Internet Appendix to accompany

"New Evidence on Mutual Fund Performance: A Comparison of Alternative Bootstrap Methods"

Tables A1-A20 and the accompanying graphs (at the bottom of each table) present the sorted values of *t(α)s* and *t(TM)s* from the actual and two chance distributions, generated under the bootstrap methodologies of Kosowski *et al* (2006) (hereafter KTWW) and Fama and French (2010) (hereafter FF), for a range of sample selection criteria. For each percentile point, we generate the actual distribution of the relevant statistic and the average bootstrapped value for the two chance distributions (generated under the null hypothesis). We also compute the 5%-95% confidence intervals for each percentile point for each of the chance distributions.

We repeat this exercise under different sample selection criteria; depending upon the minimum number of successive monthly observations required for a fund to be included in the analysis. We have used five selection criteria: the two extremes of a minimum of 8 observations (as in FF) and a minimum of 60 observations (as in KTWW) plus additional sample selection criteria of a minimum of 15 observations, 20 observations and 40 and observations. This results in five sub-samples of funds with the size of the sub-sample ranging from 552, 535, 516, 454, and 384 funds, corresponding to the selection criteria of 8, 15, 20, 40 and 60 observations, respectively. Each sub-sample contains the funds required for inclusion for the generation of both the actual and chance distributions and subsequent confidence intervals.

The bootstrap distributions are generated for both definitions of returns (gross and net) and for the four factor and five factor models. This analysis is undertaken to establish whether the validity regarding the null hypothesis is dependent upon the choice criterion regarding the number of firms included in generation of the chance distributions (look-ahead bias).

i) Tables A1-A5 consider the *t(α)s* for gross returns from the four factor model;
ii) Tables A6-A10 consider the *t(α)s* for net returns from the four factor model;
iii) Tables A11-A15 consider the *t(TM)s* for gross returns from the five factor model; and
iv) Tables A16-A20 consider the *t(TM)s* for net returns from the five factor model.

Across these five sample selection criteria, we conclude the following:

1. In general, as we increase the minimum number of observations for inclusion in the analysis (i.e., as we move from 8 to 60 observations), the actual distribution of gross returns shifts to the right slightly. This can be seen in relation to the 50th percentile point of the actual distribution of gross returns with the four factor model in Table A1 (-0.0587), Table A2 (-0.0438), Table A3 (-0.0424), Table A4 (-0.00299), and Table A5 (+0.0071). There is a similar shift in the actual distribution of *t(TM)s* (Tables A11-A15). This is consistent with look ahead bias: funds with greater average gross abnormal performance stay longer in the data set (and vice versa).

2. As we increase the required minimum number of observations for inclusion in the analysis, both the FF and KTWW 5%-95% confidence intervals widen, most particularly in the case of the FF bootstrap. The number of funds included in the analysis falls, reducing the precision of our estimates of the parameters of the underlying distribution and hence widening the CIs.

3. Under the generation of the chance distribution using the KTWW methodology, we find evidence of abnormal performance for the top-performing funds in terms of gross returns for all selection criteria for both t(α)s from the four factor model (Tables A1-A5) and the t(TM)s from the five factor models (Tables A11-A15).

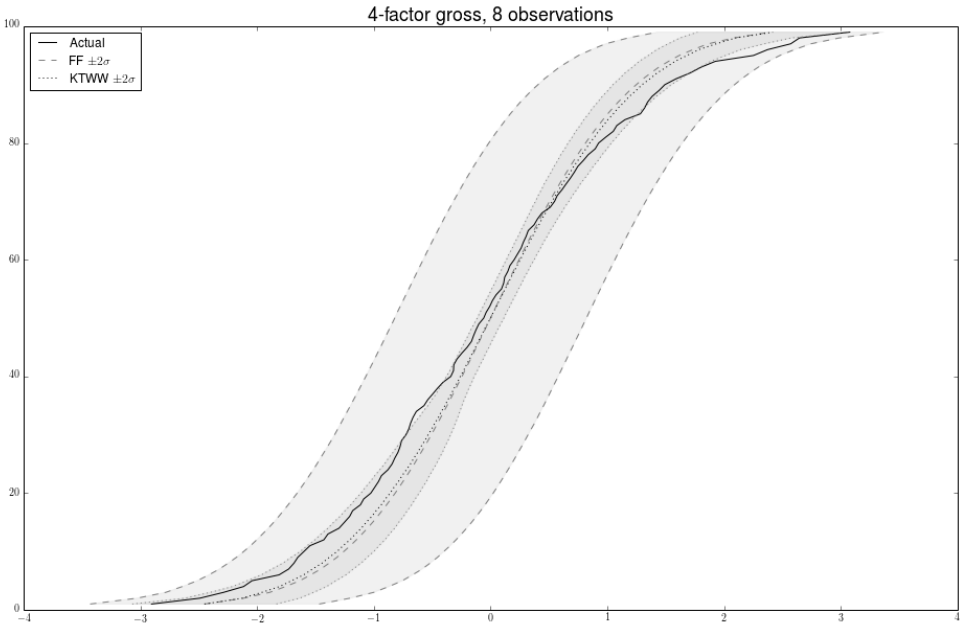
4. In contrast, for the FF methodology for gross returns, there are no instances, irrespective of either the selection criteria or the factor model employed, of rejection of the null hypothesis of no abnormal performance (Tables A1-A5 and Tables A11-A15).

5. However, under both methodologies, when it comes to net returns, there is no evidence of (positive) abnormal performance using any assessment criterion (Tables A6-A11 and Tables A16-A20). For both methodologies for net returns, irrespective of the selection criteria and the choice of the factor model, the actual CDF of t(α)s and t(TM)s lies well within the confidence intervals of the chance distributions indicating that what might have been perceived as over-performance instead implies a fortuitous realisation from the chance distribution under the null.

A1: 4-factor_gross_returns_min_8obs_t(alpha)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-2.9043	-2.4490	-3.4300	-1.4680	-2.4516	-3.0689	-1.8342
2	-2.4908	-2.1160	-3.0285	-1.2035	-2.1271	-2.6197	-1.6345
3	-2.2873	-1.8915	-2.7828	-1.0003	-1.9589	-2.4024	-1.5154
4	-2.1156	-1.7557	-2.6403	-0.8711	-1.8067	-2.2098	-1.4036
5	-2.0434	-1.6336	-2.5118	-0.7553	-1.7043	-2.0850	-1.3236
6	-1.8117	-1.5406	-2.4131	-0.6681	-1.6006	-1.9631	-1.2380
7	-1.7290	-1.4544	-2.3228	-0.5860	-1.5250	-1.8735	-1.1766
8	-1.6842	-1.3833	-2.2482	-0.5185	-1.4440	-1.7795	-1.1086
9	-1.6515	-1.3161	-2.1772	-0.4551	-1.3821	-1.7077	-1.0566
10	-1.5990	-1.2577	-2.1149	-0.4005	-1.3149	-1.6302	-0.9997
11	-1.5470	-1.2008	-2.0559	-0.3457	-1.2628	-1.5704	-0.9551
12	-1.4281	-1.1497	-2.0034	-0.2960	-1.2044	-1.5048	-0.9040
13	-1.3928	-1.1012	-1.9533	-0.2491	-1.1588	-1.4522	-0.8655
14	-1.2977	-1.0542	-1.9036	-0.2048	-1.1067	-1.3928	-0.8207
15	-1.2524	-1.0102	-1.8581	-0.1623	-1.0655	-1.3447	-0.7864
16	-1.2075	-0.9690	-1.8150	-0.1230	-1.0178	-1.2901	-0.7454
17	-1.1813	-0.9294	-1.7742	-0.0845	-0.9801	-1.2468	-0.7135
18	-1.1148	-0.8907	-1.7339	-0.0474	-0.9364	-1.1973	-0.6755
19	-1.0868	-0.8539	-1.6953	-0.0126	-0.9011	-1.1569	-0.6453
20	-1.0258	-0.8172	-1.6571	0.0227	-0.8604	-1.1096	-0.6112
21	-0.9926	-0.7835	-1.6219	0.0549	-0.8274	-1.0729	-0.5819
22	-0.9595	-0.7499	-1.5866	0.0868	-0.7891	-1.0294	-0.5488
23	-0.9346	-0.7173	-1.5530	0.1183	-0.7579	-0.9920	-0.5239
24	-0.8794	-0.6852	-1.5195	0.1491	-0.7214	-0.9489	-0.4938
25	-0.8436	-0.6538	-1.4875	0.1799	-0.6862	-0.9083	-0.4642
26	-0.8206	-0.6244	-1.4576	0.2088	-0.6571	-0.8746	-0.4396
27	-0.7930	-0.5945	-1.4264	0.2374	-0.6231	-0.8347	-0.4116
28	-0.7747	-0.5648	-1.3956	0.2660	-0.5955	-0.8008	-0.3901
29	-0.7624	-0.5359	-1.3653	0.2934	-0.5624	-0.7606	-0.3641
30	-0.7248	-0.5076	-1.3364	0.3212	-0.5353	-0.7277	-0.3429
31	-0.7005	-0.4801	-1.3088	0.3486	-0.5035	-0.6872	-0.3197
32	-0.6850	-0.4523	-1.2815	0.3770	-0.4773	-0.6538	-0.3007
33	-0.6641	-0.4259	-1.2548	0.4029	-0.4463	-0.6122	-0.2803
34	-0.6361	-0.3997	-1.2278	0.4284	-0.4209	-0.5784	-0.2633
35	-0.5700	-0.3728	-1.2001	0.4545	-0.3907	-0.5368	-0.2445
36	-0.5381	-0.3470	-1.1739	0.4798	-0.3657	-0.5046	-0.2268
37	-0.4951	-0.3211	-1.1468	0.5045	-0.3360	-0.4670	-0.2049
38	-0.4534	-0.2958	-1.1207	0.5291	-0.3117	-0.4386	-0.1849
39	-0.4072	-0.2705	-1.0951	0.5540	-0.2828	-0.4054	-0.1602
40	-0.3404	-0.2446	-1.0685	0.5794	-0.2589	-0.3781	-0.1398
41	-0.3175	-0.2201	-1.0435	0.6033	-0.2304	-0.3482	-0.1126
42	-0.3149	-0.1952	-1.0181	0.6277	-0.2069	-0.3243	-0.0896
43	-0.2870	-0.1705	-0.9932	0.6521	-0.1790	-0.2952	-0.0628
44	-0.2456	-0.1463	-0.9683	0.6757	-0.1557	-0.2713	-0.0400
45	-0.2002	-0.1215	-0.9433	0.7003	-0.1281	-0.2433	-0.0128
46	-0.1635	-0.0970	-0.9188	0.7247	-0.1051	-0.2201	0.0100
47	-0.1452	-0.0728	-0.8946	0.7490	-0.0775	-0.1922	0.0372
48	-0.1245	-0.0484	-0.8698	0.7731	-0.0545	-0.1691	0.0600
49	-0.1004	-0.0241	-0.8451	0.7969	-0.0270	-0.1413	0.0873

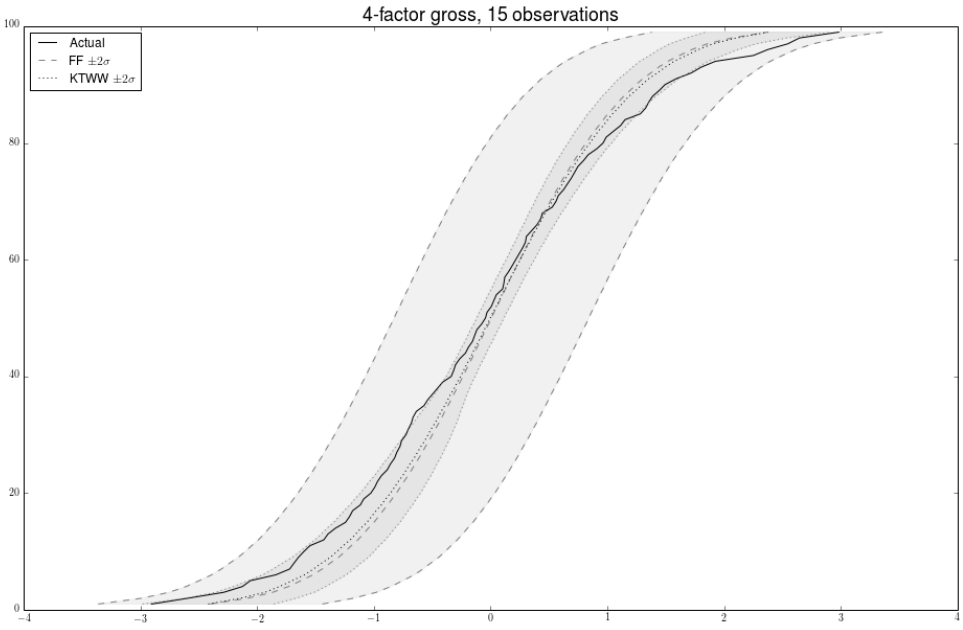
50	-0.0587	0.0003	-0.8210	0.8215	0.0003	-0.1139	0.1145
51	-0.0374	0.0227	-0.7989	0.8443	0.0232	-0.0905	0.1369
52	-0.0070	0.0475	-0.7741	0.8691	0.0508	-0.0631	0.1646
53	0.0163	0.0718	-0.7491	0.8928	0.0737	-0.0405	0.1879
54	0.0480	0.0962	-0.7249	0.9174	0.1013	-0.0136	0.2162
55	0.0939	0.1206	-0.7001	0.9414	0.1245	0.0095	0.2396
56	0.1125	0.1451	-0.6754	0.9656	0.1522	0.0368	0.2676
57	0.1207	0.1695	-0.6513	0.9902	0.1753	0.0595	0.2911
58	0.1477	0.1941	-0.6268	1.0150	0.2031	0.0863	0.3200
59	0.1661	0.2189	-0.6023	1.0400	0.2266	0.1090	0.3442
60	0.2022	0.2440	-0.5772	1.0651	0.2551	0.1358	0.3743
61	0.2318	0.2684	-0.5528	1.0896	0.2788	0.1588	0.3988
62	0.2619	0.2936	-0.5281	1.1153	0.3073	0.1862	0.4284
63	0.2807	0.3185	-0.5033	1.1404	0.3313	0.2088	0.4539
64	0.3044	0.3446	-0.4774	1.1667	0.3605	0.2362	0.4847
65	0.3227	0.3703	-0.4521	1.1927	0.3850	0.2590	0.5109
66	0.3732	0.3971	-0.4257	1.2199	0.4150	0.2856	0.5445
67	0.4025	0.4233	-0.3999	1.2464	0.4402	0.3084	0.5720
68	0.4400	0.4499	-0.3733	1.2732	0.4709	0.3351	0.6067
69	0.5113	0.4776	-0.3456	1.3008	0.4966	0.3577	0.6354
70	0.5485	0.5053	-0.3182	1.3289	0.5281	0.3854	0.6708
71	0.5714	0.5334	-0.2902	1.3569	0.5548	0.4080	0.7017
72	0.6123	0.5620	-0.2621	1.3861	0.5872	0.4359	0.7386
73	0.6474	0.5912	-0.2340	1.4163	0.6147	0.4598	0.7696
74	0.6842	0.6209	-0.2049	1.4466	0.6485	0.4886	0.8083
75	0.7177	0.6516	-0.1746	1.4777	0.6829	0.5190	0.8467
76	0.7478	0.6819	-0.1450	1.5087	0.7123	0.5442	0.8803
77	0.7946	0.7135	-0.1134	1.5405	0.7482	0.5754	0.9211
78	0.8368	0.7459	-0.0812	1.5730	0.7790	0.6020	0.9561
79	0.8962	0.7793	-0.0486	1.6071	0.8169	0.6359	0.9979
80	0.9258	0.8139	-0.0149	1.6427	0.8495	0.6642	1.0347
81	0.9864	0.8490	0.0192	1.6789	0.8897	0.6994	1.0800
82	1.0511	0.8856	0.0552	1.7160	0.9243	0.7296	1.1190
83	1.0817	0.9241	0.0926	1.7555	0.9672	0.7671	1.1674
84	1.1516	0.9631	0.1301	1.7961	1.0046	0.7993	1.2099
85	1.2834	1.0037	0.1691	1.8383	1.0514	0.8393	1.2635
86	1.3198	1.0471	0.2112	1.8829	1.0921	0.8744	1.3097
87	1.3446	1.0927	0.2546	1.9307	1.1439	0.9186	1.3693
88	1.3843	1.1416	0.3032	1.9800	1.1892	0.9575	1.4208
89	1.4433	1.1919	0.3513	2.0325	1.2468	1.0058	1.4878
90	1.4930	1.2485	0.4064	2.0905	1.2982	1.0486	1.5479
91	1.5883	1.3061	0.4611	2.1511	1.3652	1.1028	1.6276
92	1.7095	1.3727	0.5253	2.2200	1.4260	1.1513	1.7006
93	1.8045	1.4416	0.5898	2.2935	1.5059	1.2154	1.7964
94	1.9261	1.5252	0.6699	2.3804	1.5805	1.2738	1.8872
95	2.2522	1.6158	0.7532	2.4784	1.6830	1.3515	2.0144
96	2.3730	1.7338	0.8650	2.6026	1.7830	1.4233	2.1427
97	2.5712	1.8643	0.9850	2.7436	1.9334	1.5215	2.3452
98	2.6463	2.0819	1.1777	2.9861	2.0992	1.6218	2.5766
99	3.0773	2.3966	1.4288	3.3645	2.4177	1.7724	3.0630


4-factor gross, 8 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A2: 4-factor_gross_returns_min_15obs_t(alpha)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-2.9043	-2.4011	-3.3615	-1.4406	-2.4181	-2.9804	-1.8557
2	-2.5908	-2.0802	-2.9866	-1.1738	-2.1413	-2.6182	-1.6645
3	-2.2873	-1.8679	-2.7558	-0.9800	-1.9341	-2.3573	-1.5110
4	-2.1254	-1.7307	-2.6081	-0.8532	-1.8066	-2.2019	-1.4113
5	-2.0583	-1.6248	-2.4971	-0.7525	-1.7008	-2.0766	-1.3250
6	-1.8404	-1.5219	-2.3899	-0.6538	-1.5944	-1.9520	-1.2367
7	-1.7209	-1.4427	-2.3065	-0.5790	-1.5171	-1.8637	-1.1706
8	-1.6842	-1.3745	-2.2359	-0.5132	-1.4482	-1.7847	-1.1118
9	-1.6463	-1.3029	-2.1617	-0.4441	-1.3728	-1.6992	-1.0464
10	-1.5990	-1.2450	-2.1011	-0.3888	-1.3155	-1.6325	-0.9985
11	-1.5470	-1.1929	-2.0471	-0.3388	-1.2620	-1.5707	-0.9533
12	-1.4281	-1.1368	-1.9889	-0.2846	-1.2019	-1.5025	-0.9014
13	-1.3928	-1.0897	-1.9401	-0.2394	-1.1548	-1.4496	-0.8600
14	-1.3288	-1.0468	-1.8967	-0.1969	-1.1104	-1.4001	-0.8207
15	-1.2426	-0.9992	-1.8476	-0.1508	-1.0592	-1.3430	-0.7755
16	-1.2075	-0.9590	-1.8056	-0.1124	-1.0187	-1.2970	-0.7405
17	-1.1813	-0.9215	-1.7676	-0.0754	-0.9799	-1.2537	-0.7061
18	-1.1148	-0.8800	-1.7248	-0.0353	-0.9351	-1.2029	-0.6672
19	-1.0868	-0.8445	-1.6879	-0.0011	-0.8991	-1.1626	-0.6357
20	-1.0258	-0.8068	-1.6502	0.0365	-0.8572	-1.1149	-0.5995
21	-0.9926	-0.7734	-1.6161	0.0693	-0.8234	-1.0755	-0.5713
22	-0.9683	-0.7413	-1.5832	0.1006	-0.7905	-1.0382	-0.5429
23	-0.9346	-0.7069	-1.5477	0.1339	-0.7522	-0.9935	-0.5109
24	-0.8851	-0.6761	-1.5163	0.1641	-0.7212	-0.9571	-0.4853
25	-0.8577	-0.6463	-1.4861	0.1934	-0.6907	-0.9220	-0.4593
26	-0.8224	-0.6142	-1.4535	0.2250	-0.6548	-0.8801	-0.4295
27	-0.8031	-0.5851	-1.4235	0.2532	-0.6256	-0.8458	-0.4053
28	-0.7758	-0.5571	-1.3953	0.2811	-0.5968	-0.8112	-0.3824
29	-0.7624	-0.5267	-1.3646	0.3113	-0.5630	-0.7700	-0.3560
30	-0.7248	-0.4991	-1.3363	0.3381	-0.5354	-0.7357	-0.3351
31	-0.7036	-0.4727	-1.3098	0.3643	-0.5084	-0.7022	-0.3146
32	-0.6784	-0.4436	-1.2801	0.3928	-0.4762	-0.6616	-0.2909
33	-0.6641	-0.4174	-1.2530	0.4183	-0.4496	-0.6271	-0.2721
34	-0.6361	-0.3921	-1.2277	0.4435	-0.4233	-0.5908	-0.2559
35	-0.5700	-0.3643	-1.1996	0.4710	-0.3920	-0.5482	-0.2359
36	-0.5381	-0.3388	-1.1741	0.4964	-0.3661	-0.5132	-0.2190
37	-0.4956	-0.3142	-1.1492	0.5209	-0.3406	-0.4798	-0.2013
38	-0.4534	-0.2872	-1.1221	0.5476	-0.3104	-0.4422	-0.1785
39	-0.4119	-0.2625	-1.0973	0.5724	-0.2856	-0.4132	-0.1580
40	-0.3371	-0.2356	-1.0706	0.5993	-0.2558	-0.3800	-0.1316
41	-0.3164	-0.2123	-1.0472	0.6227	-0.2314	-0.3532	-0.1096
42	-0.3001	-0.1880	-1.0227	0.6467	-0.2071	-0.3266	-0.0876
43	-0.2653	-0.1616	-0.9962	0.6730	-0.1782	-0.2968	-0.0597
44	-0.2151	-0.1385	-0.9727	0.6958	-0.1543	-0.2723	-0.0362
45	-0.1896	-0.1149	-0.9491	0.7193	-0.1304	-0.2479	-0.0129
46	-0.1549	-0.0886	-0.9225	0.7453	-0.1018	-0.2189	0.0153
47	-0.1364	-0.0658	-0.8999	0.7683	-0.0781	-0.1951	0.0389
48	-0.1176	-0.0424	-0.8764	0.7916	-0.0544	-0.1714	0.0626
49	-0.0761	-0.0162	-0.8504	0.8180	-0.0262	-0.1432	0.0908

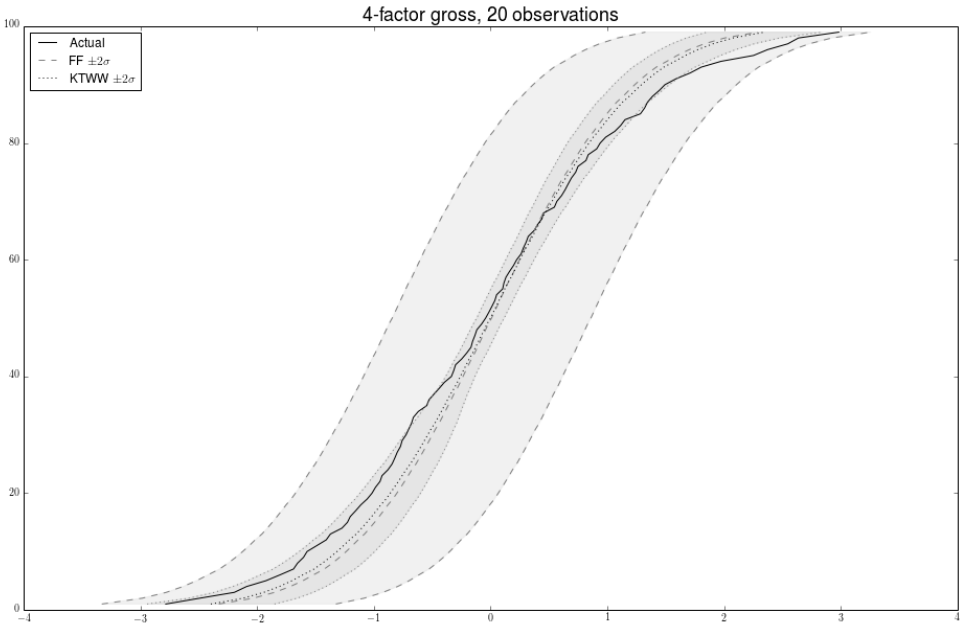
50	-0.0438	0.0074	-0.8266	0.8414	-0.0025	-0.1190	0.1141
51	-0.0299	0.0300	-0.8041	0.8641	0.0209	-0.0961	0.1379
52	0.0071	0.0558	-0.7783	0.8900	0.0491	-0.0680	0.1663
53	0.0279	0.0793	-0.7552	0.9138	0.0728	-0.0443	0.1899
54	0.0498	0.1021	-0.7326	0.9367	0.0965	-0.0206	0.2136
55	0.1036	0.1283	-0.7070	0.9636	0.1249	0.0074	0.2423
56	0.1142	0.1520	-0.6833	0.9872	0.1485	0.0307	0.2664
57	0.1214	0.1750	-0.6604	1.0104	0.1726	0.0543	0.2909
58	0.1559	0.2015	-0.6341	1.0371	0.2012	0.0823	0.3202
59	0.1861	0.2256	-0.6102	1.0614	0.2256	0.1059	0.3454
60	0.2151	0.2519	-0.5842	1.0880	0.2547	0.1340	0.3755
61	0.2442	0.2758	-0.5607	1.1123	0.2795	0.1577	0.4012
62	0.2737	0.3005	-0.5362	1.1372	0.3041	0.1813	0.4269
63	0.2983	0.3272	-0.5096	1.1641	0.3340	0.2087	0.4594
64	0.3074	0.3518	-0.4860	1.1896	0.3590	0.2319	0.4860
65	0.3529	0.3768	-0.4613	1.2150	0.3842	0.2550	0.5134
66	0.3976	0.4046	-0.4341	1.2432	0.4153	0.2826	0.5480
67	0.4293	0.4298	-0.4097	1.2692	0.4411	0.3057	0.5766
68	0.4447	0.4558	-0.3845	1.2960	0.4674	0.3287	0.6062
69	0.5282	0.4846	-0.3562	1.3254	0.4994	0.3563	0.6426
70	0.5607	0.5110	-0.3303	1.3523	0.5265	0.3802	0.6729
71	0.5811	0.5386	-0.3034	1.3806	0.5539	0.4039	0.7040
72	0.6254	0.5686	-0.2738	1.4110	0.5874	0.4335	0.7413
73	0.6585	0.5960	-0.2471	1.4392	0.6157	0.4590	0.7725
74	0.6922	0.6245	-0.2190	1.4679	0.6446	0.4832	0.8060
75	0.7209	0.6565	-0.1880	1.5010	0.6799	0.5146	0.8452
76	0.7490	0.6857	-0.1593	1.5308	0.7101	0.5403	0.8798
77	0.7968	0.7165	-0.1293	1.5624	0.7409	0.5680	0.9138
78	0.8370	0.7503	-0.0959	1.5966	0.7786	0.6011	0.9561
79	0.9092	0.7824	-0.0653	1.6300	0.8112	0.6301	0.9922
80	0.9637	0.8198	-0.0288	1.6685	0.8514	0.6644	1.0384
81	0.9905	0.8530	0.0031	1.7029	0.8861	0.6947	1.0775
82	1.0518	0.8880	0.0366	1.7395	0.9219	0.7263	1.1176
83	1.1143	0.9289	0.0765	1.7814	0.9662	0.7649	1.1676
84	1.1517	0.9658	0.1123	1.8193	1.0044	0.7981	1.2107
85	1.2834	1.0051	0.1492	1.8611	1.0444	0.8336	1.2552
86	1.3292	1.0518	0.1946	1.9089	1.0949	0.8773	1.3125
87	1.3551	1.0941	0.2350	1.9532	1.1387	0.9157	1.3616
88	1.3875	1.1400	0.2789	2.0012	1.1852	0.9557	1.4147
89	1.4449	1.1951	0.3330	2.0572	1.2446	1.0056	1.4836
90	1.4940	1.2459	0.3815	2.1104	1.2972	1.0499	1.5445
91	1.5883	1.3030	0.4355	2.1704	1.3536	1.0978	1.6094
92	1.7194	1.3728	0.5029	2.2428	1.4279	1.1605	1.6953
93	1.8045	1.4400	0.5663	2.3138	1.4966	1.2175	1.7757
94	1.9261	1.5178	0.6395	2.3962	1.5719	1.2790	1.8648
95	2.2522	1.6186	0.7365	2.5008	1.6768	1.3619	1.9918
96	2.3730	1.7224	0.8325	2.6122	1.7793	1.4408	2.1179
97	2.5467	1.8564	0.9487	2.7640	1.9050	1.5350	2.2749
98	2.6463	2.0643	1.1394	2.9892	2.1064	1.6764	2.5364
99	2.9835	2.3691	1.3813	3.3569	2.3779	1.8439	2.9118


4-factor gross, 15 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A3: 4-factor_gross_returns_min_20obs_t(alpha)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-2.7826	-2.3278	-3.3301	-1.3254	-2.3959	-2.9414	-1.8505
2	-2.4908	-2.0331	-2.9838	-1.0824	-2.1207	-2.5858	-1.6555
3	-2.1951	-1.8498	-2.7784	-0.9212	-1.9427	-2.3664	-1.5191
4	-2.0901	-1.7159	-2.6350	-0.7968	-1.8094	-2.2081	-1.4107
5	-1.9240	-1.6075	-2.5181	-0.6970	-1.7011	-2.0809	-1.3213
6	-1.8034	-1.5171	-2.4208	-0.6134	-1.6082	-1.9729	-1.2436
7	-1.6881	-1.4242	-2.3218	-0.5267	-1.5118	-1.8626	-1.1609
8	-1.6538	-1.3554	-2.2490	-0.4619	-1.4409	-1.7821	-1.0997
9	-1.6023	-1.2934	-2.1829	-0.4039	-1.3753	-1.7075	-1.0431
10	-1.5719	-1.2365	-2.1234	-0.3496	-1.3155	-1.6391	-0.9919
11	-1.4896	-1.1838	-2.0675	-0.3001	-1.2605	-1.5755	-0.9455
12	-1.4074	-1.1348	-2.0164	-0.2532	-1.2085	-1.5161	-0.9010
13	-1.3716	-1.0793	-1.9585	-0.2002	-1.1503	-1.4493	-0.8513
14	-1.2732	-1.0354	-1.9130	-0.1578	-1.1045	-1.3967	-0.8122
15	-1.2260	-0.9937	-1.8697	-0.1178	-1.0605	-1.3473	-0.7737
16	-1.2016	-0.9542	-1.8289	-0.0796	-1.0184	-1.2998	-0.7369
17	-1.1548	-0.9157	-1.7892	-0.0423	-0.9784	-1.2538	-0.7029
18	-1.1112	-0.8790	-1.7512	-0.0068	-0.9397	-1.2099	-0.6695
19	-1.0569	-0.8369	-1.7076	0.0337	-0.8950	-1.1596	-0.6305
20	-1.0154	-0.8026	-1.6712	0.0661	-0.8592	-1.1189	-0.5995
21	-0.9859	-0.7693	-1.6370	0.0983	-0.8244	-1.0787	-0.5700
22	-0.9469	-0.7370	-1.6029	0.1289	-0.7903	-1.0394	-0.5412
23	-0.9296	-0.7057	-1.5703	0.1589	-0.7572	-1.0009	-0.5134
24	-0.8794	-0.6751	-1.5386	0.1884	-0.7245	-0.9627	-0.4863
25	-0.8436	-0.6392	-1.5019	0.2235	-0.6868	-0.9185	-0.4551
26	-0.8206	-0.6098	-1.4713	0.2517	-0.6559	-0.8818	-0.4299
27	-0.7996	-0.5810	-1.4416	0.2796	-0.6258	-0.8469	-0.4048
28	-0.7717	-0.5530	-1.4130	0.3070	-0.5960	-0.8114	-0.3806
29	-0.7577	-0.5255	-1.3846	0.3336	-0.5669	-0.7757	-0.3582
30	-0.7238	-0.4985	-1.3567	0.3597	-0.5380	-0.7408	-0.3353
31	-0.7005	-0.4715	-1.3290	0.3859	-0.5098	-0.7045	-0.3150
32	-0.6769	-0.4402	-1.2976	0.4173	-0.4764	-0.6625	-0.2904
33	-0.6609	-0.4145	-1.2710	0.4420	-0.4489	-0.6257	-0.2722
34	-0.6187	-0.3887	-1.2445	0.4670	-0.4219	-0.5901	-0.2538
35	-0.5464	-0.3636	-1.2188	0.4916	-0.3950	-0.5548	-0.2352
36	-0.5276	-0.3386	-1.1932	0.5160	-0.3684	-0.5204	-0.2163
37	-0.4836	-0.3138	-1.1677	0.5400	-0.3419	-0.4861	-0.1978
38	-0.4380	-0.2845	-1.1381	0.5692	-0.3104	-0.4463	-0.1746
39	-0.3950	-0.2601	-1.1134	0.5931	-0.2844	-0.4142	-0.1545
40	-0.3354	-0.2359	-1.0884	0.6165	-0.2588	-0.3844	-0.1333
41	-0.3156	-0.2120	-1.0645	0.6404	-0.2334	-0.3562	-0.1105
42	-0.2997	-0.1881	-1.0403	0.6641	-0.2081	-0.3298	-0.0863
43	-0.2470	-0.1640	-1.0163	0.6882	-0.1830	-0.3040	-0.0621
44	-0.2048	-0.1359	-0.9880	0.7161	-0.1532	-0.2731	-0.0333
45	-0.1675	-0.1124	-0.9643	0.7394	-0.1285	-0.2480	-0.0090
46	-0.1541	-0.0889	-0.9407	0.7629	-0.1038	-0.2231	0.0156
47	-0.1344	-0.0655	-0.9172	0.7861	-0.0790	-0.1980	0.0400
48	-0.1175	-0.0424	-0.8937	0.8089	-0.0546	-0.1731	0.0640
49	-0.0761	-0.0192	-0.8705	0.8320	-0.0300	-0.1478	0.0879

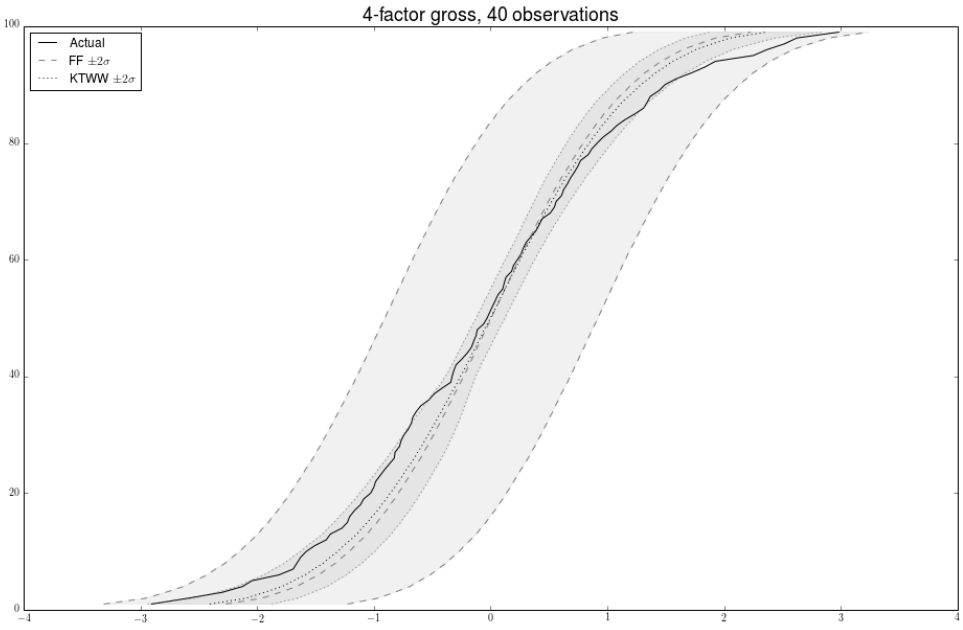
50	-0.0424	0.0087	-0.8423	0.8597	-0.0008	-0.1184	0.1169
51	-0.0146	0.0318	-0.8189	0.8826	0.0235	-0.0944	0.1415
52	0.0115	0.0550	-0.7956	0.9056	0.0480	-0.0705	0.1665
53	0.0367	0.0783	-0.7724	0.9290	0.0725	-0.0460	0.1911
54	0.0521	0.1016	-0.7493	0.9524	0.0969	-0.0216	0.2155
55	0.1036	0.1249	-0.7260	0.9758	0.1218	0.0027	0.2409
56	0.1142	0.1483	-0.7026	0.9991	0.1466	0.0274	0.2657
57	0.1318	0.1765	-0.6742	1.0272	0.1764	0.0568	0.2960
58	0.1625	0.2001	-0.6507	1.0509	0.2011	0.0811	0.3212
59	0.1964	0.2240	-0.6268	1.0747	0.2264	0.1058	0.3469
60	0.2237	0.2479	-0.6028	1.0987	0.2515	0.1304	0.3726
61	0.2619	0.2720	-0.5794	1.1234	0.2770	0.1549	0.3990
62	0.2807	0.2958	-0.5558	1.1475	0.3024	0.1791	0.4257
63	0.3044	0.3249	-0.5270	1.1769	0.3332	0.2080	0.4585
64	0.3227	0.3496	-0.5022	1.2014	0.3591	0.2320	0.4863
65	0.3732	0.3747	-0.4768	1.2263	0.3854	0.2558	0.5149
66	0.4025	0.3997	-0.4517	1.2512	0.4120	0.2800	0.5441
67	0.4393	0.4251	-0.4267	1.2769	0.4389	0.3037	0.5740
68	0.4531	0.4510	-0.4010	1.3029	0.4659	0.3280	0.6038
69	0.5464	0.4821	-0.3700	1.3342	0.4990	0.3572	0.6408
70	0.5679	0.5088	-0.3440	1.3617	0.5270	0.3820	0.6720
71	0.6088	0.5356	-0.3173	1.3885	0.5554	0.4070	0.7038
72	0.6392	0.5627	-0.2903	1.4158	0.5843	0.4324	0.7362
73	0.6653	0.5906	-0.2628	1.4440	0.6135	0.4583	0.7687
74	0.6924	0.6188	-0.2351	1.4728	0.6433	0.4850	0.8017
75	0.7291	0.6534	-0.2013	1.5081	0.6798	0.5160	0.8437
76	0.7494	0.6832	-0.1727	1.5391	0.7112	0.5435	0.8788
77	0.8173	0.7135	-0.1424	1.5693	0.7430	0.5711	0.9149
78	0.8370	0.7444	-0.1121	1.6009	0.7756	0.5996	0.9516
79	0.9092	0.7764	-0.0808	1.6335	0.8092	0.6287	0.9896
80	0.9393	0.8087	-0.0492	1.6667	0.8436	0.6585	1.0287
81	0.9864	0.8424	-0.0166	1.7014	0.8793	0.6909	1.0677
82	1.0645	0.8840	0.0243	1.7436	0.9231	0.7301	1.1161
83	1.1143	0.9196	0.0584	1.7807	0.9615	0.7629	1.1601
84	1.1517	0.9571	0.0949	1.8193	1.0010	0.7979	1.2040
85	1.2834	0.9963	0.1322	1.8604	1.0421	0.8349	1.2493
86	1.3198	1.0370	0.1715	1.9024	1.0854	0.8734	1.2973
87	1.3446	1.0804	0.2135	1.9473	1.1308	0.9131	1.3486
88	1.3875	1.1352	0.2669	2.0035	1.1884	0.9634	1.4133
89	1.4449	1.1841	0.3139	2.0542	1.2390	1.0076	1.4704
90	1.4940	1.2359	0.3648	2.1070	1.2932	1.0547	1.5318
91	1.5883	1.2918	0.4195	2.1641	1.3516	1.1052	1.5980
92	1.7095	1.3524	0.4782	2.2265	1.4148	1.1595	1.6701
93	1.8045	1.4194	0.5435	2.2952	1.4842	1.2168	1.7516
94	1.9748	1.5104	0.6316	2.3892	1.5780	1.2941	1.8619
95	2.2522	1.5982	0.7144	2.4820	1.6686	1.3664	1.9708
96	2.3730	1.7018	0.8135	2.5900	1.7752	1.4520	2.0984
97	2.5467	1.8312	0.9323	2.7301	1.9050	1.5516	2.2584
98	2.6377	2.0059	1.0884	2.9233	2.0770	1.6773	2.4768
99	2.9835	2.2911	1.3267	3.2555	2.3457	1.8543	2.8371


4-factor gross, 20 observations
Actual
FF ±2σ
KTWW ±2σ
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A4: 4-factor_gross_returns_min_40obs_t(alpha)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-2.9043	-2.2692	-3.3137	-1.2246	-2.4032	-2.9356	-1.8709
2	-2.5908	-1.9584	-2.9532	-0.9636	-2.0938	-2.5366	-1.6509
3	-2.2999	-1.8045	-2.7841	-0.8248	-1.9361	-2.3455	-1.5267
4	-2.1254	-1.6613	-2.6306	-0.6920	-1.7867	-2.1720	-1.4014
5	-2.0434	-1.5698	-2.5324	-0.6073	-1.6900	-2.0601	-1.3200
6	-1.8117	-1.4717	-2.4273	-0.5161	-1.5871	-1.9405	-1.2337
7	-1.6904	-1.4036	-2.3557	-0.4516	-1.5145	-1.8569	-1.1722
8	-1.6593	-1.3271	-2.2738	-0.3803	-1.4334	-1.7658	-1.1010
9	-1.6275	-1.2719	-2.2152	-0.3287	-1.3754	-1.7007	-1.0501
10	-1.5795	-1.2093	-2.1498	-0.2687	-1.3080	-1.6251	-0.9910
11	-1.5066	-1.1628	-2.1016	-0.2240	-1.2580	-1.5691	-0.9469
12	-1.4074	-1.1081	-2.0446	-0.1715	-1.1992	-1.5010	-0.8975
13	-1.3716	-1.0563	-1.9928	-0.1198	-1.1447	-1.4398	-0.8495
14	-1.2732	-1.0175	-1.9518	-0.0832	-1.1030	-1.3929	-0.8131
15	-1.2260	-0.9712	-1.9030	-0.0395	-1.0536	-1.3384	-0.7688
16	-1.2064	-0.9359	-1.8670	-0.0049	-1.0155	-1.2955	-0.7355
17	-1.1670	-0.8939	-1.8232	0.0354	-0.9701	-1.2449	-0.6953
18	-1.1150	-0.8613	-1.7896	0.0671	-0.9352	-1.2058	-0.6646
19	-1.0868	-0.8220	-1.7492	0.1051	-0.8930	-1.1588	-0.6273
20	-1.0273	-0.7917	-1.7179	0.1346	-0.8603	-1.1217	-0.5989
21	-1.0004	-0.7549	-1.6798	0.1699	-0.8208	-1.0772	-0.5645
22	-0.9844	-0.7266	-1.6509	0.1977	-0.7901	-1.0429	-0.5374
23	-0.9464	-0.6918	-1.6151	0.2314	-0.7523	-1.0000	-0.5047
24	-0.9093	-0.6645	-1.5875	0.2584	-0.7229	-0.9662	-0.4796
25	-0.8673	-0.6312	-1.5531	0.2907	-0.6872	-0.9257	-0.4488
26	-0.8247	-0.5989	-1.5198	0.3221	-0.6523	-0.8860	-0.4186
27	-0.8185	-0.5731	-1.4938	0.3476	-0.6250	-0.8548	-0.3952
28	-0.7802	-0.5418	-1.4619	0.3784	-0.5914	-0.8158	-0.3670
29	-0.7663	-0.5172	-1.4369	0.4025	-0.5649	-0.7841	-0.3458
30	-0.7412	-0.4871	-1.4061	0.4319	-0.5329	-0.7454	-0.3204
31	-0.7036	-0.4631	-1.3812	0.4550	-0.5073	-0.7147	-0.2999
32	-0.6784	-0.4338	-1.3513	0.4837	-0.4758	-0.6751	-0.2766
33	-0.6666	-0.4106	-1.3277	0.5064	-0.4508	-0.6439	-0.2577
34	-0.6361	-0.3821	-1.2986	0.5344	-0.4197	-0.6014	-0.2380
35	-0.5961	-0.3596	-1.2752	0.5560	-0.3953	-0.5689	-0.2216
36	-0.5276	-0.3315	-1.2464	0.5835	-0.3651	-0.5279	-0.2022
37	-0.4836	-0.3095	-1.2240	0.6050	-0.3410	-0.4970	-0.1850
38	-0.4150	-0.2820	-1.1962	0.6321	-0.3112	-0.4573	-0.1652
39	-0.3404	-0.2549	-1.1690	0.6593	-0.2816	-0.4177	-0.1456
40	-0.3298	-0.2333	-1.1473	0.6807	-0.2585	-0.3882	-0.1289
41	-0.3149	-0.2062	-1.1197	0.7072	-0.2298	-0.3564	-0.1032
42	-0.2950	-0.1850	-1.0978	0.7279	-0.2069	-0.3320	-0.0817
43	-0.2447	-0.1585	-1.0713	0.7543	-0.1784	-0.3029	-0.0538
44	-0.2002	-0.1375	-1.0506	0.7755	-0.1557	-0.2799	-0.0315
45	-0.1635	-0.1115	-1.0244	0.8015	-0.1278	-0.2519	-0.0037
46	-0.1452	-0.0905	-1.0033	0.8222	-0.1055	-0.2293	0.0184
47	-0.1238	-0.0646	-0.9768	0.8476	-0.0775	-0.2007	0.0456
48	-0.1140	-0.0436	-0.9562	0.8690	-0.0553	-0.1785	0.0680
49	-0.0587	-0.0177	-0.9302	0.8948	-0.0275	-0.1507	0.0957

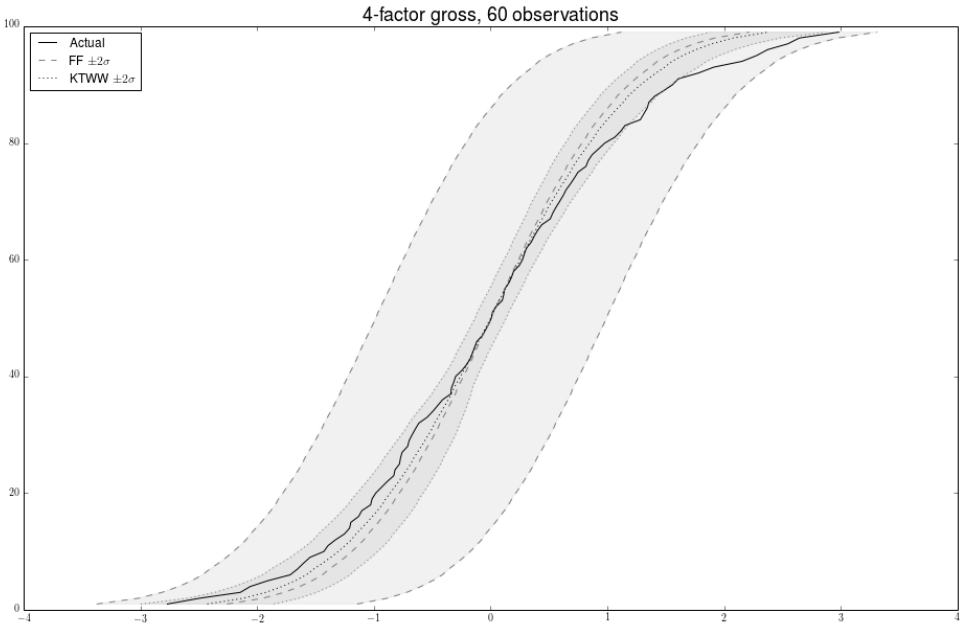
50	-0.0299	0.0085	-0.9039	0.9209	0.0002	-0.1231	0.1236
51	-0.0070	0.0291	-0.8832	0.9414	0.0225	-0.1005	0.1455
52	0.0163	0.0551	-0.8570	0.9672	0.0506	-0.0723	0.1735
53	0.0404	0.0758	-0.8362	0.9878	0.0730	-0.0503	0.1963
54	0.0640	0.1018	-0.8105	1.0141	0.1009	-0.0227	0.2244
55	0.1039	0.1226	-0.7897	1.0350	0.1230	-0.0006	0.2467
56	0.1171	0.1490	-0.7628	1.0608	0.1509	0.0265	0.2752
57	0.1318	0.1701	-0.7417	1.0819	0.1733	0.0488	0.2978
58	0.1797	0.1964	-0.7153	1.1082	0.2015	0.0769	0.3262
59	0.1967	0.2176	-0.6940	1.1292	0.2243	0.0991	0.3495
60	0.2297	0.2440	-0.6677	1.1558	0.2528	0.1268	0.3788
61	0.2619	0.2654	-0.6465	1.1772	0.2758	0.1488	0.4027
62	0.2807	0.2921	-0.6202	1.2044	0.3047	0.1767	0.4327
63	0.3058	0.3193	-0.5935	1.2322	0.3338	0.2044	0.4632
64	0.3482	0.3414	-0.5715	1.2543	0.3573	0.2262	0.4885
65	0.3900	0.3692	-0.5439	1.2824	0.3872	0.2528	0.5216
66	0.4165	0.3915	-0.5219	1.3048	0.4111	0.2742	0.5481
67	0.4410	0.4196	-0.4938	1.3330	0.4416	0.3007	0.5825
68	0.5113	0.4425	-0.4715	1.3564	0.4666	0.3227	0.6105
69	0.5464	0.4714	-0.4428	1.3855	0.4978	0.3505	0.6450
70	0.5625	0.4952	-0.4191	1.4095	0.5231	0.3725	0.6736
71	0.6088	0.5246	-0.3898	1.4391	0.5554	0.4000	0.7108
72	0.6254	0.5490	-0.3658	1.4638	0.5814	0.4216	0.7412
73	0.6585	0.5801	-0.3347	1.4949	0.6146	0.4494	0.7798
74	0.6842	0.6053	-0.3094	1.5200	0.6416	0.4726	0.8105
75	0.7177	0.6375	-0.2772	1.5523	0.6761	0.5027	0.8494
76	0.7478	0.6702	-0.2442	1.5847	0.7116	0.5341	0.8891
77	0.7708	0.6970	-0.2177	1.6118	0.7406	0.5601	0.9210
78	0.8368	0.7313	-0.1837	1.6463	0.7777	0.5926	0.9628
79	0.8676	0.7595	-0.1561	1.6751	0.8080	0.6190	0.9971
80	0.9141	0.7958	-0.1206	1.7123	0.8472	0.6535	1.0409
81	0.9637	0.8258	-0.0911	1.7426	0.8792	0.6811	1.0772
82	1.0305	0.8644	-0.0529	1.7816	0.9206	0.7170	1.1242
83	1.0817	0.8965	-0.0212	1.8142	0.9554	0.7482	1.1627
84	1.1517	0.9374	0.0193	1.8556	1.0001	0.7878	1.2123
85	1.2373	0.9719	0.0531	1.8908	1.0375	0.8211	1.2539
86	1.3125	1.0173	0.0969	1.9377	1.0860	0.8638	1.3083
87	1.3424	1.0552	0.1344	1.9759	1.1269	0.8998	1.3540
88	1.3686	1.1052	0.1834	2.0270	1.1805	0.9478	1.4131
89	1.4449	1.1587	0.2350	2.0824	1.2382	0.9988	1.4777
90	1.4940	1.2043	0.2790	2.1295	1.2871	1.0417	1.5326
91	1.5902	1.2652	0.3386	2.1919	1.3534	1.0997	1.6071
92	1.7194	1.3190	0.3905	2.2476	1.4110	1.1506	1.6715
93	1.8344	1.3926	0.4606	2.3247	1.4898	1.2174	1.7621
94	1.9261	1.4591	0.5249	2.3933	1.5604	1.2761	1.8448
95	2.2522	1.5545	0.6155	2.4935	1.6611	1.3609	1.9614
96	2.3676	1.6437	0.6988	2.5886	1.7554	1.4384	2.0724
97	2.5183	1.7833	0.8277	2.7390	1.9000	1.5526	2.2474
98	2.6241	1.9292	0.9594	2.8990	2.0549	1.6707	2.4390
99	2.9835	2.2307	1.2216	3.2399	2.3573	1.8775	2.8371


4-factor gross, 40 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A5: 4-factor_gross_returns_min_60obs_t(alpha)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-2.7686	-2.2587	-3.3744	-1.1430	-2.4262	-2.9963	-1.8560
2	-2.4908	-1.9489	-3.0146	-0.8832	-2.1161	-2.5934	-1.6388
3	-2.1434	-1.7670	-2.8150	-0.7190	-1.9254	-2.3609	-1.4900
4	-2.0590	-1.6343	-2.6715	-0.5972	-1.7864	-2.1961	-1.3767
5	-1.9076	-1.5292	-2.5601	-0.4983	-1.6735	-2.0627	-1.2843
6	-1.7169	-1.4406	-2.4676	-0.4136	-1.5785	-1.9532	-1.2037
7	-1.6538	-1.3812	-2.4051	-0.3574	-1.5151	-1.8806	-1.1495
8	-1.6023	-1.3107	-2.3301	-0.2913	-1.4381	-1.7944	-1.0819
9	-1.5470	-1.2470	-2.2637	-0.2302	-1.3691	-1.7151	-1.0231
10	-1.4281	-1.1892	-2.2035	-0.1750	-1.3055	-1.6442	-0.9669
11	-1.3928	-1.1357	-2.1465	-0.1249	-1.2469	-1.5788	-0.9150
12	-1.3288	-1.0858	-2.0944	-0.0772	-1.1924	-1.5175	-0.8674
13	-1.2524	-1.0504	-2.0576	-0.0432	-1.1538	-1.4744	-0.8333
14	-1.2075	-1.0055	-2.0105	-0.0005	-1.1050	-1.4201	-0.7900
15	-1.1968	-0.9622	-1.9656	0.0412	-1.0581	-1.3673	-0.7489
16	-1.1305	-0.9216	-1.9233	0.0801	-1.0133	-1.3173	-0.7093
17	-1.1025	-0.8825	-1.8830	0.1181	-0.9704	-1.2685	-0.6723
18	-1.0273	-0.8449	-1.8442	0.1544	-0.9290	-1.2217	-0.6364
19	-1.0154	-0.8174	-1.8164	0.1815	-0.8994	-1.1874	-0.6114
20	-0.9844	-0.7820	-1.7800	0.2161	-0.8607	-1.1439	-0.5774
21	-0.9346	-0.7477	-1.7456	0.2502	-0.8236	-1.1022	-0.5450
22	-0.8851	-0.7140	-1.7106	0.2826	-0.7870	-1.0599	-0.5141
23	-0.8287	-0.6819	-1.6778	0.3139	-0.7516	-1.0188	-0.4844
24	-0.8185	-0.6502	-1.6453	0.3449	-0.7172	-0.9801	-0.4544
25	-0.7802	-0.6197	-1.6142	0.3748	-0.6838	-0.9416	-0.4260
26	-0.7717	-0.5973	-1.5916	0.3970	-0.6588	-0.9134	-0.4043
27	-0.7577	-0.5677	-1.5619	0.4265	-0.6263	-0.8744	-0.3781
28	-0.7107	-0.5385	-1.5319	0.4548	-0.5946	-0.8382	-0.3509
29	-0.6979	-0.5099	-1.5026	0.4828	-0.5635	-0.8016	-0.3253
30	-0.6723	-0.4817	-1.4744	0.5110	-0.5328	-0.7645	-0.3011
31	-0.6442	-0.4538	-1.4459	0.5384	-0.5023	-0.7261	-0.2786
32	-0.6143	-0.4333	-1.4245	0.5579	-0.4798	-0.6980	-0.2616
33	-0.5437	-0.4063	-1.3971	0.5845	-0.4502	-0.6607	-0.2397
34	-0.4956	-0.3797	-1.3699	0.6106	-0.4209	-0.6223	-0.2196
35	-0.4534	-0.3534	-1.3427	0.6359	-0.3918	-0.5813	-0.2022
36	-0.4119	-0.3274	-1.3170	0.6621	-0.3630	-0.5416	-0.1843
37	-0.3404	-0.3016	-1.2902	0.6870	-0.3348	-0.5024	-0.1672
38	-0.3354	-0.2827	-1.2715	0.7061	-0.3138	-0.4720	-0.1555
39	-0.3156	-0.2574	-1.2463	0.7315	-0.2858	-0.4370	-0.1345
40	-0.2997	-0.2323	-1.2212	0.7565	-0.2584	-0.4036	-0.1133
41	-0.2470	-0.2074	-1.1960	0.7811	-0.2310	-0.3709	-0.0912
42	-0.2066	-0.1824	-1.1707	0.8059	-0.2042	-0.3414	-0.0670
43	-0.1746	-0.1579	-1.1461	0.8303	-0.1772	-0.3129	-0.0415
44	-0.1549	-0.1395	-1.1277	0.8487	-0.1573	-0.2924	-0.0221
45	-0.1364	-0.1151	-1.1030	0.8728	-0.1304	-0.2646	0.0038
46	-0.1176	-0.0908	-1.0789	0.8973	-0.1038	-0.2375	0.0298
47	-0.0700	-0.0664	-1.0545	0.9217	-0.0775	-0.2111	0.0561
48	-0.0424	-0.0422	-1.0303	0.9459	-0.0512	-0.1848	0.0825
49	-0.0146	-0.0179	-1.0060	0.9703	-0.0250	-0.1584	0.1085

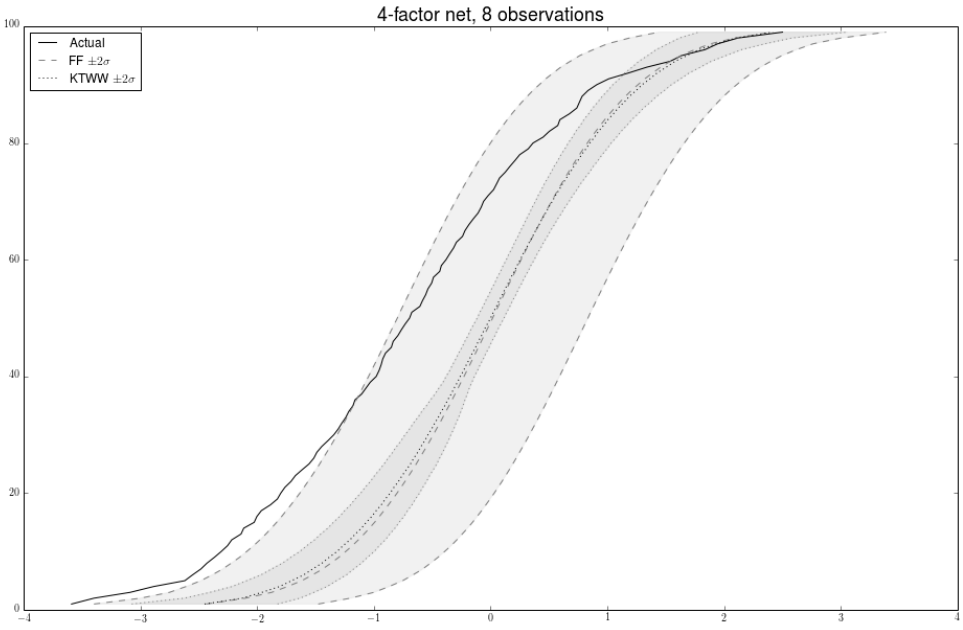
50	0.0071	0.0065	-0.9814	0.9944	0.0013	-0.1324	0.1350
51	0.0163	0.0247	-0.9635	1.0129	0.0210	-0.1132	0.1551
52	0.0480	0.0487	-0.9392	1.0366	0.0473	-0.0868	0.1814
53	0.1000	0.0729	-0.9151	1.0609	0.0738	-0.0605	0.2081
54	0.1125	0.0972	-0.8906	1.0851	0.1002	-0.0343	0.2346
55	0.1207	0.1216	-0.8660	1.1093	0.1267	-0.0081	0.2614
56	0.1559	0.1461	-0.8413	1.1334	0.1530	0.0185	0.2876
57	0.1797	0.1643	-0.8227	1.1514	0.1731	0.0384	0.3079
58	0.1967	0.1890	-0.7982	1.1761	0.1998	0.0643	0.3354
59	0.2453	0.2137	-0.7737	1.2011	0.2266	0.0903	0.3630
60	0.2737	0.2386	-0.7490	1.2261	0.2535	0.1164	0.3907
61	0.2895	0.2638	-0.7242	1.2518	0.2807	0.1424	0.4191
62	0.3074	0.2888	-0.6991	1.2766	0.3083	0.1680	0.4486
63	0.3482	0.3079	-0.6802	1.2959	0.3294	0.1875	0.4713
64	0.3732	0.3335	-0.6546	1.3216	0.3572	0.2123	0.5020
65	0.4025	0.3594	-0.6286	1.3473	0.3854	0.2375	0.5332
66	0.4393	0.3858	-0.6031	1.3747	0.4139	0.2628	0.5649
67	0.5113	0.4124	-0.5766	1.4014	0.4425	0.2884	0.5966
68	0.5330	0.4392	-0.5493	1.4277	0.4719	0.3141	0.6297
69	0.5607	0.4596	-0.5293	1.4485	0.4940	0.3324	0.6556
70	0.5920	0.4869	-0.5021	1.4760	0.5241	0.3579	0.6903
71	0.6219	0.5148	-0.4748	1.5044	0.5545	0.3845	0.7244
72	0.6474	0.5431	-0.4472	1.5335	0.5856	0.4112	0.7599
73	0.6842	0.5720	-0.4187	1.5626	0.6172	0.4387	0.7958
74	0.7177	0.6011	-0.3901	1.5922	0.6493	0.4667	0.8319
75	0.7490	0.6311	-0.3605	1.6226	0.6822	0.4944	0.8700
76	0.8173	0.6542	-0.3380	1.6463	0.7072	0.5160	0.8985
77	0.8369	0.6853	-0.3076	1.6782	0.7414	0.5460	0.9368
78	0.8702	0.7171	-0.2768	1.7111	0.7763	0.5763	0.9763
79	0.9258	0.7499	-0.2444	1.7443	0.8121	0.6078	1.0163
80	0.9790	0.7835	-0.2118	1.7789	0.8489	0.6407	1.0570
81	1.0645	0.8186	-0.1774	1.8147	0.8873	0.6747	1.0998
82	1.1143	0.8457	-0.1515	1.8429	0.9168	0.7010	1.1327
83	1.1517	0.8828	-0.1153	1.8810	0.9573	0.7371	1.1776
84	1.2834	0.9214	-0.0778	1.9206	0.9994	0.7749	1.2239
85	1.3125	0.9614	-0.0384	1.9612	1.0439	0.8146	1.2732
86	1.3424	1.0039	0.0039	2.0040	1.0899	0.8545	1.3254
87	1.3566	1.0478	0.0465	2.0490	1.1382	0.8979	1.3785
88	1.4050	1.0825	0.0805	2.0846	1.1764	0.9319	1.4209
89	1.4859	1.1319	0.1275	2.1363	1.2300	0.9786	1.4814
90	1.5600	1.1848	0.1792	2.1905	1.2876	1.0283	1.5469
91	1.6079	1.2411	0.2337	2.2485	1.3495	1.0810	1.6179
92	1.7816	1.3028	0.2935	2.3121	1.4173	1.1399	1.6947
93	1.9119	1.3714	0.3600	2.3828	1.4921	1.2037	1.7806
94	2.1550	1.4284	0.4137	2.4432	1.5540	1.2571	1.8509
95	2.2804	1.5144	0.4943	2.5346	1.6474	1.3349	1.9600
96	2.3731	1.6163	0.5897	2.6430	1.7578	1.4251	2.0906
97	2.5467	1.7443	0.7048	2.7837	1.8945	1.5337	2.2554
98	2.6463	1.9205	0.8636	2.9774	2.0793	1.6751	2.4834
99	2.9835	2.2157	1.1201	3.3113	2.3783	1.8809	2.8757


4-factor gross, 60 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A6: 4-factor_net_returns_min_8obs_t(alpha)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.5897	-2.4369	-3.3976	-1.4762	-2.4493	-3.0738	-1.8247
2	-3.3979	-2.1002	-2.9997	-1.2007	-2.1280	-2.6242	-1.6319
3	-3.0878	-1.8750	-2.7509	-0.9990	-1.9587	-2.4050	-1.5124
4	-2.8863	-1.7387	-2.6085	-0.8689	-1.8071	-2.2141	-1.4001
5	-2.6194	-1.6172	-2.4815	-0.7529	-1.7043	-2.0892	-1.3195
6	-2.5525	-1.5244	-2.3845	-0.6642	-1.6001	-1.9665	-1.2337
7	-2.4817	-1.4385	-2.2954	-0.5816	-1.5248	-1.8765	-1.1730
8	-2.4298	-1.3680	-2.2214	-0.5146	-1.4445	-1.7836	-1.1055
9	-2.3662	-1.3004	-2.1506	-0.4503	-1.3832	-1.7115	-1.0548
10	-2.3073	-1.2413	-2.0892	-0.3934	-1.3154	-1.6347	-0.9960
11	-2.2532	-1.1835	-2.0294	-0.3376	-1.2633	-1.5740	-0.9525
12	-2.2171	-1.1324	-1.9759	-0.2889	-1.2044	-1.5074	-0.9014
13	-2.1373	-1.0836	-1.9248	-0.2425	-1.1585	-1.4541	-0.8629
14	-2.1143	-1.0373	-1.8776	-0.1971	-1.1062	-1.3939	-0.8185
15	-2.0248	-0.9938	-1.8328	-0.1547	-1.0647	-1.3464	-0.7830
16	-2.0019	-0.9526	-1.7899	-0.1153	-1.0177	-1.2930	-0.7424
17	-1.9636	-0.9133	-1.7501	-0.0764	-0.9798	-1.2495	-0.7102
18	-1.8855	-0.8747	-1.7096	-0.0398	-0.9362	-1.1992	-0.6733
19	-1.8262	-0.8378	-1.6716	-0.0041	-0.9010	-1.1594	-0.6426
20	-1.7972	-0.8013	-1.6340	0.0313	-0.8603	-1.1120	-0.6085
21	-1.7617	-0.7671	-1.5985	0.0644	-0.8274	-1.0744	-0.5804
22	-1.7099	-0.7330	-1.5637	0.0977	-0.7892	-1.0298	-0.5485
23	-1.6723	-0.7003	-1.5300	0.1294	-0.7581	-0.9937	-0.5225
24	-1.6149	-0.6683	-1.4968	0.1602	-0.7215	-0.9520	-0.4910
25	-1.5554	-0.6370	-1.4643	0.1904	-0.6862	-0.9123	-0.4601
26	-1.5138	-0.6072	-1.4339	0.2195	-0.6574	-0.8782	-0.4365
27	-1.4881	-0.5774	-1.4030	0.2482	-0.6237	-0.8383	-0.4091
28	-1.4459	-0.5477	-1.3725	0.2771	-0.5960	-0.8052	-0.3868
29	-1.3928	-0.5189	-1.3430	0.3052	-0.5631	-0.7657	-0.3606
30	-1.3425	-0.4907	-1.3144	0.3331	-0.5363	-0.7328	-0.3399
31	-1.3047	-0.4633	-1.2859	0.3592	-0.5045	-0.6940	-0.3151
32	-1.2740	-0.4353	-1.2575	0.3868	-0.4784	-0.6609	-0.2958
33	-1.2396	-0.4087	-1.2302	0.4129	-0.4474	-0.6218	-0.2730
34	-1.2146	-0.3823	-1.2030	0.4385	-0.4219	-0.5894	-0.2543
35	-1.1784	-0.3553	-1.1758	0.4652	-0.3916	-0.5483	-0.2348
36	-1.1611	-0.3295	-1.1491	0.4900	-0.3667	-0.5144	-0.2190
37	-1.1038	-0.3036	-1.1228	0.5156	-0.3369	-0.4750	-0.1989
38	-1.0676	-0.2783	-1.0972	0.5406	-0.3124	-0.4428	-0.1819
39	-1.0309	-0.2534	-1.0720	0.5653	-0.2833	-0.4071	-0.1596
40	-0.9795	-0.2274	-1.0453	0.5905	-0.2596	-0.3812	-0.1380
41	-0.9552	-0.2027	-1.0206	0.6151	-0.2310	-0.3502	-0.1119
42	-0.9371	-0.1779	-0.9954	0.6396	-0.2075	-0.3258	-0.0892
43	-0.9234	-0.1532	-0.9701	0.6637	-0.1796	-0.2974	-0.0618
44	-0.8998	-0.1286	-0.9449	0.6878	-0.1562	-0.2734	-0.0390
45	-0.8497	-0.1041	-0.9207	0.7126	-0.1282	-0.2445	-0.0118
46	-0.8344	-0.0798	-0.8969	0.7372	-0.1052	-0.2211	0.0107
47	-0.7939	-0.0557	-0.8726	0.7612	-0.0774	-0.1930	0.0382
48	-0.7639	-0.0313	-0.8481	0.7855	-0.0545	-0.1697	0.0608
49	-0.7309	-0.0068	-0.8232	0.8096	-0.0269	-0.1422	0.0883

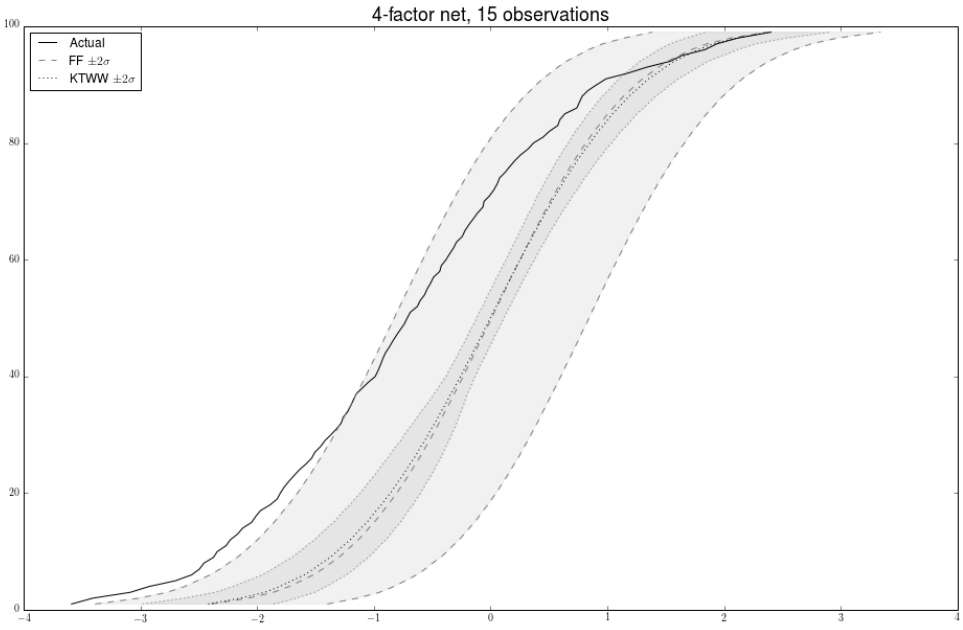
50	-0.6939	0.0178	-0.7986	0.8342	0.0006	-0.1143	0.1155
51	-0.6747	0.0402	-0.7762	0.8566	0.0235	-0.0915	0.1384
52	-0.6055	0.0647	-0.7520	0.8814	0.0509	-0.0641	0.1659
53	-0.5826	0.0891	-0.7276	0.9058	0.0738	-0.0410	0.1886
54	-0.5557	0.1134	-0.7034	0.9303	0.1013	-0.0142	0.2168
55	-0.5365	0.1379	-0.6790	0.9548	0.1243	0.0087	0.2399
56	-0.5047	0.1623	-0.6550	0.9796	0.1521	0.0357	0.2685
57	-0.4889	0.1867	-0.6304	1.0038	0.1752	0.0586	0.2919
58	-0.4353	0.2113	-0.6061	1.0286	0.2033	0.0854	0.3211
59	-0.4217	0.2359	-0.5817	1.0536	0.2266	0.1079	0.3454
60	-0.3818	0.2611	-0.5566	1.0788	0.2549	0.1351	0.3746
61	-0.3507	0.2860	-0.5321	1.1041	0.2787	0.1578	0.3995
62	-0.3174	0.3111	-0.5080	1.1303	0.3074	0.1852	0.4296
63	-0.2926	0.3359	-0.4836	1.1554	0.3315	0.2075	0.4555
64	-0.2402	0.3621	-0.4577	1.1819	0.3609	0.2346	0.4872
65	-0.2189	0.3879	-0.4322	1.2080	0.3857	0.2574	0.5140
66	-0.1858	0.4146	-0.4063	1.2355	0.4156	0.2844	0.5469
67	-0.1480	0.4405	-0.3808	1.2617	0.4409	0.3070	0.5748
68	-0.1070	0.4670	-0.3549	1.2889	0.4715	0.3341	0.6089
69	-0.0804	0.4945	-0.3280	1.3170	0.4976	0.3572	0.6380
70	-0.0599	0.5221	-0.3009	1.3450	0.5291	0.3844	0.6737
71	-0.0203	0.5497	-0.2742	1.3736	0.5556	0.4078	0.7033
72	0.0260	0.5783	-0.2466	1.4031	0.5881	0.4363	0.7400
73	0.0518	0.6073	-0.2183	1.4329	0.6156	0.4607	0.7706
74	0.0768	0.6372	-0.1888	1.4632	0.6492	0.4900	0.8084
75	0.1259	0.6676	-0.1592	1.4944	0.6834	0.5193	0.8475
76	0.1660	0.6975	-0.1301	1.5251	0.7128	0.5446	0.8810
77	0.2091	0.7293	-0.0992	1.5578	0.7488	0.5765	0.9211
78	0.2498	0.7617	-0.0673	1.5906	0.7793	0.6033	0.9554
79	0.3226	0.7947	-0.0347	1.6240	0.8171	0.6367	0.9976
80	0.3639	0.8297	-0.0006	1.6599	0.8497	0.6653	1.0342
81	0.4496	0.8647	0.0331	1.6962	0.8901	0.7007	1.0794
82	0.5031	0.9012	0.0685	1.7340	0.9247	0.7307	1.1187
83	0.5759	0.9392	0.1060	1.7725	0.9678	0.7681	1.1675
84	0.5939	0.9785	0.1433	1.8137	1.0051	0.7998	1.2104
85	0.6751	1.0193	0.1820	1.8565	1.0519	0.8397	1.2640
86	0.7393	1.0626	0.2239	1.9013	1.0927	0.8747	1.3107
87	0.7613	1.1074	0.2676	1.9472	1.1442	0.9182	1.3701
88	0.7841	1.1553	0.3144	1.9962	1.1897	0.9569	1.4225
89	0.8351	1.2064	0.3628	2.0500	1.2472	1.0048	1.4895
90	0.9103	1.2633	0.4177	2.1089	1.2987	1.0479	1.5496
91	1.0127	1.3207	0.4723	2.1691	1.3655	1.1030	1.6281
92	1.1813	1.3876	0.5363	2.2388	1.4260	1.1508	1.7011
93	1.3393	1.4573	0.6016	2.3131	1.5058	1.2133	1.7982
94	1.5380	1.5417	0.6824	2.4009	1.5804	1.2703	1.8905
95	1.6392	1.6316	0.7659	2.4974	1.6837	1.3479	2.0196
96	1.8370	1.7497	0.8796	2.6199	1.7845	1.4187	2.1503
97	1.9454	1.8818	1.0009	2.7627	1.9346	1.5181	2.3512
98	2.1212	2.0977	1.1911	3.0044	2.1004	1.6187	2.5821
99	2.5013	2.4147	1.4414	3.3880	2.4184	1.7830	3.0537


4-factor net, 8 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A7: 4-factor_net_returns_min_15obs_t(alpha)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.5897	-2.3930	-3.3878	-1.3981	-2.4182	-2.9808	-1.8556
2	-3.4096	-2.0765	-3.0137	-1.1394	-2.1428	-2.6222	-1.6634
3	-3.0878	-1.8620	-2.7716	-0.9523	-1.9348	-2.3618	-1.5078
4	-2.9260	-1.7250	-2.6224	-0.8276	-1.8073	-2.2070	-1.4076
5	-2.6976	-1.6206	-2.5115	-0.7297	-1.7018	-2.0807	-1.3230
6	-2.5607	-1.5176	-2.4026	-0.6327	-1.5955	-1.9567	-1.2343
7	-2.4935	-1.4390	-2.3173	-0.5608	-1.5184	-1.8676	-1.1693
8	-2.4560	-1.3704	-2.2443	-0.4966	-1.4489	-1.7884	-1.1094
9	-2.3732	-1.2993	-2.1695	-0.4290	-1.3734	-1.7018	-1.0450
10	-2.3412	-1.2409	-2.1094	-0.3723	-1.3160	-1.6358	-0.9961
11	-2.2656	-1.1888	-2.0540	-0.3237	-1.2622	-1.5756	-0.9488
12	-2.2299	-1.1331	-1.9967	-0.2696	-1.2018	-1.5079	-0.8958
13	-2.1668	-1.0862	-1.9475	-0.2249	-1.1549	-1.4552	-0.8546
14	-2.1240	-1.0430	-1.9032	-0.1828	-1.1101	-1.4039	-0.8164
15	-2.0471	-0.9960	-1.8547	-0.1374	-1.0592	-1.3455	-0.7730
16	-2.0123	-0.9563	-1.8128	-0.0998	-1.0189	-1.3001	-0.7378
17	-1.9714	-0.9186	-1.7736	-0.0636	-0.9799	-1.2558	-0.7039
18	-1.8882	-0.8771	-1.7306	-0.0237	-0.9349	-1.2042	-0.6657
19	-1.8278	-0.8415	-1.6936	0.0105	-0.8991	-1.1634	-0.6348
20	-1.8014	-0.8037	-1.6550	0.0475	-0.8574	-1.1161	-0.5988
21	-1.7694	-0.7705	-1.6201	0.0791	-0.8239	-1.0774	-0.5704
22	-1.7287	-0.7381	-1.5866	0.1104	-0.7911	-1.0399	-0.5423
23	-1.6837	-0.7037	-1.5517	0.1443	-0.7529	-0.9963	-0.5095
24	-1.6383	-0.6729	-1.5196	0.1737	-0.7214	-0.9597	-0.4831
25	-1.5809	-0.6430	-1.4893	0.2033	-0.6910	-0.9250	-0.4570
26	-1.5321	-0.6108	-1.4566	0.2351	-0.6550	-0.8812	-0.4288
27	-1.5057	-0.5821	-1.4267	0.2624	-0.6258	-0.8469	-0.4048
28	-1.4555	-0.5543	-1.3982	0.2896	-0.5972	-0.8123	-0.3822
29	-1.4191	-0.5241	-1.3670	0.3188	-0.5634	-0.7707	-0.3561
30	-1.3677	-0.4967	-1.3385	0.3452	-0.5357	-0.7379	-0.3334
31	-1.3208	-0.4703	-1.3120	0.3713	-0.5084	-0.7036	-0.3133
32	-1.2796	-0.4415	-1.2822	0.3992	-0.4764	-0.6629	-0.2899
33	-1.2631	-0.4154	-1.2551	0.4244	-0.4500	-0.6289	-0.2712
34	-1.2229	-0.3901	-1.2290	0.4488	-0.4239	-0.5953	-0.2524
35	-1.1974	-0.3624	-1.2005	0.4756	-0.3925	-0.5527	-0.2323
36	-1.1747	-0.3373	-1.1749	0.5003	-0.3668	-0.5177	-0.2160
37	-1.1513	-0.3125	-1.1495	0.5245	-0.3414	-0.4851	-0.1978
38	-1.0991	-0.2854	-1.1220	0.5511	-0.3113	-0.4480	-0.1745
39	-1.0471	-0.2606	-1.0966	0.5755	-0.2862	-0.4173	-0.1551
40	-0.9879	-0.2339	-1.0695	0.6018	-0.2566	-0.3822	-0.1309
41	-0.9637	-0.2105	-1.0460	0.6251	-0.2319	-0.3549	-0.1089
42	-0.9425	-0.1864	-1.0218	0.6490	-0.2075	-0.3287	-0.0863
43	-0.9239	-0.1599	-0.9956	0.6758	-0.1786	-0.2985	-0.0587
44	-0.9017	-0.1367	-0.9718	0.6985	-0.1546	-0.2737	-0.0354
45	-0.8686	-0.1131	-0.9482	0.7220	-0.1307	-0.2493	-0.0121
46	-0.8393	-0.0871	-0.9218	0.7477	-0.1022	-0.2197	0.0153
47	-0.8076	-0.0641	-0.8983	0.7702	-0.0785	-0.1958	0.0389
48	-0.7739	-0.0405	-0.8747	0.7936	-0.0547	-0.1723	0.0630
49	-0.7386	-0.0146	-0.8487	0.8195	-0.0263	-0.1436	0.0909

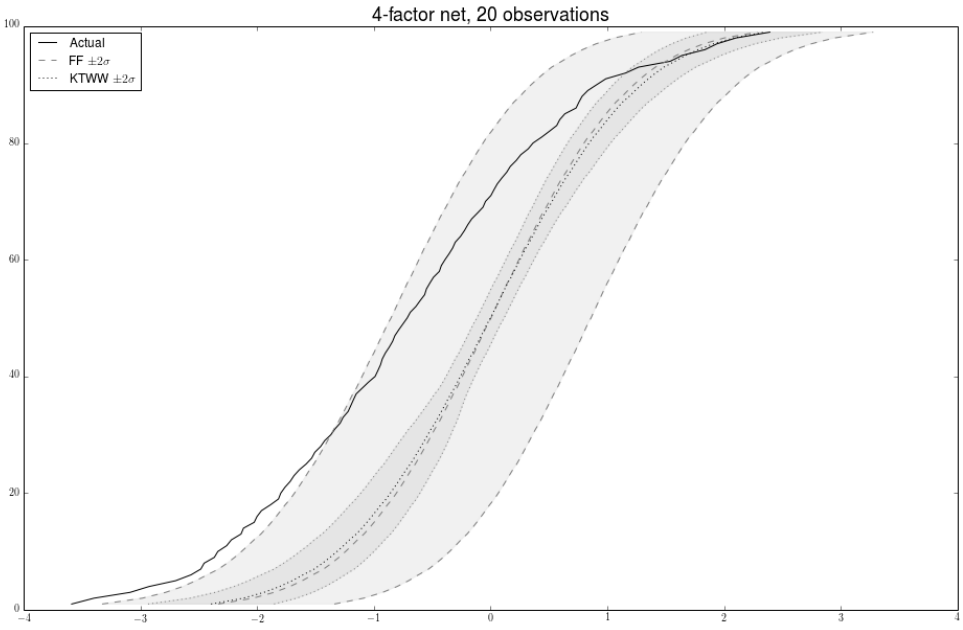
50	-0.7147	0.0091	-0.8247	0.8429	-0.0029	-0.1201	0.1142
51	-0.6874	0.0315	-0.8025	0.8655	0.0206	-0.0966	0.1378
52	-0.6269	0.0576	-0.7768	0.8919	0.0490	-0.0683	0.1663
53	-0.6030	0.0810	-0.7531	0.9151	0.0727	-0.0452	0.1906
54	-0.5648	0.1038	-0.7303	0.9380	0.0964	-0.0221	0.2149
55	-0.5429	0.1299	-0.7042	0.9641	0.1250	0.0063	0.2437
56	-0.5132	0.1535	-0.6806	0.9877	0.1490	0.0299	0.2680
57	-0.4889	0.1765	-0.6576	1.0106	0.1727	0.0532	0.2923
58	-0.4353	0.2030	-0.6310	1.0369	0.2017	0.0813	0.3222
59	-0.4217	0.2269	-0.6075	1.0613	0.2260	0.1048	0.3472
60	-0.3818	0.2534	-0.5809	1.0876	0.2549	0.1326	0.3773
61	-0.3507	0.2772	-0.5574	1.1117	0.2795	0.1561	0.4030
62	-0.3175	0.3016	-0.5332	1.1365	0.3044	0.1798	0.4290
63	-0.2926	0.3284	-0.5062	1.1630	0.3343	0.2077	0.4608
64	-0.2421	0.3528	-0.4822	1.1877	0.3592	0.2305	0.4879
65	-0.2189	0.3779	-0.4573	1.2130	0.3844	0.2543	0.5145
66	-0.1858	0.4055	-0.4298	1.2409	0.4153	0.2816	0.5490
67	-0.1480	0.4307	-0.4049	1.2663	0.4412	0.3050	0.5774
68	-0.1121	0.4563	-0.3795	1.2922	0.4672	0.3283	0.6062
69	-0.0659	0.4846	-0.3514	1.3207	0.4993	0.3564	0.6421
70	-0.0556	0.5107	-0.3259	1.3474	0.5264	0.3795	0.6733
71	-0.0069	0.5378	-0.2993	1.3749	0.5539	0.4037	0.7041
72	0.0292	0.5677	-0.2697	1.4051	0.5873	0.4329	0.7416
73	0.0571	0.5952	-0.2431	1.4335	0.6157	0.4582	0.7732
74	0.0768	0.6237	-0.2149	1.4622	0.6447	0.4834	0.8059
75	0.1259	0.6557	-0.1832	1.4946	0.6800	0.5149	0.8451
76	0.1660	0.6853	-0.1542	1.5248	0.7101	0.5419	0.8782
77	0.2091	0.7157	-0.1242	1.5557	0.7409	0.5681	0.9138
78	0.2594	0.7496	-0.0909	1.5902	0.7788	0.6016	0.9561
79	0.3226	0.7814	-0.0608	1.6236	0.8113	0.6304	0.9922
80	0.3672	0.8186	-0.0247	1.6619	0.8514	0.6657	1.0371
81	0.4496	0.8516	0.0078	1.6953	0.8862	0.6962	1.0762
82	0.5031	0.8862	0.0412	1.7313	0.9219	0.7272	1.1166
83	0.5759	0.9272	0.0818	1.7726	0.9661	0.7656	1.1666
84	0.5939	0.9643	0.1175	1.8111	1.0044	0.7994	1.2094
85	0.6362	1.0032	0.1557	1.8508	1.0445	0.8350	1.2540
86	0.7393	1.0497	0.2022	1.8973	1.0950	0.8783	1.3118
87	0.7613	1.0921	0.2441	1.9400	1.1392	0.9162	1.3621
88	0.7841	1.1381	0.2881	1.9882	1.1852	0.9568	1.4135
89	0.8351	1.1933	0.3422	2.0444	1.2445	1.0075	1.4815
90	0.9103	1.2443	0.3915	2.0972	1.2973	1.0521	1.5425
91	0.9896	1.3013	0.4452	2.1574	1.3541	1.0994	1.6087
92	1.1813	1.3709	0.5130	2.2287	1.4284	1.1624	1.6944
93	1.3393	1.4379	0.5765	2.2993	1.4967	1.2188	1.7745
94	1.5380	1.5153	0.6485	2.3822	1.5728	1.2809	1.8647
95	1.6392	1.6158	0.7450	2.4867	1.6773	1.3638	1.9908
96	1.8370	1.7204	0.8405	2.6002	1.7796	1.4425	2.1168
97	1.9394	1.8543	0.9598	2.7487	1.9059	1.5362	2.2755
98	2.1212	2.0613	1.1471	2.9756	2.1089	1.6794	2.5383
99	2.4020	2.3637	1.3868	3.3406	2.3780	1.8446	2.9114


4-factor net, 15 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A8: 4-factor_net_returns_min_20obs_t(alpha)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.5886	-2.3329	-3.3275	-1.3382	-2.3940	-2.9336	-1.8545
2	-3.3979	-2.0357	-2.9839	-1.0876	-2.1188	-2.5765	-1.6610
3	-3.0878	-1.8541	-2.7839	-0.9243	-1.9412	-2.3592	-1.5232
4	-2.9260	-1.7195	-2.6375	-0.8015	-1.8069	-2.1977	-1.4161
5	-2.6976	-1.6132	-2.5245	-0.7019	-1.6990	-2.0712	-1.3268
6	-2.5663	-1.5231	-2.4279	-0.6183	-1.6068	-1.9655	-1.2480
7	-2.4817	-1.4298	-2.3294	-0.5302	-1.5104	-1.8540	-1.1667
8	-2.4538	-1.3609	-2.2570	-0.4648	-1.4392	-1.7733	-1.1051
9	-2.3662	-1.2988	-2.1921	-0.4055	-1.3749	-1.6997	-1.0502
10	-2.3365	-1.2424	-2.1337	-0.3512	-1.3155	-1.6323	-0.9987
11	-2.2605	-1.1897	-2.0789	-0.3005	-1.2596	-1.5676	-0.9517
12	-2.2202	-1.1400	-2.0262	-0.2537	-1.2082	-1.5096	-0.9068
13	-2.1373	-1.0841	-1.9674	-0.2009	-1.1494	-1.4427	-0.8562
14	-2.1165	-1.0395	-1.9211	-0.1579	-1.1033	-1.3899	-0.8167
15	-2.0248	-0.9981	-1.8777	-0.1184	-1.0596	-1.3407	-0.7785
16	-2.0006	-0.9584	-1.8365	-0.0803	-1.0180	-1.2931	-0.7429
17	-1.9626	-0.9204	-1.7973	-0.0435	-0.9779	-1.2474	-0.7084
18	-1.8855	-0.8836	-1.7592	-0.0079	-0.9392	-1.2038	-0.6746
19	-1.8168	-0.8413	-1.7152	0.0327	-0.8945	-1.1539	-0.6350
20	-1.7972	-0.8069	-1.6799	0.0661	-0.8587	-1.1125	-0.6049
21	-1.7617	-0.7738	-1.6457	0.0982	-0.8237	-1.0712	-0.5761
22	-1.7167	-0.7416	-1.6127	0.1296	-0.7897	-1.0330	-0.5465
23	-1.6837	-0.7105	-1.5806	0.1597	-0.7566	-0.9948	-0.5185
24	-1.6383	-0.6799	-1.5497	0.1899	-0.7240	-0.9569	-0.4912
25	-1.5795	-0.6443	-1.5131	0.2246	-0.6863	-0.9126	-0.4599
26	-1.5321	-0.6151	-1.4832	0.2530	-0.6555	-0.8782	-0.4329
27	-1.5057	-0.5867	-1.4534	0.2799	-0.6256	-0.8424	-0.4087
28	-1.4555	-0.5585	-1.4239	0.3068	-0.5959	-0.8080	-0.3837
29	-1.4208	-0.5313	-1.3960	0.3334	-0.5668	-0.7728	-0.3608
30	-1.3684	-0.5042	-1.3683	0.3599	-0.5380	-0.7362	-0.3399
31	-1.3326	-0.4774	-1.3412	0.3864	-0.5097	-0.7001	-0.3193
32	-1.2885	-0.4457	-1.3087	0.4173	-0.4762	-0.6570	-0.2953
33	-1.2631	-0.4199	-1.2824	0.4427	-0.4485	-0.6205	-0.2765
34	-1.2200	-0.3943	-1.2561	0.4676	-0.4212	-0.5840	-0.2584
35	-1.1974	-0.3688	-1.2302	0.4926	-0.3943	-0.5476	-0.2410
36	-1.1747	-0.3440	-1.2050	0.5171	-0.3676	-0.5119	-0.2232
37	-1.1513	-0.3190	-1.1799	0.5420	-0.3411	-0.4785	-0.2037
38	-1.0991	-0.2896	-1.1498	0.5706	-0.3098	-0.4390	-0.1807
39	-1.0471	-0.2654	-1.1252	0.5945	-0.2841	-0.4092	-0.1589
40	-0.9891	-0.2414	-1.1007	0.6178	-0.2585	-0.3810	-0.1360
41	-0.9652	-0.2172	-1.0764	0.6419	-0.2332	-0.3544	-0.1119
42	-0.9425	-0.1936	-1.0527	0.6655	-0.2082	-0.3283	-0.0882
43	-0.9273	-0.1697	-1.0291	0.6897	-0.1833	-0.3025	-0.0640
44	-0.9017	-0.1416	-1.0002	0.7171	-0.1533	-0.2715	-0.0351
45	-0.8686	-0.1180	-0.9770	0.7409	-0.1284	-0.2459	-0.0109
46	-0.8395	-0.0946	-0.9532	0.7639	-0.1039	-0.2209	0.0131
47	-0.8194	-0.0712	-0.9294	0.7870	-0.0792	-0.1959	0.0375
48	-0.7861	-0.0479	-0.9056	0.8097	-0.0546	-0.1713	0.0621
49	-0.7503	-0.0246	-0.8811	0.8319	-0.0301	-0.1467	0.0865

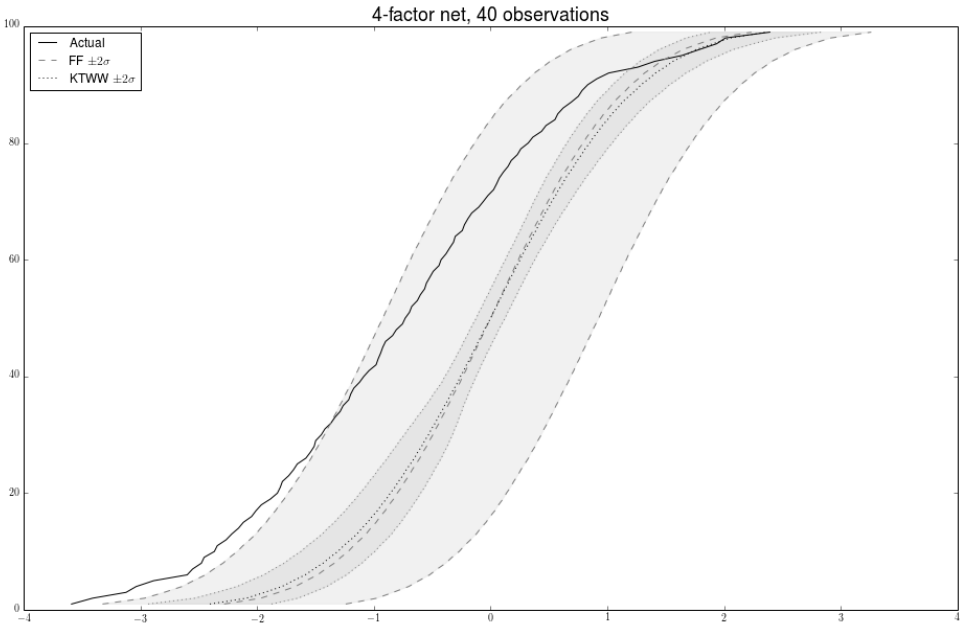
50	-0.7147	0.0035	-0.8532	0.8602	-0.0008	-0.1176	0.1161
51	-0.6874	0.0265	-0.8297	0.8827	0.0237	-0.0929	0.1404
52	-0.6390	0.0498	-0.8064	0.9060	0.0483	-0.0684	0.1649
53	-0.6030	0.0731	-0.7832	0.9293	0.0729	-0.0439	0.1897
54	-0.5648	0.0962	-0.7598	0.9522	0.0974	-0.0198	0.2146
55	-0.5490	0.1195	-0.7364	0.9754	0.1217	0.0042	0.2391
56	-0.5200	0.1431	-0.7131	0.9993	0.1463	0.0285	0.2641
57	-0.4889	0.1710	-0.6852	1.0271	0.1760	0.0575	0.2945
58	-0.4387	0.1948	-0.6614	1.0510	0.2009	0.0820	0.3198
59	-0.4217	0.2187	-0.6374	1.0749	0.2260	0.1063	0.3456
60	-0.3905	0.2427	-0.6138	1.0991	0.2513	0.1310	0.3716
61	-0.3559	0.2665	-0.5904	1.1234	0.2765	0.1552	0.3977
62	-0.3249	0.2908	-0.5670	1.1486	0.3019	0.1798	0.4241
63	-0.3025	0.3202	-0.5378	1.1783	0.3327	0.2088	0.4567
64	-0.2574	0.3448	-0.5130	1.2026	0.3587	0.2331	0.4843
65	-0.2236	0.3694	-0.4884	1.2273	0.3849	0.2571	0.5126
66	-0.1949	0.3944	-0.4635	1.2524	0.4114	0.2813	0.5416
67	-0.1612	0.4198	-0.4386	1.2782	0.4382	0.3049	0.5716
68	-0.1121	0.4455	-0.4131	1.3041	0.4656	0.3293	0.6019
69	-0.0650	0.4767	-0.3825	1.3358	0.4989	0.3578	0.6400
70	-0.0432	0.5031	-0.3565	1.3626	0.5270	0.3818	0.6721
71	0.0030	0.5296	-0.3302	1.3895	0.5556	0.4071	0.7041
72	0.0296	0.5565	-0.3041	1.4171	0.5847	0.4330	0.7364
73	0.0578	0.5842	-0.2776	1.4460	0.6140	0.4579	0.7701
74	0.0964	0.6123	-0.2501	1.4746	0.6440	0.4843	0.8036
75	0.1385	0.6468	-0.2161	1.5097	0.6806	0.5153	0.8459
76	0.1695	0.6762	-0.1871	1.5395	0.7118	0.5425	0.8811
77	0.2196	0.7063	-0.1578	1.5704	0.7438	0.5706	0.9170
78	0.2594	0.7369	-0.1274	1.6012	0.7766	0.5996	0.9536
79	0.3226	0.7686	-0.0960	1.6332	0.8099	0.6293	0.9905
80	0.3639	0.8010	-0.0643	1.6662	0.8444	0.6597	1.0290
81	0.4369	0.8345	-0.0323	1.7013	0.8800	0.6915	1.0685
82	0.5031	0.8764	0.0078	1.7449	0.9238	0.7300	1.1176
83	0.5669	0.9129	0.0442	1.7815	0.9618	0.7634	1.1602
84	0.5925	0.9506	0.0812	1.8200	1.0015	0.7978	1.2051
85	0.6362	0.9899	0.1187	1.8610	1.0427	0.8344	1.2510
86	0.7329	1.0308	0.1581	1.9036	1.0855	0.8724	1.2986
87	0.7566	1.0734	0.1992	1.9476	1.1305	0.9105	1.3505
88	0.7841	1.1279	0.2516	2.0043	1.1881	0.9609	1.4153
89	0.8333	1.1762	0.2978	2.0547	1.2393	1.0049	1.4737
90	0.9098	1.2281	0.3480	2.1082	1.2937	1.0511	1.5364
91	0.9871	1.2833	0.4024	2.1643	1.3516	1.1010	1.6023
92	1.1578	1.3446	0.4607	2.2286	1.4151	1.1540	1.6763
93	1.2675	1.4120	0.5234	2.3007	1.4843	1.2123	1.7564
94	1.5380	1.5032	0.6088	2.3977	1.5788	1.2912	1.8664
95	1.6392	1.5908	0.6906	2.4909	1.6699	1.3651	1.9747
96	1.8370	1.6957	0.7877	2.6038	1.7774	1.4501	2.1046
97	1.9394	1.8258	0.9035	2.7481	1.9090	1.5518	2.2663
98	2.1022	2.0020	1.0590	2.9450	2.0816	1.6777	2.4855
99	2.3925	2.2848	1.2918	3.2777	2.3486	1.8527	2.8444


4-factor net, 20 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A9: 4-factor_net_returns_min_40obs_t(alpha)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.5897	-2.2823	-3.3239	-1.2407	-2.4043	-2.9326	-1.8760
2	-3.4096	-1.9688	-2.9646	-0.9730	-2.0917	-2.5347	-1.6487
3	-3.1223	-1.8159	-2.7965	-0.8353	-1.9354	-2.3459	-1.5249
4	-3.0359	-1.6721	-2.6428	-0.7015	-1.7870	-2.1719	-1.4020
5	-2.8861	-1.5798	-2.5452	-0.6143	-1.6900	-2.0594	-1.3206
6	-2.5989	-1.4822	-2.4421	-0.5223	-1.5874	-1.9425	-1.2324
7	-2.5525	-1.4139	-2.3712	-0.4566	-1.5153	-1.8589	-1.1717
8	-2.4771	-1.3382	-2.2924	-0.3839	-1.4349	-1.7683	-1.1014
9	-2.4538	-1.2828	-2.2349	-0.3307	-1.3759	-1.7019	-1.0499
10	-2.3662	-1.2196	-2.1697	-0.2694	-1.3083	-1.6254	-0.9912
11	-2.3412	-1.1728	-2.1213	-0.2242	-1.2579	-1.5685	-0.9473
12	-2.2656	-1.1177	-2.0634	-0.1720	-1.1991	-1.5032	-0.8949
13	-2.2171	-1.0661	-2.0101	-0.1221	-1.1443	-1.4413	-0.8473
14	-2.1592	-1.0272	-1.9701	-0.0842	-1.1023	-1.3944	-0.8102
15	-2.1176	-0.9805	-1.9221	-0.0389	-1.0528	-1.3379	-0.7677
16	-2.0471	-0.9451	-1.8859	-0.0043	-1.0146	-1.2943	-0.7350
17	-2.0092	-0.9024	-1.8420	0.0372	-0.9692	-1.2426	-0.6957
18	-1.9636	-0.8696	-1.8080	0.0687	-0.9347	-1.2042	-0.6652
19	-1.8855	-0.8305	-1.7675	0.1066	-0.8923	-1.1566	-0.6281
20	-1.8262	-0.8000	-1.7359	0.1359	-0.8593	-1.1193	-0.5993
21	-1.8014	-0.7629	-1.6970	0.1713	-0.8198	-1.0753	-0.5644
22	-1.7833	-0.7342	-1.6668	0.1983	-0.7892	-1.0403	-0.5381
23	-1.7287	-0.6993	-1.6309	0.2324	-0.7517	-0.9974	-0.5061
24	-1.6884	-0.6717	-1.6029	0.2594	-0.7225	-0.9636	-0.4813
25	-1.6559	-0.6384	-1.5692	0.2923	-0.6868	-0.9226	-0.4509
26	-1.5819	-0.6058	-1.5365	0.3248	-0.6520	-0.8825	-0.4215
27	-1.5439	-0.5804	-1.5106	0.3498	-0.6245	-0.8505	-0.3984
28	-1.5111	-0.5489	-1.4788	0.3810	-0.5908	-0.8105	-0.3711
29	-1.4978	-0.5242	-1.4536	0.4052	-0.5644	-0.7789	-0.3499
30	-1.4502	-0.4940	-1.4227	0.4347	-0.5318	-0.7382	-0.3253
31	-1.4191	-0.4700	-1.3980	0.4580	-0.5062	-0.7053	-0.3071
32	-1.3677	-0.4406	-1.3684	0.4871	-0.4745	-0.6648	-0.2841
33	-1.3326	-0.4173	-1.3450	0.5103	-0.4495	-0.6306	-0.2684
34	-1.2885	-0.3886	-1.3157	0.5384	-0.4187	-0.5909	-0.2464
35	-1.2631	-0.3661	-1.2927	0.5606	-0.3940	-0.5567	-0.2314
36	-1.2150	-0.3382	-1.2649	0.5885	-0.3638	-0.5183	-0.2093
37	-1.1974	-0.3160	-1.2420	0.6100	-0.3398	-0.4890	-0.1906
38	-1.1710	-0.2885	-1.2140	0.6370	-0.3101	-0.4516	-0.1686
39	-1.1226	-0.2611	-1.1864	0.6641	-0.2808	-0.4167	-0.1450
40	-1.0860	-0.2393	-1.1644	0.6857	-0.2577	-0.3915	-0.1239
41	-1.0411	-0.2125	-1.1377	0.7127	-0.2290	-0.3589	-0.0990
42	-0.9805	-0.1911	-1.1160	0.7339	-0.2062	-0.3340	-0.0785
43	-0.9629	-0.1645	-1.0893	0.7603	-0.1778	-0.3038	-0.0519
44	-0.9414	-0.1433	-1.0683	0.7818	-0.1553	-0.2800	-0.0306
45	-0.9234	-0.1170	-1.0419	0.8078	-0.1270	-0.2510	-0.0030
46	-0.8993	-0.0960	-1.0207	0.8287	-0.1046	-0.2285	0.0193
47	-0.8395	-0.0697	-0.9943	0.8549	-0.0766	-0.2004	0.0471
48	-0.8076	-0.0487	-0.9731	0.8758	-0.0544	-0.1778	0.0689
49	-0.7544	-0.0229	-0.9475	0.9016	-0.0267	-0.1505	0.0971

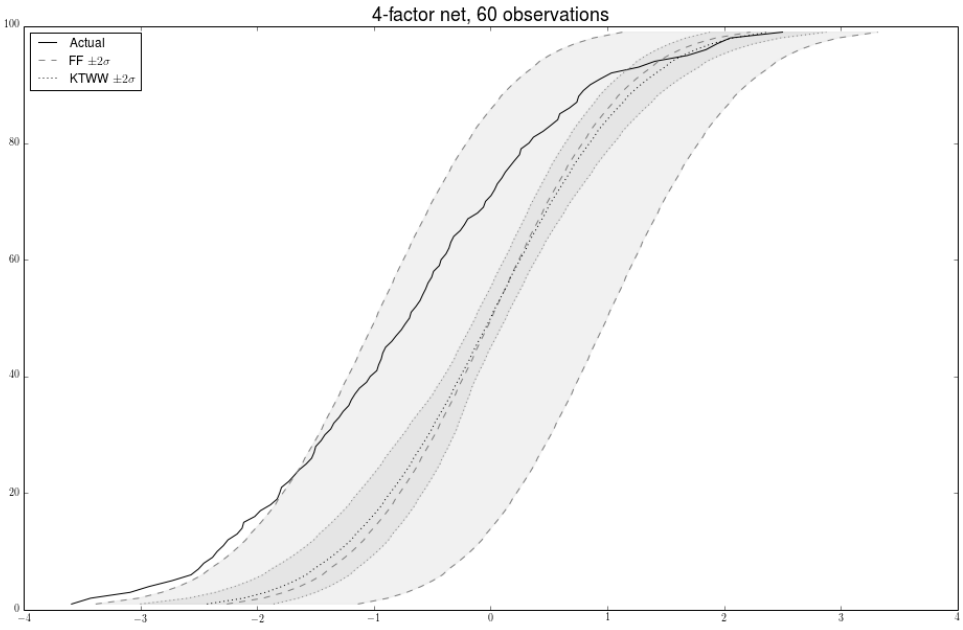
50	-0.7309	0.0031	-0.9217	0.9278	0.0014	-0.1224	0.1252
51	-0.6945	0.0239	-0.9007	0.9485	0.0237	-0.1000	0.1475
52	-0.6750	0.0497	-0.8747	0.9741	0.0514	-0.0719	0.1748
53	-0.6269	0.0704	-0.8539	0.9946	0.0736	-0.0499	0.1971
54	-0.6013	0.0962	-0.8277	1.0202	0.1014	-0.0222	0.2249
55	-0.5648	0.1169	-0.8067	1.0405	0.1235	0.0000	0.2471
56	-0.5490	0.1430	-0.7806	1.0666	0.1515	0.0274	0.2755
57	-0.5200	0.1640	-0.7596	1.0876	0.1740	0.0498	0.2982
58	-0.4917	0.1905	-0.7336	1.1146	0.2023	0.0774	0.3273
59	-0.4417	0.2118	-0.7121	1.1357	0.2251	0.0998	0.3504
60	-0.4239	0.2387	-0.6857	1.1630	0.2536	0.1279	0.3794
61	-0.3818	0.2601	-0.6645	1.1848	0.2767	0.1496	0.4038
62	-0.3507	0.2874	-0.6376	1.2123	0.3059	0.1770	0.4349
63	-0.3175	0.3146	-0.6102	1.2394	0.3351	0.2041	0.4662
64	-0.3025	0.3368	-0.5879	1.2614	0.3589	0.2260	0.4918
65	-0.2421	0.3646	-0.5602	1.2894	0.3886	0.2534	0.5238
66	-0.2236	0.3872	-0.5376	1.3121	0.4128	0.2746	0.5509
67	-0.1949	0.4157	-0.5095	1.3409	0.4432	0.3020	0.5844
68	-0.1612	0.4386	-0.4862	1.3634	0.4680	0.3228	0.6131
69	-0.1020	0.4677	-0.4576	1.3930	0.4992	0.3494	0.6490
70	-0.0613	0.4912	-0.4342	1.4166	0.5246	0.3710	0.6782
71	-0.0227	0.5212	-0.4037	1.4462	0.5570	0.3995	0.7145
72	0.0260	0.5456	-0.3796	1.4709	0.5829	0.4221	0.7438
73	0.0518	0.5764	-0.3493	1.5020	0.6163	0.4508	0.7817
74	0.0747	0.6017	-0.3245	1.5280	0.6433	0.4739	0.8127
75	0.1089	0.6337	-0.2932	1.5606	0.6779	0.5046	0.8511
76	0.1499	0.6666	-0.2605	1.5937	0.7132	0.5360	0.8904
77	0.1771	0.6936	-0.2334	1.6207	0.7421	0.5617	0.9226
78	0.2294	0.7284	-0.1986	1.6554	0.7794	0.5941	0.9647
79	0.2594	0.7568	-0.1707	1.6843	0.8098	0.6210	0.9987
80	0.3226	0.7932	-0.1352	1.7216	0.8492	0.6547	1.0438
81	0.3621	0.8233	-0.1054	1.7520	0.8815	0.6838	1.0792
82	0.4369	0.8619	-0.0679	1.7917	0.9230	0.7209	1.1251
83	0.4752	0.8941	-0.0363	1.8244	0.9577	0.7511	1.1644
84	0.5515	0.9356	0.0033	1.8679	1.0024	0.7910	1.2138
85	0.5761	0.9705	0.0369	1.9040	1.0398	0.8245	1.2551
86	0.6219	1.0160	0.0813	1.9506	1.0884	0.8683	1.3085
87	0.6907	1.0541	0.1191	1.9892	1.1291	0.9039	1.3543
88	0.7516	1.1042	0.1677	2.0407	1.1832	0.9511	1.4153
89	0.7841	1.1580	0.2207	2.0954	1.2410	1.0029	1.4791
90	0.8333	1.2039	0.2652	2.1426	1.2899	1.0453	1.5344
91	0.9103	1.2657	0.3253	2.2062	1.3555	1.1021	1.6089
92	1.0127	1.3193	0.3758	2.2627	1.4130	1.1518	1.6741
93	1.2618	1.3931	0.4460	2.3402	1.4923	1.2188	1.7659
94	1.4067	1.4600	0.5105	2.4094	1.5628	1.2786	1.8470
95	1.6392	1.5551	0.5998	2.5104	1.6633	1.3638	1.9629
96	1.7855	1.6445	0.6838	2.6051	1.7580	1.4414	2.0746
97	1.9358	1.7830	0.8112	2.7548	1.9029	1.5574	2.2484
98	2.0122	1.9313	0.9484	2.9142	2.0573	1.6748	2.4399
99	2.3925	2.2354	1.2098	3.2609	2.3596	1.8866	2.8326


4-factor net, 40 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A10: 4-factor_net_returns_min_60obs_t(alpha)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.5897	-2.2598	-3.3830	-1.1366	-2.4294	-3.0005	-1.8582
2	-3.4264	-1.9493	-3.0177	-0.8810	-2.1184	-2.5911	-1.6457
3	-3.0878	-1.7679	-2.8176	-0.7182	-1.9276	-2.3574	-1.4977
4	-2.9260	-1.6352	-2.6746	-0.5958	-1.7880	-2.1927	-1.3832
5	-2.7294	-1.5295	-2.5628	-0.4962	-1.6742	-2.0596	-1.2888
6	-2.5663	-1.4415	-2.4708	-0.4122	-1.5789	-1.9512	-1.2067
7	-2.5023	-1.3823	-2.4069	-0.3577	-1.5155	-1.8780	-1.1530
8	-2.4560	-1.3115	-2.3325	-0.2904	-1.4394	-1.7921	-1.0867
9	-2.3816	-1.2474	-2.2645	-0.2304	-1.3701	-1.7130	-1.0272
10	-2.3424	-1.1888	-2.2045	-0.1730	-1.3066	-1.6417	-0.9715
11	-2.2893	-1.1347	-2.1484	-0.1210	-1.2479	-1.5765	-0.9194
12	-2.2490	-1.0847	-2.0961	-0.0733	-1.1929	-1.5132	-0.8726
13	-2.1712	-1.0489	-2.0589	-0.0389	-1.1543	-1.4690	-0.8396
14	-2.1280	-1.0033	-2.0110	0.0043	-1.1050	-1.4123	-0.7976
15	-2.1143	-0.9605	-1.9663	0.0453	-1.0578	-1.3594	-0.7563
16	-2.0198	-0.9194	-1.9242	0.0854	-1.0135	-1.3093	-0.7176
17	-1.9714	-0.8802	-1.8840	0.1235	-0.9709	-1.2605	-0.6812
18	-1.8855	-0.8423	-1.8447	0.1600	-0.9298	-1.2139	-0.6457
19	-1.8278	-0.8151	-1.8172	0.1871	-0.8999	-1.1801	-0.6198
20	-1.8070	-0.7795	-1.7805	0.2214	-0.8614	-1.1376	-0.5851
21	-1.7908	-0.7452	-1.7449	0.2545	-0.8238	-1.0954	-0.5522
22	-1.7290	-0.7118	-1.7109	0.2873	-0.7873	-1.0530	-0.5215
23	-1.6837	-0.6791	-1.6777	0.3195	-0.7520	-1.0129	-0.4911
24	-1.6400	-0.6475	-1.6453	0.3502	-0.7175	-0.9732	-0.4618
25	-1.5795	-0.6168	-1.6140	0.3804	-0.6838	-0.9345	-0.4330
26	-1.5322	-0.5941	-1.5908	0.4027	-0.6590	-0.9047	-0.4134
27	-1.5111	-0.5648	-1.5614	0.4319	-0.6265	-0.8669	-0.3861
28	-1.4978	-0.5357	-1.5313	0.4600	-0.5944	-0.8289	-0.3599
29	-1.4519	-0.5072	-1.5025	0.4880	-0.5632	-0.7893	-0.3370
30	-1.4191	-0.4789	-1.4740	0.5161	-0.5321	-0.7514	-0.3128
31	-1.3684	-0.4512	-1.4458	0.5434	-0.5019	-0.7140	-0.2898
32	-1.3425	-0.4307	-1.4249	0.5636	-0.4793	-0.6850	-0.2737
33	-1.2973	-0.4038	-1.3981	0.5905	-0.4500	-0.6462	-0.2537
34	-1.2631	-0.3772	-1.3714	0.6171	-0.4207	-0.6077	-0.2337
35	-1.2150	-0.3509	-1.3449	0.6430	-0.3919	-0.5667	-0.2170
36	-1.1924	-0.3247	-1.3183	0.6690	-0.3635	-0.5296	-0.1973
37	-1.1611	-0.2988	-1.2923	0.6947	-0.3352	-0.4932	-0.1772
38	-1.1226	-0.2797	-1.2734	0.7140	-0.3141	-0.4659	-0.1624
39	-1.0627	-0.2542	-1.2475	0.7392	-0.2864	-0.4319	-0.1409
40	-1.0309	-0.2290	-1.2215	0.7634	-0.2591	-0.4002	-0.1179
41	-0.9740	-0.2040	-1.1956	0.7877	-0.2316	-0.3691	-0.0940
42	-0.9586	-0.1791	-1.1705	0.8123	-0.2045	-0.3403	-0.0686
43	-0.9362	-0.1544	-1.1455	0.8368	-0.1774	-0.3111	-0.0437
44	-0.9236	-0.1358	-1.1269	0.8552	-0.1575	-0.2909	-0.0241
45	-0.8993	-0.1112	-1.1020	0.8796	-0.1309	-0.2635	0.0016
46	-0.8470	-0.0867	-1.0773	0.9038	-0.1044	-0.2369	0.0280
47	-0.8076	-0.0625	-1.0529	0.9280	-0.0782	-0.2107	0.0543
48	-0.7639	-0.0381	-1.0285	0.9523	-0.0519	-0.1837	0.0798
49	-0.7309	-0.0138	-1.0039	0.9762	-0.0256	-0.1571	0.1058

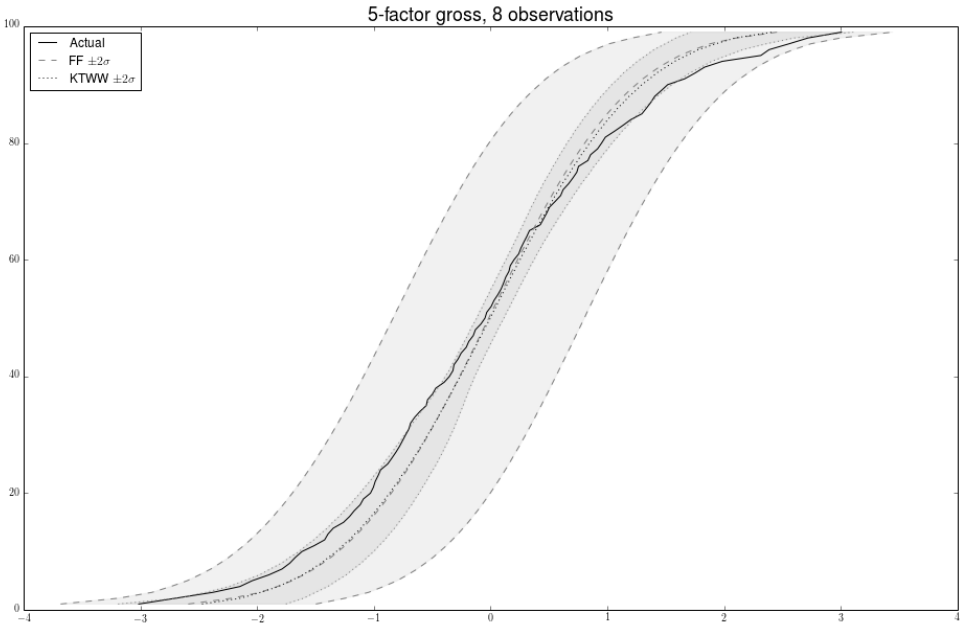
50	-0.6945	0.0104	-0.9795	1.0002	0.0007	-0.1313	0.1327
51	-0.6806	0.0283	-0.9615	1.0182	0.0205	-0.1115	0.1526
52	-0.6390	0.0525	-0.9374	1.0424	0.0467	-0.0856	0.1791
53	-0.6040	0.0766	-0.9133	1.0664	0.0729	-0.0588	0.2047
54	-0.5811	0.1010	-0.8888	1.0907	0.0994	-0.0327	0.2314
55	-0.5557	0.1254	-0.8643	1.1152	0.1257	-0.0069	0.2582
56	-0.5360	0.1500	-0.8396	1.1396	0.1523	0.0192	0.2854
57	-0.5047	0.1683	-0.8212	1.1579	0.1722	0.0388	0.3055
58	-0.4889	0.1929	-0.7965	1.1823	0.1985	0.0650	0.3321
59	-0.4387	0.2176	-0.7719	1.2072	0.2253	0.0909	0.3598
60	-0.4239	0.2423	-0.7468	1.2315	0.2523	0.1168	0.3878
61	-0.3818	0.2676	-0.7217	1.2569	0.2796	0.1427	0.4165
62	-0.3559	0.2928	-0.6963	1.2819	0.3074	0.1691	0.4457
63	-0.3404	0.3120	-0.6768	1.3008	0.3282	0.1884	0.4679
64	-0.3152	0.3376	-0.6511	1.3262	0.3561	0.2129	0.4993
65	-0.2594	0.3636	-0.6252	1.3523	0.3845	0.2387	0.5303
66	-0.2240	0.3899	-0.5988	1.3785	0.4131	0.2640	0.5623
67	-0.1949	0.4162	-0.5728	1.4051	0.4419	0.2890	0.5948
68	-0.1121	0.4432	-0.5460	1.4324	0.4711	0.3144	0.6279
69	-0.0613	0.4634	-0.5262	1.4529	0.4934	0.3334	0.6534
70	-0.0432	0.4909	-0.4989	1.4807	0.5233	0.3590	0.6876
71	0.0046	0.5186	-0.4711	1.5082	0.5541	0.3853	0.7228
72	0.0347	0.5470	-0.4425	1.5366	0.5856	0.4120	0.7592
73	0.0578	0.5760	-0.4144	1.5664	0.6168	0.4387	0.7950
74	0.0964	0.6053	-0.3856	1.5962	0.6488	0.4656	0.8319
75	0.1259	0.6354	-0.3557	1.6265	0.6816	0.4937	0.8695
76	0.1660	0.6583	-0.3329	1.6494	0.7064	0.5157	0.8971
77	0.2058	0.6893	-0.3024	1.6811	0.7405	0.5456	0.9354
78	0.2481	0.7214	-0.2712	1.7140	0.7753	0.5759	0.9747
79	0.2610	0.7544	-0.2383	1.7470	0.8112	0.6077	1.0146
80	0.3295	0.7884	-0.2045	1.7814	0.8483	0.6402	1.0565
81	0.3672	0.8236	-0.1704	1.8175	0.8863	0.6739	1.0988
82	0.4496	0.8505	-0.1437	1.8447	0.9157	0.7003	1.1311
83	0.5139	0.8874	-0.1081	1.8830	0.9565	0.7365	1.1764
84	0.5759	0.9264	-0.0697	1.9224	0.9989	0.7737	1.2241
85	0.5925	0.9666	-0.0306	1.9638	1.0426	0.8115	1.2738
86	0.6751	1.0093	0.0105	2.0081	1.0888	0.8518	1.3257
87	0.7393	1.0539	0.0544	2.0534	1.1371	0.8936	1.3805
88	0.7545	1.0888	0.0878	2.0898	1.1749	0.9272	1.4227
89	0.7957	1.1381	0.1356	2.1405	1.2290	0.9730	1.4849
90	0.8548	1.1906	0.1854	2.1957	1.2869	1.0239	1.5500
91	0.9413	1.2476	0.2402	2.2550	1.3499	1.0782	1.6215
92	1.0350	1.3103	0.2994	2.3212	1.4176	1.1361	1.6992
93	1.2675	1.3789	0.3656	2.3923	1.4921	1.2009	1.7833
94	1.4067	1.4364	0.4197	2.4530	1.5537	1.2543	1.8532
95	1.6854	1.5223	0.5020	2.5425	1.6470	1.3319	1.9622
96	1.8460	1.6238	0.5983	2.6493	1.7569	1.4238	2.0899
97	1.9394	1.7531	0.7194	2.7869	1.8940	1.5348	2.2533
98	2.0531	1.9288	0.8802	2.9774	2.0788	1.6732	2.4844
99	2.5013	2.2251	1.1325	3.3178	2.3775	1.8783	2.8768


4-factor net, 60 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A11: 5-factor_gross_returns_min_8obs_t(TM)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.0142	-2.5900	-3.6829	-1.4971	-2.4717	-3.1903	-1.7531
2	-2.6966	-2.2153	-3.1861	-1.2445	-2.1421	-2.6833	-1.6008
3	-2.3785	-1.9729	-2.9006	-1.0452	-1.9702	-2.4409	-1.4995
4	-2.1473	-1.8280	-2.7393	-0.9166	-1.8168	-2.2401	-1.3935
5	-2.0419	-1.6994	-2.5981	-0.8007	-1.7128	-2.1084	-1.3172
6	-1.8989	-1.6026	-2.4936	-0.7117	-1.6078	-1.9796	-1.2360
7	-1.7867	-1.5124	-2.3964	-0.6284	-1.5317	-1.8879	-1.1755
8	-1.7200	-1.4382	-2.3171	-0.5594	-1.4499	-1.7914	-1.1084
9	-1.6721	-1.3672	-2.2422	-0.4922	-1.3885	-1.7197	-1.0573
10	-1.6153	-1.3064	-2.1778	-0.4351	-1.3205	-1.6410	-1.0001
11	-1.5113	-1.2464	-2.1145	-0.3784	-1.2684	-1.5805	-0.9563
12	-1.4212	-1.1929	-2.0575	-0.3282	-1.2096	-1.5132	-0.9060
13	-1.3925	-1.1427	-2.0053	-0.2802	-1.1632	-1.4597	-0.8667
14	-1.3475	-1.0948	-1.9544	-0.2352	-1.1106	-1.3993	-0.8218
15	-1.2597	-1.0493	-1.9072	-0.1915	-1.0690	-1.3525	-0.7855
16	-1.2079	-1.0067	-1.8621	-0.1513	-1.0214	-1.2972	-0.7456
17	-1.1673	-0.9659	-1.8201	-0.1116	-0.9837	-1.2537	-0.7137
18	-1.1171	-0.9256	-1.7773	-0.0740	-0.9399	-1.2037	-0.6761
19	-1.0895	-0.8878	-1.7374	-0.0382	-0.9047	-1.1632	-0.6462
20	-1.0288	-0.8504	-1.6982	-0.0026	-0.8642	-1.1168	-0.6117
21	-1.0040	-0.8153	-1.6612	0.0306	-0.8313	-1.0792	-0.5833
22	-0.9883	-0.7806	-1.6245	0.0633	-0.7927	-1.0349	-0.5505
23	-0.9632	-0.7473	-1.5898	0.0952	-0.7614	-0.9988	-0.5240
24	-0.9418	-0.7146	-1.5557	0.1266	-0.7249	-0.9568	-0.4930
25	-0.8815	-0.6821	-1.5217	0.1574	-0.6895	-0.9164	-0.4626
26	-0.8457	-0.6519	-1.4899	0.1861	-0.6606	-0.8836	-0.4375
27	-0.8114	-0.6215	-1.4584	0.2153	-0.6266	-0.8422	-0.4110
28	-0.7803	-0.5912	-1.4268	0.2443	-0.5988	-0.8100	-0.3876
29	-0.7536	-0.5619	-1.3962	0.2723	-0.5661	-0.7709	-0.3613
30	-0.7274	-0.5327	-1.3659	0.3004	-0.5395	-0.7386	-0.3403
31	-0.6995	-0.5049	-1.3372	0.3275	-0.5076	-0.7005	-0.3147
32	-0.6853	-0.4763	-1.3073	0.3547	-0.4814	-0.6670	-0.2958
33	-0.6500	-0.4492	-1.2792	0.3808	-0.4503	-0.6259	-0.2748
34	-0.6051	-0.4224	-1.2510	0.4063	-0.4249	-0.5940	-0.2558
35	-0.5510	-0.3948	-1.2229	0.4333	-0.3947	-0.5551	-0.2343
36	-0.5397	-0.3685	-1.1952	0.4583	-0.3696	-0.5221	-0.2171
37	-0.4969	-0.3420	-1.1682	0.4843	-0.3395	-0.4821	-0.1970
38	-0.4690	-0.3161	-1.1416	0.5093	-0.3152	-0.4523	-0.1782
39	-0.3972	-0.2905	-1.1152	0.5342	-0.2860	-0.4171	-0.1549
40	-0.3523	-0.2646	-1.0884	0.5593	-0.2619	-0.3885	-0.1353
41	-0.3222	-0.2396	-1.0629	0.5837	-0.2333	-0.3553	-0.1113
42	-0.3134	-0.2143	-1.0370	0.6083	-0.2098	-0.3305	-0.0891
43	-0.2780	-0.1891	-1.0113	0.6331	-0.1817	-0.3014	-0.0621
44	-0.2521	-0.1641	-0.9857	0.6575	-0.1583	-0.2767	-0.0398
45	-0.2080	-0.1389	-0.9604	0.6825	-0.1304	-0.2481	-0.0127
46	-0.1862	-0.1143	-0.9351	0.7066	-0.1073	-0.2247	0.0101
47	-0.1481	-0.0897	-0.9101	0.7306	-0.0797	-0.1970	0.0375
48	-0.1299	-0.0650	-0.8848	0.7549	-0.0567	-0.1736	0.0603
49	-0.0821	-0.0403	-0.8599	0.7793	-0.0292	-0.1458	0.0875

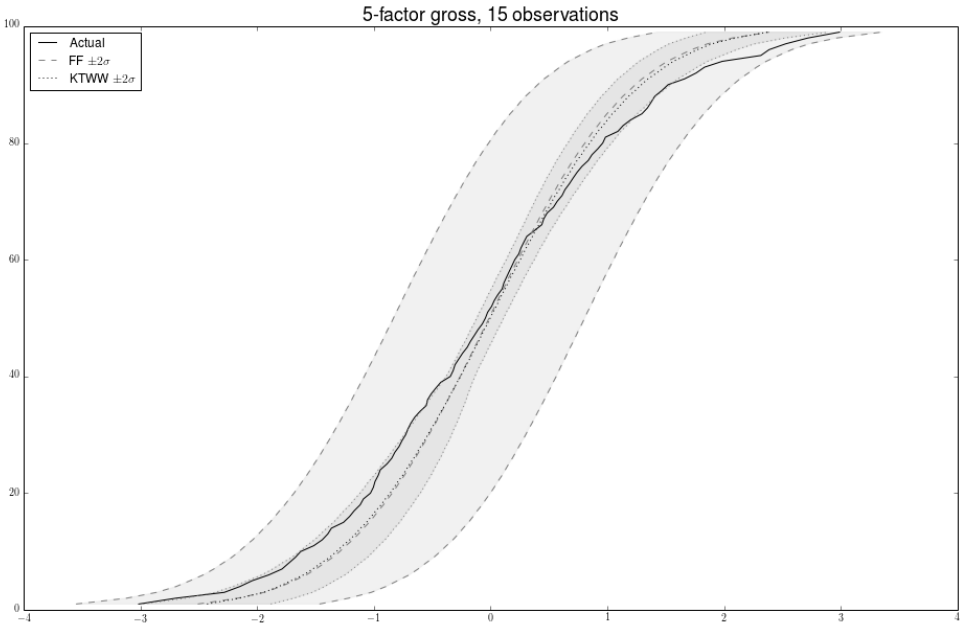
50	-0.0477	-0.0153	-0.8345	0.8040	-0.0016	-0.1183	0.1150
51	-0.0325	0.0076	-0.8114	0.8266	0.0213	-0.0956	0.1381
52	0.0058	0.0325	-0.7861	0.8510	0.0488	-0.0684	0.1660
53	0.0290	0.0573	-0.7609	0.8756	0.0716	-0.0458	0.1890
54	0.0620	0.0823	-0.7358	0.9003	0.0992	-0.0185	0.2169
55	0.0905	0.1068	-0.7112	0.9248	0.1222	0.0043	0.2401
56	0.1112	0.1318	-0.6862	0.9498	0.1500	0.0319	0.2680
57	0.1297	0.1565	-0.6611	0.9741	0.1732	0.0546	0.2918
58	0.1571	0.1814	-0.6365	0.9992	0.2010	0.0818	0.3203
59	0.1692	0.2064	-0.6111	1.0240	0.2246	0.1049	0.3443
60	0.2012	0.2319	-0.5855	1.0494	0.2529	0.1321	0.3736
61	0.2413	0.2570	-0.5601	1.0740	0.2767	0.1552	0.3983
62	0.2600	0.2826	-0.5342	1.0994	0.3054	0.1828	0.4280
63	0.2847	0.3081	-0.5086	1.1248	0.3297	0.2049	0.4545
64	0.3106	0.3345	-0.4824	1.1513	0.3592	0.2313	0.4871
65	0.3334	0.3604	-0.4564	1.1773	0.3837	0.2524	0.5151
66	0.4265	0.3875	-0.4293	1.2043	0.4139	0.2786	0.5491
67	0.4535	0.4136	-0.4036	1.2308	0.4391	0.3008	0.5773
68	0.4809	0.4403	-0.3770	1.2577	0.4696	0.3265	0.6128
69	0.5043	0.4683	-0.3488	1.2854	0.4954	0.3481	0.6427
70	0.5541	0.4962	-0.3212	1.3135	0.5268	0.3751	0.6785
71	0.6007	0.5244	-0.2934	1.3423	0.5535	0.3975	0.7094
72	0.6215	0.5532	-0.2648	1.3713	0.5859	0.4261	0.7457
73	0.6673	0.5826	-0.2358	1.4010	0.6133	0.4502	0.7765
74	0.7047	0.6127	-0.2058	1.4313	0.6474	0.4796	0.8152
75	0.7390	0.6435	-0.1755	1.4624	0.6820	0.5098	0.8542
76	0.7534	0.6738	-0.1452	1.4928	0.7111	0.5355	0.8867
77	0.8338	0.7057	-0.1133	1.5247	0.7471	0.5671	0.9271
78	0.8571	0.7385	-0.0807	1.5578	0.7778	0.5937	0.9620
79	0.9165	0.7721	-0.0479	1.5921	0.8156	0.6267	1.0046
80	0.9515	0.8073	-0.0131	1.6278	0.8481	0.6553	1.0408
81	0.9835	0.8426	0.0211	1.6641	0.8884	0.6907	1.0861
82	1.0603	0.8796	0.0580	1.7012	0.9228	0.7203	1.1253
83	1.1322	0.9182	0.0959	1.7406	0.9659	0.7575	1.1742
84	1.2010	0.9577	0.1346	1.7809	1.0028	0.7903	1.2154
85	1.2962	0.9991	0.1753	1.8229	1.0492	0.8299	1.2686
86	1.3363	1.0430	0.2181	1.8679	1.0899	0.8652	1.3146
87	1.3747	1.0890	0.2634	1.9147	1.1409	0.9088	1.3731
88	1.4065	1.1380	0.3126	1.9635	1.1865	0.9471	1.4259
89	1.4633	1.1890	0.3630	2.0150	1.2442	0.9948	1.4936
90	1.5173	1.2463	0.4186	2.0739	1.2961	1.0379	1.5543
91	1.6624	1.3045	0.4737	2.1353	1.3627	1.0920	1.6335
92	1.7526	1.3728	0.5386	2.2070	1.4228	1.1386	1.7070
93	1.8332	1.4431	0.6062	2.2800	1.5022	1.2002	1.8042
94	1.9857	1.5291	0.6886	2.3697	1.5769	1.2580	1.8958
95	2.3152	1.6212	0.7755	2.4668	1.6794	1.3309	2.0278
96	2.3865	1.7425	0.8904	2.5947	1.7802	1.3999	2.1605
97	2.5568	1.8790	1.0151	2.7429	1.9291	1.4965	2.3617
98	2.7197	2.1057	1.2132	2.9982	2.0945	1.5879	2.6011
99	3.0057	2.4541	1.4642	3.4439	2.4118	1.7161	3.1075


5-factor gross, 8 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A12: 5-factor_gross_returns_min_15obs_t(TM)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.0142	-2.5084	-3.5511	-1.4656	-2.4289	-2.9754	-1.8824
2	-2.6966	-2.1674	-3.1184	-1.2163	-2.1514	-2.6179	-1.6850
3	-2.2807	-1.9408	-2.8601	-1.0216	-1.9430	-2.3593	-1.5266
4	-2.1473	-1.7950	-2.6939	-0.8961	-1.8141	-2.2071	-1.4211
5	-2.0419	-1.6851	-2.5739	-0.7964	-1.7087	-2.0818	-1.3355
6	-1.8989	-1.5783	-2.4602	-0.6963	-1.6020	-1.9578	-1.2461
7	-1.7867	-1.4962	-2.3710	-0.6214	-1.5239	-1.8672	-1.1806
8	-1.7295	-1.4251	-2.2947	-0.5554	-1.4538	-1.7882	-1.1193
9	-1.6721	-1.3518	-2.2174	-0.4863	-1.3777	-1.7015	-1.0539
10	-1.6264	-1.2921	-2.1543	-0.4298	-1.3200	-1.6366	-1.0034
11	-1.5143	-1.2383	-2.0986	-0.3779	-1.2664	-1.5761	-0.9568
12	-1.4421	-1.1804	-2.0381	-0.3227	-1.2063	-1.5079	-0.9047
13	-1.3946	-1.1321	-1.9880	-0.2763	-1.1587	-1.4549	-0.8626
14	-1.3632	-1.0879	-1.9412	-0.2346	-1.1134	-1.4029	-0.8240
15	-1.2597	-1.0393	-1.8902	-0.1884	-1.0622	-1.3455	-0.7790
16	-1.2079	-0.9986	-1.8475	-0.1497	-1.0218	-1.2999	-0.7437
17	-1.1673	-0.9601	-1.8069	-0.1133	-0.9826	-1.2560	-0.7092
18	-1.1171	-0.9176	-1.7628	-0.0724	-0.9376	-1.2050	-0.6702
19	-1.0895	-0.8813	-1.7243	-0.0383	-0.9016	-1.1639	-0.6393
20	-1.0288	-0.8425	-1.6837	-0.0014	-0.8597	-1.1182	-0.6013
21	-1.0040	-0.8080	-1.6476	0.0316	-0.8260	-1.0799	-0.5721
22	-0.9897	-0.7754	-1.6132	0.0624	-0.7934	-1.0437	-0.5430
23	-0.9632	-0.7400	-1.5768	0.0967	-0.7547	-0.9984	-0.5110
24	-0.9444	-0.7084	-1.5431	0.1263	-0.7235	-0.9616	-0.4854
25	-0.8879	-0.6780	-1.5114	0.1555	-0.6930	-0.9266	-0.4594
26	-0.8457	-0.6452	-1.4778	0.1873	-0.6574	-0.8848	-0.4300
27	-0.8200	-0.6156	-1.4469	0.2156	-0.6280	-0.8492	-0.4068
28	-0.7833	-0.5871	-1.4178	0.2436	-0.5991	-0.8147	-0.3836
29	-0.7585	-0.5563	-1.3860	0.2734	-0.5651	-0.7746	-0.3557
30	-0.7274	-0.5283	-1.3571	0.3005	-0.5375	-0.7413	-0.3337
31	-0.7077	-0.5012	-1.3289	0.3264	-0.5101	-0.7070	-0.3132
32	-0.6826	-0.4717	-1.2985	0.3552	-0.4777	-0.6664	-0.2889
33	-0.6500	-0.4450	-1.2714	0.3814	-0.4509	-0.6324	-0.2694
34	-0.6051	-0.4191	-1.2453	0.4071	-0.4246	-0.5994	-0.2497
35	-0.5510	-0.3906	-1.2162	0.4349	-0.3934	-0.5590	-0.2277
36	-0.5397	-0.3646	-1.1895	0.4603	-0.3676	-0.5259	-0.2093
37	-0.5090	-0.3394	-1.1639	0.4851	-0.3421	-0.4909	-0.1932
38	-0.4690	-0.3119	-1.1356	0.5118	-0.3117	-0.4502	-0.1732
39	-0.4265	-0.2868	-1.1095	0.5359	-0.2867	-0.4182	-0.1551
40	-0.3445	-0.2594	-1.0816	0.5627	-0.2567	-0.3800	-0.1334
41	-0.3204	-0.2357	-1.0571	0.5857	-0.2320	-0.3521	-0.1120
42	-0.3046	-0.2112	-1.0318	0.6094	-0.2076	-0.3264	-0.0888
43	-0.2719	-0.1844	-1.0045	0.6357	-0.1788	-0.2967	-0.0609
44	-0.2391	-0.1610	-0.9808	0.6588	-0.1549	-0.2719	-0.0379
45	-0.1995	-0.1369	-0.9565	0.6826	-0.1310	-0.2473	-0.0148
46	-0.1725	-0.1101	-0.9294	0.7091	-0.1026	-0.2182	0.0130
47	-0.1398	-0.0867	-0.9062	0.7327	-0.0790	-0.1944	0.0365
48	-0.1080	-0.0629	-0.8822	0.7564	-0.0551	-0.1705	0.0602
49	-0.0706	-0.0365	-0.8553	0.7823	-0.0268	-0.1420	0.0884

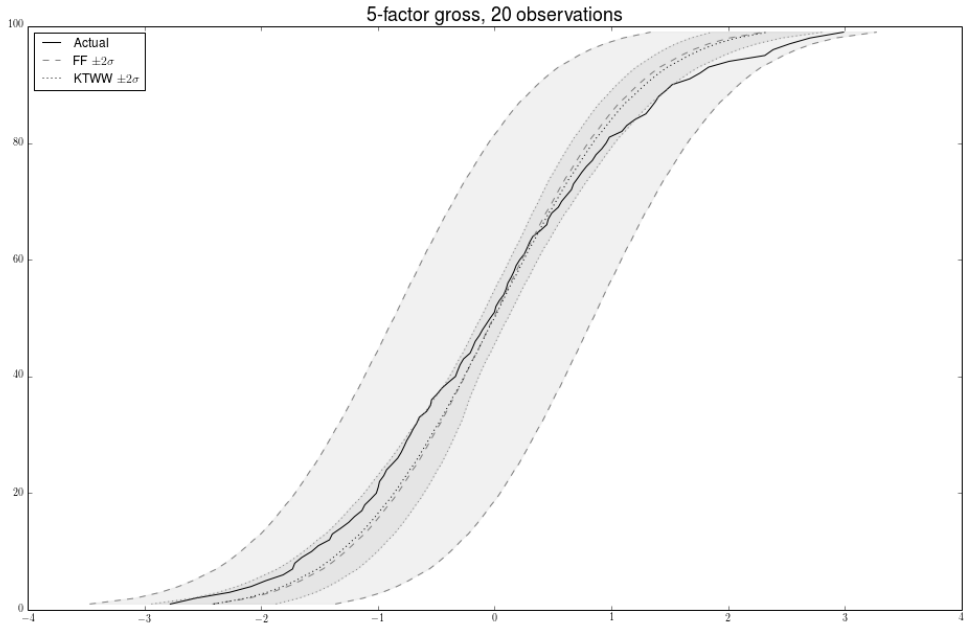
50	-0.0442	-0.0127	-0.8315	0.8061	-0.0032	-0.1183	0.1119
51	-0.0251	0.0103	-0.8084	0.8291	0.0206	-0.0945	0.1358
52	0.0091	0.0366	-0.7822	0.8554	0.0489	-0.0665	0.1643
53	0.0316	0.0601	-0.7584	0.8787	0.0725	-0.0432	0.1881
54	0.0620	0.0832	-0.7350	0.9014	0.0962	-0.0203	0.2127
55	0.0994	0.1098	-0.7085	0.9281	0.1247	0.0074	0.2419
56	0.1136	0.1338	-0.6849	0.9526	0.1486	0.0313	0.2659
57	0.1366	0.1572	-0.6619	0.9763	0.1725	0.0545	0.2906
58	0.1599	0.1840	-0.6349	1.0028	0.2012	0.0831	0.3192
59	0.1841	0.2082	-0.6110	1.0273	0.2255	0.1067	0.3444
60	0.2073	0.2349	-0.5842	1.0540	0.2550	0.1349	0.3751
61	0.2421	0.2589	-0.5599	1.0777	0.2793	0.1583	0.4002
62	0.2600	0.2838	-0.5350	1.1027	0.3040	0.1820	0.4260
63	0.2848	0.3111	-0.5075	1.1298	0.3339	0.2097	0.4581
64	0.3106	0.3360	-0.4832	1.1551	0.3590	0.2329	0.4852
65	0.3763	0.3615	-0.4578	1.1809	0.3843	0.2557	0.5128
66	0.4392	0.3895	-0.4301	1.2092	0.4151	0.2833	0.5469
67	0.4555	0.4151	-0.4044	1.2347	0.4413	0.3063	0.5763
68	0.4843	0.4415	-0.3780	1.2610	0.4675	0.3293	0.6058
69	0.5390	0.4705	-0.3490	1.2899	0.4994	0.3554	0.6433
70	0.5706	0.4974	-0.3223	1.3170	0.5265	0.3790	0.6741
71	0.6126	0.5249	-0.2947	1.3445	0.5538	0.4029	0.7047
72	0.6373	0.5553	-0.2643	1.3749	0.5874	0.4321	0.7427
73	0.6744	0.5831	-0.2372	1.4034	0.6158	0.4569	0.7747
74	0.7072	0.6121	-0.2084	1.4326	0.6447	0.4815	0.8078
75	0.7420	0.6445	-0.1766	1.4655	0.6799	0.5121	0.8477
76	0.7832	0.6741	-0.1480	1.4961	0.7100	0.5391	0.8809
77	0.8368	0.7050	-0.1178	1.5279	0.7406	0.5654	0.9159
78	0.8690	0.7394	-0.0841	1.5629	0.7783	0.5989	0.9577
79	0.9184	0.7718	-0.0524	1.5959	0.8105	0.6277	0.9933
80	0.9613	0.8092	-0.0157	1.6341	0.8501	0.6628	1.0375
81	0.9843	0.8427	0.0171	1.6683	0.8845	0.6926	1.0764
82	1.0911	0.8779	0.0512	1.7045	0.9199	0.7235	1.1164
83	1.1361	0.9191	0.0917	1.7465	0.9642	0.7612	1.1672
84	1.2030	0.9569	0.1284	1.7854	1.0024	0.7942	1.2106
85	1.2962	0.9967	0.1671	1.8263	1.0421	0.8289	1.2552
86	1.3436	1.0436	0.2134	1.8738	1.0923	0.8717	1.3129
87	1.3761	1.0865	0.2541	1.9189	1.1357	0.9095	1.3618
88	1.4067	1.1328	0.2986	1.9670	1.1815	0.9492	1.4137
89	1.4678	1.1886	0.3532	2.0241	1.2403	0.9992	1.4813
90	1.5211	1.2405	0.4038	2.0773	1.2929	1.0438	1.5420
91	1.6624	1.2979	0.4591	2.1368	1.3489	1.0918	1.6059
92	1.7612	1.3687	0.5283	2.2090	1.4226	1.1541	1.6911
93	1.8332	1.4362	0.5929	2.2794	1.4908	1.2113	1.7703
94	1.9857	1.5140	0.6661	2.3619	1.5660	1.2726	1.8595
95	2.3152	1.6161	0.7638	2.4684	1.6698	1.3553	1.9844
96	2.3865	1.7217	0.8635	2.5798	1.7720	1.4359	2.1081
97	2.5285	1.8581	0.9868	2.7295	1.8966	1.5303	2.2630
98	2.7197	2.0719	1.1764	2.9674	2.1001	1.6751	2.5252
99	2.9899	2.3871	1.4261	3.3480	2.3699	1.8477	2.8921


5-factor gross, 15 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A13: 5-factor_gross_returns_min_20obs_t(TM)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-2.7782	-2.4163	-3.4684	-1.3642	-2.4061	-2.9393	-1.8728
2	-2.5619	-2.1018	-3.0776	-1.1261	-2.1290	-2.5824	-1.6756
3	-2.2711	-1.9118	-2.8622	-0.9615	-1.9502	-2.3672	-1.5333
4	-2.0858	-1.7729	-2.7078	-0.8380	-1.8151	-2.2062	-1.4241
5	-1.9600	-1.6610	-2.5849	-0.7370	-1.7057	-2.0775	-1.3339
6	-1.8114	-1.5670	-2.4845	-0.6495	-1.6125	-1.9685	-1.2565
7	-1.7304	-1.4708	-2.3827	-0.5590	-1.5168	-1.8607	-1.1728
8	-1.7114	-1.3995	-2.3059	-0.4932	-1.4452	-1.7778	-1.1126
9	-1.6502	-1.3358	-2.2379	-0.4338	-1.3804	-1.7040	-1.0567
10	-1.5672	-1.2771	-2.1757	-0.3785	-1.3205	-1.6374	-1.0036
11	-1.5094	-1.2224	-2.1179	-0.3269	-1.2650	-1.5740	-0.9560
12	-1.4139	-1.1712	-2.0630	-0.2794	-1.2122	-1.5150	-0.9094
13	-1.3897	-1.1141	-2.0031	-0.2251	-1.1534	-1.4475	-0.8593
14	-1.3167	-1.0691	-1.9559	-0.1822	-1.1071	-1.3950	-0.8192
15	-1.2495	-1.0263	-1.9115	-0.1411	-1.0631	-1.3457	-0.7804
16	-1.1992	-0.9855	-1.8692	-0.1019	-1.0208	-1.2987	-0.7430
17	-1.1364	-0.9466	-1.8287	-0.0644	-0.9804	-1.2530	-0.7078
18	-1.1115	-0.9087	-1.7897	-0.0278	-0.9417	-1.2100	-0.6733
19	-1.0602	-0.8656	-1.7452	0.0139	-0.8973	-1.1591	-0.6356
20	-1.0126	-0.8308	-1.7089	0.0473	-0.8611	-1.1170	-0.6052
21	-0.9967	-0.7971	-1.6738	0.0796	-0.8261	-1.0785	-0.5737
22	-0.9854	-0.7642	-1.6393	0.1109	-0.7922	-1.0407	-0.5438
23	-0.9488	-0.7323	-1.6065	0.1420	-0.7590	-1.0020	-0.5160
24	-0.9248	-0.7011	-1.5742	0.1720	-0.7265	-0.9646	-0.4884
25	-0.8766	-0.6648	-1.5369	0.2072	-0.6888	-0.9214	-0.4562
26	-0.8296	-0.6352	-1.5055	0.2352	-0.6579	-0.8847	-0.4310
27	-0.7994	-0.6061	-1.4754	0.2633	-0.6277	-0.8491	-0.4063
28	-0.7750	-0.5776	-1.4458	0.2907	-0.5977	-0.8134	-0.3820
29	-0.7524	-0.5496	-1.4167	0.3176	-0.5685	-0.7788	-0.3583
30	-0.7224	-0.5219	-1.3884	0.3446	-0.5397	-0.7437	-0.3357
31	-0.6974	-0.4951	-1.3609	0.3708	-0.5114	-0.7090	-0.3137
32	-0.6665	-0.4632	-1.3282	0.4018	-0.4779	-0.6677	-0.2880
33	-0.6453	-0.4368	-1.3010	0.4273	-0.4502	-0.6314	-0.2689
34	-0.5822	-0.4109	-1.2740	0.4523	-0.4228	-0.5934	-0.2522
35	-0.5497	-0.3851	-1.2473	0.4771	-0.3958	-0.5572	-0.2344
36	-0.5395	-0.3597	-1.2210	0.5016	-0.3692	-0.5212	-0.2172
37	-0.4917	-0.3345	-1.1950	0.5259	-0.3427	-0.4870	-0.1984
38	-0.4509	-0.3047	-1.1649	0.5555	-0.3115	-0.4472	-0.1758
39	-0.3943	-0.2801	-1.1398	0.5796	-0.2856	-0.4160	-0.1552
40	-0.3347	-0.2556	-1.1150	0.6038	-0.2600	-0.3854	-0.1346
41	-0.3160	-0.2314	-1.0904	0.6276	-0.2345	-0.3566	-0.1123
42	-0.2954	-0.2073	-1.0655	0.6508	-0.2093	-0.3294	-0.0891
43	-0.2661	-0.1833	-1.0410	0.6744	-0.1841	-0.3030	-0.0653
44	-0.2093	-0.1548	-1.0112	0.7017	-0.1542	-0.2721	-0.0364
45	-0.1866	-0.1310	-0.9870	0.7251	-0.1296	-0.2468	-0.0123
46	-0.1658	-0.1073	-0.9631	0.7485	-0.1049	-0.2218	0.0120
47	-0.1309	-0.0835	-0.9391	0.7720	-0.0803	-0.1968	0.0363
48	-0.1033	-0.0599	-0.9149	0.7952	-0.0557	-0.1718	0.0605
49	-0.0700	-0.0365	-0.8912	0.8182	-0.0311	-0.1472	0.0849

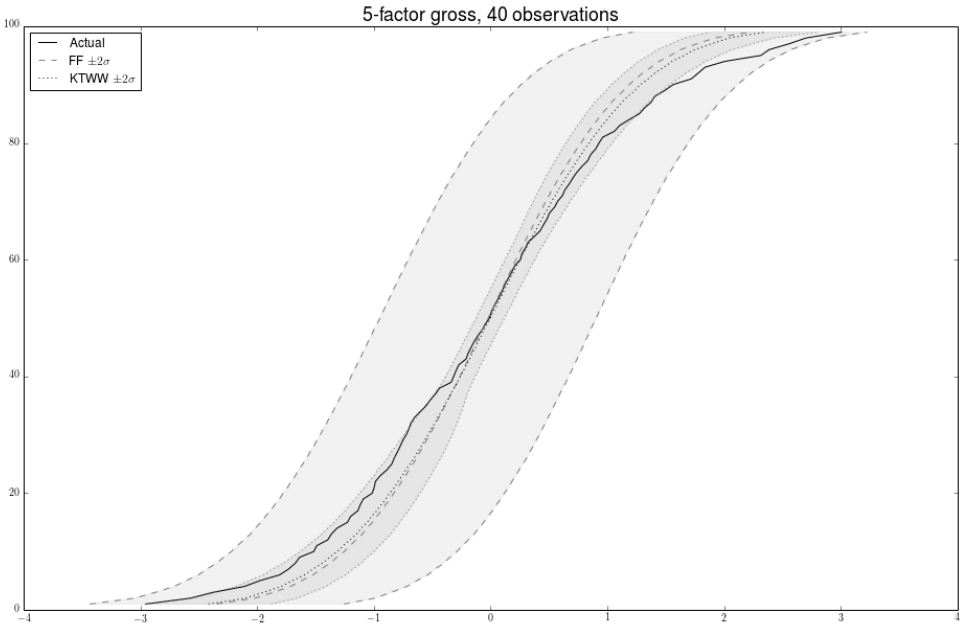
50	-0.0370	-0.0084	-0.8625	0.8456	-0.0017	-0.1180	0.1145
51	-0.0010	0.0150	-0.8387	0.8687	0.0227	-0.0935	0.1388
52	0.0120	0.0385	-0.8150	0.8920	0.0472	-0.0693	0.1638
53	0.0411	0.0621	-0.7909	0.9152	0.0717	-0.0451	0.1884
54	0.0787	0.0858	-0.7670	0.9385	0.0962	-0.0212	0.2136
55	0.0994	0.1093	-0.7433	0.9619	0.1208	0.0032	0.2383
56	0.1136	0.1331	-0.7192	0.9853	0.1454	0.0273	0.2635
57	0.1421	0.1616	-0.6906	1.0139	0.1751	0.0568	0.2934
58	0.1662	0.1856	-0.6663	1.0374	0.2003	0.0817	0.3189
59	0.1848	0.2095	-0.6425	1.0616	0.2250	0.1061	0.3439
60	0.2162	0.2337	-0.6180	1.0854	0.2501	0.1303	0.3698
61	0.2557	0.2582	-0.5934	1.1097	0.2756	0.1549	0.3964
62	0.2787	0.2826	-0.5690	1.1342	0.3011	0.1787	0.4235
63	0.3001	0.3121	-0.5392	1.1634	0.3320	0.2068	0.4571
64	0.3281	0.3370	-0.5138	1.1879	0.3578	0.2305	0.4852
65	0.3925	0.3620	-0.4886	1.2127	0.3842	0.2546	0.5138
66	0.4472	0.3874	-0.4631	1.2379	0.4107	0.2775	0.5438
67	0.4610	0.4133	-0.4369	1.2634	0.4377	0.3010	0.5744
68	0.4901	0.4392	-0.4109	1.2893	0.4647	0.3247	0.6048
69	0.5464	0.4708	-0.3796	1.3211	0.4979	0.3521	0.6436
70	0.5742	0.4975	-0.3528	1.3478	0.5258	0.3764	0.6752
71	0.6160	0.5245	-0.3258	1.3748	0.5542	0.4008	0.7075
72	0.6582	0.5519	-0.2981	1.4019	0.5830	0.4253	0.7406
73	0.6765	0.5800	-0.2700	1.4301	0.6120	0.4498	0.7743
74	0.7130	0.6088	-0.2413	1.4588	0.6419	0.4752	0.8086
75	0.7479	0.6437	-0.2066	1.4939	0.6786	0.5072	0.8500
76	0.7879	0.6735	-0.1772	1.5242	0.7098	0.5346	0.8850
77	0.8374	0.7041	-0.1469	1.5551	0.7416	0.5630	0.9202
78	0.8690	0.7354	-0.1158	1.5865	0.7743	0.5926	0.9560
79	0.9184	0.7674	-0.0839	1.6186	0.8076	0.6228	0.9925
80	0.9561	0.8004	-0.0514	1.6522	0.8417	0.6538	1.0296
81	0.9835	0.8341	-0.0183	1.6865	0.8770	0.6851	1.0690
82	1.0911	0.8760	0.0224	1.7296	0.9209	0.7238	1.1180
83	1.1322	0.9123	0.0588	1.7657	0.9589	0.7573	1.1606
84	1.2010	0.9500	0.0944	1.8055	0.9986	0.7925	1.2046
85	1.2962	0.9897	0.1332	1.8462	1.0392	0.8287	1.2498
86	1.3366	1.0308	0.1730	1.8887	1.0821	0.8661	1.2982
87	1.3747	1.0740	0.2154	1.9325	1.1273	0.9063	1.3483
88	1.4067	1.1291	0.2692	1.9891	1.1841	0.9559	1.4124
89	1.4678	1.1777	0.3164	2.0390	1.2348	1.0003	1.4693
90	1.5211	1.2301	0.3674	2.0927	1.2891	1.0482	1.5300
91	1.6719	1.2869	0.4227	2.1510	1.3474	1.0997	1.5952
92	1.7612	1.3483	0.4818	2.2149	1.4106	1.1535	1.6677
93	1.8332	1.4157	0.5465	2.2850	1.4801	1.2122	1.7480
94	2.0095	1.5078	0.6337	2.3818	1.5737	1.2905	1.8570
95	2.3152	1.5969	0.7187	2.4752	1.6645	1.3655	1.9635
96	2.3865	1.7020	0.8173	2.5866	1.7699	1.4518	2.0880
97	2.5285	1.8336	0.9418	2.7254	1.9001	1.5528	2.2473
98	2.7031	2.0123	1.1017	2.9230	2.0721	1.6820	2.4623
99	2.9899	2.3057	1.3372	3.2742	2.3384	1.8620	2.8148


5-factor gross, 20 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A14: 5-factor_gross_returns_min_40obs_t(TM)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-2.9558	-2.3456	-3.4343	-1.2568	-2.4162	-2.9537	-1.8787
2	-2.5730	-2.0196	-3.0496	-0.9896	-2.1039	-2.5526	-1.6552
3	-2.3785	-1.8620	-2.8723	-0.8517	-1.9448	-2.3573	-1.5324
4	-2.1109	-1.7144	-2.7111	-0.7177	-1.7951	-2.1801	-1.4100
5	-1.9768	-1.6200	-2.6086	-0.6315	-1.6977	-2.0663	-1.3291
6	-1.8067	-1.5208	-2.5034	-0.5382	-1.5942	-1.9481	-1.2403
7	-1.7296	-1.4511	-2.4290	-0.4733	-1.5212	-1.8654	-1.1769
8	-1.6721	-1.3740	-2.3475	-0.4006	-1.4402	-1.7727	-1.1078
9	-1.6369	-1.3182	-2.2879	-0.3485	-1.3813	-1.7049	-1.0576
10	-1.5143	-1.2537	-2.2199	-0.2874	-1.3131	-1.6282	-0.9981
11	-1.4892	-1.2061	-2.1695	-0.2428	-1.2626	-1.5706	-0.9547
12	-1.3946	-1.1505	-2.1111	-0.1899	-1.2035	-1.5042	-0.9027
13	-1.3632	-1.0984	-2.0571	-0.1398	-1.1487	-1.4433	-0.8541
14	-1.3154	-1.0593	-2.0166	-0.1020	-1.1069	-1.3949	-0.8190
15	-1.2262	-1.0123	-1.9668	-0.0579	-1.0571	-1.3379	-0.7763
16	-1.1992	-0.9766	-1.9294	-0.0237	-1.0191	-1.2960	-0.7422
17	-1.1364	-0.9336	-1.8844	0.0171	-0.9736	-1.2446	-0.7027
18	-1.1171	-0.9003	-1.8503	0.0496	-0.9388	-1.2059	-0.6718
19	-1.0895	-0.8601	-1.8091	0.0890	-0.8966	-1.1580	-0.6351
20	-1.0133	-0.8292	-1.7768	0.1184	-0.8638	-1.1214	-0.6062
21	-0.9967	-0.7918	-1.7384	0.1548	-0.8239	-1.0769	-0.5708
22	-0.9865	-0.7628	-1.7083	0.1827	-0.7932	-1.0417	-0.5446
23	-0.9444	-0.7273	-1.6717	0.2171	-0.7551	-0.9981	-0.5121
24	-0.8879	-0.6997	-1.6435	0.2442	-0.7259	-0.9650	-0.4867
25	-0.8459	-0.6658	-1.6087	0.2770	-0.6898	-0.9238	-0.4558
26	-0.8251	-0.6329	-1.5749	0.3090	-0.6548	-0.8837	-0.4258
27	-0.7994	-0.6073	-1.5486	0.3340	-0.6272	-0.8523	-0.4022
28	-0.7750	-0.5758	-1.5159	0.3642	-0.5934	-0.8115	-0.3753
29	-0.7524	-0.5507	-1.4901	0.3886	-0.5670	-0.7801	-0.3539
30	-0.7224	-0.5201	-1.4586	0.4184	-0.5344	-0.7412	-0.3276
31	-0.6995	-0.4960	-1.4341	0.4422	-0.5086	-0.7083	-0.3089
32	-0.6826	-0.4664	-1.4036	0.4707	-0.4770	-0.6666	-0.2874
33	-0.6500	-0.4431	-1.3793	0.4931	-0.4521	-0.6347	-0.2695
34	-0.6011	-0.4141	-1.3497	0.5215	-0.4212	-0.5941	-0.2482
35	-0.5510	-0.3912	-1.3260	0.5436	-0.3967	-0.5620	-0.2315
36	-0.5154	-0.3631	-1.2974	0.5712	-0.3662	-0.5176	-0.2148
37	-0.4720	-0.3408	-1.2743	0.5927	-0.3420	-0.4831	-0.2009
38	-0.4372	-0.3128	-1.2454	0.6198	-0.3124	-0.4467	-0.1781
39	-0.3367	-0.2855	-1.2174	0.6465	-0.2830	-0.4121	-0.1540
40	-0.3160	-0.2639	-1.1952	0.6674	-0.2596	-0.3861	-0.1332
41	-0.2954	-0.2365	-1.1673	0.6943	-0.2310	-0.3555	-0.1064
42	-0.2719	-0.2149	-1.1455	0.7157	-0.2080	-0.3318	-0.0843
43	-0.2093	-0.1882	-1.1186	0.7422	-0.1799	-0.3028	-0.0569
44	-0.1916	-0.1669	-1.0967	0.7629	-0.1572	-0.2796	-0.0349
45	-0.1658	-0.1405	-1.0698	0.7888	-0.1292	-0.2517	-0.0068
46	-0.1398	-0.1195	-1.0485	0.8094	-0.1069	-0.2292	0.0154
47	-0.1080	-0.0932	-1.0211	0.8346	-0.0789	-0.2004	0.0427
48	-0.0706	-0.0723	-0.9999	0.8553	-0.0567	-0.1783	0.0650
49	-0.0442	-0.0463	-0.9734	0.8807	-0.0288	-0.1505	0.0930

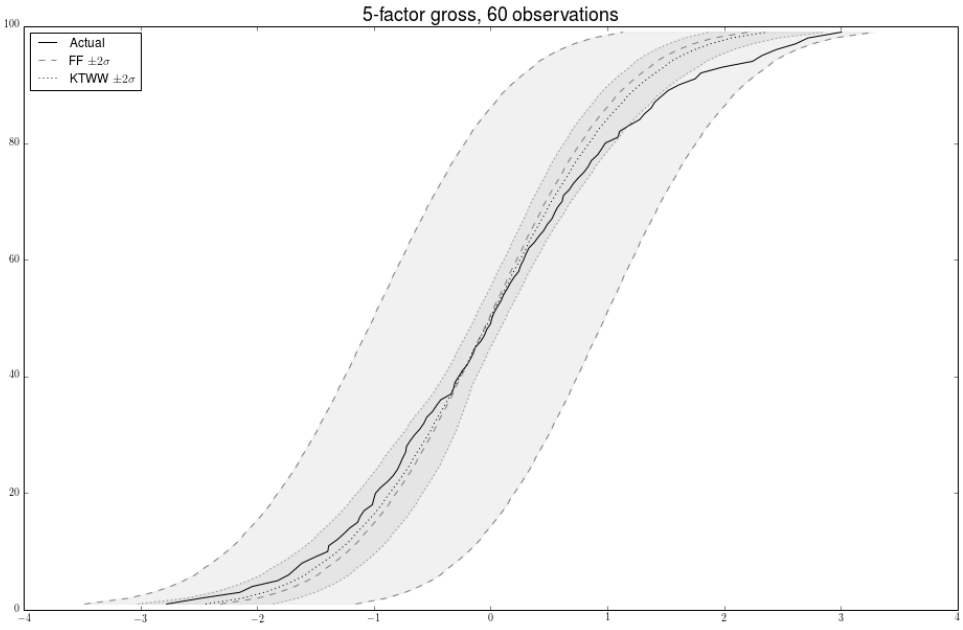
50	-0.0097	-0.0201	-0.9466	0.9063	-0.0011	-0.1228	0.1207
51	0.0058	0.0007	-0.9256	0.9271	0.0213	-0.1007	0.1432
52	0.0290	0.0270	-0.8988	0.9528	0.0491	-0.0730	0.1711
53	0.0567	0.0480	-0.8778	0.9738	0.0712	-0.0508	0.1931
54	0.0859	0.0741	-0.8510	0.9992	0.0993	-0.0231	0.2217
55	0.1061	0.0952	-0.8296	1.0201	0.1218	-0.0008	0.2445
56	0.1295	0.1218	-0.8025	1.0461	0.1499	0.0266	0.2732
57	0.1571	0.1431	-0.7810	1.0671	0.1724	0.0488	0.2959
58	0.1841	0.1697	-0.7535	1.0930	0.2007	0.0763	0.3251
59	0.2073	0.1910	-0.7322	1.1142	0.2235	0.0983	0.3486
60	0.2557	0.2179	-0.7049	1.1407	0.2521	0.1252	0.3789
61	0.2682	0.2395	-0.6830	1.1619	0.2750	0.1472	0.4028
62	0.2989	0.2666	-0.6558	1.1891	0.3039	0.1745	0.4333
63	0.3216	0.2939	-0.6282	1.2161	0.3333	0.2017	0.4648
64	0.3763	0.3161	-0.6058	1.2380	0.3572	0.2233	0.4910
65	0.4265	0.3441	-0.5781	1.2663	0.3871	0.2494	0.5249
66	0.4535	0.3666	-0.5551	1.2883	0.4112	0.2704	0.5519
67	0.4842	0.3950	-0.5266	1.3165	0.4418	0.2953	0.5883
68	0.5043	0.4183	-0.5037	1.3403	0.4666	0.3166	0.6166
69	0.5482	0.4476	-0.4739	1.3691	0.4976	0.3425	0.6527
70	0.5742	0.4713	-0.4504	1.3930	0.5229	0.3648	0.6810
71	0.6160	0.5014	-0.4199	1.4226	0.5551	0.3927	0.7174
72	0.6373	0.5260	-0.3951	1.4471	0.5812	0.4151	0.7473
73	0.6744	0.5572	-0.3636	1.4780	0.6143	0.4442	0.7845
74	0.7047	0.5824	-0.3384	1.5032	0.6414	0.4673	0.8156
75	0.7399	0.6147	-0.3058	1.5353	0.6759	0.4972	0.8546
76	0.7832	0.6479	-0.2728	1.5686	0.7112	0.5281	0.8943
77	0.8338	0.6750	-0.2456	1.5957	0.7400	0.5538	0.9262
78	0.8571	0.7096	-0.2114	1.6306	0.7767	0.5855	0.9679
79	0.9012	0.7384	-0.1829	1.6597	0.8068	0.6122	1.0015
80	0.9289	0.7749	-0.1460	1.6959	0.8454	0.6464	1.0445
81	0.9613	0.8048	-0.1163	1.7259	0.8776	0.6750	1.0801
82	1.0603	0.8438	-0.0775	1.7651	0.9195	0.7132	1.1258
83	1.1058	0.8757	-0.0461	1.7976	0.9538	0.7441	1.1635
84	1.1861	0.9174	-0.0048	1.8396	0.9985	0.7836	1.2133
85	1.2741	0.9520	0.0287	1.8752	1.0351	0.8154	1.2549
86	1.3184	0.9975	0.0739	1.9211	1.0836	0.8582	1.3091
87	1.3761	1.0360	0.1117	1.9602	1.1242	0.8946	1.3539
88	1.4067	1.0865	0.1619	2.0110	1.1781	0.9418	1.4144
89	1.4924	1.1401	0.2141	2.0661	1.2355	0.9923	1.4787
90	1.5633	1.1863	0.2596	2.1129	1.2843	1.0357	1.5329
91	1.7205	1.2479	0.3196	2.1763	1.3503	1.0935	1.6071
92	1.7798	1.3019	0.3724	2.2313	1.4078	1.1423	1.6734
93	1.8385	1.3766	0.4450	2.3082	1.4865	1.2095	1.7635
94	2.0095	1.4437	0.5101	2.3772	1.5562	1.2691	1.8434
95	2.3152	1.5395	0.6017	2.4772	1.6559	1.3532	1.9587
96	2.3865	1.6293	0.6863	2.5722	1.7493	1.4307	2.0680
97	2.5568	1.7684	0.8160	2.7207	1.8930	1.5444	2.2416
98	2.7031	1.9190	0.9562	2.8818	2.0455	1.6641	2.4269
99	3.0057	2.2231	1.2201	3.2261	2.3460	1.8771	2.8149


5-factor gross, 40 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A15: 5-factor_gross_returns_min_60obs_t(TM)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-2.7751	-2.3164	-3.4790	-1.1539	-2.4408	-3.0205	-1.8610
2	-2.4806	-1.9963	-3.1001	-0.8925	-2.1287	-2.6062	-1.6512
3	-2.1473	-1.8113	-2.8902	-0.7324	-1.9379	-2.3724	-1.5035
4	-2.0419	-1.6767	-2.7438	-0.6096	-1.7970	-2.2060	-1.3880
5	-1.8245	-1.5694	-2.6281	-0.5107	-1.6827	-2.0742	-1.2913
6	-1.7296	-1.4792	-2.5304	-0.4280	-1.5862	-1.9620	-1.2104
7	-1.6721	-1.4193	-2.4660	-0.3727	-1.5220	-1.8887	-1.1552
8	-1.6153	-1.3477	-2.3902	-0.3051	-1.4447	-1.7998	-1.0895
9	-1.5094	-1.2832	-2.3213	-0.2452	-1.3749	-1.7224	-1.0274
10	-1.3946	-1.2245	-2.2597	-0.1892	-1.3117	-1.6505	-0.9728
11	-1.3860	-1.1701	-2.2019	-0.1383	-1.2527	-1.5833	-0.9220
12	-1.3154	-1.1192	-2.1482	-0.0902	-1.1975	-1.5210	-0.8740
13	-1.2594	-1.0829	-2.1104	-0.0554	-1.1587	-1.4778	-0.8397
14	-1.2079	-1.0369	-2.0617	-0.0122	-1.1092	-1.4216	-0.7969
15	-1.1390	-0.9931	-2.0152	0.0290	-1.0621	-1.3685	-0.7557
16	-1.1171	-0.9515	-1.9713	0.0684	-1.0171	-1.3181	-0.7161
17	-1.0836	-0.9114	-1.9299	0.1070	-0.9741	-1.2693	-0.6789
18	-1.0126	-0.8730	-1.8888	0.1428	-0.9326	-1.2236	-0.6416
19	-1.0006	-0.8452	-1.8599	0.1695	-0.9026	-1.1893	-0.6160
20	-0.9854	-0.8091	-1.8219	0.2037	-0.8638	-1.1442	-0.5833
21	-0.9398	-0.7739	-1.7854	0.2376	-0.8263	-1.1014	-0.5513
22	-0.8811	-0.7401	-1.7508	0.2705	-0.7897	-1.0608	-0.5185
23	-0.8344	-0.7074	-1.7162	0.3015	-0.7543	-1.0220	-0.4867
24	-0.7994	-0.6752	-1.6829	0.3325	-0.7198	-0.9825	-0.4572
25	-0.7750	-0.6439	-1.6507	0.3629	-0.6861	-0.9438	-0.4283
26	-0.7536	-0.6211	-1.6266	0.3843	-0.6613	-0.9152	-0.4074
27	-0.7274	-0.5908	-1.5951	0.4135	-0.6291	-0.8773	-0.3810
28	-0.7201	-0.5615	-1.5652	0.4422	-0.5969	-0.8371	-0.3567
29	-0.6879	-0.5326	-1.5353	0.4700	-0.5656	-0.7982	-0.3330
30	-0.6500	-0.5041	-1.5059	0.4977	-0.5348	-0.7591	-0.3105
31	-0.6051	-0.4759	-1.4768	0.5250	-0.5044	-0.7207	-0.2881
32	-0.5703	-0.4552	-1.4553	0.5450	-0.4819	-0.6925	-0.2713
33	-0.5471	-0.4279	-1.4277	0.5718	-0.4524	-0.6541	-0.2507
34	-0.4969	-0.4009	-1.4001	0.5983	-0.4232	-0.6127	-0.2337
35	-0.4639	-0.3744	-1.3730	0.6241	-0.3941	-0.5724	-0.2158
36	-0.4265	-0.3481	-1.3462	0.6499	-0.3655	-0.5344	-0.1966
37	-0.3367	-0.3220	-1.3195	0.6754	-0.3371	-0.4944	-0.1798
38	-0.3160	-0.3027	-1.3000	0.6947	-0.3160	-0.4653	-0.1666
39	-0.3042	-0.2773	-1.2740	0.7194	-0.2883	-0.4324	-0.1441
40	-0.2723	-0.2518	-1.2477	0.7441	-0.2607	-0.4000	-0.1215
41	-0.2409	-0.2265	-1.2215	0.7685	-0.2334	-0.3708	-0.0961
42	-0.1995	-0.2016	-1.1960	0.7929	-0.2064	-0.3422	-0.0705
43	-0.1725	-0.1767	-1.1708	0.8175	-0.1795	-0.3140	-0.0449
44	-0.1481	-0.1579	-1.1516	0.8357	-0.1594	-0.2931	-0.0258
45	-0.1302	-0.1332	-1.1262	0.8598	-0.1328	-0.2661	0.0005
46	-0.0852	-0.1086	-1.1016	0.8845	-0.1063	-0.2393	0.0266
47	-0.0533	-0.0841	-1.0767	0.9085	-0.0797	-0.2126	0.0531
48	-0.0347	-0.0595	-1.0515	0.9324	-0.0532	-0.1854	0.0790
49	-0.0009	-0.0353	-1.0267	0.9561	-0.0269	-0.1588	0.1051

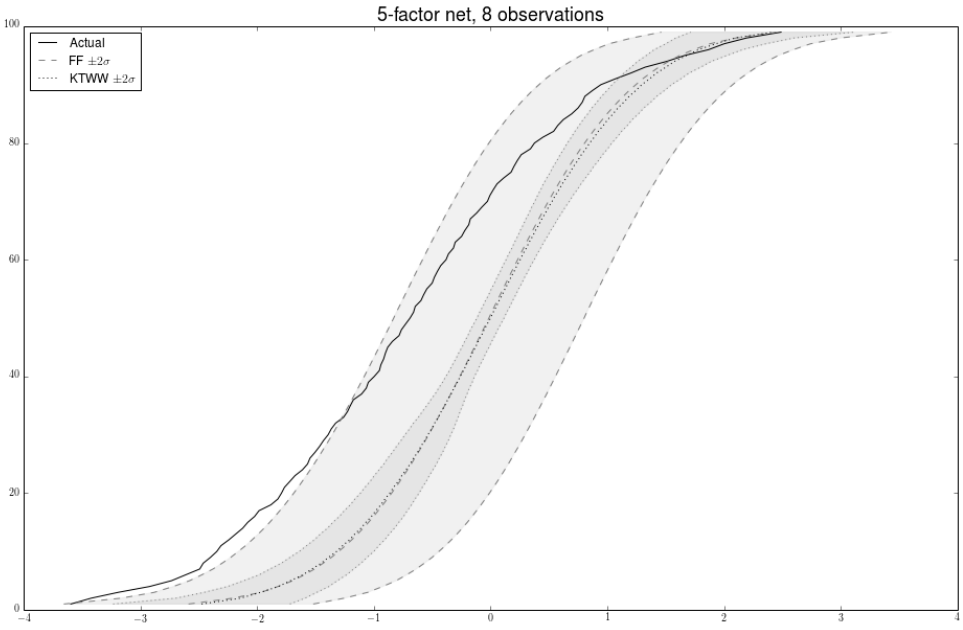
50	0.0120	-0.0107	-1.0019	0.9804	-0.0005	-0.1325	0.1314
51	0.0316	0.0077	-0.9832	0.9987	0.0194	-0.1125	0.1513
52	0.0600	0.0322	-0.9585	1.0230	0.0457	-0.0866	0.1780
53	0.0905	0.0566	-0.9339	1.0472	0.0722	-0.0605	0.2048
54	0.1112	0.0811	-0.9092	1.0714	0.0987	-0.0345	0.2319
55	0.1421	0.1055	-0.8843	1.0953	0.1253	-0.0081	0.2587
56	0.1692	0.1301	-0.8597	1.1200	0.1518	0.0178	0.2858
57	0.2012	0.1485	-0.8411	1.1381	0.1716	0.0371	0.3062
58	0.2413	0.1735	-0.8155	1.1624	0.1982	0.0626	0.3337
59	0.2576	0.1985	-0.7905	1.1874	0.2250	0.0887	0.3613
60	0.2833	0.2236	-0.7650	1.2122	0.2518	0.1146	0.3891
61	0.3032	0.2488	-0.7397	1.2373	0.2790	0.1401	0.4180
62	0.3281	0.2742	-0.7141	1.2624	0.3065	0.1658	0.4472
63	0.3763	0.2933	-0.6945	1.2810	0.3272	0.1847	0.4697
64	0.4127	0.3189	-0.6685	1.3064	0.3552	0.2103	0.5001
65	0.4552	0.3450	-0.6430	1.3330	0.3834	0.2356	0.5311
66	0.4842	0.3711	-0.6170	1.3592	0.4120	0.2605	0.5634
67	0.5255	0.3978	-0.5903	1.3860	0.4408	0.2848	0.5967
68	0.5482	0.4248	-0.5636	1.4132	0.4701	0.3100	0.6302
69	0.5742	0.4450	-0.5432	1.4333	0.4924	0.3284	0.6564
70	0.6135	0.4727	-0.5156	1.4610	0.5221	0.3534	0.6908
71	0.6242	0.5010	-0.4871	1.4892	0.5523	0.3794	0.7253
72	0.6744	0.5296	-0.4584	1.5176	0.5831	0.4050	0.7612
73	0.7072	0.5584	-0.4301	1.5469	0.6143	0.4309	0.7977
74	0.7504	0.5878	-0.4013	1.5768	0.6462	0.4585	0.8338
75	0.8004	0.6180	-0.3709	1.6069	0.6788	0.4862	0.8713
76	0.8374	0.6412	-0.3480	1.6304	0.7037	0.5083	0.8991
77	0.8639	0.6724	-0.3165	1.6613	0.7378	0.5369	0.9387
78	0.9184	0.7044	-0.2847	1.6936	0.7726	0.5673	0.9779
79	0.9515	0.7375	-0.2520	1.7270	0.8084	0.5979	1.0189
80	0.9835	0.7714	-0.2190	1.7618	0.8455	0.6310	1.0600
81	1.0911	0.8068	-0.1843	1.7978	0.8835	0.6640	1.1031
82	1.1058	0.8339	-0.1575	1.8253	0.9125	0.6901	1.1350
83	1.1861	0.8717	-0.1208	1.8642	0.9529	0.7260	1.1798
84	1.2762	0.9105	-0.0828	1.9037	0.9949	0.7630	1.2268
85	1.3184	0.9509	-0.0430	1.9448	1.0386	0.8012	1.2759
86	1.3761	0.9931	-0.0012	1.9875	1.0846	0.8414	1.3277
87	1.4065	1.0378	0.0425	2.0332	1.1326	0.8840	1.3812
88	1.4633	1.0729	0.0769	2.0689	1.1706	0.9176	1.4237
89	1.5211	1.1222	0.1258	2.1186	1.2239	0.9641	1.4838
90	1.6177	1.1755	0.1782	2.1729	1.2812	1.0150	1.5473
91	1.7526	1.2328	0.2339	2.2316	1.3428	1.0696	1.6160
92	1.8022	1.2952	0.2944	2.2960	1.4101	1.1277	1.6925
93	1.9857	1.3642	0.3603	2.3682	1.4845	1.1917	1.7772
94	2.2449	1.4209	0.4159	2.4259	1.5464	1.2443	1.8485
95	2.3263	1.5069	0.4987	2.5152	1.6386	1.3216	1.9556
96	2.4465	1.6092	0.5969	2.6215	1.7485	1.4133	2.0836
97	2.6135	1.7364	0.7155	2.7574	1.8832	1.5233	2.2432
98	2.7197	1.9115	0.8761	2.9470	2.0658	1.6634	2.4683
99	3.0057	2.2121	1.1367	3.2875	2.3649	1.8667	2.8631


5-factor gross, 60 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A16: 5-factor_net_returns_min_8obs_t(TM)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.5963	-2.5874	-3.6558	-1.5191	-2.4756	-3.2328	-1.7184
2	-3.4219	-2.2096	-3.1655	-1.2538	-2.1429	-2.6967	-1.5892
3	-3.1911	-1.9671	-2.8818	-1.0523	-1.9716	-2.4548	-1.4884
4	-2.9222	-1.8220	-2.7192	-0.9249	-1.8181	-2.2522	-1.3840
5	-2.7332	-1.6938	-2.5786	-0.8091	-1.7135	-2.1143	-1.3128
6	-2.6127	-1.5970	-2.4743	-0.7197	-1.6084	-1.9831	-1.2336
7	-2.4914	-1.5075	-2.3780	-0.6369	-1.5316	-1.8905	-1.1728
8	-2.4614	-1.4335	-2.2997	-0.5673	-1.4501	-1.7917	-1.1085
9	-2.3994	-1.3629	-2.2255	-0.5002	-1.3879	-1.7184	-1.0575
10	-2.3454	-1.3023	-2.1614	-0.4432	-1.3198	-1.6393	-1.0003
11	-2.3093	-1.2429	-2.0989	-0.3869	-1.2671	-1.5765	-0.9578
12	-2.2422	-1.1894	-2.0428	-0.3360	-1.2082	-1.5096	-0.9068
13	-2.1827	-1.1389	-1.9900	-0.2878	-1.1625	-1.4574	-0.8676
14	-2.1229	-1.0910	-1.9394	-0.2426	-1.1098	-1.3968	-0.8229
15	-2.0801	-1.0455	-1.8919	-0.1991	-1.0684	-1.3508	-0.7859
16	-2.0217	-1.0031	-1.8478	-0.1584	-1.0205	-1.2961	-0.7449
17	-1.9833	-0.9625	-1.8051	-0.1198	-0.9829	-1.2528	-0.7130
18	-1.8817	-0.9226	-1.7632	-0.0819	-0.9393	-1.2018	-0.6769
19	-1.8219	-0.8849	-1.7241	-0.0458	-0.9043	-1.1619	-0.6466
20	-1.7912	-0.8476	-1.6858	-0.0095	-0.8634	-1.1149	-0.6119
21	-1.7654	-0.8124	-1.6491	0.0243	-0.8304	-1.0765	-0.5843
22	-1.7198	-0.7779	-1.6136	0.0579	-0.7918	-1.0321	-0.5514
23	-1.6754	-0.7446	-1.5790	0.0898	-0.7605	-0.9959	-0.5251
24	-1.6116	-0.7116	-1.5445	0.1213	-0.7240	-0.9546	-0.4934
25	-1.5676	-0.6795	-1.5115	0.1524	-0.6886	-0.9141	-0.4631
26	-1.5469	-0.6493	-1.4799	0.1813	-0.6596	-0.8802	-0.4390
27	-1.5037	-0.6191	-1.4485	0.2103	-0.6252	-0.8402	-0.4101
28	-1.4653	-0.5887	-1.4174	0.2399	-0.5972	-0.8068	-0.3876
29	-1.4319	-0.5596	-1.3869	0.2677	-0.5645	-0.7676	-0.3614
30	-1.3916	-0.5305	-1.3567	0.2957	-0.5374	-0.7336	-0.3413
31	-1.3648	-0.5028	-1.3282	0.3226	-0.5056	-0.6943	-0.3168
32	-1.3270	-0.4743	-1.2988	0.3502	-0.4792	-0.6602	-0.2982
33	-1.2592	-0.4475	-1.2713	0.3764	-0.4481	-0.6185	-0.2777
34	-1.2250	-0.4206	-1.2435	0.4023	-0.4225	-0.5841	-0.2610
35	-1.2012	-0.3931	-1.2154	0.4291	-0.3924	-0.5459	-0.2389
36	-1.1748	-0.3670	-1.1885	0.4545	-0.3675	-0.5123	-0.2226
37	-1.1044	-0.3407	-1.1619	0.4805	-0.3377	-0.4746	-0.2009
38	-1.0646	-0.3150	-1.1352	0.5051	-0.3132	-0.4448	-0.1816
39	-1.0471	-0.2894	-1.1092	0.5305	-0.2842	-0.4118	-0.1566
40	-0.9965	-0.2631	-1.0822	0.5560	-0.2603	-0.3830	-0.1376
41	-0.9525	-0.2381	-1.0565	0.5804	-0.2317	-0.3520	-0.1115
42	-0.9394	-0.2129	-1.0310	0.6052	-0.2082	-0.3268	-0.0896
43	-0.9158	-0.1880	-1.0059	0.6298	-0.1803	-0.2977	-0.0628
44	-0.9006	-0.1630	-0.9802	0.6542	-0.1568	-0.2736	-0.0400
45	-0.8810	-0.1380	-0.9551	0.6790	-0.1289	-0.2449	-0.0130
46	-0.8412	-0.1133	-0.9301	0.7035	-0.1059	-0.2219	0.0100
47	-0.7837	-0.0886	-0.9053	0.7281	-0.0782	-0.1945	0.0380
48	-0.7635	-0.0638	-0.8798	0.7522	-0.0554	-0.1716	0.0607
49	-0.7270	-0.0390	-0.8547	0.7767	-0.0280	-0.1442	0.0883

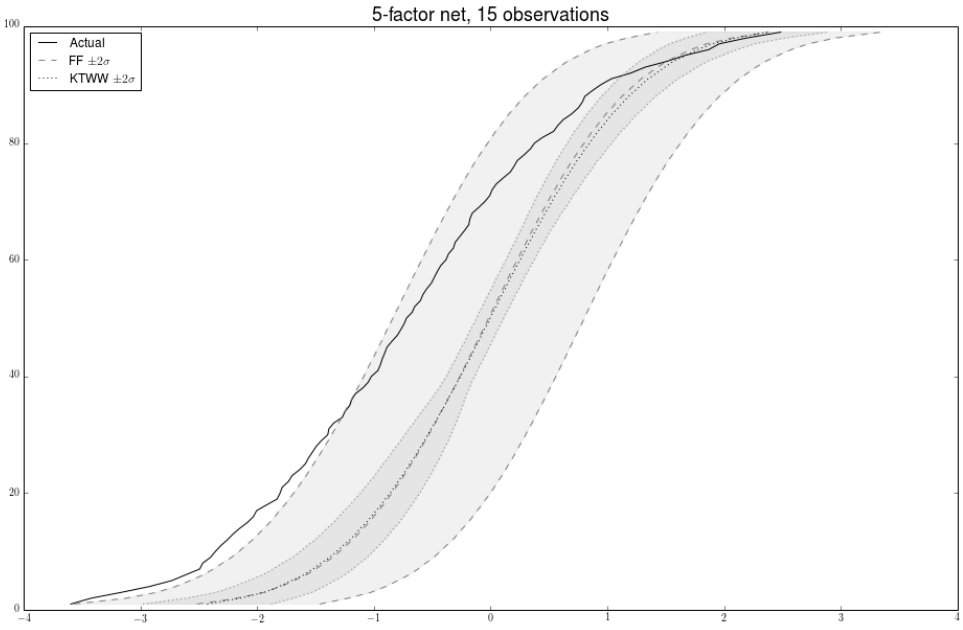
50	-0.6899	-0.0142	-0.8297	0.8013	-0.0006	-0.1167	0.1156
51	-0.6598	0.0083	-0.8071	0.8237	0.0225	-0.0938	0.1387
52	-0.6452	0.0333	-0.7818	0.8485	0.0500	-0.0663	0.1663
53	-0.5962	0.0578	-0.7571	0.8726	0.0731	-0.0432	0.1893
54	-0.5731	0.0824	-0.7322	0.8971	0.1005	-0.0156	0.2167
55	-0.5459	0.1070	-0.7079	0.9219	0.1236	0.0070	0.2402
56	-0.5001	0.1318	-0.6832	0.9467	0.1513	0.0341	0.2685
57	-0.4813	0.1564	-0.6584	0.9711	0.1743	0.0564	0.2922
58	-0.4557	0.1814	-0.6337	0.9965	0.2020	0.0832	0.3207
59	-0.4267	0.2066	-0.6084	1.0215	0.2254	0.1059	0.3449
60	-0.3813	0.2323	-0.5825	1.0470	0.2538	0.1328	0.3747
61	-0.3605	0.2570	-0.5577	1.0717	0.2774	0.1558	0.3990
62	-0.3179	0.2825	-0.5325	1.0974	0.3064	0.1830	0.4297
63	-0.3027	0.3076	-0.5074	1.1225	0.3304	0.2052	0.4556
64	-0.2483	0.3341	-0.4810	1.1491	0.3596	0.2319	0.4873
65	-0.2208	0.3600	-0.4551	1.1750	0.3844	0.2541	0.5147
66	-0.1865	0.3869	-0.4281	1.2020	0.4141	0.2804	0.5478
67	-0.1733	0.4132	-0.4020	1.2283	0.4393	0.3033	0.5753
68	-0.1193	0.4399	-0.3758	1.2555	0.4699	0.3302	0.6095
69	-0.0754	0.4676	-0.3479	1.2831	0.4957	0.3521	0.6393
70	-0.0267	0.4953	-0.3202	1.3107	0.5272	0.3791	0.6753
71	-0.0060	0.5233	-0.2922	1.3389	0.5538	0.4021	0.7055
72	0.0236	0.5522	-0.2638	1.3682	0.5862	0.4294	0.7430
73	0.0556	0.5819	-0.2349	1.3987	0.6138	0.4526	0.7751
74	0.1119	0.6118	-0.2050	1.4286	0.6474	0.4819	0.8129
75	0.1758	0.6426	-0.1745	1.4597	0.6818	0.5126	0.8510
76	0.2008	0.6729	-0.1449	1.4907	0.7111	0.5376	0.8845
77	0.2295	0.7047	-0.1133	1.5227	0.7472	0.5690	0.9255
78	0.2627	0.7376	-0.0815	1.5567	0.7780	0.5961	0.9599
79	0.3416	0.7710	-0.0483	1.5903	0.8160	0.6290	1.0029
80	0.3761	0.8063	-0.0138	1.6265	0.8485	0.6576	1.0394
81	0.4490	0.8419	0.0215	1.6623	0.8883	0.6924	1.0842
82	0.5401	0.8787	0.0576	1.6998	0.9229	0.7227	1.1231
83	0.5754	0.9172	0.0955	1.7389	0.9656	0.7591	1.1722
84	0.6229	0.9569	0.1339	1.7799	1.0027	0.7921	1.2133
85	0.6951	0.9981	0.1742	1.8221	1.0497	0.8327	1.2666
86	0.7493	1.0421	0.2175	1.8668	1.0904	0.8678	1.3131
87	0.7861	1.0882	0.2621	1.9142	1.1417	0.9109	1.3725
88	0.8079	1.1369	0.3103	1.9634	1.1869	0.9501	1.4237
89	0.8732	1.1878	0.3593	2.0163	1.2443	0.9982	1.4904
90	0.9453	1.2449	0.4151	2.0746	1.2958	1.0408	1.5508
91	1.0693	1.3028	0.4711	2.1346	1.3621	1.0943	1.6298
92	1.2031	1.3706	0.5358	2.2054	1.4222	1.1424	1.7021
93	1.3245	1.4412	0.6043	2.2780	1.5027	1.2047	1.8007
94	1.5114	1.5271	0.6868	2.3674	1.5767	1.2611	1.8924
95	1.6624	1.6196	0.7740	2.4652	1.6798	1.3340	2.0257
96	1.8681	1.7408	0.8881	2.5935	1.7804	1.4015	2.1593
97	2.0002	1.8769	1.0131	2.7406	1.9288	1.5003	2.3574
98	2.1936	2.1037	1.2112	2.9962	2.0948	1.5876	2.6019
99	2.4885	2.4474	1.4628	3.4321	2.4135	1.7151	3.1119


5-factor net, 8 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A17: 5-factor_net_returns_min_15obs_t(TM)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.5963	-2.5146	-3.5659	-1.4632	-2.4278	-2.9762	-1.8793
2	-3.4219	-2.1703	-3.1213	-1.2193	-2.1484	-2.6070	-1.6898
3	-3.1629	-1.9423	-2.8594	-1.0253	-1.9399	-2.3490	-1.5307
4	-2.9222	-1.7978	-2.6983	-0.8972	-1.8119	-2.1980	-1.4257
5	-2.7332	-1.6859	-2.5747	-0.7971	-1.7061	-2.0736	-1.3385
6	-2.6127	-1.5793	-2.4613	-0.6972	-1.5997	-1.9513	-1.2482
7	-2.4914	-1.4973	-2.3734	-0.6212	-1.5219	-1.8630	-1.1808
8	-2.4662	-1.4269	-2.2980	-0.5557	-1.4525	-1.7839	-1.1212
9	-2.3994	-1.3528	-2.2191	-0.4865	-1.3766	-1.6965	-1.0567
10	-2.3578	-1.2932	-2.1555	-0.4308	-1.3186	-1.6305	-1.0068
11	-2.3113	-1.2399	-2.0994	-0.3803	-1.2651	-1.5708	-0.9594
12	-2.2547	-1.1820	-2.0394	-0.3247	-1.2050	-1.5024	-0.9076
13	-2.2056	-1.1339	-1.9880	-0.2797	-1.1581	-1.4497	-0.8665
14	-2.1476	-1.0892	-1.9410	-0.2373	-1.1133	-1.3999	-0.8267
15	-2.0810	-1.0410	-1.8904	-0.1915	-1.0622	-1.3424	-0.7820
16	-2.0308	-0.9997	-1.8476	-0.1518	-1.0214	-1.2966	-0.7462
17	-2.0044	-0.9613	-1.8082	-0.1145	-0.9824	-1.2528	-0.7120
18	-1.9173	-0.9188	-1.7639	-0.0738	-0.9375	-1.2022	-0.6728
19	-1.8280	-0.8828	-1.7265	-0.0391	-0.9014	-1.1606	-0.6423
20	-1.8035	-0.8439	-1.6863	-0.0016	-0.8595	-1.1133	-0.6056
21	-1.7850	-0.8097	-1.6506	0.0312	-0.8255	-1.0741	-0.5770
22	-1.7312	-0.7769	-1.6163	0.0625	-0.7927	-1.0365	-0.5489
23	-1.7001	-0.7417	-1.5801	0.0967	-0.7544	-0.9926	-0.5163
24	-1.6373	-0.7102	-1.5480	0.1275	-0.7232	-0.9566	-0.4897
25	-1.5873	-0.6798	-1.5161	0.1565	-0.6928	-0.9219	-0.4638
26	-1.5604	-0.6473	-1.4827	0.1881	-0.6568	-0.8795	-0.4340
27	-1.5270	-0.6180	-1.4520	0.2160	-0.6276	-0.8438	-0.4114
28	-1.4941	-0.5894	-1.4223	0.2434	-0.5989	-0.8089	-0.3888
29	-1.4494	-0.5583	-1.3901	0.2735	-0.5650	-0.7682	-0.3618
30	-1.3945	-0.5304	-1.3612	0.3004	-0.5373	-0.7347	-0.3398
31	-1.3854	-0.5035	-1.3331	0.3261	-0.5098	-0.7005	-0.3190
32	-1.3442	-0.4742	-1.3030	0.3546	-0.4773	-0.6583	-0.2964
33	-1.2701	-0.4476	-1.2755	0.3803	-0.4506	-0.6249	-0.2763
34	-1.2466	-0.4218	-1.2492	0.4055	-0.4243	-0.5902	-0.2583
35	-1.2068	-0.3934	-1.2200	0.4332	-0.3929	-0.5477	-0.2381
36	-1.1897	-0.3677	-1.1937	0.4583	-0.3671	-0.5122	-0.2221
37	-1.1593	-0.3427	-1.1677	0.4823	-0.3416	-0.4786	-0.2046
38	-1.0959	-0.3151	-1.1396	0.5094	-0.3112	-0.4406	-0.1818
39	-1.0485	-0.2900	-1.1141	0.5342	-0.2865	-0.4118	-0.1613
40	-1.0212	-0.2626	-1.0857	0.5606	-0.2571	-0.3790	-0.1353
41	-0.9655	-0.2388	-1.0620	0.5844	-0.2325	-0.3530	-0.1120
42	-0.9438	-0.2142	-1.0368	0.6084	-0.2081	-0.3278	-0.0884
43	-0.9279	-0.1874	-1.0091	0.6344	-0.1793	-0.2983	-0.0603
44	-0.9068	-0.1641	-0.9851	0.6569	-0.1551	-0.2739	-0.0364
45	-0.8875	-0.1402	-0.9613	0.6810	-0.1313	-0.2490	-0.0136
46	-0.8462	-0.1136	-0.9342	0.7071	-0.1027	-0.2199	0.0144
47	-0.8005	-0.0903	-0.9107	0.7302	-0.0791	-0.1962	0.0381
48	-0.7696	-0.0665	-0.8870	0.7539	-0.0554	-0.1724	0.0616
49	-0.7410	-0.0401	-0.8606	0.7804	-0.0270	-0.1438	0.0897

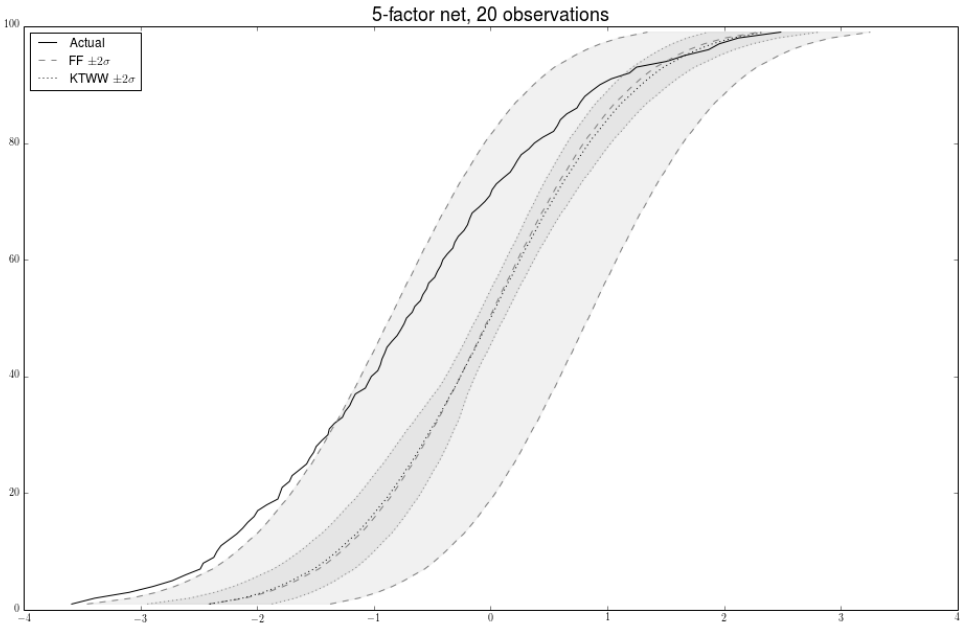
50	-0.7199	-0.0163	-0.8366	0.8040	-0.0035	-0.1203	0.1134
51	-0.6713	0.0065	-0.8137	0.8266	0.0202	-0.0969	0.1373
52	-0.6491	0.0328	-0.7864	0.8520	0.0487	-0.0686	0.1660
53	-0.6002	0.0565	-0.7630	0.8761	0.0723	-0.0449	0.1895
54	-0.5801	0.0796	-0.7398	0.8991	0.0961	-0.0214	0.2135
55	-0.5473	0.1060	-0.7127	0.9248	0.1245	0.0065	0.2425
56	-0.5069	0.1299	-0.6886	0.9484	0.1484	0.0302	0.2666
57	-0.4813	0.1533	-0.6653	0.9718	0.1723	0.0539	0.2907
58	-0.4557	0.1797	-0.6389	0.9984	0.2010	0.0819	0.3202
59	-0.4267	0.2040	-0.6147	1.0227	0.2253	0.1057	0.3450
60	-0.3813	0.2305	-0.5882	1.0493	0.2544	0.1333	0.3754
61	-0.3605	0.2546	-0.5644	1.0735	0.2788	0.1572	0.4004
62	-0.3181	0.2796	-0.5390	1.0981	0.3036	0.1807	0.4265
63	-0.3027	0.3065	-0.5125	1.1254	0.3335	0.2087	0.4582
64	-0.2627	0.3313	-0.4878	1.1505	0.3587	0.2316	0.4859
65	-0.2231	0.3567	-0.4629	1.1762	0.3841	0.2550	0.5131
66	-0.1866	0.3845	-0.4351	1.2040	0.4148	0.2819	0.5477
67	-0.1768	0.4100	-0.4097	1.2298	0.4410	0.3042	0.5778
68	-0.1562	0.4363	-0.3840	1.2565	0.4674	0.3266	0.6083
69	-0.0995	0.4652	-0.3553	1.2856	0.4993	0.3526	0.6461
70	-0.0474	0.4915	-0.3292	1.3123	0.5262	0.3755	0.6770
71	-0.0067	0.5191	-0.3015	1.3397	0.5536	0.4005	0.7067
72	0.0138	0.5497	-0.2709	1.3702	0.5870	0.4296	0.7445
73	0.0501	0.5775	-0.2440	1.3990	0.6153	0.4548	0.7759
74	0.1075	0.6062	-0.2160	1.4284	0.6441	0.4803	0.8079
75	0.1681	0.6383	-0.1845	1.4611	0.6794	0.5104	0.8484
76	0.2008	0.6680	-0.1552	1.4912	0.7095	0.5361	0.8828
77	0.2295	0.6989	-0.1253	1.5231	0.7401	0.5631	0.9171
78	0.2885	0.7331	-0.0916	1.5579	0.7779	0.5956	0.9602
79	0.3416	0.7653	-0.0602	1.5908	0.8101	0.6240	0.9963
80	0.3770	0.8029	-0.0232	1.6289	0.8499	0.6593	1.0404
81	0.4490	0.8364	0.0096	1.6631	0.8846	0.6900	1.0792
82	0.5401	0.8717	0.0442	1.6993	0.9199	0.7205	1.1193
83	0.5754	0.9127	0.0848	1.7406	0.9642	0.7595	1.1689
84	0.6229	0.9502	0.1209	1.7795	1.0024	0.7924	1.2123
85	0.6951	0.9894	0.1584	1.8204	1.0420	0.8269	1.2571
86	0.7503	1.0365	0.2046	1.8685	1.0919	0.8709	1.3129
87	0.7861	1.0794	0.2457	1.9130	1.1358	0.9096	1.3621
88	0.8079	1.1259	0.2912	1.9605	1.1815	0.9502	1.4128
89	0.8732	1.1819	0.3452	2.0186	1.2404	1.0013	1.4795
90	0.9453	1.2335	0.3958	2.0713	1.2932	1.0458	1.5405
91	1.0338	1.2908	0.4506	2.1311	1.3494	1.0944	1.6044
92	1.2031	1.3619	0.5209	2.2029	1.4234	1.1564	1.6905
93	1.3245	1.4297	0.5857	2.2736	1.4920	1.2148	1.7692
94	1.5114	1.5081	0.6595	2.3568	1.5674	1.2757	1.8591
95	1.6624	1.6101	0.7579	2.4623	1.6718	1.3585	1.9851
96	1.8681	1.7157	0.8559	2.5754	1.7738	1.4389	2.1087
97	1.9591	1.8518	0.9806	2.7230	1.8989	1.5330	2.2648
98	2.1936	2.0654	1.1733	2.9574	2.1005	1.6764	2.5247
99	2.4858	2.3842	1.4261	3.3424	2.3679	1.8486	2.8873


5-factor net, 15 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A18: 5-factor_net_returns_min_20obs_t(TM)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.5882	-2.4156	-3.4571	-1.3740	-2.4067	-2.9402	-1.8731
2	-3.3908	-2.1049	-3.0784	-1.1313	-2.1266	-2.5797	-1.6735
3	-3.0961	-1.9154	-2.8626	-0.9682	-1.9488	-2.3628	-1.5349
4	-2.8938	-1.7757	-2.7085	-0.8429	-1.8142	-2.2043	-1.4241
5	-2.7267	-1.6646	-2.5872	-0.7420	-1.7049	-2.0786	-1.3312
6	-2.6127	-1.5701	-2.4853	-0.6550	-1.6114	-1.9698	-1.2529
7	-2.4869	-1.4731	-2.3812	-0.5649	-1.5142	-1.8608	-1.1676
8	-2.4614	-1.4029	-2.3062	-0.4996	-1.4423	-1.7782	-1.1064
9	-2.3707	-1.3394	-2.2374	-0.4415	-1.3777	-1.7049	-1.0504
10	-2.3446	-1.2804	-2.1747	-0.3861	-1.3177	-1.6360	-0.9994
11	-2.3091	-1.2259	-2.1174	-0.3344	-1.2621	-1.5732	-0.9511
12	-2.2422	-1.1745	-2.0630	-0.2860	-1.2102	-1.5162	-0.9042
13	-2.1752	-1.1174	-2.0036	-0.2313	-1.1514	-1.4504	-0.8524
14	-2.1229	-1.0722	-1.9562	-0.1881	-1.1054	-1.3988	-0.8121
15	-2.0801	-1.0294	-1.9122	-0.1466	-1.0613	-1.3491	-0.7734
16	-2.0256	-0.9885	-1.8702	-0.1068	-1.0191	-1.3021	-0.7362
17	-1.9952	-0.9493	-1.8290	-0.0697	-0.9788	-1.2571	-0.7005
18	-1.9173	-0.9121	-1.7899	-0.0342	-0.9399	-1.2119	-0.6678
19	-1.8221	-0.8688	-1.7445	0.0069	-0.8952	-1.1610	-0.6294
20	-1.8035	-0.8336	-1.7079	0.0407	-0.8593	-1.1203	-0.5983
21	-1.7850	-0.7998	-1.6724	0.0729	-0.8245	-1.0797	-0.5692
22	-1.7231	-0.7670	-1.6376	0.1035	-0.7903	-1.0406	-0.5400
23	-1.7001	-0.7352	-1.6046	0.1341	-0.7572	-1.0025	-0.5118
24	-1.6373	-0.7042	-1.5721	0.1637	-0.7249	-0.9649	-0.4850
25	-1.5756	-0.6677	-1.5339	0.1986	-0.6871	-0.9221	-0.4521
26	-1.5493	-0.6380	-1.5033	0.2273	-0.6560	-0.8865	-0.4255
27	-1.5147	-0.6091	-1.4735	0.2554	-0.6257	-0.8502	-0.4013
28	-1.4936	-0.5806	-1.4435	0.2824	-0.5959	-0.8158	-0.3759
29	-1.4465	-0.5524	-1.4139	0.3091	-0.5667	-0.7798	-0.3537
30	-1.3930	-0.5248	-1.3854	0.3357	-0.5381	-0.7446	-0.3316
31	-1.3815	-0.4978	-1.3576	0.3619	-0.5097	-0.7092	-0.3102
32	-1.3356	-0.4656	-1.3246	0.3934	-0.4760	-0.6677	-0.2842
33	-1.2690	-0.4393	-1.2972	0.4187	-0.4484	-0.6322	-0.2645
34	-1.2463	-0.4135	-1.2705	0.4436	-0.4211	-0.5944	-0.2478
35	-1.2068	-0.3879	-1.2443	0.4685	-0.3941	-0.5575	-0.2307
36	-1.1841	-0.3626	-1.2187	0.4935	-0.3674	-0.5209	-0.2139
37	-1.1578	-0.3374	-1.1928	0.5181	-0.3408	-0.4842	-0.1974
38	-1.0730	-0.3076	-1.1627	0.5475	-0.3095	-0.4443	-0.1747
39	-1.0476	-0.2826	-1.1371	0.5718	-0.2836	-0.4126	-0.1545
40	-1.0212	-0.2581	-1.1121	0.5959	-0.2581	-0.3838	-0.1324
41	-0.9655	-0.2338	-1.0873	0.6197	-0.2325	-0.3541	-0.1109
42	-0.9438	-0.2097	-1.0628	0.6433	-0.2071	-0.3272	-0.0870
43	-0.9297	-0.1857	-1.0380	0.6666	-0.1821	-0.3013	-0.0630
44	-0.9068	-0.1572	-1.0091	0.6948	-0.1524	-0.2708	-0.0339
45	-0.8875	-0.1333	-0.9845	0.7179	-0.1276	-0.2451	-0.0101
46	-0.8462	-0.1096	-0.9606	0.7414	-0.1030	-0.2202	0.0142
47	-0.8005	-0.0859	-0.9368	0.7650	-0.0785	-0.1952	0.0383
48	-0.7696	-0.0623	-0.9130	0.7884	-0.0540	-0.1706	0.0626
49	-0.7411	-0.0389	-0.8891	0.8114	-0.0295	-0.1460	0.0871

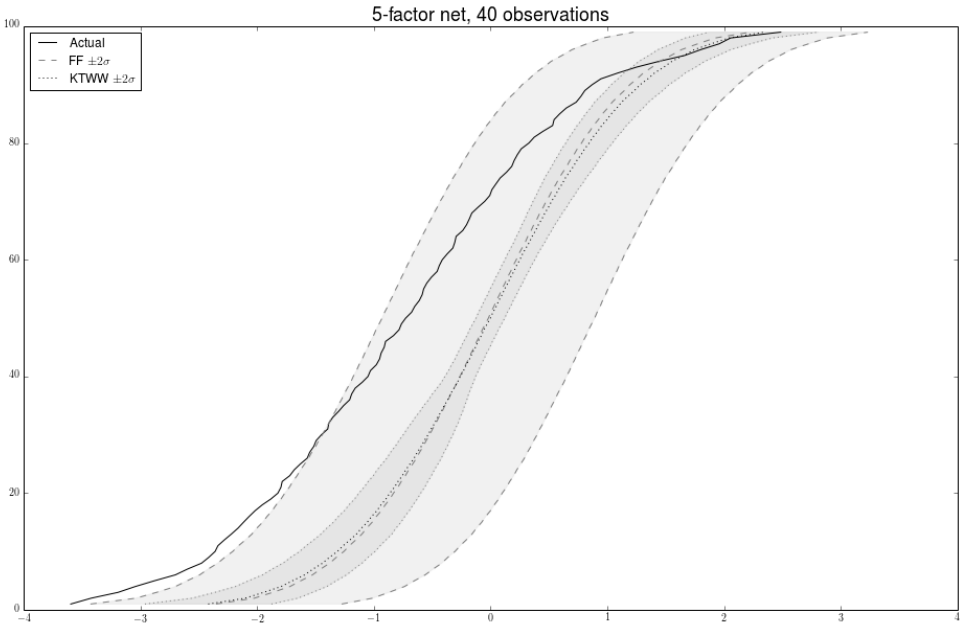
50	-0.7199	-0.0106	-0.8604	0.8392	-0.0002	-0.1167	0.1163
51	-0.6713	0.0130	-0.8365	0.8625	0.0244	-0.0921	0.1409
52	-0.6491	0.0367	-0.8123	0.8858	0.0488	-0.0681	0.1656
53	-0.6002	0.0603	-0.7882	0.9088	0.0732	-0.0441	0.1905
54	-0.5801	0.0838	-0.7639	0.9315	0.0977	-0.0198	0.2153
55	-0.5476	0.1076	-0.7400	0.9553	0.1224	0.0047	0.2401
56	-0.5298	0.1314	-0.7159	0.9787	0.1471	0.0290	0.2652
57	-0.4785	0.1600	-0.6871	1.0071	0.1768	0.0582	0.2954
58	-0.4557	0.1839	-0.6628	1.0306	0.2017	0.0824	0.3210
59	-0.4267	0.2079	-0.6389	1.0547	0.2268	0.1070	0.3466
60	-0.4087	0.2322	-0.6145	1.0789	0.2519	0.1307	0.3730
61	-0.3698	0.2563	-0.5904	1.1031	0.2770	0.1550	0.3990
62	-0.3229	0.2808	-0.5659	1.1274	0.3027	0.1794	0.4259
63	-0.3062	0.3104	-0.5361	1.1568	0.3335	0.2086	0.4584
64	-0.2766	0.3352	-0.5113	1.1817	0.3595	0.2321	0.4869
65	-0.2281	0.3603	-0.4862	1.2067	0.3857	0.2561	0.5152
66	-0.1967	0.3855	-0.4610	1.2319	0.4123	0.2800	0.5446
67	-0.1796	0.4111	-0.4350	1.2572	0.4391	0.3027	0.5754
68	-0.1580	0.4370	-0.4090	1.2831	0.4661	0.3264	0.6058
69	-0.0995	0.4688	-0.3773	1.3149	0.4991	0.3541	0.6441
70	-0.0474	0.4955	-0.3512	1.3422	0.5269	0.3779	0.6760
71	-0.0060	0.5225	-0.3242	1.3692	0.5553	0.4024	0.7082
72	0.0138	0.5500	-0.2970	1.3970	0.5842	0.4279	0.7405
73	0.0501	0.5783	-0.2691	1.4256	0.6135	0.4539	0.7730
74	0.1075	0.6068	-0.2406	1.4543	0.6433	0.4799	0.8068
75	0.1681	0.6416	-0.2057	1.4890	0.6797	0.5112	0.8483
76	0.2008	0.6713	-0.1764	1.5191	0.7110	0.5384	0.8836
77	0.2295	0.7017	-0.1462	1.5496	0.7429	0.5664	0.9194
78	0.2627	0.7328	-0.1157	1.5814	0.7756	0.5957	0.9555
79	0.3286	0.7648	-0.0840	1.6135	0.8088	0.6251	0.9925
80	0.3761	0.7979	-0.0516	1.6475	0.8432	0.6553	1.0311
81	0.4489	0.8322	-0.0176	1.6820	0.8785	0.6858	1.0712
82	0.5401	0.8741	0.0236	1.7247	0.9223	0.7249	1.1196
83	0.5731	0.9106	0.0595	1.7616	0.9601	0.7590	1.1611
84	0.5988	0.9482	0.0961	1.8004	0.9996	0.7950	1.2043
85	0.6533	0.9877	0.1348	1.8405	1.0408	0.8317	1.2498
86	0.7399	1.0290	0.1755	1.8825	1.0838	0.8695	1.2982
87	0.7699	1.0724	0.2178	1.9270	1.1290	0.9092	1.3487
88	0.8079	1.1270	0.2710	1.9831	1.1861	0.9592	1.4131
89	0.8705	1.1761	0.3188	2.0334	1.2371	1.0045	1.4698
90	0.9378	1.2282	0.3694	2.0871	1.2912	1.0512	1.5311
91	1.0338	1.2849	0.4242	2.1455	1.3491	1.1010	1.5973
92	1.1903	1.3464	0.4837	2.2092	1.4123	1.1557	1.6688
93	1.2498	1.4139	0.5476	2.2801	1.4811	1.2145	1.7477
94	1.5114	1.5058	0.6354	2.3762	1.5747	1.2924	1.8571
95	1.6624	1.5952	0.7210	2.4693	1.6646	1.3686	1.9606
96	1.8681	1.6997	0.8204	2.5790	1.7712	1.4561	2.0864
97	1.9591	1.8308	0.9409	2.7208	1.9006	1.5560	2.2452
98	2.1247	2.0085	1.1003	2.9167	2.0726	1.6828	2.4625
99	2.4858	2.2984	1.3444	3.2524	2.3386	1.8637	2.8136


5-factor net, 20 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A19: 5-factor_net_returns_min_40obs_t(TM)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.5963	-2.3515	-3.4273	-1.2756	-2.4186	-2.9605	-1.8767
2	-3.4219	-2.0245	-3.0383	-1.0107	-2.1028	-2.5562	-1.6494
3	-3.1911	-1.8661	-2.8614	-0.8708	-1.9440	-2.3628	-1.5251
4	-3.0438	-1.7186	-2.6996	-0.7376	-1.7938	-2.1857	-1.4020
5	-2.8774	-1.6246	-2.5978	-0.6514	-1.6960	-2.0713	-1.3206
6	-2.6997	-1.5256	-2.4915	-0.5598	-1.5925	-1.9527	-1.2323
7	-2.5953	-1.4556	-2.4196	-0.4917	-1.5205	-1.8710	-1.1701
8	-2.4759	-1.3778	-2.3372	-0.4184	-1.4395	-1.7782	-1.1007
9	-2.4142	-1.3215	-2.2769	-0.3662	-1.3804	-1.7118	-1.0490
10	-2.3600	-1.2571	-2.2092	-0.3051	-1.3126	-1.6358	-0.9894
11	-2.3352	-1.2092	-2.1585	-0.2600	-1.2623	-1.5797	-0.9450
12	-2.2797	-1.1534	-2.0993	-0.2075	-1.2035	-1.5130	-0.8939
13	-2.2198	-1.1013	-2.0439	-0.1586	-1.1484	-1.4519	-0.8449
14	-2.1636	-1.0620	-2.0028	-0.1212	-1.1065	-1.4031	-0.8100
15	-2.1168	-1.0148	-1.9531	-0.0764	-1.0571	-1.3468	-0.7674
16	-2.0685	-0.9788	-1.9153	-0.0422	-1.0192	-1.3035	-0.7348
17	-2.0168	-0.9355	-1.8708	-0.0001	-0.9734	-1.2519	-0.6949
18	-1.9553	-0.9021	-1.8363	0.0321	-0.9385	-1.2129	-0.6642
19	-1.8817	-0.8625	-1.7949	0.0700	-0.8961	-1.1649	-0.6274
20	-1.8221	-0.8317	-1.7627	0.0993	-0.8633	-1.1282	-0.5983
21	-1.7958	-0.7940	-1.7239	0.1359	-0.8238	-1.0835	-0.5641
22	-1.7850	-0.7649	-1.6940	0.1641	-0.7930	-1.0484	-0.5375
23	-1.7198	-0.7294	-1.6574	0.1987	-0.7553	-1.0043	-0.5063
24	-1.6817	-0.7016	-1.6282	0.2251	-0.7259	-0.9709	-0.4809
25	-1.6297	-0.6674	-1.5930	0.2581	-0.6900	-0.9296	-0.4504
26	-1.5703	-0.6343	-1.5588	0.2903	-0.6547	-0.8884	-0.4210
27	-1.5493	-0.6083	-1.5319	0.3153	-0.6276	-0.8567	-0.3985
28	-1.5147	-0.5765	-1.4988	0.3458	-0.5940	-0.8170	-0.3709
29	-1.4941	-0.5516	-1.4726	0.3694	-0.5676	-0.7858	-0.3495
30	-1.4494	-0.5210	-1.4408	0.3989	-0.5352	-0.7479	-0.3225
31	-1.3945	-0.4969	-1.4159	0.4221	-0.5095	-0.7163	-0.3027
32	-1.3854	-0.4670	-1.3852	0.4511	-0.4778	-0.6780	-0.2777
33	-1.3510	-0.4434	-1.3607	0.4738	-0.4529	-0.6453	-0.2605
34	-1.3025	-0.4142	-1.3304	0.5019	-0.4217	-0.6052	-0.2382
35	-1.2592	-0.3913	-1.3068	0.5242	-0.3972	-0.5725	-0.2220
36	-1.2068	-0.3630	-1.2778	0.5519	-0.3667	-0.5306	-0.2029
37	-1.1897	-0.3404	-1.2547	0.5738	-0.3427	-0.4981	-0.1874
38	-1.1593	-0.3127	-1.2268	0.6014	-0.3129	-0.4585	-0.1674
39	-1.0995	-0.2850	-1.1982	0.6283	-0.2834	-0.4207	-0.1460
40	-1.0500	-0.2632	-1.1762	0.6499	-0.2600	-0.3916	-0.1285
41	-1.0290	-0.2360	-1.1487	0.6766	-0.2312	-0.3591	-0.1032
42	-0.9784	-0.2144	-1.1266	0.6977	-0.2082	-0.3341	-0.0823
43	-0.9505	-0.1876	-1.0991	0.7239	-0.1799	-0.3041	-0.0557
44	-0.9373	-0.1662	-1.0775	0.7451	-0.1574	-0.2812	-0.0335
45	-0.9113	-0.1396	-1.0507	0.7715	-0.1294	-0.2533	-0.0055
46	-0.8994	-0.1185	-1.0292	0.7923	-0.1072	-0.2306	0.0162
47	-0.8316	-0.0920	-1.0026	0.8185	-0.0791	-0.2026	0.0445
48	-0.7837	-0.0708	-0.9812	0.8396	-0.0569	-0.1803	0.0665
49	-0.7635	-0.0445	-0.9547	0.8657	-0.0291	-0.1524	0.0942

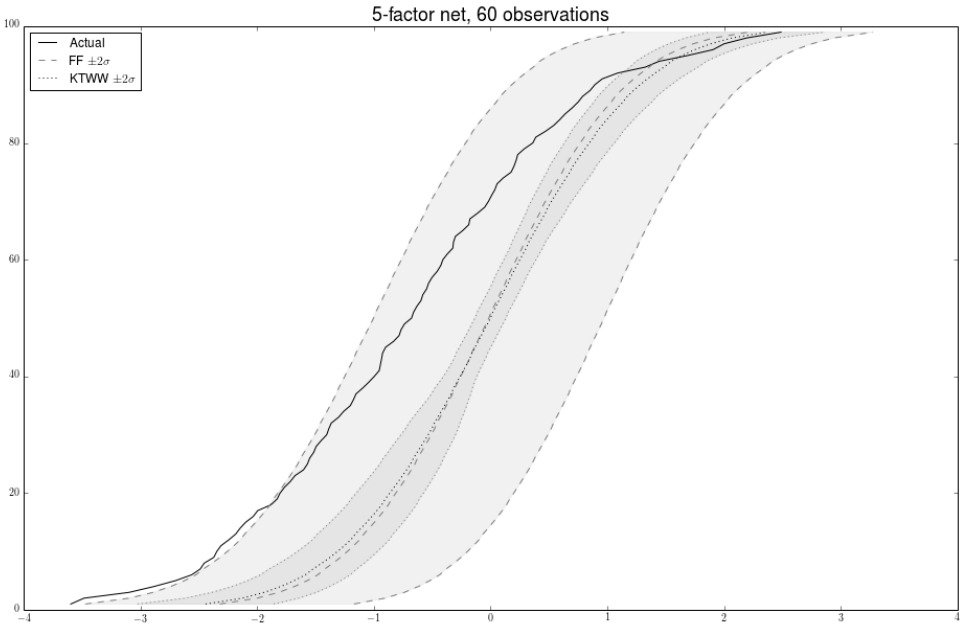
50	-0.7270	-0.0184	-0.9289	0.8922	-0.0012	-0.1243	0.1219
51	-0.6767	0.0026	-0.9074	0.9127	0.0207	-0.1027	0.1440
52	-0.6497	0.0289	-0.8809	0.9388	0.0484	-0.0753	0.1722
53	-0.6109	0.0500	-0.8593	0.9592	0.0706	-0.0532	0.1944
54	-0.5858	0.0763	-0.8325	0.9850	0.0986	-0.0255	0.2227
55	-0.5731	0.0976	-0.8106	1.0059	0.1209	-0.0036	0.2453
56	-0.5459	0.1241	-0.7844	1.0327	0.1488	0.0234	0.2741
57	-0.5069	0.1455	-0.7628	1.0537	0.1714	0.0458	0.2970
58	-0.4574	0.1721	-0.7359	1.0802	0.1999	0.0737	0.3261
59	-0.4391	0.1936	-0.7148	1.1019	0.2226	0.0958	0.3494
60	-0.4136	0.2205	-0.6874	1.1283	0.2512	0.1234	0.3790
61	-0.3712	0.2421	-0.6659	1.1502	0.2744	0.1456	0.4032
62	-0.3229	0.2695	-0.6382	1.1771	0.3033	0.1727	0.4339
63	-0.3062	0.2970	-0.6107	1.2047	0.3325	0.1999	0.4650
64	-0.2951	0.3190	-0.5888	1.2269	0.3562	0.2219	0.4905
65	-0.2385	0.3472	-0.5604	1.2549	0.3858	0.2482	0.5235
66	-0.2053	0.3700	-0.5377	1.2776	0.4100	0.2692	0.5507
67	-0.1815	0.3987	-0.5092	1.3067	0.4405	0.2956	0.5854
68	-0.1603	0.4220	-0.4859	1.3299	0.4652	0.3152	0.6152
69	-0.1069	0.4514	-0.4563	1.3591	0.4966	0.3419	0.6513
70	-0.0501	0.4754	-0.4323	1.3831	0.5221	0.3640	0.6801
71	-0.0067	0.5058	-0.4016	1.4133	0.5542	0.3910	0.7174
72	0.0117	0.5304	-0.3775	1.4383	0.5803	0.4133	0.7473
73	0.0465	0.5618	-0.3468	1.4704	0.6136	0.4408	0.7864
74	0.0819	0.5871	-0.3220	1.4962	0.6405	0.4636	0.8174
75	0.1367	0.6195	-0.2902	1.5292	0.6750	0.4936	0.8564
76	0.1818	0.6527	-0.2575	1.5630	0.7102	0.5248	0.8957
77	0.2023	0.6797	-0.2315	1.5908	0.7388	0.5505	0.9271
78	0.2296	0.7144	-0.1970	1.6258	0.7757	0.5830	0.9683
79	0.2627	0.7429	-0.1693	1.6550	0.8058	0.6092	1.0024
80	0.3286	0.7795	-0.1336	1.6927	0.8450	0.6449	1.0451
81	0.3741	0.8097	-0.1037	1.7231	0.8768	0.6734	1.0802
82	0.4489	0.8492	-0.0649	1.7633	0.9184	0.7103	1.1264
83	0.5317	0.8816	-0.0334	1.7965	0.9526	0.7416	1.1636
84	0.5441	0.9232	0.0077	1.8388	0.9968	0.7815	1.2121
85	0.5924	0.9582	0.0419	1.8746	1.0337	0.8139	1.2536
86	0.6489	1.0037	0.0861	1.9214	1.0820	0.8567	1.3074
87	0.7337	1.0423	0.1240	1.9606	1.1224	0.8924	1.3524
88	0.7742	1.0927	0.1732	2.0122	1.1764	0.9405	1.4123
89	0.8079	1.1471	0.2264	2.0678	1.2328	0.9906	1.4751
90	0.8705	1.1932	0.2710	2.1154	1.2816	1.0340	1.5292
91	0.9453	1.2548	0.3314	2.1781	1.3478	1.0914	1.6041
92	1.0907	1.3090	0.3839	2.2340	1.4046	1.1410	1.6681
93	1.2498	1.3833	0.4557	2.3110	1.4840	1.2107	1.7573
94	1.4436	1.4498	0.5190	2.3806	1.5538	1.2722	1.8354
95	1.6624	1.5455	0.6116	2.4795	1.6526	1.3560	1.9493
96	1.8006	1.6354	0.6977	2.5731	1.7453	1.4338	2.0569
97	1.9591	1.7744	0.8247	2.7241	1.8897	1.5517	2.2277
98	2.0559	1.9238	0.9620	2.8856	2.0415	1.6683	2.4148
99	2.4858	2.2287	1.2252	3.2321	2.3412	1.8729	2.8095


5-factor net, 40 observations
Actual
FF ±2σ
KTWW ±2σ
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4

A20: 4-factor_net_returns_min_60obs_t(TM)

Percentile	Act	FF	FF_SD_5	FF_SD_95	KTWW	KTWW_SD_5	KTWW_SD_95
1	-3.5963	-2.3209	-3.4723	-1.1696	-2.4409	-3.0243	-1.8574
2	-3.4836	-2.0015	-3.0971	-0.9060	-2.1294	-2.6165	-1.6424
3	-3.0961	-1.8145	-2.8906	-0.7384	-1.9385	-2.3852	-1.4919
4	-2.8839	-1.6801	-2.7413	-0.6188	-1.7964	-2.2149	-1.3779
5	-2.7003	-1.5717	-2.6227	-0.5208	-1.6828	-2.0817	-1.2838
6	-2.5608	-1.4807	-2.5252	-0.4362	-1.5865	-1.9707	-1.2022
7	-2.4869	-1.4214	-2.4615	-0.3813	-1.5220	-1.8972	-1.1468
8	-2.4534	-1.3498	-2.3866	-0.3131	-1.4450	-1.8089	-1.0810
9	-2.3707	-1.2853	-2.3179	-0.2527	-1.3752	-1.7269	-1.0235
10	-2.3454	-1.2267	-2.2554	-0.1980	-1.3118	-1.6550	-0.9685
11	-2.3091	-1.1727	-2.1986	-0.1469	-1.2526	-1.5881	-0.9172
12	-2.2422	-1.1216	-2.1445	-0.0988	-1.1973	-1.5259	-0.8687
13	-2.1827	-1.0853	-2.1061	-0.0645	-1.1582	-1.4824	-0.8340
14	-2.1450	-1.0393	-2.0583	-0.0204	-1.1084	-1.4271	-0.7898
15	-2.0986	-0.9956	-2.0126	0.0214	-1.0616	-1.3748	-0.7484
16	-2.0333	-0.9536	-1.9690	0.0618	-1.0168	-1.3240	-0.7096
17	-1.9952	-0.9136	-1.9277	0.1004	-0.9738	-1.2764	-0.6712
18	-1.8817	-0.8756	-1.8883	0.1371	-0.9324	-1.2302	-0.6345
19	-1.8280	-0.8479	-1.8599	0.1641	-0.9022	-1.1949	-0.6095
20	-1.8035	-0.8122	-1.8228	0.1985	-0.8634	-1.1515	-0.5753
21	-1.7654	-0.7775	-1.7863	0.2313	-0.8261	-1.1098	-0.5425
22	-1.7151	-0.7437	-1.7503	0.2630	-0.7895	-1.0676	-0.5113
23	-1.6754	-0.7110	-1.7165	0.2944	-0.7539	-1.0270	-0.4808
24	-1.6022	-0.6791	-1.6834	0.3253	-0.7191	-0.9871	-0.4512
25	-1.5687	-0.6479	-1.6513	0.3555	-0.6853	-0.9475	-0.4230
26	-1.5493	-0.6250	-1.6278	0.3779	-0.6604	-0.9184	-0.4025
27	-1.5147	-0.5948	-1.5966	0.4071	-0.6280	-0.8795	-0.3764
28	-1.4941	-0.5654	-1.5660	0.4351	-0.5963	-0.8425	-0.3500
29	-1.4513	-0.5364	-1.5359	0.4631	-0.5651	-0.8060	-0.3242
30	-1.4035	-0.5080	-1.5073	0.4913	-0.5344	-0.7684	-0.3004
31	-1.3864	-0.4801	-1.4788	0.5186	-0.5042	-0.7303	-0.2781
32	-1.3648	-0.4595	-1.4576	0.5386	-0.4818	-0.7009	-0.2628
33	-1.3025	-0.4324	-1.4297	0.5649	-0.4523	-0.6623	-0.2422
34	-1.2592	-0.4054	-1.4019	0.5911	-0.4231	-0.6239	-0.2223
35	-1.2012	-0.3788	-1.3746	0.6170	-0.3941	-0.5838	-0.2045
36	-1.1748	-0.3524	-1.3478	0.6430	-0.3654	-0.5423	-0.1885
37	-1.1530	-0.3265	-1.3217	0.6688	-0.3373	-0.5062	-0.1683
38	-1.0959	-0.3070	-1.3016	0.6877	-0.3164	-0.4778	-0.1549
39	-1.0438	-0.2813	-1.2755	0.7130	-0.2883	-0.4395	-0.1372
40	-0.9965	-0.2558	-1.2496	0.7379	-0.2605	-0.4037	-0.1173
41	-0.9538	-0.2307	-1.2240	0.7626	-0.2330	-0.3715	-0.0944
42	-0.9438	-0.2055	-1.1982	0.7872	-0.2059	-0.3422	-0.0697
43	-0.9336	-0.1807	-1.1725	0.8112	-0.1792	-0.3147	-0.0437
44	-0.9249	-0.1620	-1.1535	0.8294	-0.1593	-0.2940	-0.0245
45	-0.8994	-0.1372	-1.1277	0.8532	-0.1327	-0.2671	0.0018
46	-0.8316	-0.1127	-1.1028	0.8773	-0.1061	-0.2399	0.0276
47	-0.7837	-0.0881	-1.0778	0.9016	-0.0796	-0.2128	0.0536
48	-0.7668	-0.0634	-1.0522	0.9255	-0.0533	-0.1864	0.0799
49	-0.7373	-0.0388	-1.0271	0.9494	-0.0270	-0.1603	0.1064

50	-0.6767	-0.0146	-1.0023	0.9732	-0.0008	-0.1340	0.1324
51	-0.6598	0.0038	-0.9841	0.9917	0.0190	-0.1143	0.1523
52	-0.6318	0.0283	-0.9587	1.0154	0.0455	-0.0882	0.1791
53	-0.5962	0.0527	-0.9339	1.0393	0.0717	-0.0617	0.2051
54	-0.5801	0.0775	-0.9091	1.0641	0.0981	-0.0354	0.2315
55	-0.5476	0.1019	-0.8844	1.0883	0.1244	-0.0094	0.2583
56	-0.5303	0.1266	-0.8595	1.1128	0.1507	0.0165	0.2850
57	-0.5001	0.1451	-0.8408	1.1309	0.1706	0.0356	0.3056
58	-0.4574	0.1698	-0.8151	1.1547	0.1973	0.0619	0.3328
59	-0.4267	0.1945	-0.7900	1.1790	0.2241	0.0875	0.3606
60	-0.4087	0.2196	-0.7641	1.2033	0.2511	0.1136	0.3887
61	-0.3698	0.2445	-0.7390	1.2280	0.2784	0.1393	0.4174
62	-0.3229	0.2699	-0.7135	1.2533	0.3059	0.1649	0.4469
63	-0.3178	0.2892	-0.6942	1.2726	0.3266	0.1837	0.4696
64	-0.3012	0.3152	-0.6682	1.2985	0.3546	0.2080	0.5012
65	-0.2385	0.3413	-0.6419	1.3244	0.3828	0.2319	0.5337
66	-0.1866	0.3676	-0.6153	1.3505	0.4113	0.2553	0.5673
67	-0.1768	0.3940	-0.5889	1.3769	0.4402	0.2790	0.6014
68	-0.1098	0.4209	-0.5617	1.4036	0.4696	0.3040	0.6353
69	-0.0501	0.4414	-0.5413	1.4241	0.4918	0.3222	0.6613
70	-0.0180	0.4692	-0.5133	1.4518	0.5215	0.3481	0.6949
71	0.0083	0.4971	-0.4853	1.4795	0.5519	0.3732	0.7305
72	0.0370	0.5256	-0.4564	1.5075	0.5828	0.3999	0.7657
73	0.0556	0.5544	-0.4273	1.5361	0.6141	0.4270	0.8012
74	0.1075	0.5840	-0.3976	1.5655	0.6463	0.4539	0.8387
75	0.1758	0.6141	-0.3673	1.5955	0.6790	0.4824	0.8757
76	0.2003	0.6369	-0.3442	1.6181	0.7039	0.5048	0.9031
77	0.2188	0.6683	-0.3127	1.6493	0.7381	0.5347	0.9416
78	0.2324	0.7005	-0.2803	1.6814	0.7731	0.5664	0.9798
79	0.2885	0.7335	-0.2473	1.7143	0.8090	0.5989	1.0191
80	0.3616	0.7675	-0.2141	1.7490	0.8458	0.6313	1.0602
81	0.3873	0.8026	-0.1798	1.7850	0.8837	0.6654	1.1021
82	0.4700	0.8298	-0.1530	1.8126	0.9132	0.6911	1.1352
83	0.5403	0.8675	-0.1162	1.8512	0.9533	0.7275	1.1791
84	0.5924	0.9063	-0.0770	1.8896	0.9951	0.7650	1.2251
85	0.6396	0.9469	-0.0366	1.9303	1.0388	0.8029	1.2748
86	0.6982	0.9890	0.0054	1.9726	1.0849	0.8435	1.3263
87	0.7493	1.0335	0.0485	2.0185	1.1333	0.8860	1.3806
88	0.7889	1.0683	0.0825	2.0541	1.1714	0.9187	1.4240
89	0.8524	1.1173	0.1300	2.1046	1.2250	0.9662	1.4838
90	0.8940	1.1702	0.1818	2.1587	1.2823	1.0161	1.5485
91	0.9571	1.2277	0.2372	2.2182	1.3438	1.0708	1.6168
92	1.0907	1.2902	0.2983	2.2820	1.4110	1.1289	1.6931
93	1.3245	1.3595	0.3655	2.3535	1.4856	1.1934	1.7778
94	1.4436	1.4166	0.4194	2.4139	1.5478	1.2468	1.8487
95	1.6893	1.5033	0.5008	2.5059	1.6408	1.3245	1.9571
96	1.9063	1.6070	0.5999	2.6141	1.7503	1.4169	2.0837
97	2.0002	1.7351	0.7192	2.7510	1.8856	1.5256	2.2456
98	2.1936	1.9101	0.8799	2.9402	2.0674	1.6684	2.4664
99	2.4885	2.2106	1.1453	3.2759	2.3672	1.8739	2.8604


5-factor net, 60 observations
Actual
FF $\pm 2\sigma$
KTWW $\pm 2\sigma$
100
80
60
40
20
0
−4
−3
−2
−1
0
1
2
3
4