Bond - Short Term	6	2	3	5	7	11
EAA Fund EUR Diversified Bond	10	2	4	8	15	25
EAA Fund EUR Diversified Bond - Short Term	6	2	3	5	6	12
EAA Fund EUR Flexible Allocation	19	4	9	14	22	46
EAA Fund EUR Flexible Allocation - Global	6	1	2	3	7	19
EAA Fund EUR Flexible Bond	14	4	9	12	18	31
EAA Fund EUR Government Bond	30	7	19	32	37	49
EAA Fund EUR Government Bond - Short Term	7	4	6	7	8	10
EAA Fund EUR High Yield Bond	20	13	16	18	22	30
EAA Fund EUR Inflation-Linked Bond	17	8	10	18	20	26
EAA Fund EUR Moderate Allocation	3	1	1	2	4	7
EAA Fund EUR Moderate Allocation - Global	3	1	1	2	3	7
EAA Fund EUR Money Market	1	0	0	0	1	4
EAA Fund EUR Subordinated Bond	20	13	17	20	24	28
EAA Fund EUR Ultra Short-Term Bond	4	1	3	4	6	8
EAA Fund Europe Equity Income	5	3	3	4	5	8
EAA Fund Europe ex-UK Equity	5	2	3	4	6	9
EAA Fund Europe ex-UK Small/Mid-Cap Equity	8	4	6	8	9	11
EAA Fund Europe Flex-Cap Equity	6	2	4	5	8	12
EAA Fund Europe Large-Cap Blend Equity	4	2	2	3	4	8
EAA Fund Europe Large-Cap Growth Equity	7	3	5	6	8	12
EAA Fund Europe Large-Cap Value Equity	6	3	3	4	6	8
EAA Fund Europe Mid-Cap Equity	7	2	5	7	8	11
EAA Fund Europe Small-Cap Equity	11	3	6	9	14	21
EAA Fund Eurozone Flex-Cap Equity	6	3	4	5	7	10
EAA Fund Eurozone Large-Cap Equity	5	3	4	4	5	8
EAA Fund Eurozone Mid-Cap Equity	6	2	5	6	6	12
EAA Fund Eurozone Small-Cap Equity	10	4	6	8	12	17
EAA Fund Finland Equity	11	8	8	9	12	19
EAA Fund Fixed Term Bond	27	2	9	17	28	111
EAA Fund France Equity	8	4	5	6	7	8
EAA Fund France Small/Mid-Cap Equity	11	5	7	9	14	22

Source: Morningstar. Continued on next page.

Exhibit 8 Eurozone | Alignment Score by Category

Category	Alignment Score Percentile					
	Avg	5%	25%	50%	75%	95%
EAA Fund GBP Allocation 20-40% Equity	6	1	4	5	8	14
EAA Fund GBP Allocation 40-60% Equity	4	1	2	3	4	8
EAA Fund GBP Allocation 60-80% Equity	3	1	1	2	3	6
EAA Fund GBP Allocation 80%+ Equity	3	1	1	2	3	9
EAA Fund GBP Government Bond	73	14	41	82	93	135
EAA Fund Germany Equity	7	4	5	5	6	12
EAA Fund Germany Small/Mid-Cap Equity	13	7	9	10	15	29
EAA Fund Global Bond	18	4	6	19	27	36
EAA Fund Global Bond - EUR Biased	10	4	5	7	10	24
EAA Fund Global Bond - EUR Hedged	13	2	4	6	12	25
EAA Fund Global Corporate Bond - EUR Hedged	14	6	12	14	16	20
EAA Fund Global Emerging Markets Bond - EUR Biased	38	25	33	37	41	53
EAA Fund Global Emerging Markets Corporate Bond - EUR Biased	37	22	29	36	42	57
EAA Fund Global Emerging Markets Equity	26	19	23	26	28	33
EAA Fund Global Flexible Bond - EUR Hedged	17	6	11	16	21	33
EAA Fund Global High Yield Bond - EUR Hedged	22	14	18	20	24	35
EAA Fund Global Inflation-Linked Bond - EUR Hedged	16	6	7	15	25	27
EAA Fund Global Large-Cap Blend Equity	5	1	3	4	5	9
EAA Fund Global Large-Cap Growth Equity	9	3	6	8	11	18
EAA Fund Guaranteed Funds	9	2	3	4	9	39
EAA Fund Italy Equity	7	4	5	6	7	12
EAA Fund Long/Short Equity - Europe	29	12	17	26	36	60
EAA Fund Macro Trading EUR	37	10	14	22	41	145
EAA Fund Multistrategy EUR	21	7	13	18	23	40
EAA Fund Other Allocation	7	1	2	3	7	25
EAA Fund Other Equity	21	3	5	12	25	75
EAA Fund Property - Indirect Europe	48	37	44	48	52	59
EAA Fund Spain Equity	42	22	36	39	45	66
EAA Fund Systematic Trend EUR	125	11	28	122	218	273
EAA Fund Target Date 2021 - 2025	7	1	1	1	3	16
EAA Fund Target Date 2026 - 2030	12	1	1	1	2	62
EAA Fund Target Date 2031 - 2035	1	1	1	1	1	2
EAA Fund Target Date 2046+	4	1	1	1	2	2
EAA Fund UK Equity Income	6	4	5	6	6	9
EAA Fund UK Flex-Cap Equity	7	4	5	6	9	13
EAA Fund UK Large-Cap Equity	5	3	4	5	6	9
EAA Fund US Flex-Cap Equity	20	11	14	17	20	37
EAA Fund USD Aggressive Allocation	3	1	2	2	3	8
EAA Fund USD Flexible Allocation	6	1	2	4	7	14
EAA Fund USD Moderate Allocation	4	1	2	3	4	9

Source: Morningstar. Continued on next page.

Australia – Section 5a | Morningstar Portfolio Risk Score by Category

For each of the Morningstar Categories with at least 20 funds, in our sample we present the average Morningstar Portfolio Risk Score as well as the fifth, 25th, 50th, 75th, and 95th percentiles of the Morningstar Portfolio Risk Score within each category.

Exhibit 9 Australia | Morningstar Portfolio Risk Score by Category

Category	# of Portfolios	Avg	Morningstar Portfolio Risk Score Percentile				
			5%	25%	50%	75%	95%
Australia Fund Australian Cash	32	0	0	0	0	1	1
Australia Fund Australian Short Term Fixed Interest	29	2	0	0	1	2	6
Australia Fund Bonds - Australia	63	23	8	23	24	27	31
Australia Fund Bonds - Global	44	29	13	20	24	31	68
Australia Fund Bonds - Global / Australia	23	16	8	11	18	20	24
Australia Fund Diversified Credit	58	15	3	7	9	15	42
Australia Fund Equity Australia Large Blend	167	120	100	116	120	125	138
Australia Fund Equity Australia Large Growth	40	129	106	118	128	135	157
Australia Fund Equity Australia Large Value	51	124	100	121	124	131	144
Australia Fund Equity Australia Mid/Small Blend	80	156	130	143	152	165	187
Australia Fund Equity Australia Mid/Small Growth	27	158	140	144	156	165	197
Australia Fund Equity Australia Other	20	145	107	127	132	169	184
Australia Fund Equity Australia Real Estate	44	162	153	157	162	164	177
Australia Fund Equity Emerging Markets	55	98	80	90	95	103	119
Australia Fund Equity Global Infrastructure - Currency Hedged	25	113	98	112	116	119	121
Australia Fund Equity Global Real Estate	41	140	120	137	139	141	147
Australia Fund Equity World - Currency Hedged	61	130	109	123	128	132	150
Australia Fund Equity World Large Blend	156	104	83	92	101	107	150
Australia Fund Equity World Large Growth	53	115	85	92	104	123	171
Australia Fund Equity World Large Value	34	108	88	97	105	113	141
Australia Fund Equity World Mid/Small	27	125	108	118	120	132	154
Australia Fund Equity World Other	36	124	81	95	119	145	190
Australia Fund Multisector Aggressive	74	90	71	82	91	95	109
Australia Fund Multisector Balanced	64	54	40	47	52	57	76
Australia Fund Multisector Flexible	29	43	13	24	47	55	74
Australia Fund Multisector Growth	93	70	54	65	70	75	89
Australia Fund Multisector Moderate	60	30	18	27	30	34	39
Australia Fund Unconstrained Fixed Income	31	27	5	8	12	40	70

Source: Morningstar.

Australia – Section 5b | Alignment Score by Category

For each Morningstar Category with at least 20 funds in our sample, Exhibit 14 presents the average Alignment Score as well as at the fifth, 25th, 50th, 75th, and 95th percentiles of the Alignment Score.

Exhibit 10 Australia | Alignment Score by Category

Category	Alignment Score Percentile					
	Avg	5%	25%	50%	75%	95%
Australia Fund Australian Cash	0	0	0	0	0	0
Australia Fund Australian Short Term Fixed Interest	2	0	0	0	1	6
Australia Fund Bonds - Australia	20	3	16	21	23	34
Australia Fund Bonds - Global	20	7	11	16	19	70
Australia Fund Bonds - Global / Australia	7	2	3	6	9	15
Australia Fund Diversified Credit	10	2	5	8	13	22
Australia Fund Equity Australia Large Blend	24	14	17	21	28	47
Australia Fund Equity Australia Large Growth	34	15	19	26	39	87
Australia Fund Equity Australia Large Value	31	20	25	30	33	46
Australia Fund Equity Australia Mid/Small Blend	55	32	37	48	65	89
Australia Fund Equity Australia Mid/Small Growth	61	36	44	51	68	111
Australia Fund Equity Australia Other	59	15	29	54	77	108
Australia Fund Equity Australia Real Estate	67	58	61	66	70	83
Australia Fund Equity Emerging Markets	72	52	68	72	78	89
Australia Fund Equity Global Infrastructure - Currency Hedged	40	31	36	41	42	52
Australia Fund Equity Global Real Estate	51	37	40	41	52	76
Australia Fund Equity World - Currency Hedged	35	25	27	29	40	51
Australia Fund Equity World Large Blend	43	26	32	36	47	78
Australia Fund Equity World Large Growth	60	30	37	51	69	104
Australia Fund Equity World Large Value	47	33	40	46	54	65
Australia Fund Equity World Mid/Small	44	23	34	39	51	86
Australia Fund Equity World Other	77	34	46	69	101	141
Australia Fund Multisector Aggressive	7	1	1	2	7	29
Australia Fund Multisector Balanced	6	1	2	3	6	22
Australia Fund Multisector Flexible	15	5	7	11	18	33
Australia Fund Multisector Growth	5	1	2	3	6	12
Australia Fund Multisector Moderate	5	1	2	4	8	12
Australia Fund Unconstrained Fixed Income	17	3	6	11	22	51

Source: Morningstar.

References

For more details about how the risk scores are calculated using the holdings-based model, or the Morningstar Risk Model, and the returns-based style analysis, or RBSA, please refer to the following documents.

Morningstar. 2022. "[Morningstar Portfolio Risk Score Methodology](#)."

Morningstar. 2022. "[Morningstar Risk Model Methodology](#)."



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