Research article

Return range and the cross-section of expected index returns in international stock markets

Mehmet Umutlu* and Pelin Bengitöz

Department of International Trade and Finance, Faculty of Business, Yasar University, Bornova, 35100 Izmir, Turkey

* Correspondence: Email: mehmet.umutlu@yasar.edu.tr; Tel: +902325708935.

Supplementary

Appendix A

Table A.1. Returns on portfolios from bivariate sorts on size and the remaining variables.

Quintiles	1 Small MV	2	3	4	5 Big MV	5-1 MV
Panel A: Bivariate sorts on MV and $ISKEW$						
1 Low $ISKEW$	0.0173	0.0130	0.0133	0.0111	0.0098	-0.0075
2	0.0224	0.0128	0.0113	0.0129	0.0094	-0.0130
3	0.0192	0.0144	0.0107	0.0113	0.0105	-0.0087
4	0.0208	0.0158	0.0114	0.0115	0.0106	-0.0102
5 High $ISKEW$	0.0244	0.0179	0.0150	0.0119	0.0109	-0.0135
5-1 $ISKEW$	0.0071[a]	0.0049[a]	0.0017	0.0008	0.0011	-0.0060[b]
	(2.63)	(2.69)	(0.87)	(0.53)	(0.65)	(-1.99)
α_{CAPM} (5-1)	0.0070[a]	0.0047[b]	0.0015	0.0005	0.0007	-0.0064[b]
	(2.69)	(2.53)	(0.74)	(0.27)	(0.37)	(-1.98)
α_{FF3} (5-1)	0.0052[b]	0.0048[b]	0.0012	0.0008	0.0036[b]	-0.0043
	(2.08)	(2.55)	(0.57)	(0.47)	(2.04)	(-1.38)
α_{FFC4} (5-1)	0.0047[c]	0.0044[b]	0.0011	0.0007	0.0034[c]	-0.0039
	(1.88)	(2.31)	(0.50)	(0.41)	(1.87)	(-1.22)
Panel B: Bivariate sorts on MV and DY						
1 Low DY	0.0167	0.0124	0.0086	0.0105	0.0077	-0.0090
2	0.0154	0.0127	0.0107	0.0095	0.0093	-0.0061
3	0.0177	0.0124	0.0125	0.0098	0.0090	-0.0087
4	0.0203	0.0126	0.0136	0.0111	0.0103	-0.0099
5 High DY	0.0254	0.0183	0.0138	0.0147	0.0117	-0.0137
5-1 DY	0.0088[a]	0.0060[b]	0.0053[b]	0.0042[b]	0.0041[c]	-0.0047
	(2.99)	(2.26)	(2.52)	(2.16)	(1.69)	(-1.40)
α_{CAPM} (5-1)	0.0086[a]	0.0065[a]	0.0057[a]	0.0042[b]	0.0049[b]	-0.0037
	(2.99)	(2.60)	(2.69)	(2.20)	(2.14)	(-1.10)
α_{FF3} (5-1)	0.0084[a]	0.0064[a]	0.0060[a]	0.0041[b]	0.0008	-0.0077[a]
	(3.02)	(2.61)	(2.95)	(2.32)	(0.59)	(-2.57)
α_{FFC4} (5-1)	0.0089[a]	0.0067[a]	0.0078[a]	0.0052[a]	0.0013	-0.0083[a]
	(3.27)	(2.94)	(4.01)	(3.02)	(0.93)	(-2.68)
Panel C: Bivariate sorts on MV and $STMOM$						
1 Low $STMOM$	0.0180	0.0106	0.0118	0.0086	0.0092	-0.0087
2	0.0130	0.0101	0.0107	0.0102	0.0088	-0.0042
3	0.0147	0.0130	0.0094	0.0106	0.0092	-0.0055
4	0.0207	0.0150	0.0111	0.0114	0.0103	-0.0104
5 High $STMOM$	0.0310	0.0220	0.0144	0.0147	0.0112	-0.0198
5-1 $STMOM$	0.0130[a]	0.0113[a]	0.0026	0.0061[b]	0.0019	-0.0111[a]
	(3.22)	(3.33)	(0.97)	(2.45)	(0.77)	(-3.03)
α_{CAPM} (5-1)	0.0141[a]	0.0126[a]	0.0036	0.0072[a]	0.0029	-0.0113[a]
	(3.65)	(3.79)	(1.29)	(2.98)	(1.17)	(-3.08)
α_{FF3} (5-1)	0.0139[a]	0.0122[a]	0.0037	0.0080[a]	0.0029	-0.0110[a]
	(3.78)	(3.80)	(1.27)	(3.02)	(1.12)	(-2.96)
α_{FFC4} (5-1)	0.0113[a]	0.0087[a]	-0.0002	0.0046[b]	-0.0013	-0.0127[a]
	(3.24)	(2.88)	(-0.08)	(1.99)	(-0.63)	(-3.21)

Quintiles	1 Small *MV*	2	3	4	5 Big *MV*	5-1 *MV*
Panel D: Bivariate sorts on *MV* and *OP*						
1 Low *OP*	0.0211	0.0134	0.0132	0.0124	0.0083	-0.0128
2	0.0199	0.0150	0.0123	0.0117	0.0086	-0.0113
3	0.0203	0.0136	0.0130	0.0131	0.0097	-0.0106
4	0.0172	0.0148	0.0116	0.0132	0.0129	-0.0043
5 High *OP*	0.0214	0.0147	0.0125	0.0135	0.0108	-0.0105
5-1 *OP*	0.0002	0.0013	-0.0007	0.0012	0.0025	0.0023
	(0.06)	(0.63)	(-0.37)	(0.72)	(1.35)	(0.47)
α_{CAPM} (5-1)	0.0003	0.0012	-0.0003	0.0013	0.0025	0.0022
	(0.08)	(0.61)	(-0.17)	(0.83)	(1.29)	(0.51)
α_{FF3} (5-1)	0.0016	0.0008	-0.0001	0.0012	0.0010	0.0012
	(0.52)	(0.41)	(-0.06)	(0.80)	(0.56)	(0.28)
α_{FFC4} (5-1)	0.0016	0.0008	-0.0003	0.0008	0.0004	0.0005
	(0.52)	(0.39)	(-0.17)	(0.54)	(0.24)	(0.13)
Panel E: Bivariate sorts on *MV* and *INV*						
1 Low *INV*	0.0228	0.0143	0.0147	0.0122	0.0099	-0.0129
2	0.0191	0.0145	0.0128	0.0123	0.0095	-0.0096
3	0.0193	0.0155	0.0126	0.0117	0.0094	-0.0099
4	0.0186	0.0146	0.0113	0.0124	0.0098	-0.0088
5 High *INV*	0.0161	0.0128	0.0113	0.0126	0.0101	-0.0060
5-1 *INV*	-0.0067	-0.0016	-0.0034	0.0005	0.0003	0.0070
	(-1.34)	(-0.66)	(-1.59)	(0.29)	(0.13)	(1.39)
α_{CAPM} (5-1)	-0.0065	-0.0021	-0.0032	0.0003	-0.0015	0.0050
	(-1.54)	(-0.90)	(-1.59)	(0.19)	(-0.76)	(1.10)
α_{FF3} (5-1)	-0.0040	-0.0030	-0.0037[c]	0.0005	-0.0002	0.0046
	(-1.23)	(-1.15)	(-1.65)	(0.26)	(-0.10)	(1.01)
α_{FFC4} (5-1)	-0.0035	-0.0024	-0.0035	0.0004	-0.0001	0.0041
	(-1.06)	(-0.91)	(-1.53)	(0.20)	(-0.03)	(0.94)

Note: The size quintiles are formed for every month in the research period by sorting the country-industry indexes based on *MV*. Then, the indexes in each size quintile are further sorted based on a volatility measure or an index characteristic, so that twenty-five portfolios are obtained. Each column in the table except the last one reports the equal-weighted average monthly returns on the indexes that are sorted by a volatility measure or an index characteristic after controlling for size. The last column, 5-1*MV*, indicates the return difference between high-cap and low-cap indexes. The 5-1 portfolio in each size quintile goes long the portfolio with the highest values of the second sort variable and shorts the one with the lowest values. Second sort variable changes in each panel. Average raw returns and Jensen alphas from the ICAPM, the Fama-French three-factor model (FF3), and the Fama-French-Carhart four-factor model (FFC4) on the 5-1 portfolio in each size quintile are presented in the last four rows, respectively. The Newey-West (1987) t-statistics are reported in parentheses. [a], [b], and [c] indicate significance at 1%, 5%, and 10% levels, respectively.