Variational Inference for high dimensional structured factor copulas

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Online Appendix

A Univariate marginal distribution of temperatures

Station ID	α_{0i}	ϕ_i	δ_i	α_{1i}	β_{1i}	α_{2i}	β_{2i}	σ_i	γ_i	ν_i	K-S	AD	Neyman
00044	10.088	0.743	0.222	-3.387	-6.843	-0.131	0.371	1.933	1.120	11.061	0.998	0.999	0.816
00071	8.708	0.753	0.274	-2.861	-8.081	-0.367	0.621	2.138	0.872	15.137	0.992	0.993	0.843
00073	9.820	0.759	0.201	-2.847	-9.656	-0.067	0.220	1.918	0.910	9.829	0.988	0.989	0.904
00078	10.036	0.729	0.219	-3.370	-6.798	-0.023	0.453	1.943	1.136	20.868	0.527	0.907	0.811
00091	9.444	0.731	0.264	-3.196	-7.502	0.128	0.566	1.982	1.100	22.355	0.634	0.913	0.827
00102	10.379	0.819	0.146	-4.405	-6.286	-0.024	0.275	1.458	1.112	4.590	0.666	0.918	0.852
00125	8.306	0.711	0.152	-2.368	-8.853	-0.474	0.319	2.452	0.880	4.831	1.000	0.999	0.963
00131	9.708	0.750	0.291	-3.318	-7.991	0.026	0.555	2.146	1.059	12.091	0.847	0.807	0.748
00142	9.439	0.755	0.268	-2.821	-9.213	-0.275	0.598	2.053	0.863	12.965	0.977	0.940	0.940
00150	10.955	0.723	0.284	-2.905	-8.067	0.075	0.552	1.971	1.040	23.015	0.874	0.884	0.841
00151	9.592	0.735	0.320	-2.962	-8.962	-0.093	0.880	1.926	0.911	31.848	0.990	0.996	0.919
00154	9.167	0.764	0.260	-2.722	-9.351	-0.517	0.405	2.042	0.848	7.108	0.835	0.954	0.963
00164	9.962	0.756	0.259	-3.263	-8.628	0.148	0.762	2.016	1.044	9.790	0.624	0.737	0.754
00167	9.734	0.763	0.176	-3.410	-8.120	0.125	0.573	1.896	1.078	10.413	0.918	0.907	0.792
00183	9.485	0.758	0.113	-4.482	-7.021	0.351	0.537	1.415	1.072	10.048	0.990	0.991	0.889
00191	9.974	0.709	0.309	-2.889	-8.239	0.051	0.653	1.935	1.028	14.945	0.860	0.979	0.814
00198	10.145	0.752	0.242	-3.263	-8.201	0.001	0.610	2.078	1.069	21.757	0.980	0.998	0.811
00217	9.135	0.763	0.254	-2.942	-8.743	-0.653	0.521	2.281	0.878	9.386	0.990	0.949	0.935
00222	9.444	0.734	0.251	-3.259	-7.875	0.131	0.677	2.213	1.081	16.950	0.881	0.960	0.803
00232	9.421	0.737	0.252	-2.831	-8.700	-0.323	0.581	1.992	0.879	17.094	0.707	0.966	0.978
00257	10.949	0.714	0.237	-2.951	-7.980	0.010	0.445	2.121	1.050	14.655	0.995	0.987	0.855
00259	11.070	0.742	0.168	-2.918	-8.108	-0.007	0.523	2.208	1.045	14.605	0.839	0.958	0.835
00282	9.965	0.719	0.312	-2.781	-8.381	-0.029	0.806	1.929	0.983	17.355	0.951	0.995	0.847
00294	10.556	0.723	0.264	-3.461	-7.120	-0.070	0.487	2.099	1.107	21.255	0.976	0.966	0.871
00298	9.389	0.739	0.180	-3.749	-7.374	0.138	0.643	1.858	1.116	10.291	0.982	0.993	0.856
00303	10.235	0.735	0.272	-3.069	-8.424	-0.138	1.003	2.185	0.988	13.215	0.942	0.921	0.794
00314	10.347	0.762	0.300	-3.269	-8.804	-0.138	0.604	2.269	0.917	9.123	0.739	0.776	0.802
00320	9.347	0.740	0.319	-2.969	-8.484	-0.102	0.737	1.918	0.936	14.136	0.645	0.952	0.880
00330	9.807	0.748	0.347	-2.866	-8.276	-0.057	0.408	2.063	0.990	11.522	0.464	0.847	0.787
00368	9.861	0.719	0.262	-3.354	-7.393	-0.086	0.505	2.021	1.116	16.359	0.903	0.939	0.811
00377	11.656	0.752	0.294	-2.757	-8.435	-0.074	0.577	1.985	0.955	20.045	0.834	0.986	0.844
00390	7.710	0.743	0.312	-3.037	-7.539	-0.183	0.541	2.027	1.015	11.626	0.902	0.892	0.801
00400	10.452	0.744	0.271	-3.053	-8.470	-0.062	0.783	2.073	1.030	13.054	0.781	0.861	0.799
00403	10.487	0.755	0.263	-2.966	-8.509	-0.091	0.749	2.057	1.009	11.647	0.927	0.941	0.761
00410	9.966	0.737	0.254	-2.901	-8.571	-0.135	0.970	2.126	1.018	11.362	0.993	0.996	0.769
00420	10.926	0.750	0.289	-3.058	-8.841	-0.017	0.702	2.064	1.016	10.271	0.666	0.791	0.768
00427	10.495	0.745	0.274	-3.103	-8.795	-0.017	0.773	2.069	1.019	12.162	0.875	0.973	0.764
00430	10.989	0.741	0.297	-3.154	-8.604	-0.013	0.695	2.098	1.031	11.923	0.832	0.784	0.815
00433	10.998	0.751	0.294	-3.085	-8.781	-0.007	0.728	2.060	1.006	10.773	0.887	0.937	0.781
00445	10.467	0.754	0.247	-3.274	-8.174	-0.066	0.702	2.053	0.996	22.911	0.755	0.893	0.801
00460	10.252	0.747	0.299	-2.855	-8.052	0.012	0.625	2.010	0.944	20.306	0.916	0.994	0.893
00535	9.283	0.732	0.272	-3.149	-7.349	-0.004	0.503	2.057	1.051	15.238	0.993	0.987	0.842
00555	10.821	0.712	0.251	-3.201	-6.632	0.006	0.568	2.054	1.062	21.242	0.736	0.886	0.861
00591	9.972	0.723	0.266	-3.543	-7.605	0.031	0.392	1.959	1.153	10.887	0.971	0.989	0.817
00596	9.742	0.753	0.133	-4.152	-7.156	0.347	0.392	1.758	1.167	7.192	0.829	0.900	0.792
00603	10.951	0.714	0.282	-2.908	-6.985	-0.061	0.513	2.032	1.044	29.915	0.975	0.943	0.861
00617	10.620	0.711	0.238	-3.137	-6.590	-0.066	0.493	2.003	1.130	19.357	0.758	0.881	0.851

00656	7.343	0.760	0.259	-3.291	-7.519	-0.142	0.513	2.086	1.036	11.598	0.440	0.878	0.786
00662	10.326	0.723	0.304	-3.415	-7.373	-0.068	0.461	2.041	1.133	19.010	0.897	0.995	0.811
00691	10.330	0.744	0.202	-3.489	-7.039	-0.022	0.394	1.962	1.129	12.139	0.906	0.963	0.807
00701	10.451	0.761	0.235	-3.917	-6.768	0.084	0.181	1.759	1.165	5.791	0.484	0.799	0.764
00704	9.958	0.733	0.227	-3.625	-6.766	-0.085	0.397	1.966	1.179	8.082	0.780	0.825	0.753
00722	4.251	0.725	0.271	-3.627	-6.739	-0.139	0.590	2.432	1.080	12.246	0.839	0.970	0.889
00755	9.628	0.726	0.329	-2.974	-8.331	-0.000	0.706	1.846	0.995	16.649	0.809	0.931	0.859
00757	10.422	0.748	0.220	-2.998	-7.826	-0.078	0.532	2.118	0.955	16.767	0.996	0.996	0.883
00766	9.027	0.709	0.200	-2.927	-7.624	-0.116	0.388	2.276	1.022	8.900	0.938	0.980	0.838
00769	10.786	0.737	0.184	-3.393	-6.968	-0.060	0.480	2.141	1.104	11.255	0.710	0.730	0.822
00817	9.343	0.729	0.265	-3.113	-7.678	0.016	0.708	1.906	1.085	36.348	0.807	0.920	0.852
00840	6.258	0.752	0.307	-3.197	-8.007	-0.171	0.689	2.228	0.963	9.376	0.997	0.995	0.837
00850	10.318	0.712	0.219	-3.287	-7.593	-0.108	0.503	2.162	1.093	11.205	0.946	0.994	0.883
00853	9.533	0.747	0.279	-3.349	-8.044	-0.020	0.593	2.294	1.034	11.425	0.649	0.633	0.749
00856	9.638	0.780	0.264	-2.879	-8.937	-0.526	0.499	2.078	0.859	7.927	0.843	0.853	0.951
00867	9.501	0.754	0.295	-2.946	-8.508	-0.013	0.606	1.953	0.977	12.184	0.917	0.977	0.817
00880	10.628	0.758	0.264	-3.067	-8.834	-0.164	0.929	2.204	0.961	12.188	0.870	0.939	0.803
00891	10.454	0.780	0.184	-4.114	-6.705	0.041	0.093	1.665	1.190	6.337	0.856	0.842	0.721
00896	10.091	0.728	0.239	-3.262	-8.370	0.041	0.746	2.165	1.089	22.764	0.828	0.963	0.822
00917	10.795	0.706	0.296	-2.797	-8.002	0.037	0.694	2.017	1.054	21.690	0.883	0.986	0.846
00953	9.377	0.731	0.287	-3.130	-7.485	-0.065	0.566	2.160	1.029	13.890	0.985	0.982	0.873
00954	10.329	0.868	0.057	-4.881	-4.659	0.215	0.264	1.049	0.999	3.925	0.699	0.682	0.815
00963	10.227	0.732	0.220	-3.339	-7.099	-0.043	0.458	1.949	1.118	18.426	0.906	0.975	0.863
00979	9.343	0.727	0.254	-2.939	-7.708	0.026	0.681	1.941	1.027	41.451	0.749	0.835	0.827
00983	9.619	0.744	0.256	-2.746	-8.971	-0.289	0.525	1.924	0.880	10.608	0.641	0.734	0.966
00991	9.002	0.747	0.209	-3.186	-8.079	-0.104	0.813	2.289	1.002	11.017	0.958	0.946	0.830
01001	10.294	0.747	0.280	-3.249	-8.484	-0.087	0.834	2.141	0.978	11.325	0.687	0.916	0.771
01048	10.381	0.759	0.303	-3.085	-8.638	0.005	0.605	2.173	0.989	9.321	0.853	0.967	0.774
01050	11.011	0.750	0.273	-3.197	-8.395	0.062	0.497	2.029	1.053	6.737	0.394	0.435	0.766
01051	11.038	0.740	0.278	-3.092	-8.557	-0.012	0.707	2.172	1.008	12.568	0.901	0.996	0.854
01052	10.307	0.737	0.300	-3.122	-8.271	-0.134	0.735	2.085	1.009	12.440	0.897	0.990	0.793
01072	11.629	0.709	0.267	-2.737	-8.356	0.054	0.587	2.016	1.035	19.141	0.927	0.931	0.847
01078	11.267	0.706	0.254	-3.207	-6.755	-0.007	0.521	2.043	1.108	14.117	0.712	0.925	0.891
01103	9.368	0.780	0.282	-2.818	-9.257	-0.581	0.562	2.171	0.842	8.565	0.752	0.891	0.934
01107	9.181	0.719	0.330	-2.804	-8.295	-0.110	0.604	1.911	1.011	11.390	0.699	0.942	0.893
01161	9.284	0.737	0.249	-2.920	-9.024	-0.160	0.454	1.893	0.900	12.244	0.976	0.998	0.852
01197	9.498	0.735	0.329	-2.902	-8.502	-0.151	0.637	1.989	0.941	14.614	0.923	0.992	0.873
01200	9.721	0.770	0.194	-3.982	-6.643	-0.095	0.392	1.752	1.163	6.605	0.961	0.876	0.809
01207	8.169	0.748	0.323	-2.966	-8.548	-0.088	0.631	2.089	0.971	10.638	0.782	0.946	0.799
01214	10.316	0.743	0.238	-3.025	-8.026	-0.097	0.574	2.075	0.966	14.195	0.944	0.950	0.818
01224	11.301	0.723	0.196	-2.836	-8.138	-0.066	0.509	2.042	1.016	13.883	0.959	0.998	0.823
01228	10.485	0.853	0.093	-5.131	-4.217	0.152	0.264	1.008	1.022	4.895	0.818	0.984	0.805
01255	10.827	0.738	0.301	-2.846	-8.371	-0.045	0.528	1.886	0.974	19.562	0.740	0.884	0.831
01262	9.556	0.738	0.251	-2.873	-9.100	-0.221	0.492	2.013	0.906	10.817	0.737	0.870	0.953
01266	9.735	0.758	0.189	-3.715	-6.836	-0.108	0.399	1.787	1.133	8.764	0.918	0.959	0.798
01270	9.514	0.736	0.300	-3.389	-8.036	-0.042	0.600	2.136	1.079	21.782	0.954	0.988	0.802
01279	10.404	0.733	0.340	-2.909	-8.777	-0.062	0.730	1.908	0.956	15.262	0.863	0.998	0.842
01297	10.113	0.741	0.231	-3.268	-7.621	0.098	0.598	1.952	1.111	25.194	0.729	0.976	0.805
01300	8.799	0.739	0.269	-3.056	-6.983	-0.291	0.667	1.814	1.029	9.736	0.566	0.763	0.811
01303	10.881	0.717	0.298	-3.159	-6.826	-0.068	0.406	2.080	1.057	11.863	0.993	0.971	0.851
01327	10.947	0.709	0.270	-3.231	-6.802	0.026	0.504	2.013	1.083	24.109	0.788	0.841	0.822
01332	9.843	0.772	0.287	-2.733	-9.841	-0.182	0.253	2.053	0.861	9.311	0.843	0.922	0.978
01339	9.622	0.720	0.248	-3.410	-7.454	-0.083	0.724	2.097	1.099	15.139	0.869	0.907	0.840
01346	4.833	0.686	0.311	-3.610	-6.557	-0.275	0.671	2.664	0.996	47.750	0.958	0.997	0.951
01357	7.677	0.764	0.316	-2.816	-8.705	-0.292	0.889	1.992	0.891	9.922	0.838	0.876	0.867
01358	4.689	0.729	0.293	-3.452	-7.643	-0.148	0.714	2.413	0.987	19.397	0.941	0.978	0.891
01411	7.479	0.761	0.266	-3.079	-7.964	-0.220	0.617	2.206	1.008	10.687	0.885	0.955	0.824
01420	11.531	0.712	0.332	-2.894	-8.325	0.198	0.562	1.931	1.040	32.134	0.581	0.882	0.813
01424	11.924	0.732	0.327	-2.750	-8.177	0.078	0.626	1.912	0.983	37.744	0.949	0.913	0.835
01443	11.421	0.718	0.204	-2.863	-8.181	0.052	0.465	2.190	1.041	15.200	0.843	0.963	0.857
01451	10.064	0.754	0.207	-3.816	-7.022	-0.047	0.404	1.824	1.167	7.967	0.782	0.747	0.743
01468	8.339	0.750	0.293	-3.130	-7.809	-0.321	0.791	2.213	0.933	18.690	0.631	0.680	0.858
01473	9.551	0.754	0.319	-2.941	-8.708	-0.187	0.640	1.981	0.912	13.102	0.945	0.994	0.824
01503	10.248	0.747	0.214	-3.311	-6.671	-0.125	0.401	1.893	1.126	9.949	0.883	0.970	0.781
01504	9.894	0.732	0.237	-3.076	-7.593	0.040	0.594	1.932	1.076	18.391	0.733	0.724	0.901
01544	10.128	0.717	0.279	-3.239	-7.851	-0.055	0.783	2.100	1.062	17.137	0.896	0.968	0.824
01550	8.226	0.753	0.163	-2.491	-9.394	-0.354	-0.212	2.186	0.853	6.364	0.997	1.000	0.985
01580	11.445	0.710	0.282	-2.864	-8.010	0.071	0.551	1.899	1.031	59.876	0.996	0.998	0.854
01587	9.370	0.768	0.321	-2.751	-9.471	-0.106	0.542	2.037	0.863	11.111	0.859	0.947	0.900
01590	11.111	0.723	0.238	-3.094	-6.696	-0.093	0.349	1.974	1.138	11.478	0.369	0.585	0.821
01602	11.705	0.735	0.233	-2.948	-8.264	-0.007	0.534	2.005	0.982	17.241	0.940	0.985	0.852
01605	10.184	0.733	0.276	-3.175	-8.231	-0.053	0.871	2.101	1.029	11.945	0.869	0.868	0.783
01612	9.625	0.756	0.295	-3.338	-8.170	0.048	0.635	2.045	1.022	15.556	0.725	0.782	0.751
01639	10.153	0.728	0.266	-3.041	-7.886	0.164	0.619	1.937	1.074	24.283	0.596	0.696	0.821
01645	8.752	0.741	0.247	-3.052	-7.554	-0.057	0.582	1.873	1.062	20.334	0.805	0.964	0.832
01666	9.767	0.763	0.176	-4.011	-6.733	-0.021	0.594	1.636	1.134	8.361	0.991	0.982	0.812
01684	10.005	0.777	0.281	-3.171	-8.950	-0.198	0.663	2.154	0.912	9.113	0.815	0.898	0.754
01691	9.949	0.733	0.275	-3.282	-7.210	0.022	0.507	1.948	1.097	36.159	0.864	0.846	0.858
01694	9.807	0.740	0.251	-3.526	-7.773	0.106	0.449	1.892	1.122	12.241	0.958	0.945	0.838

01721	9.366	0.763	0.335	-2.623	-9.054	-0.156	0.649	2.055	0.902	10.667	0.997	0.997	0.814
01735	8.656	0.762	0.209	-2.995	-9.063	0.044	0.327	2.195	0.914	14.360	0.761	0.898	0.986
01736	9.857	0.723	0.229	-3.445	-7.432	0.008	0.576	2.002	1.183	9.811	1.000	0.999	0.812
01757	9.694	0.758	0.143	-3.588	-7.728	0.123	0.590	1.870	1.095	10.593	0.802	0.643	0.779
01759	9.901	0.798	0.113	-4.318	-7.548	0.100	0.682	1.273	0.951	21.107	0.985	0.996	0.811
01766	10.724	0.712	0.261	-3.307	-6.839	-0.007	0.523	2.016	1.106	18.430	0.579	0.757	0.819
01803	9.450	0.748	0.210	-3.615	-7.659	0.148	0.458	1.892	1.155	11.294	0.874	0.905	0.793
01832	4.525	0.745	0.251	-3.615	-7.260	-0.501	0.860	2.629	0.855	26.740	0.682	0.920	0.986
01863	10.333	0.731	0.316	-2.819	-7.955	0.004	0.560	2.053	1.027	15.547	0.875	0.959	0.781
01869	9.676	0.763	0.245	-3.505	-8.436	0.238	0.534	1.936	1.070	10.582	0.879	0.867	0.754
01964	9.681	0.724	0.234	-2.940	-7.503	-0.057	0.571	1.949	1.031	59.995	0.868	0.880	0.893
01975	10.123	0.734	0.214	-3.678	-7.108	0.005	0.455	1.983	1.193	9.103	0.943	0.933	0.787
01981	10.623	0.742	0.193	-3.568	-7.237	0.003	0.480	2.008	1.172	8.897	0.860	0.956	0.784
02014	10.442	0.717	0.270	-3.540	-7.149	-0.004	0.498	2.067	1.143	47.904	0.995	0.997	0.869
02023	9.403	0.757	0.316	-2.628	-9.312	-0.164	0.392	2.032	0.887	9.621	0.998	0.997	0.952
02039	10.082	0.725	0.282	-3.501	-7.322	-0.092	0.566	2.236	1.099	15.977	0.943	0.994	0.878
02044	8.328	0.746	0.279	-3.476	-7.604	-0.070	0.582	2.060	1.091	17.385	0.486	0.948	0.793
02074	9.768	0.734	0.274	-2.980	-7.924	-0.186	0.644	2.115	0.944	15.332	0.824	0.981	0.830
02110	11.199	0.715	0.235	-3.142	-6.774	-0.033	0.492	1.985	1.106	12.926	0.923	0.944	0.858
02115	10.501	0.840	0.158	-4.718	-5.243	0.106	0.208	1.135	1.094	8.174	0.934	0.951	0.778
02171	9.691	0.743	0.258	-3.065	-7.771	0.014	0.678	1.994	1.056	15.215	0.937	0.955	0.822
02201	9.901	0.774	0.117	-4.308	-7.338	0.179	0.675	1.449	1.060	9.881	0.996	0.998	0.881
02211	9.812	0.725	0.286	-2.890	-7.354	-0.128	0.571	2.023	1.012	18.704	0.981	0.958	0.860
02252	9.388	0.741	0.259	-3.237	-8.425	-0.035	0.536	2.157	0.971	11.930	0.419	0.717	0.885
02261	8.337	0.760	0.318	-3.124	-8.494	-0.098	0.702	2.085	0.983	10.283	0.949	0.986	0.771
02290	8.204	0.737	0.237	-3.068	-7.509	-0.408	0.929	2.758	0.880	21.427	0.961	0.986	0.891
02303	9.560	0.735	0.200	-3.703	-6.767	-0.126	0.554	1.903	1.117	7.871	0.796	0.953	0.865
02306	9.787	0.736	0.150	-4.027	-7.012	0.205	0.473	1.737	1.196	7.916	0.960	0.954	0.827
02315	10.189	0.743	0.273	-3.224	-8.503	-0.137	1.017	2.171	0.984	12.046	0.608	0.860	0.800
02319	8.957	0.765	0.252	-2.857	-9.027	-0.629	0.612	2.236	0.851	9.256	0.694	0.868	0.854
02323	10.269	0.714	0.265	-3.313	-7.246	0.095	0.520	1.963	1.128	59.991	0.679	0.976	0.844
02362	9.653	0.722	0.295	-2.903	-7.310	-0.072	0.455	2.053	1.020	22.803	0.777	0.922	0.852
02385	9.404	0.723	0.244	-2.969	-7.662	-0.020	0.685	1.981	1.046	60.000	0.958	0.952	0.876
02410	9.970	0.680	0.189	-2.602	-9.421	-0.137	0.382	2.149	0.893	7.899	0.887	0.999	0.994
02429	9.722	0.735	0.218	-3.754	-6.851	-0.099	0.518	1.963	1.180	7.615	0.929	0.929	0.783
02437	9.524	0.735	0.173	-3.776	-7.002	-0.112	0.552	1.888	1.114	8.205	0.789	0.829	0.849
02444	10.857	0.733	0.261	-3.103	-8.283	0.035	0.707	2.075	1.078	21.590	0.987	0.998	0.806
02480	11.316	0.703	0.313	-2.911	-8.234	0.094	0.694	1.955	1.047	24.358	0.961	0.933	0.804
02483	6.247	0.732	0.289	-3.234	-7.160	-0.193	0.491	2.211	1.025	14.858	0.859	0.858	0.851
02486	10.709	0.732	0.262	-2.946	-7.923	-0.010	0.689	1.979	1.035	59.996	0.789	0.847	0.853
02497	8.710	0.708	0.297	-3.276	-6.756	-0.183	0.476	2.093	1.086	12.576	0.816	0.842	0.851
02559	8.736	0.748	0.224	-2.958	-8.819	-0.666	0.515	2.177	0.825	9.242	0.940	0.958	0.955
02564	10.221	0.690	0.203	-3.220	-6.718	0.368	-0.202	1.716	1.186	6.005	0.969	0.921	0.937
02575	9.682	0.737	0.325	-2.908	-8.213	-0.058	0.652	1.966	0.972	16.824	0.806	0.916	0.814
02578	10.057	0.750	0.165	-3.933	-7.320	0.215	0.402	1.790	1.186	8.315	0.754	0.768	0.760
02597	9.872	0.739	0.295	-2.826	-8.344	0.038	0.632	1.894	0.997	19.681	1.000	0.999	0.898
02600	10.873	0.705	0.318	-2.848	-8.604	0.087	0.788	1.986	1.050	20.922	0.952	0.979	0.808
02601	6.956	0.740	0.334	-2.948	-7.981	-0.186	0.576	2.190	0.975	11.514	0.896	0.865	0.818
02618	6.946	0.758	0.309	-3.017	-8.041	-0.242	0.577	2.130	0.977	10.292	0.715	0.898	0.785
02627	10.046	0.753	0.236	-3.174	-8.432	-0.181	0.921	2.192	0.962	14.169	0.889	0.977	0.808
02629	10.767	0.717	0.230	-3.195	-6.726	-0.009	0.379	1.960	1.130	14.426	0.550	0.721	0.846
02638	7.948	0.737	0.275	-3.148	-7.669	-0.258	0.806	2.405	0.896	37.470	0.890	0.899	0.880
02641	10.315	0.751	0.247	-3.228	-8.265	-0.117	0.916	2.119	1.011	18.862	0.967	0.975	0.805
02667	11.069	0.704	0.281	-2.993	-6.950	-0.069	0.527	2.051	1.073	18.873	0.909	0.961	0.843
02680	9.438	0.732	0.285	-2.989	-8.175	0.024	0.757	1.944	1.016	13.313	0.962	0.987	0.830
02700	9.706	0.771	0.276	-2.835	-9.568	-0.186	0.314	1.932	0.844	12.618	0.999	0.999	0.961
02704	10.586	0.771	0.217	-3.083	-8.328	-0.209	0.819	2.009	0.986	15.166	0.954	0.953	0.791
02708	8.398	0.756	0.196	-2.729	-8.694	-0.535	0.260	2.341	0.922	6.441	0.968	0.994	0.917
02712	10.792	0.758	0.254	-2.768	-9.511	-0.302	0.407	1.926	0.810	8.748	0.686	0.964	0.900
02750	9.221	0.737	0.293	-3.042	-8.272	-0.017	0.806	1.918	0.960	24.800	0.973	0.988	0.892
02773	9.378	0.749	0.281	-2.939	-9.208	-0.047	0.659	1.982	0.879	23.461	0.910	0.999	0.983
02794	9.962	0.743	0.224	-3.133	-8.272	-0.013	0.800	2.035	1.035	12.942	0.783	0.951	0.811
02796	9.567	0.747	0.222	-3.632	-7.760	0.225	0.530	1.933	1.139	8.714	0.958	0.978	0.821
02812	11.637	0.730	0.226	-2.850	-8.186	-0.007	0.566	2.036	1.012	17.030	0.668	0.889	0.870
02814	8.086	0.734	0.275	-2.886	-8.246	-0.327	0.570	2.039	0.904	11.985	0.949	0.934	0.822
02829	9.205	0.773	0.184	-2.939	-9.264	-0.727	0.769	2.303	0.847	7.278	0.948	0.901	0.926
02856	9.955	0.749	0.278	-3.226	-8.581	-0.035	0.782	2.039	0.988	13.601	0.841	0.993	0.792
02886	9.372	0.748	0.215	-2.655	-9.039	-0.462	0.332	2.133	0.834	7.741	0.885	0.932	0.925
02905	9.248	0.717	0.150	-2.538	-9.012	-0.401	0.589	2.415	0.884	5.864	0.914	0.951	0.907
02907	9.490	0.764	0.178	-3.933	-6.339	-0.030	0.518	1.735	1.125	6.865	0.650	0.805	0.791
02925	9.155	0.743	0.286	-3.393	-7.472	-0.032	0.288	2.079	1.115	17.318	0.996	0.979	0.808
02928	10.459	0.755	0.260	-3.228	-8.149	-0.112	0.784	2.078	1.020	19.273	0.943	0.897	0.783
02932	10.433	0.759	0.264	-3.293	-8.303	-0.088	0.756	2.066	1.001	18.504	0.966	0.979	0.763
02947	9.437	0.711	0.269	-3.170	-6.915	-0.033	0.724	2.006	1.063	25.278	0.785	0.848	0.852
02951	10.153	0.716	0.264	-3.262	-7.966	-0.014	0.612	2.041	1.117	15.342	0.896	0.961	0.783
02953	7.682	0.738	0.246	-3.101	-7.985	-0.276	0.510	2.084	0.949	13.169	0.857	0.986	0.901
02961	10.017	0.777	0.126	-4.647	-6.715	0.225	0.395	1.539	1.178	6.253	0.769	0.932	0.829
02968	11.886	0.714	0.291	-2.920	-7.095	-0.102	0.573	1.964	1.041	13.232	0.849	0.926	0.847
02985	9.485	0.750	0.334	-3.040	-8.847	-0.065	0.482	2.141	0.934	10.387	0.954	0.904	0.926

03015	10.339	0.747	0.309	-3.150	-8.832	-0.090	0.687	2.106	0.986	11.864	0.958	0.980	0.740
03023	10.777	0.737	0.234	-3.257	-6.698	0.023	0.450	1.936	1.090	13.836	0.637	0.922	0.823
03028	10.316	0.709	0.241	-3.469	-6.706	0.041	0.407	2.133	1.155	19.243	0.998	0.964	0.817
03031	10.593	0.716	0.241	-3.356	-6.692	0.016	0.445	2.098	1.118	14.893	0.787	0.943	0.832
03032	10.012	0.813	0.155	-4.234	-5.822	0.134	0.355	1.393	1.090	6.921	0.992	0.994	0.841
03034	8.361	0.757	0.285	-3.018	-8.088	-0.135	0.814	1.964	0.977	12.832	0.749	0.922	0.769
03042	9.659	0.716	0.230	-3.033	-7.685	0.126	0.570	1.961	1.082	39.977	0.883	0.786	0.802
03044	10.524	0.741	0.197	-3.334	-6.815	-0.030	0.401	1.950	1.139	14.638	0.721	0.954	0.821
03083	10.385	0.751	0.268	-3.154	-8.639	-0.115	0.903	2.093	0.961	12.688	0.738	0.934	0.788
03086	9.835	0.743	0.194	-3.650	-7.287	-0.068	0.642	1.971	1.147	8.343	0.851	0.910	0.786
03093	10.078	0.716	0.270	-3.286	-7.587	-0.040	0.569	2.015	1.100	12.525	0.828	0.969	0.792
03098	9.245	0.712	0.318	-3.128	-6.846	-0.175	0.458	2.085	1.042	11.674	0.673	0.730	0.848
03126	10.689	0.741	0.262	-3.170	-8.132	-0.076	0.652	2.052	1.009	18.125	0.895	0.911	0.796
03137	11.237	0.727	0.313	-2.840	-8.255	0.096	0.533	1.969	1.003	23.199	0.979	0.960	0.793
03155	8.902	0.722	0.233	-3.090	-7.355	-0.007	0.571	1.964	1.068	60.000	0.984	0.968	0.890
03158	10.357	0.747	0.270	-3.167	-8.902	0.115	0.758	2.072	1.026	9.651	0.591	0.896	0.787
03164	10.151	0.730	0.260	-2.985	-7.805	0.074	0.736	1.905	1.064	29.051	0.697	0.848	0.820
03166	8.081	0.754	0.283	-3.235	-7.963	-0.171	0.632	2.317	1.006	9.471	0.830	0.946	0.737
03167	8.372	0.743	0.295	-2.896	-7.769	-0.139	0.485	2.108	0.981	14.270	0.924	0.886	0.793
03196	9.819	0.727	0.268	-3.396	-7.799	-0.009	0.590	1.999	1.093	15.561	0.700	0.806	0.834
03204	9.234	0.739	0.314	-3.177	-7.937	-0.061	0.745	2.143	1.046	14.832	0.813	0.901	0.807
03226	10.234	0.748	0.241	-3.360	-7.832	-0.070	0.781	2.063	1.046	32.308	0.717	0.918	0.833
03231	8.876	0.750	0.325	-2.916	-8.402	-0.049	0.565	1.983	1.004	12.115	0.598	0.838	0.871
03234	10.027	0.742	0.235	-3.165	-8.156	-0.009	0.754	2.172	1.029	14.111	0.796	0.862	0.799
03244	8.785	0.758	0.233	-2.922	-8.663	-0.594	0.575	2.068	0.835	9.153	0.998	0.995	0.955
03254	10.485	0.694	0.135	-2.935	-6.487	0.115	0.261	2.164	1.100	7.175	0.638	0.962	0.860
03257	10.567	0.721	0.321	-2.889	-8.441	-0.008	0.775	1.930	0.964	24.194	0.969	0.985	0.884
03268	8.086	0.705	0.241	-2.564	-8.044	-0.536	0.448	2.390	0.885	8.457	0.897	0.941	0.887
03271	9.607	0.763	0.198	-2.696	-9.527	-0.139	0.263	1.870	0.845	10.391	0.972	0.992	0.935
03278	10.852	0.734	0.277	-2.715	-8.460	-0.211	0.478	2.074	0.941	11.516	0.999	0.999	0.932
03284	10.638	0.725	0.304	-2.892	-8.040	-0.013	0.787	1.945	1.032	26.339	0.640	0.770	0.871
03287	9.661	0.751	0.315	-2.851	-8.223	-0.086	0.710	2.065	0.987	14.777	0.743	0.960	0.770
03289	9.661	0.742	0.297	-3.254	-7.965	0.009	0.698	2.159	1.031	13.328	0.809	0.784	0.769
03307	7.440	0.748	0.226	-2.801	-8.016	-0.478	0.248	2.381	0.861	10.747	0.914	0.993	0.995
03319	10.470	0.724	0.312	-2.967	-7.916	0.090	0.526	1.910	1.070	20.711	0.870	0.917	0.820
03340	9.875	0.714	0.263	-2.984	-7.427	0.002	0.590	1.975	1.049	59.828	0.874	0.944	0.827
03348	9.310	0.725	0.278	-3.314	-7.447	-0.006	0.421	1.943	1.104	26.531	0.803	0.968	0.899
03362	10.224	0.712	0.279	-2.966	-8.256	0.046	0.497	1.950	1.011	12.086	0.992	0.994	0.893
03366	9.378	0.762	0.223	-2.754	-9.679	-0.351	0.284	1.939	0.856	7.914	0.803	0.875	0.892
03376	10.071	0.744	0.291	-3.109	-8.684	0.013	0.806	2.080	1.031	10.286	0.872	0.976	0.784
03379	10.667	0.780	0.243	-2.766	-9.401	-0.436	0.719	2.195	0.837	8.491	0.896	0.923	0.935
03402	8.072	0.756	0.286	-2.743	-8.499	-0.450	0.364	2.072	0.854	11.651	1.000	0.999	0.886
03426	10.007	0.750	0.242	-3.182	-8.666	-0.193	0.856	2.209	0.975	14.505	0.665	0.917	0.788
03442	11.048	0.731	0.295	-2.864	-8.218	0.074	0.678	1.889	0.982	46.542	0.821	0.967	0.831
03484	9.531	0.719	0.199	-2.480	-9.369	-0.220	0.303	2.291	0.893	4.743	0.939	0.968	0.936
03485	9.399	0.738	0.249	-2.781	-8.833	-0.476	0.632	1.971	0.850	10.207	0.833	0.906	0.974
03490	10.928	0.708	0.210	-2.852	-7.264	0.021	0.637	2.075	1.066	59.997	0.654	0.878	0.860
03509	9.583	0.740	0.251	-3.214	-8.227	0.085	0.721	2.023	1.061	11.753	0.932	0.930	0.799
03513	6.700	0.755	0.335	-3.058	-8.250	-0.101	0.696	2.167	0.963	8.929	0.714	0.885	0.812
03527	8.595	0.740	0.325	-3.142	-7.676	-0.105	0.426	2.083	1.059	12.052	0.979	0.957	0.775
03540	10.291	0.715	0.279	-2.970	-7.041	-0.138	0.515	2.018	1.056	14.801	0.737	0.797	0.842
03545	10.310	0.712	0.237	-2.948	-7.833	-0.042	0.679	1.945	1.038	59.307	0.855	0.969	0.884
03552	10.041	0.750	0.254	-3.121	-8.348	-0.074	0.786	1.916	1.014	12.061	0.870	0.898	0.790
03571	8.904	0.734	0.319	-2.957	-8.666	-0.076	0.664	1.942	0.920	24.431	0.827	0.902	0.983
03591	9.969	0.705	0.305	-3.308	-6.630	-0.141	0.528	2.150	1.083	9.671	0.945	0.922	0.875
03603	9.744	0.758	0.303	-2.859	-8.481	-0.163	0.503	2.128	0.975	8.138	0.934	0.981	0.786
03612	10.375	0.728	0.248	-3.511	-7.118	0.034	0.442	1.985	1.151	26.723	0.953	0.984	0.827
03621	9.773	0.745	0.300	-2.711	-8.647	-0.290	0.528	1.964	0.926	10.175	0.997	0.997	0.859
03623	11.116	0.718	0.192	-3.100	-6.917	-0.055	0.518	2.169	1.086	7.563	0.911	0.947	0.898
03631	10.396	0.812	0.140	-4.156	-6.025	0.216	0.245	1.493	1.087	4.901	0.989	0.953	0.802
03639	9.887	0.753	0.223	-3.900	-6.667	-0.043	0.302	1.846	1.186	6.194	0.960	0.947	0.765
03660	8.925	0.710	0.302	-3.125	-7.122	-0.066	0.450	2.084	1.070	21.040	0.801	0.853	0.863
03667	9.262	0.720	0.319	-2.926	-8.440	-0.091	0.729	1.943	0.979	20.161	0.998	0.997	0.886
03668	10.343	0.736	0.340	-2.875	-8.715	-0.109	0.650	1.943	0.956	15.888	0.992	1.000	0.890
03679	9.147	0.784	0.244	-2.575	-10.210	-0.530	-0.295	2.054	0.798	5.353	0.704	0.777	0.862
03730	7.436	0.746	0.202	-2.915	-9.143	-0.643	0.330	2.328	0.810	4.859	0.999	0.996	1.000
03734	11.100	0.730	0.291	-2.709	-8.309	0.037	0.645	2.050	0.994	16.044	0.994	0.983	0.834
03739	8.595	0.772	0.324	-2.690	-9.282	-0.097	0.772	2.045	0.870	11.905	0.979	0.984	0.900
03761	11.121	0.734	0.298	-2.856	-8.343	0.039	0.622	2.036	0.998	19.779	0.920	0.940	0.821
03811	10.413	0.761	0.246	-3.274	-8.282	-0.082	0.779	2.116	1.007	14.819	0.961	0.967	0.790
03821	10.138	0.746	0.296	-3.422	-7.927	-0.021	0.566	2.136	1.065	16.458	0.980	0.928	0.780
03836	9.302	0.740	0.304	-2.945	-8.354	0.025	0.772	1.862	1.027	14.837	0.754	0.950	0.876
03857	7.912	0.751	0.200	-3.142	-8.382	-0.675	0.620	2.326	0.844	11.939	0.999	1.000	0.984
03875	9.109	0.766	0.331	-2.705	-9.193	-0.202	0.716	2.026	0.866	11.375	0.833	0.991	0.811
03897	9.935	0.770	0.112	-4.197	-6.841	0.096	0.647	1.621	1.079	10.554	0.403	0.710	0.791
03904	10.677	0.683	0.233	-3.101	-7.559	-0.001	0.621	2.008	1.110	59.999	0.880	0.918	0.889
03925	10.545	0.743	0.272	-2.910	-8.144	-0.020	0.586	2.058	0.964	15.313	0.884	0.986	0.819
03927	8.432	0.743	0.264	-2.831	-8.349	-0.440	0.393	1.902	0.875	11.190	0.880	0.980	0.830
03939	10.478	0.738	0.278	-2.994	-7.921	-0.019	0.552	2.080	1.010	36.485	0.912	0.910	0.863

03946	9.326	0.740	0.289	-3.162	-8.202	0.063	0.724	2.102	1.042	12.343	0.947	0.970	0.778
03975	9.045	0.754	0.374	-2.705	-8.790	-0.176	0.661	2.002	0.897	11.989	0.818	0.987	0.766
03987	10.480	0.759	0.284	-2.945	-8.688	-0.172	0.678	2.033	0.991	10.877	0.652	0.882	0.775
04024	9.370	0.742	0.180	-3.893	-7.528	0.143	0.457	1.652	1.092	17.541	0.995	1.000	0.825
04032	10.497	0.739	0.284	-3.426	-7.708	-0.083	0.710	2.127	1.085	19.243	0.991	0.993	0.819
04036	9.606	0.757	0.237	-3.406	-7.956	-0.043	0.707	2.040	1.035	30.854	0.931	0.972	0.823
04039	9.867	0.730	0.203	-3.585	-6.898	-0.127	0.543	2.017	1.175	8.448	0.881	0.930	0.780
04063	10.442	0.727	0.232	-3.438	-7.010	-0.009	0.604	1.997	1.104	24.298	0.399	0.902	0.837
04094	9.815	0.737	0.245	-2.801	-9.163	-0.527	0.382	1.984	0.861	7.920	0.997	0.999	0.972
04104	9.946	0.764	0.244	-2.812	-9.536	-0.093	0.443	1.922	0.867	17.050	0.839	0.974	0.937
04127	9.681	0.727	0.312	-2.944	-7.336	-0.211	0.497	2.092	1.005	11.821	0.936	0.909	0.832
04160	9.551	0.749	0.292	-2.910	-8.010	-0.185	0.587	1.973	0.929	13.290	0.930	0.991	0.834
04169	11.559	0.720	0.224	-2.820	-8.319	-0.045	0.621	2.000	1.012	15.425	0.993	0.995	0.879
04174	10.702	0.721	0.199	-3.128	-6.483	-0.081	0.668	2.061	1.052	10.440	0.779	0.906	0.870
04175	11.384	0.761	0.247	-2.775	-9.014	0.128	-0.358	1.619	0.923	5.651	0.994	0.996	0.934
04189	8.982	0.749	0.215	-2.760	-8.744	-0.324	0.304	1.875	0.881	10.123	0.653	0.884	0.918
04261	9.606	0.771	0.223	-2.634	-9.622	-0.408	0.253	2.036	0.843	5.995	0.845	0.916	0.853
04271	10.179	0.747	0.136	-4.076	-7.298	0.339	0.386	1.785	1.197	7.473	0.889	0.934	0.821
04275	10.197	0.729	0.220	-3.498	-7.081	-0.058	0.463	2.014	1.154	12.837	0.857	0.868	0.759
04280	9.861	0.739	0.232	-2.625	-9.188	-0.329	0.685	2.154	0.922	7.360	0.760	0.985	0.848
04287	9.940	0.742	0.329	-2.961	-8.334	-0.031	0.620	2.005	1.000	14.388	0.930	0.928	0.813
04300	8.951	0.745	0.253	-3.155	-8.176	-0.302	0.564	1.975	0.907	14.168	0.907	0.994	0.840
04301	11.559	0.698	0.287	-2.898	-8.167	0.137	0.609	1.928	1.096	43.629	0.922	0.934	0.801
04323	9.805	0.739	0.300	-2.929	-8.133	0.013	0.609	2.157	0.987	13.502	0.970	0.996	0.873
04336	10.361	0.735	0.265	-2.952	-7.855	0.023	0.576	2.013	1.020	34.576	0.717	0.874	0.881
04349	10.897	0.739	0.280	-2.709	-8.482	-0.107	0.616	1.927	0.974	14.080	0.914	0.999	0.851
04354	9.016	0.764	0.223	-2.798	-9.647	0.056	0.296	2.007	0.866	11.881	0.749	0.861	0.983
04371	10.282	0.722	0.264	-3.314	-6.845	-0.033	0.361	2.041	1.103	16.771	0.637	0.794	0.791
04377	9.225	0.754	0.314	-2.759	-8.586	0.038	0.395	2.072	0.987	11.024	0.707	0.903	0.824
04393	9.969	0.809	0.151	-4.206	-6.233	-0.180	0.436	1.539	1.074	5.267	0.902	0.810	0.834
04411	11.120	0.711	0.300	-2.867	-7.921	0.090	0.618	2.004	1.081	14.735	0.801	0.913	0.812
04445	7.040	0.762	0.247	-3.327	-7.412	-0.105	0.792	1.981	1.024	13.015	0.645	0.866	0.815
04464	8.929	0.743	0.334	-3.288	-8.157	-0.029	0.559	2.180	1.024	9.810	0.681	0.836	0.780
04466	9.599	0.761	0.183	-3.844	-7.024	-0.049	0.443	1.735	1.134	7.794	0.931	0.926	0.811
04480	9.977	0.728	0.285	-2.898	-7.859	-0.003	0.735	1.935	1.032	20.556	0.975	0.983	0.769
04501	6.307	0.748	0.322	-3.060	-7.869	-0.117	0.548	2.226	0.999	8.761	0.988	0.954	0.839
04508	7.607	0.720	0.301	-3.103	-7.166	-0.168	0.490	2.078	1.000	19.834	0.893	0.865	0.862
04548	7.815	0.756	0.305	-3.028	-8.385	-0.141	0.690	2.034	0.941	12.731	0.802	0.951	0.777
04559	9.036	0.735	0.311	-3.040	-8.581	-0.117	0.882	1.905	0.899	14.642	0.995	0.974	0.895
04560	9.857	0.725	0.285	-2.988	-7.691	0.057	0.596	2.019	1.064	20.632	0.284	0.737	0.773
04592	9.706	0.755	0.253	-2.933	-9.385	-0.123	0.697	1.910	0.890	21.511	0.998	0.998	0.932
04605	9.385	0.737	0.271	-2.904	-7.833	0.007	0.827	2.009	1.075	17.821	0.737	0.961	0.758
04625	9.896	0.725	0.243	-3.642	-7.647	0.056	0.383	1.934	1.181	11.486	0.770	0.916	0.791
04642	10.207	0.731	0.256	-3.243	-8.007	-0.124	0.803	2.063	1.057	13.643	0.806	0.990	0.796
04651	9.842	0.726	0.295	-3.374	-7.061	0.009	0.513	2.073	1.139	17.577	0.923	0.999	0.853
04692	10.065	0.724	0.260	-2.864	-7.399	-0.121	0.732	1.950	0.999	30.965	0.858	0.917	0.827
04703	8.587	0.745	0.215	-2.850	-8.760	-0.250	0.348	1.864	0.887	12.488	0.713	0.844	0.875
04704	9.831	0.746	0.238	-2.736	-9.195	-0.503	0.359	2.176	0.853	8.363	0.837	0.980	0.975
04706	9.915	0.767	0.219	-2.705	-9.825	-0.242	0.083	1.954	0.875	7.480	0.966	0.962	0.825
04709	9.348	0.725	0.315	-3.026	-7.521	-0.014	0.541	2.033	1.041	17.583	0.800	0.964	0.841
04745	9.818	0.724	0.252	-3.460	-7.261	-0.062	0.497	2.019	1.138	15.063	0.895	0.939	0.789
04763	9.334	0.741	0.237	-3.174	-7.625	0.038	0.686	1.974	1.074	24.521	0.951	0.954	0.832
04841	9.932	0.733	0.232	-3.794	-6.615	-0.001	0.439	1.927	1.181	6.378	0.826	0.798	0.776
04857	10.085	0.745	0.194	-3.498	-7.145	-0.005	0.462	1.935	1.160	9.623	0.963	0.958	0.780
04887	8.514	0.746	0.288	-2.999	-8.282	-0.228	0.701	2.266	0.941	24.458	0.931	0.994	0.806
04896	9.454	0.767	0.154	-3.916	-6.940	-0.003	0.450	1.682	1.133	7.889	0.992	0.961	0.806
04911	9.713	0.753	0.216	-2.878	-9.454	-0.040	0.284	1.920	0.924	14.876	0.929	0.955	0.914
04928	11.270	0.750	0.307	-2.731	-8.425	-0.143	0.603	2.023	0.940	14.598	0.880	0.991	0.849
04931	10.532	0.740	0.299	-2.832	-8.533	-0.096	0.457	1.967	0.947	14.072	0.930	1.000	0.924
04978	9.338	0.739	0.263	-3.125	-7.647	-0.033	0.670	2.084	1.059	21.090	0.978	0.988	0.831
04997	9.876	0.755	0.239	-3.264	-8.044	0.003	0.715	2.057	1.040	16.170	0.998	0.998	0.804
05009	9.656	0.751	0.238	-3.527	-7.819	0.111	0.456	1.895	1.108	10.684	0.905	0.878	0.803
05014	10.081	0.731	0.211	-3.551	-6.884	-0.033	0.462	1.988	1.151	9.167	0.334	0.812	0.741
05017	7.848	0.759	0.338	-2.929	-8.564	-0.070	0.498	2.099	0.987	8.224	0.627	0.933	0.796
05029	9.968	0.737	0.287	-2.951	-7.923	-0.013	0.496	2.050	0.995	23.970	0.955	0.952	0.881
05046	8.441	0.728	0.297	-3.032	-8.414	-0.090	0.765	1.986	0.937	43.971	0.965	0.991	0.860
05064	11.203	0.711	0.270	-3.074	-6.767	-0.023	0.405	1.973	1.103	10.362	0.827	0.862	0.824
05097	9.473	0.759	0.197	-3.654	-7.701	0.208	0.571	1.871	1.128	12.896	0.972	0.985	0.825
05100	10.611	0.722	0.245	-2.921	-7.685	0.065	0.543	2.021	1.028	51.814	0.836	0.966	0.879
05109	9.797	0.731	0.196	-3.194	-8.045	0.078	0.242	2.132	1.050	5.972	0.874	0.924	0.801
05111	9.528	0.777	0.279	-2.771	-9.331	-0.508	0.578	2.173	0.848	7.921	0.637	0.865	0.901
05133	9.357	0.736	0.278	-3.190	-7.421	-0.042	0.552	1.867	1.070	36.633	0.988	0.975	0.839
05142	9.877	0.746	0.196	-3.461	-8.215	0.144	0.544	1.949	1.095	9.040	0.946	0.968	0.803
05146	9.880	0.723	0.265	-3.273	-7.425	-0.085	0.618	1.993	1.094	13.708	0.871	0.973	0.830
05149	10.288	0.731	0.292	-2.948	-8.276	-0.078	0.731	1.964	1.023	17.391	0.759	0.909	0.761
05158	9.878	0.745	0.303	-3.395	-7.797	-0.078	0.538	2.044	1.027	15.141	0.952	0.989	0.755
05229	8.385	0.740	0.255	-3.016	-8.627	-0.320	0.577	1.963	0.870	12.897	0.734	0.951	0.915
05275	11.864	0.721	0.334	-2.830	-8.608	0.030	0.566	1.911	0.989	22.862	0.883	0.997	0.880
05279	9.837	0.725	0.264	-3.208	-7.361	0.118	0.545	1.955	1.132	59.888	0.474	0.768	0.911

05280	9.715	0.742	0.201	-3.723	-7.223	-0.046	0.493	1.916	1.178	7.877	0.936	0.855	0.783
05300	9.750	0.723	0.344	-2.991	-7.690	-0.020	0.487	2.077	1.022	17.103	0.977	0.974	0.829
05335	9.352	0.739	0.297	-3.140	-7.881	-0.104	0.768	2.129	1.055	15.019	0.977	0.987	0.818
05347	9.519	0.730	0.286	-3.265	-7.194	-0.029	0.499	1.930	1.085	25.075	0.817	0.948	0.874
05349	9.792	0.740	0.273	-3.516	-8.047	0.052	0.459	1.859	1.099	10.635	0.570	0.926	0.849
05371	6.569	0.757	0.272	-3.106	-7.853	-0.225	0.722	2.251	0.966	12.412	0.436	0.771	0.807
05397	9.377	0.748	0.327	-2.898	-8.908	-0.017	0.726	1.983	0.912	19.243	0.971	0.985	0.941
05404	9.386	0.754	0.285	-2.795	-9.220	-0.345	0.456	1.962	0.858	11.033	0.974	0.973	0.992
05424	9.770	0.749	0.293	-3.347	-8.020	-0.081	0.558	2.157	1.035	17.451	0.964	0.984	0.777
05426	9.487	0.743	0.304	-2.920	-8.303	-0.079	0.626	2.220	0.975	17.239	0.480	0.869	0.854
05433	10.056	0.738	0.287	-2.908	-8.071	0.003	0.481	2.042	0.996	17.068	0.853	0.867	0.890
05440	10.087	0.750	0.300	-2.862	-8.799	-0.090	0.638	2.002	0.925	14.804	0.770	0.956	0.829
05480	10.930	0.709	0.281	-3.281	-6.632	0.019	0.473	2.049	1.082	18.050	0.587	0.721	0.834
05490	10.008	0.730	0.289	-3.477	-7.556	-0.144	0.438	2.214	1.123	13.228	0.883	0.934	0.826
05516	9.968	0.795	0.127	-4.407	-6.906	0.106	0.593	1.379	1.088	8.163	0.975	0.991	0.814
05538	9.156	0.749	0.219	-3.011	-9.134	-0.443	0.502	2.121	0.851	8.568	0.857	0.945	0.915
05541	10.209	0.727	0.331	-2.811	-8.029	0.029	0.452	1.912	1.001	18.447	0.959	0.969	0.839
05546	9.773	0.757	0.287	-3.083	-8.470	-0.241	0.688	2.091	0.992	12.489	0.966	0.977	0.739
05562	9.093	0.752	0.301	-2.912	-8.212	-0.293	0.574	1.981	0.920	9.424	0.936	0.999	0.867
05629	10.442	0.759	0.278	-3.125	-8.598	-0.147	0.783	2.073	0.991	13.730	0.999	0.999	0.791
05640	9.980	0.738	0.195	-3.593	-6.397	0.035	0.150	1.865	1.195	6.312	0.728	0.812	0.747
05643	9.566	0.727	0.255	-3.169	-7.989	0.006	0.727	2.027	1.065	12.143	0.710	0.831	0.806
05664	10.367	0.747	0.229	-2.882	-8.178	-0.195	0.548	1.885	0.933	9.028	0.998	0.999	0.884
05676	10.313	0.712	0.322	-3.424	-7.535	-0.043	0.528	2.061	1.124	18.196	0.886	0.958	0.842
05692	11.393	0.694	0.299	-2.844	-8.383	0.066	0.536	1.947	1.058	34.085	0.782	0.963	0.836
05705	10.741	0.735	0.315	-2.759	-8.596	-0.019	0.653	1.942	1.003	14.233	0.982	0.999	0.795
05715	10.427	0.750	0.140	-3.296	-7.394	-0.170	0.397	2.248	1.064	5.850	0.879	0.718	0.919
05717	10.534	0.708	0.282	-3.059	-6.647	-0.167	0.539	1.959	1.050	16.787	0.988	0.982	0.882
05731	9.742	0.735	0.264	-2.897	-9.250	-0.099	0.024	1.820	0.916	8.893	0.974	0.999	0.956
05745	9.809	0.743	0.258	-3.052	-8.327	0.028	0.734	2.043	1.060	10.687	0.722	0.885	0.802
05750	10.175	0.753	0.290	-3.291	-8.128	-0.060	0.579	2.136	1.017	16.338	0.984	0.946	0.762
05779	6.153	0.754	0.318	-3.185	-8.846	-0.122	0.695	2.242	0.935	7.651	0.952	0.982	0.886
05792	-3.233	0.675	0.268	-3.722	-5.313	-0.353	0.600	2.588	0.862	12.362	0.984	0.989	0.961
05797	9.767	0.754	0.257	-3.270	-8.004	0.062	0.676	2.211	1.018	14.382	0.947	0.976	0.774
05800	8.157	0.762	0.210	-3.008	-9.000	0.036	0.492	1.970	0.898	20.179	0.885	0.962	0.943
05822	10.138	0.740	0.223	-3.493	-6.932	0.000	0.310	1.954	1.151	11.648	0.970	0.994	0.793
05825	10.397	0.746	0.272	-3.180	-8.233	-0.079	0.727	2.044	1.019	12.728	0.449	0.803	0.800
05839	10.198	0.759	0.199	-3.616	-6.426	0.064	0.298	1.758	1.144	8.604	0.632	0.811	0.751
05856	9.503	0.781	0.230	-2.812	-10.074	-0.148	0.194	2.064	0.863	9.634	0.814	0.867	0.863
05871	9.057	0.729	0.291	-2.971	-7.709	-0.025	0.569	2.097	0.989	21.633	0.979	0.991	0.826
05906	11.701	0.714	0.297	-2.865	-8.364	0.068	0.583	1.941	0.998	26.793	0.944	0.961	0.821
05930	9.725	0.765	0.123	-4.318	-6.662	0.103	0.512	1.611	1.133	6.901	0.961	0.959	0.820
05941	7.796	0.749	0.225	-2.824	-10.001	-0.295	-0.111	2.001	0.795	8.570	0.676	0.827	0.699
06093	9.958	0.719	0.273	-3.383	-7.580	-0.041	0.408	1.981	1.155	11.439	0.874	0.952	0.784
06105	9.723	0.745	0.185	-3.804	-6.900	-0.017	0.484	1.828	1.172	7.550	0.929	0.937	0.790
06109	9.741	0.754	0.254	-3.486	-8.469	0.196	0.483	1.970	1.068	10.878	0.771	0.841	0.779
06129	8.817	0.732	0.262	-3.287	-8.126	-0.216	0.770	2.130	0.967	20.594	0.938	0.946	0.874
06157	10.466	0.775	0.148	-3.970	-6.490	0.091	0.063	1.703	1.196	6.862	0.915	0.909	0.794
06158	9.209	0.747	0.313	-2.782	-8.511	-0.279	0.628	1.896	0.922	16.595	0.680	0.987	0.842
06159	10.363	0.742	0.195	-3.240	-6.504	-0.106	0.341	1.905	1.134	12.063	0.959	0.993	0.817
06163	9.665	0.743	0.171	-3.841	-6.920	0.017	0.545	1.841	1.181	8.751	0.814	0.913	0.784
06170	10.036	0.738	0.269	-2.988	-8.810	-0.115	0.883	2.151	0.998	10.640	0.927	0.988	0.800
06186	9.949	0.713	0.255	-3.069	-7.372	-0.025	0.696	2.017	1.044	60.000	0.994	0.974	0.850
06197	9.320	0.724	0.290	-3.341	-6.960	-0.005	0.389	1.991	1.090	27.135	0.890	0.890	0.805
06199	9.333	0.746	0.179	-3.504	-7.574	0.033	0.661	1.846	1.093	12.688	0.948	0.957	0.803
06217	11.291	0.724	0.238	-2.948	-7.842	0.033	0.637	1.951	1.018	42.393	0.385	0.889	0.901
06258	10.277	0.750	0.281	-2.723	-9.253	-0.473	0.339	2.003	0.826	8.399	0.989	0.999	0.947
06259	9.632	0.745	0.309	-2.956	-8.247	-0.125	0.625	2.194	0.985	15.944	0.564	0.818	0.788
06260	10.174	0.742	0.323	-2.959	-8.182	-0.073	0.687	2.021	0.989	16.485	0.760	0.899	0.820
06262	10.262	0.720	0.296	-2.851	-7.982	-0.143	0.568	2.159	0.983	14.541	0.775	0.961	0.823
06263	9.929	0.727	0.254	-2.724	-8.993	-0.118	0.187	1.909	0.922	12.599	0.977	0.961	0.923
06264	8.783	0.726	0.286	-3.372	-6.810	-0.128	0.444	2.158	1.098	12.413	0.932	0.950	0.860
06265	10.469	0.738	0.281	-3.164	-8.085	-0.141	0.724	2.082	1.026	13.305	0.869	0.968	0.782
06266	10.236	0.739	0.269	-3.295	-7.960	-0.091	0.593	2.077	1.049	17.192	0.974	0.988	0.814
06272	9.483	0.742	0.295	-3.167	-7.854	-0.009	0.570	1.953	1.066	15.675	0.972	1.000	0.845
06273	10.318	0.729	0.262	-3.170	-8.211	-0.011	0.770	2.063	1.039	14.323	0.834	0.868	0.773
06275	10.182	0.711	0.287	-2.741	-8.351	-0.025	0.491	2.018	0.978	10.284	0.917	0.976	0.916
06305	9.765	0.745	0.212	-3.255	-8.095	0.024	0.742	2.066	1.059	22.132	0.994	0.999	0.861
06310	9.416	0.753	0.091	-3.730	-7.681	0.170	0.598	1.837	1.092	10.160	0.959	0.897	0.868
06312	9.546	0.723	0.329	-3.004	-8.441	-0.066	0.774	1.934	0.991	13.497	0.908	0.992	0.821
06314	10.107	0.759	0.287	-3.208	-8.173	-0.154	0.662	2.269	1.002	10.051	0.861	0.893	0.730
06336	9.918	0.726	0.312	-2.770	-8.317	-0.009	0.611	1.902	1.021	13.401	0.969	0.985	0.806
06337	10.795	0.717	0.259	-3.126	-6.649	-0.070	0.525	2.020	1.075	17.031	0.821	0.927	0.838
06344	10.301	0.711	0.250	-3.177	-7.515	0.206	0.513	1.937	1.104	59.604	0.910	0.864	0.839
06346	9.330	0.754	0.251	-2.887	-8.938	-0.349	0.529	2.082	0.886	10.434	0.835	0.846	0.959
06347	10.230	0.745	0.308	-2.792	-8.507	-0.020	0.500	1.976	1.001	11.613	0.928	0.992	0.799
07075	9.666	0.759	0.261	-2.792	-9.131	-0.370	0.571	1.993	0.860	12.376	0.837	0.981	0.847
07099	10.137	0.730	0.296	-3.552	-7.254	-0.080	0.440	2.144	1.144	17.524	0.983	0.999	0.854
07105	9.038	0.793	0.258	-2.957	-9.204	-0.855	0.429	2.382	0.848	5.345	0.720	0.910	0.749

07106	10.148	0.722	0.265	-3.272	-6.711	0.002	0.585	1.980	1.063	25.295	0.518	0.722	0.811
07187	10.513	0.719	0.312	-2.833	-8.269	0.004	0.577	1.894	1.060	14.091	0.929	0.991	0.838
07298	9.719	0.769	0.193	-3.909	-6.596	-0.172	0.508	1.699	1.122	7.467	0.898	0.849	0.796
07319	9.673	0.750	0.290	-2.780	-9.074	-0.151	0.380	1.927	0.886	11.755	0.996	0.999	0.964
07321	9.932	0.721	0.253	-3.459	-8.149	0.095	0.573	2.144	1.072	49.450	0.900	0.998	0.805
07329	8.994	0.743	0.297	-3.240	-8.133	0.015	0.639	2.169	1.033	12.702	0.729	0.915	0.761
07330	9.862	0.688	0.242	-3.330	-6.472	-0.021	0.709	2.171	1.109	17.326	0.356	0.515	0.787
07331	9.137	0.731	0.275	-2.796	-8.829	-0.159	0.416	1.918	0.907	10.284	0.889	0.951	0.974
07341	11.162	0.710	0.309	-2.841	-8.130	0.120	0.601	1.945	1.060	27.644	0.848	0.973	0.806
07343	6.872	0.743	0.273	-3.227	-8.217	-0.024	0.551	2.142	1.003	11.025	0.966	0.991	0.865
07350	8.660	0.792	0.305	-2.766	-9.450	-0.308	0.808	2.056	0.812	8.168	0.899	0.913	0.903
07351	9.338	0.756	0.229	-3.416	-8.141	0.133	0.529	1.979	1.089	10.984	0.922	0.919	0.760
07364	10.585	0.759	0.242	-3.139	-8.083	-0.144	0.834	2.054	1.009	22.176	0.972	0.958	0.795
07367	9.924	0.728	0.284	-3.405	-6.976	-0.040	0.525	1.980	1.129	29.101	0.957	0.985	0.838
07368	9.506	0.746	0.296	-3.205	-7.919	-0.117	0.614	2.053	1.074	13.505	0.934	0.995	0.807
07369	9.254	0.745	0.326	-2.897	-8.418	-0.133	0.685	1.918	0.936	16.411	0.740	0.981	0.811
07370	8.542	0.744	0.302	-3.013	-8.680	-0.069	0.803	1.934	0.902	26.129	0.830	0.971	0.901
07373	10.439	0.793	0.119	-3.933	-5.875	0.089	0.302	1.521	1.112	7.820	0.564	0.858	0.789
07374	10.571	0.721	0.210	-3.245	-6.497	-0.030	0.447	1.986	1.131	20.473	0.576	0.932	0.845
07389	9.886	0.750	0.279	-3.312	-8.422	0.068	0.693	2.076	1.035	10.414	0.663	0.822	0.749
07394	7.953	0.759	0.306	-2.903	-8.742	-0.148	0.733	2.032	0.902	10.999	0.983	0.999	0.869
07395	9.630	0.745	0.203	-2.833	-9.392	-0.224	0.274	1.957	0.902	12.543	0.981	0.978	0.879
07403	8.278	0.732	0.243	-2.954	-8.721	-0.646	0.514	2.123	0.834	8.577	0.664	0.972	0.984
07412	9.331	0.726	0.285	-2.802	-8.160	0.002	0.606	1.976	1.075	10.650	0.984	0.998	0.811
07419	9.327	0.743	0.308	-3.180	-8.145	-0.001	0.582	2.115	1.034	10.639	0.763	0.908	0.773
07420	9.927	0.752	0.271	-3.324	-7.990	-0.062	0.608	2.092	1.057	20.405	0.881	0.983	0.784
07424	9.284	0.766	0.229	-2.652	-9.592	-0.238	0.174	2.024	0.874	6.152	0.900	0.873	0.854
07427	9.778	0.743	0.205	-3.621	-7.020	-0.057	0.533	1.928	1.177	7.244	0.966	0.924	0.776
07428	8.961	0.749	0.306	-2.921	-8.515	-0.127	0.756	1.904	0.958	16.590	0.988	0.993	0.865
07431	8.792	0.760	0.238	-2.875	-9.031	-0.533	0.586	2.150	0.852	8.105	0.675	0.820	0.968
07432	9.979	0.709	0.306	-3.326	-7.502	-0.045	0.584	2.057	1.107	15.568	0.915	0.982	0.806
13670	11.533	0.713	0.271	-3.200	-6.582	-0.044	0.362	2.074	1.110	7.977	0.992	0.954	0.846
13674	10.815	0.744	0.319	-2.824	-8.447	0.036	0.519	1.904	0.973	16.823	0.743	0.960	0.853
13675	10.415	0.728	0.258	-3.400	-6.941	0.001	0.511	1.961	1.101	59.997	0.934	0.982	0.855
13696	10.739	0.706	0.236	-3.250	-6.639	-0.032	0.625	2.056	1.083	22.645	0.944	0.984	0.854
13711	9.976	0.740	0.288	-3.230	-8.090	-0.014	0.782	2.099	1.025	17.284	0.867	0.946	0.808
13713	8.941	0.725	0.292	-3.014	-7.111	-0.163	0.532	1.997	1.010	14.501	0.939	0.847	0.822

The table shows the estimation of ARMA(1,1) process with the skew Student-t distribution for marginal temperatures and the goodness of fit test for the standardized residuals. The temperatures are taken from the German Meteorological Service. We check the goodness of fit using Kolmogorov-Smirnov test, Anderson-Darling test, Neyman's smooth test of fit. All series passed the test with p-values larger than 0.05.

B   Univariate marginal distribution of stock returns

Stock ID	μ_i	ϕ_i	α_{0i}	α_{1i}	β_i	δ_i	γ_i	ν_i	K-S	AD	Neyman
O:ERS	0.014	-0.010	0.109	-0.107	0.916	0.123	0.931	4.771	0.369	0.511	0.726
O:RAI	0.032	0.037	0.031	-0.080	0.982	0.049	1.004	5.179	0.837	0.897	0.870
O:VAS	0.030	0.023	0.009	-0.055	0.991	0.071	0.968	7.061	0.966	0.983	0.955
O:AND	-0.018	0.025	0.057	-0.120	0.930	0.145	0.951	4.175	0.741	0.951	0.833
O:VERB	0.033	0.015	0.141	-0.087	0.840	0.116	1.023	4.266	0.245	0.571	0.905
O:UNIQ	0.021	0.022	0.043	-0.067	0.946	0.151	1.035	4.290	0.737	0.873	0.855
O:WNST	-0.022	-0.035	0.029	-0.048	0.961	0.128	0.945	5.308	0.991	0.999	0.973
O:CAIM	0.066	-0.086	0.085	-0.143	0.852	0.214	1.044	4.777	0.197	0.385	0.995
O:OES	0.022	-0.033	0.012	-0.064	0.965	0.103	0.973	4.019	0.830	0.956	0.942
O:WNBA	0.052	0.056	0.170	-0.157	0.864	0.210	0.919	4.639	0.593	0.575	0.870
O:SCBL	-0.029	0.083	0.063	-0.035	0.961	0.115	1.004	5.897	0.482	0.672	0.824
O:ZUS	0.051	0.024	0.321	-0.022	0.822	0.224	1.034	4.053	0.525	0.607	0.901
B:ABI	0.003	0.003	0.016	-0.079	0.968	0.153	0.999	5.232	0.979	0.981	0.791
B:KB	-0.006	0.006	0.038	-0.144	0.962	0.167	0.966	6.081	0.809	0.791	0.484
B:GBLN	0.006	0.046	-0.007	-0.206	0.915	0.186	0.907	5.960	0.840	0.878	0.678
B:SOL	0.005	0.035	0.006	-0.070	0.989	0.051	1.013	7.439	0.991	0.998	0.990
B:UCB	0.021	0.012	0.133	-0.095	0.852	0.143	0.973	4.340	0.557	0.893	0.921
B:UMI	0.094	-0.012	0.133	-0.034	0.808	0.239	1.037	4.887	1.000	1.000	0.784
B:AGS	0.015	0.056	0.032	-0.181	0.914	0.159	0.933	4.932	0.896	0.937	0.750
B:PROX	0.009	0.003	0.020	-0.089	0.949	0.159	0.978	4.835	0.994	0.983	0.844
B:TNET	-0.010	0.068	0.051	-0.137	0.876	0.180	1.002	5.545	0.667	0.927	0.655
H:APAM	0.029	0.003	0.013	-0.083	0.993	0.104	1.046	4.320	0.623	0.903	0.596
B:BPOS	0.042	-0.055	0.020	-0.033	0.955	0.148	0.949	3.633	0.476	0.848	0.714
B:ACK	0.041	-0.027	0.014	-0.078	0.967	0.110	0.929	3.614	0.961	0.993	0.776
B:SOF	0.033	-0.120	-0.048	-0.087	0.858	0.258	0.973	5.620	0.807	0.922	0.806
B:BEKB	0.038	0.044	0.169	-0.012	0.842	0.234	0.995	3.743	0.714	0.810	0.995
B:COFN	0.026	-0.066	-0.012	-0.040	0.940	0.142	0.981	5.153	0.987	0.950	0.902
M:NOK1	-0.035	-0.023	0.094	-0.112	0.928	0.077	0.961	3.976	0.891	0.921	0.911

M:SAMA	0.013	0.010	0.002	-0.062	0.988	0.098	0.952	4.511	0.837	0.776	0.712
M:KNEBV	0.026	0.038	0.018	-0.007	0.973	0.193	0.993	4.739	0.796	0.749	0.824
M:FORT	0.010	0.058	0.009	-0.033	0.988	0.063	0.902	3.969	0.955	0.900	0.920
M:NEST	0.113	-0.066	0.173	-0.031	0.857	0.253	0.945	3.533	0.995	0.987	0.835
M:UPM	0.051	0.021	0.136	-0.132	0.879	0.213	0.902	3.615	0.883	0.872	0.904
M:EGR	0.055	0.038	0.010	-0.046	0.991	0.053	0.900	4.868	0.846	0.826	0.947
M:AMEAS	0.031	0.000	0.133	-0.111	0.857	0.190	1.058	3.681	0.822	0.953	0.923
M:ELIS	0.033	-0.026	0.009	-0.049	0.987	0.108	0.952	3.414	0.476	0.697	0.772
M:MEO	-0.030	0.004	0.006	-0.060	0.996	0.028	0.947	4.092	0.814	0.873	0.799
M:NOKT	-0.029	-0.057	0.001	-0.058	0.998	0.066	0.969	4.100	0.924	0.979	0.924
M:CGCB	0.027	0.015	0.089	-0.051	0.938	0.166	0.972	3.352	0.807	0.889	0.680
M:HUIF	0.042	-0.010	0.130	-0.082	0.827	0.246	1.006	4.102	0.934	0.925	0.779
M:KCR1	-0.010	0.030	0.010	-0.044	0.992	0.070	1.035	3.899	0.926	0.954	0.743
M:KEMR	-0.007	0.029	0.002	-0.026	0.997	0.061	0.923	3.151	0.913	0.961	0.890
M:OTE1	-0.031	-0.001	0.004	-0.035	0.998	0.057	0.998	5.191	0.604	0.928	0.807
M:TSON	-0.038	-0.030	0.011	-0.080	0.966	0.137	0.978	5.000	0.608	0.902	0.932
M:NBH	-0.108	0.010	0.771	-2.058	0.867	3.030	0.909	2.010	0.108	0.056	0.194
F:TAL	-0.034	0.010	0.011	-0.109	0.985	0.105	0.884	10.471	0.656	0.837	0.692
F:OR@F	0.037	-0.084	0.004	-0.046	0.988	0.117	1.016	5.588	0.999	1.000	0.980
F:BNP	-0.045	0.045	0.021	-0.070	0.979	0.103	0.969	7.946	0.618	0.738	0.532
F:AIRS	0.030	0.056	0.010	-0.028	0.991	0.059	1.018	5.857	0.962	0.989	0.823
F:MIDI	-0.032	0.022	0.032	-0.133	0.965	0.153	0.912	6.074	0.918	0.834	0.543
F:KER	0.080	-0.044	0.015	-0.079	0.982	0.056	1.071	4.241	0.961	0.976	0.884
F:BSN	0.019	-0.032	0.003	-0.045	0.989	0.068	1.090	5.948	0.958	0.971	0.811
F:DG@F	0.007	-0.035	0.026	-0.170	0.952	0.138	0.994	5.017	0.796	0.837	0.487
F:AIR	0.023	-0.027	0.018	-0.122	0.950	0.171	0.956	6.524	0.882	0.994	0.958
F:QT@F	-0.008	0.001	0.003	-0.082	0.996	-0.032	0.950	5.531	0.937	0.984	0.863
F:CRDA	0.017	0.038	0.033	-0.092	0.973	0.080	1.028	5.027	0.888	0.756	0.743
F:SGE	-0.038	0.047	0.053	-0.093	0.959	0.110	1.014	5.625	0.729	0.952	0.607
F:SGM	0.002	0.019	0.029	-0.096	0.963	0.131	0.994	5.040	0.182	0.210	0.243
F:RCD	0.055	0.015	0.002	-0.035	0.988	0.093	0.969	5.831	0.957	0.983	0.891
F:ENGI	-0.047	0.051	0.026	-0.094	0.965	0.103	0.979	5.054	0.734	0.891	0.700
F:RENU	0.003	0.094	0.016	-0.059	0.987	0.104	0.970	5.969	0.800	0.914	0.774
F:EX@F	-0.000	-0.023	0.048	-0.130	0.928	0.126	1.042	4.094	0.999	0.997	0.875
H:MT	-0.035	-0.006	0.003	-0.052	0.998	0.085	0.990	7.173	0.983	0.983	0.952
F:EI	0.008	0.003	0.007	-0.049	0.990	0.092	0.994	4.449	0.999	1.000	0.801
F:SGO	-0.002	-0.029	0.025	-0.106	0.970	0.125	0.987	5.015	0.881	0.925	0.826
F:MCL	0.027	0.015	0.007	-0.047	0.987	0.067	0.996	9.555	0.701	0.947	0.834
H:UBL	-0.016	-0.008	0.013	-0.084	0.973	0.162	0.934	6.580	0.980	0.997	0.835
F:PGT	0.075	0.021	0.022	-0.041	0.985	0.122	1.070	5.723	0.694	0.688	0.794
F:CAP	0.045	-0.030	0.043	-0.079	0.950	0.108	0.978	5.182	0.787	0.932	0.590
F:CRFR	0.023	0.025	0.001	-0.055	0.995	0.059	0.959	3.891	0.316	0.224	0.145
F:LRRS	0.025	-0.029	0.007	-0.067	0.987	0.096	0.992	4.656	0.617	0.869	0.632
F:SDX	0.017	0.024	0.007	-0.081	0.958	0.146	0.921	6.029	0.992	0.995	0.783
F:AC	0.014	0.060	0.016	-0.080	0.981	0.140	1.018	6.243	0.591	0.700	0.928
F:ENT	0.048	-0.031	0.061	-0.102	0.931	0.187	1.028	3.657	0.993	0.982	0.928
F:PUB	-0.027	0.023	0.001	-0.020	0.998	0.044	0.940	4.793	0.998	0.999	0.845
F:FR	0.054	0.007	0.018	-0.057	0.985	0.100	0.942	6.949	0.993	0.980	0.771
D:SAP	0.037	-0.051	0.013	-0.089	0.964	0.136	0.910	5.277	0.685	0.838	0.965
D:ALV	0.048	0.032	0.010	-0.091	0.967	0.131	0.918	5.687	0.741	0.741	0.942
D:BAYN	-0.002	-0.026	0.017	-0.071	0.979	0.085	0.969	6.096	0.942	0.863	0.892
D:BAS	0.023	0.016	0.009	-0.062	0.984	0.091	0.951	8.168	0.863	0.974	0.970
D:DAI	-0.007	0.061	0.005	-0.050	0.993	0.114	0.919	6.504	0.721	0.909	0.733
D:DTE	-0.025	-0.003	0.005	-0.041	0.991	0.122	0.963	5.770	0.686	0.689	0.509
D:BMW	-0.014	0.057	0.002	-0.046	0.996	0.074	0.978	8.209	0.928	0.992	0.851
D:DPW	0.030	-0.008	0.009	-0.093	0.984	0.051	0.941	5.935	0.772	0.839	0.825
D:CON	-0.002	0.015	0.034	-0.081	0.961	0.209	0.950	6.816	0.914	0.920	0.616
D:ADS	0.057	0.068	0.083	-0.079	0.906	0.076	1.067	3.992	0.989	0.971	0.902
D:DBK	-0.070	0.050	0.010	-0.043	0.993	0.068	0.989	5.388	0.886	0.928	0.897
D:FRE	0.019	-0.044	0.017	-0.074	0.976	0.145	0.960	6.363	0.649	0.909	0.629
D:MUV2	0.026	0.017	0.021	-0.115	0.900	0.214	0.932	4.311	0.898	0.894	0.929
D:IFX	0.101	-0.024	0.083	-0.075	0.926	0.187	0.993	5.026	0.929	0.942	0.922
D:FME	0.060	-0.049	0.006	-0.010	0.988	0.106	1.011	5.716	0.883	0.985	0.909
D:BEI	0.027	-0.102	0.002	-0.014	0.995	0.067	0.994	4.953	0.614	0.918	0.877
D:DB1	0.037	0.007	0.030	-0.074	0.952	0.122	0.965	6.297	0.727	0.998	0.911
D:EOAN	-0.027	0.012	0.022	-0.053	0.980	0.118	0.956	5.635	0.863	0.811	0.952
D:CBK	-0.024	0.056	0.061	-0.084	0.956	0.096	1.035	5.934	0.903	0.896	0.806
D:HEI	0.023	-0.064	0.076	-0.118	0.920	0.135	1.000	5.315	0.966	0.976	0.725
D:VNA	0.079	-0.055	0.007	-0.035	0.989	0.105	0.985	5.968	0.998	0.998	0.907
D:LHA	0.114	0.005	0.247	-0.079	0.804	0.117	1.013	4.571	0.879	0.905	0.755
D:TKA	-0.004	0.005	0.005	-0.056	0.996	0.049	0.964	10.492	0.765	0.773	0.787
D:RWE	-0.000	0.029	0.020	-0.043	0.987	0.103	0.974	5.176	0.917	0.962	0.731
D:MRK	0.042	-0.051	0.010	-0.032	0.985	0.091	0.962	5.673	0.825	0.897	0.986
D:PSM	-0.016	0.043	0.088	-0.090	0.898	0.137	0.948	5.210	0.942	0.934	0.981
D:HEN3	0.033	-0.074	0.002	-0.003	0.994	0.058	1.013	5.585	0.821	0.985	0.972
D:VOW3	-0.009	0.109	0.022	-0.032	0.979	0.189	1.045	5.668	0.977	0.959	0.784
RY4C	0.060	0.004	0.101	-0.127	0.917	0.074	1.050	6.407	0.921	0.865	0.743
KYGA	0.057	0.026	0.014	-0.057	0.961	0.078	1.059	8.278	0.617	0.901	0.970
BIRG	-0.031	0.038	0.027	-0.033	0.984	0.149	0.973	6.498	0.213	0.826	0.747

SK3	0.030	0.038	0.164	-0.118	0.866	0.141	0.971	6.866	0.958	0.986	0.868
PPBI	-0.024	0.060	0.070	-0.078	0.935	0.214	0.993	3.979	0.777	0.769	0.457
KSP	0.084	0.061	0.171	-0.072	0.851	0.220	0.992	4.804	0.692	0.768	0.734
GLB	-0.000	-0.081	0.078	-0.024	0.868	0.278	0.982	5.435	0.994	0.963	0.749
IR5B	0.092	-0.092	0.158	-0.005	0.863	0.268	0.986	6.194	0.451	0.698	0.852
CRGI	0.013	-0.008	0.126	-0.129	0.880	0.177	1.030	7.109	0.682	0.829	0.691
YZA	-0.005	-0.118	0.217	-0.074	0.863	0.152	0.941	4.631	0.852	0.779	0.952
I:A2A	0.032	-0.067	0.037	-0.075	0.964	0.103	0.952	5.571	0.867	0.970	0.819
I:ATL	0.043	-0.058	0.033	-0.122	0.951	0.159	1.023	6.688	0.536	0.790	0.853
I:AZM	-0.046	0.017	0.021	-0.050	0.986	0.104	0.935	6.545	0.775	0.942	0.673
I:BANC	0.011	0.022	0.100	-0.112	0.918	0.181	1.022	5.170	0.843	0.965	0.895
I:BP	-0.130	0.024	0.058	-0.130	0.974	0.122	0.982	7.763	0.614	0.597	0.916
I:BRE	0.077	-0.007	0.115	-0.160	0.892	0.303	1.026	5.688	0.849	0.955	0.680
I:BZU	0.016	-0.002	0.096	-0.111	0.932	0.136	0.984	8.124	0.958	0.955	0.704
I:CPR	0.091	-0.137	0.033	-0.041	0.952	0.122	0.995	25.460	0.215	0.275	0.619
I:CNHI	-0.016	-0.043	0.037	-0.110	0.972	0.131	1.011	7.429	0.921	0.972	0.731
I:ENEL	0.011	-0.122	0.043	-0.166	0.952	0.117	0.944	7.122	0.804	0.914	0.707
I:ENI	-0.043	-0.020	0.016	-0.103	0.978	0.136	0.901	7.620	0.904	0.982	0.926
I:EXOR	0.008	-0.106	0.058	-0.127	0.955	0.149	0.932	5.130	0.707	0.874	0.569
I:FCA	0.111	-0.009	0.164	-0.076	0.909	0.179	0.966	4.679	0.946	0.980	0.808
I:G	-0.042	-0.010	0.017	-0.106	0.981	0.113	1.004	5.370	0.868	0.993	0.775
I:ISP	-0.033	-0.044	0.029	-0.123	0.980	0.167	0.955	6.798	0.486	0.658	0.400
I:LDO	0.044	-0.032	0.205	-0.102	0.864	0.201	0.989	4.922	0.864	0.953	0.781
I:LUX	0.006	-0.094	0.022	-0.059	0.975	0.139	0.989	6.014	0.955	0.951	0.711
I:MS	-0.119	0.047	0.057	-0.044	0.969	0.170	0.926	3.649	0.773	0.739	0.500
I:MB	0.003	0.012	0.018	-0.099	0.986	0.112	0.937	7.499	0.988	0.995	0.847
I:MONC	0.054	-0.028	0.020	-0.042	0.982	0.108	0.997	5.762	0.657	0.673	0.977
I:PRY	0.011	-0.107	0.063	-0.148	0.942	0.129	0.922	9.462	0.957	0.967	0.762
I:REC	0.111	-0.106	0.036	-0.033	0.961	0.153	0.931	6.524	0.895	0.926	0.912
I:SPM	-0.140	0.004	0.069	-0.066	0.965	0.190	0.980	4.751	0.694	0.851	0.992
I:SFER	-0.021	-0.007	0.011	-0.031	0.991	0.058	0.971	5.892	0.821	0.987	0.991
I:SRG	0.008	-0.121	0.098	-0.167	0.830	0.202	0.982	4.706	0.921	0.901	0.806
I:TIT	-0.007	-0.009	0.024	-0.084	0.982	0.108	1.015	8.406	0.992	0.999	0.724
I:TEN	-0.051	-0.027	0.012	-0.047	0.990	0.088	0.955	5.457	0.978	0.995	0.962
I:TRN	0.011	-0.137	0.062	-0.194	0.826	0.166	0.944	7.598	0.910	0.842	0.772
I:UCG	-0.104	-0.017	0.043	-0.130	0.977	0.119	0.985	6.036	0.965	0.955	0.843
I:UNI	-0.050	-0.006	0.043	-0.115	0.973	0.099	1.002	6.259	0.955	0.967	0.648
I:US	-0.031	-0.058	0.039	-0.134	0.964	0.158	0.941	5.680	0.788	0.939	0.996
H:RDSA	-0.004	0.083	0.007	-0.092	0.986	0.116	0.899	5.735	0.961	0.988	0.937
H:UNIL	0.034	-0.035	0.003	-0.069	0.990	0.100	0.985	4.205	0.981	0.974	0.917
H:ASML	0.053	-0.010	0.027	-0.117	0.973	0.075	0.966	4.270	0.587	0.569	0.798
H:INGA	-0.011	0.032	0.016	-0.102	0.984	0.130	1.004	5.857	0.436	0.573	0.503
H:HB	0.039	-0.002	0.002	-0.055	0.993	0.092	0.975	4.752	0.652	0.837	0.903
H:PHIL	0.037	0.061	0.052	-0.080	0.907	0.159	0.964	6.294	0.845	0.864	0.904
H:AD	0.053	0.010	0.112	-0.149	0.807	0.276	1.018	4.196	0.991	0.992	0.852
H:AKZA	0.006	0.001	0.008	-0.054	0.987	0.141	0.961	4.322	0.843	0.945	0.985
H:REN	0.056	0.024	0.004	-0.113	0.966	0.132	0.998	7.025	0.995	0.997	0.955
H:DSM	0.042	0.015	0.048	-0.121	0.916	0.190	0.987	4.215	0.974	0.966	0.914
H:AGN	-0.071	-0.011	0.025	-0.096	0.983	0.079	0.891	3.356	0.975	0.988	0.632
H:WSG	0.053	0.100	0.009	-0.098	0.963	0.141	0.962	6.298	0.874	0.890	0.770
H:KPN	-0.017	0.017	0.042	-0.106	0.950	0.154	0.988	6.735	0.989	0.993	0.717
H:RAND	0.004	0.020	0.012	-0.038	0.988	0.098	0.964	4.451	0.786	0.810	0.872
H:AALB	0.063	0.030	0.016	-0.115	0.943	0.232	0.995	7.293	0.985	1.000	0.843
H:BOSK	-0.022	0.003	0.025	-0.102	0.971	0.091	0.851	3.489	0.965	0.992	0.975
H:SBMO	-0.001	0.014	0.006	-0.062	0.996	0.068	0.958	3.616	0.885	0.860	0.827
H:VPK	0.002	0.054	0.076	-0.006	0.917	0.170	0.957	3.596	0.726	0.832	0.921
P:ECP	-0.011	0.039	0.041	-0.096	0.952	0.089	0.808	5.011	0.745	0.851	0.884
P:GES	-0.000	0.059	0.009	-0.107	0.989	0.114	0.959	9.278	0.933	0.980	0.974
P:EDPR	0.010	-0.001	0.005	-0.068	0.992	0.118	0.936	4.851	0.751	0.677	0.492
P:BCP	-0.091	0.052	0.078	-0.110	0.967	0.236	1.048	4.807	0.954	0.982	0.690
P:NVG	0.040	0.036	0.067	-0.109	0.927	0.208	1.009	5.997	0.902	0.995	0.900
P:CTT	-0.040	-0.014	0.017	-0.009	0.986	0.104	0.930	3.152	0.856	0.930	0.787
P:SEM	0.082	0.004	0.014	-0.054	0.986	0.088	1.076	5.837	0.875	0.796	0.927
P:SON	-0.008	0.022	0.054	-0.101	0.953	0.116	1.018	8.862	0.479	0.732	0.790
P:ALTR	0.074	0.038	0.055	-0.045	0.961	0.165	0.991	5.894	0.970	0.989	0.805
P:EGL	0.003	0.078	0.066	-0.078	0.967	0.150	1.102	4.806	0.831	0.951	0.923
P:PHR	-0.214	0.060	0.273	-0.133	0.902	0.531	1.062	3.265	0.845	0.856	0.659
E:SAN	-0.017	-0.010	0.012	-0.066	0.990	0.049	0.914	5.520	0.880	0.935	0.838
E:IND	0.002	-0.041	0.005	-0.036	0.991	0.091	1.042	7.948	0.806	0.935	0.859
E:BBVA	-0.051	0.032	0.000	-0.068	0.999	-0.023	0.938	5.242	0.814	0.797	0.774
E:TEF	-0.040	0.048	0.013	-0.054	0.981	0.124	0.926	5.431	0.961	0.998	0.871
E:IBE	0.035	0.023	0.005	-0.143	0.939	0.077	0.964	5.696	0.990	0.988	0.860
E:AMS	0.063	-0.015	0.020	-0.076	0.951	0.112	0.915	5.639	0.887	0.910	0.936
E:REP	0.002	0.050	0.002	-0.091	0.996	0.037	0.958	5.624	0.984	0.889	0.894
E:CABK	0.007	0.025	0.032	-0.045	0.976	0.079	0.949	7.716	0.910	0.968	0.947
E:CTG	-0.012	0.055	0.024	-0.096	0.948	0.089	0.889	6.182	0.988	0.996	0.845
E:ACE	0.000	-0.038	0.002	-0.065	0.993	0.059	0.900	4.208	0.874	0.956	0.728
E:ELE	0.046	0.090	0.045	-0.103	0.857	0.221	0.960	4.988	0.950	0.980	0.956
E:BKIA	-0.074	-0.032	0.026	-0.060	0.981	0.093	1.007	6.491	0.346	0.724	0.551

E:FERC	0.035	0.013	0.067	-0.150	0.854	0.144	1.032	6.612	0.833	0.883	0.858
E:BSAB	-0.035	0.043	0.025	-0.077	0.984	0.019	0.979	5.163	0.731	0.826	0.783
E:BKT	0.015	0.002	0.015	-0.051	0.982	0.117	0.942	9.241	0.741	0.941	0.652
E:ACS	0.029	0.003	0.016	-0.091	0.983	0.037	0.947	5.639	0.990	0.987	0.898
E:PROB	0.040	0.012	0.119	-0.106	0.856	0.078	0.975	5.106	0.873	0.991	0.985
E:REE	0.050	-0.025	0.054	-0.137	0.820	0.205	0.960	4.623	0.888	0.778	0.934
E:GAM	0.034	-0.029	0.098	-0.130	0.940	0.240	0.985	4.490	0.999	0.997	0.889
E:MAP	-0.036	0.002	0.009	-0.046	0.990	0.074	0.883	6.706	0.715	0.875	0.824
E:ANA	0.000	-0.004	0.019	-0.088	0.981	0.144	0.961	4.377	0.921	0.952	0.697
E:ACX	0.029	0.092	0.010	-0.060	0.992	0.070	1.061	6.860	0.995	0.990	0.997
E:DIA	-0.064	0.072	0.021	-0.062	0.981	0.089	0.956	5.162	0.899	0.990	0.934
E:COL	0.067	-0.020	0.031	-0.047	0.971	0.261	1.023	4.815	0.691	0.965	0.976
E:TL5	-0.010	-0.020	0.005	-0.026	0.995	0.043	0.960	4.863	0.721	0.938	0.854
E:MEL	0.009	-0.010	0.050	-0.073	0.938	0.144	0.931	7.966	0.980	0.978	0.904
E:IDR	-0.041	0.013	0.005	-0.044	0.996	0.029	0.986	4.060	0.998	0.992	0.929
E:VIS	0.025	-0.064	0.050	-0.060	0.860	0.184	0.957	4.794	0.850	0.911	0.930
E:TECN	-0.027	-0.003	0.012	-0.063	0.989	0.058	0.981	4.106	0.933	0.931	0.939
E:IAG	0.057	-0.039	0.127	-0.081	0.914	0.154	0.929	7.062	0.962	0.991	0.991

The table shows the estimation of $AR(1) - EGARCH(1,1)$ - skew Student-t distribution for marginal returns and the goodness of fit test for the standardized residuals. The stock returns are taken from Datastream. We check the goodness of fit using Kolmogorov-Smirnov test, Anderson-Darling test, Neyman's smooth test of fit. All series passed the test with p-values larger than 0.05.

References

T. Datastream. Thomson reuters datastream. *In Constituents of the S&P 500*, (Retrieved: March 2018 from Datastream database).