

Financial crises and the asymmetric relation between returns on banks, risk factors, and other industry portfolio returns

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Appendix Table 1. Banking industry portfolio structure - Kenneth French gives the following description: We assign each NYSE, AMEX, and NASDAQ stock to an industry portfolio at the end of June of year t based on its four-digit SIC code at that time. However, we use not only CRSP, but also Compustat as a source of SIC codes. We use Compustat SIC codes (for the fiscal year ending in calendar year $t-1$) whenever available. Otherwise, we use CRSP SIC codes (for June of year t).

Banking

6000-6000 Depository institutions	6010-6019 Federal reserve banks
6020-6020 Commercial banks	6021-6021 National commercial banks
6022-6022 State banks - Fed Res System	6023-6024 State banks - not Fed Res System
6025-6025 National banks - Fed Res System	6026-6026 National banks - not Fed Res System
6027-6027 National banks, not FDIC	6028-6029 Banks
6030-6036 Savings institution	6040-6059 Banks (Other)
6060-6062 Credit unions	6080-6082 Foreign banks
6090-6099 Functions related to deposit banking	6100-6100 Non-depository credit institutions
6110-6111 Federal credit agencies	6112-6113 FNMA
6120-6129 S&Ls	6130-6139 Agricultural credit institutions
6140-6149 Personal credit institutions	6150-6159 Business credit institutions
6160-6169 Mortgage bankers	6170-6179 Finance lessors
6190-6199 Financial services	

Appendix List

List of the included industry portfolios with abbreviations used in the text

Aircraft (aero)
Agriculture (agric)
Automobiles and Trucks (autos)
Banking (banks)
Beer & Liquor (beer)
Construction Materials (bldmt)
Printing and Publishing (books)
Shipping Containers (boxes)
Business Services (bussv)
Chemicals (chems)
Electronic Equipment (chips)
Apparel (clths)
Construction (cnstr)
Coal (coal)
Computers (comps)
Pharmaceutical Products (drugs)
Electrical Equipment (elceq)
Fabricated Products (fabpr)
Financial Trading (fin)
Food Products (food)
Entertainment (fun)
Precious Metals (gold)
Defense (guns)
Healthcare (hlth)
Consumer Goods (hshld)
Insurance (insur)
Measuring and Control Equipment (labeq)
Machinery (Mach)
Restaurants, Hotels, Motels (meals)
Medical Equipment (medeq)
Non-Metallic and Industrial Metal Mining (mines)
Petroleum and Natural Gas (oil)
Almost Nothing (other)
Business Supplies (paper)
Personal Services (persv)
Real Estate (rlest)
Retail (rtail)
Rubber and Plastic Products (rubbr)
Shipbuilding, Railroad Equipment (ships)
Tobacco Products (smoke)
Candy & Soda (soda)
Steel Works Etc (steel)
Communication (telcm)
Recreation (toys)
Transportation (trans)
Textiles (txtls)
Utilities (util)
Wholesale (whlsl)

Source: http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/changes_ind.html

Appendix Table 2. Descriptive statistics for the return distribution of 566 monthly returns on 48 US industry portfolios over the total sample period from January 1970 to February 2017

	Mean	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob.
aero	1.23	25.33	-30.23	6.68	-0.38	5.00	107.19	0.00
agric	0.99	28.88	-28.79	6.47	0.00	4.79	75.48	0.00
autos	0.87	49.57	-36.41	7.03	0.21	8.74	781.87	0.00
banks	1.00	25.03	-27.25	6.12	-0.30	5.07	109.86	0.00
beer	1.14	26.09	-19.76	5.28	-0.05	5.46	143.29	0.00
bldmt	1.03	35.51	-30.67	6.29	-0.04	7.01	380.09	0.00
books	0.90	30.74	-25.19	5.92	0.03	5.13	107.37	0.00
boxes	1.01	20.87	-28.24	5.80	-0.42	4.92	103.74	0.00
bussv	1.08	25.43	-27.54	6.61	-0.17	4.33	44.34	0.00
chems	1.06	22.05	-28.00	5.73	-0.15	5.24	119.87	0.00
chips	1.05	27.27	-32.23	7.62	-0.38	4.63	76.41	0.00
clths	1.08	32.37	-30.90	6.66	-0.04	5.51	149.24	0.00
cnstr	0.88	24.01	-31.10	7.27	-0.12	3.94	22.14	0.00
coal	1.02	46.06	-37.94	10.97	0.18	4.63	65.81	0.00
comps	0.87	24.24	-32.36	7.19	-0.17	4.60	63.05	0.00
drugs	1.07	31.80	-19.11	5.09	0.15	5.73	177.66	0.00
elceq	1.16	23.22	-32.20	6.35	-0.22	4.71	73.41	0.00
fabpr	0.72	30.38	-26.67	7.35	-0.13	4.28	40.49	0.00
fin	1.12	19.56	-25.91	6.30	-0.46	4.29	58.99	0.00
food	1.14	19.59	-17.88	4.51	0.12	5.13	108.41	0.00
fun	1.30	38.77	-31.86	7.80	-0.23	6.04	222.61	0.00
gold	0.96	78.68	-33.57	10.97	0.77	7.52	537.24	0.00
guns	1.33	32.64	-30.08	6.56	-0.20	5.41	140.87	0.00
hlth	0.98	36.47	-39.11	8.17	-0.06	5.69	170.93	0.00
hshld	0.86	18.54	-21.64	4.73	-0.29	4.99	101.60	0.00
insur	1.07	26.84	-26.46	5.57	-0.29	5.19	121.36	0.00
labeq	1.00	22.04	-30.15	7.25	-0.18	4.20	37.09	0.00
mach	1.00	23.05	-31.19	6.40	-0.41	5.37	147.72	0.00
meals	1.05	27.88	-31.28	6.10	-0.56	5.89	226.18	0.00
medeq	0.99	21.03	-20.56	5.31	-0.37	4.39	58.85	0.00
mines	1.04	26.91	-34.75	7.68	-0.32	4.83	88.28	0.00
oil	1.06	24.66	-18.21	5.60	0.07	4.13	30.45	0.00
other	0.55	21.19	-26.37	6.86	-0.46	4.54	75.28	0.00
paper	1.01	24.27	-26.35	5.59	0.10	5.36	132.24	0.00
persv	0.61	24.47	-28.25	6.77	-0.29	4.60	67.78	0.00
rlest	0.54	59.60	-37.73	7.63	0.60	12.61	2213.44	0.00
rtail	1.06	27.07	-29.17	5.55	-0.19	5.16	113.29	0.00
rubbr	1.05	31.95	-30.57	6.04	-0.25	5.98	215.67	0.00
ships	1.12	29.15	-32.27	7.43	-0.01	4.50	52.82	0.00
smoke	1.49	32.47	-24.93	6.22	-0.11	5.64	165.86	0.00
soda	1.11	38.27	-26.26	6.59	0.15	6.98	375.25	0.00
steel	0.78	30.67	-32.91	7.66	-0.21	5.06	104.45	0.00
telcm	0.98	21.34	-16.22	4.76	-0.25	4.21	40.29	0.00
toys	0.81	26.88	-34.41	7.09	-0.24	4.51	59.27	0.00
trans	1.01	19.02	-27.90	5.83	-0.24	4.32	46.42	0.00
txtls	1.04	59.04	-32.51	7.36	0.51	12.48	2143.42	0.00
util	0.93	18.84	-12.65	4.10	-0.14	4.06	28.60	0.00
whlsl	0.97	18.12	-28.64	5.50	-0.35	5.65	176.91	0.00

Appendix Table 3. Descriptive statistics for the return distribution of 566 monthly returns on six risk factors over the total sample period from January 1970 to February 2017

	Mean	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque- Bera	Prob.
Market	0.54	16.10	-23.24	4.55	-0.54	4.89	112.37	0.00
Size	0.19	18.73	-15.28	3.06	0.42	6.87	369.26	0.00
Value	0.39	12.91	-11.25	2.92	0.05	5.01	95.68	0.00
Momentum	0.63	18.38	-34.58	4.39	-1.34	13.20	2624.40	0.00
Investment	0.35	9.55	-6.88	2.00	0.33	4.67	76.46	0.00
Profitability	0.27	13.52	-19.11	2.31	-0.39	16.06	4035.88	0.00

Appendix Table 4. Partial autocorrelation coefficients for 566 monthly returns on 48 US industry portfolios for the total sample January 1970 to February 2017, and for two subsamples (79 returns), before and after the Dodd-Frank Act. Bold values are significant for levels of 10% or lower.

	Total sample		January2004- July2010		August2010- February2017	
	lag 1	lag 2	lag 1	lag 2	lag 1	lag 2
aero	0.141	-0.057	0.084	-0.038	-0.050	0.081
agric	0.015	-0.026	-0.064	0.036	-0.236	-0.124
autos	0.117	-0.064	0.054	-0.158	-0.052	0.042
banks	0.114	-0.053	0.314	-0.206	-0.037	-0.028
beer	0.025	-0.032	0.073	-0.177	-0.169	-0.098
bldmt	0.086	-0.086	0.026	0.016	-0.174	0.052
books	0.179	-0.038	-0.052	-0.145	-0.220	-0.049
boxes	0.029	-0.039	0.098	-0.060	-0.086	-0.018
bussv	0.072	-0.039	-0.038	-0.067	-0.240	-0.098
chems	0.024	-0.052	-0.040	-0.099	-0.116	-0.072
chips	0.054	0.008	-0.018	0.000	-0.070	0.064
clths	0.169	-0.049	0.115	-0.221	-0.157	-0.040
cnstr	0.121	-0.040	0.111	-0.066	-0.107	0.030
coal	0.045	0.119	0.022	0.126	-0.004	0.190
drugs	-0.031	0.017	-0.101	0.060	-0.114	0.010
comps	0.054	0.004	0.009	0.015	-0.165	-0.038
elceq	0.022	-0.045	-0.037	-0.080	-0.041	0.125
fabpr	0.100	-0.011	0.070	-0.039	-0.009	0.064
fin	0.162	-0.081	0.057	-0.195	-0.029	0.022
food	0.049	-0.007	0.058	0.055	-0.224	0.039
fun	0.169	-0.053	0.113	-0.091	-0.068	-0.017
gold	-0.035	-0.054	-0.205	-0.161	-0.005	0.092
guns	0.049	-0.114	0.166	-0.199	0.007	0.046
hlth	0.167	0.013	0.128	-0.059	0.079	0.059
hshld	0.078	-0.018	-0.003	0.020	-0.068	-0.127
insur	0.119	-0.103	-0.087	0.050	-0.147	0.004
labeq	0.097	-0.039	0.093	-0.042	0.029	0.075
mach	0.081	-0.033	0.102	-0.079	-0.118	0.089
meals	0.145	-0.016	0.161	-0.058	-0.098	-0.095
medeq	0.071	-0.005	0.055	-0.024	-0.118	0.000
mines	0.033	0.034	0.128	0.058	-0.142	0.129
oil	-0.016	-0.030	-0.074	-0.081	0.052	0.082
other	0.120	-0.041	-0.011	-0.071	-0.174	-0.002
paper	0.017	-0.071	-0.081	-0.008	-0.062	0.025
persv	0.103	-0.036	0.256	-0.210	-0.228	0.172
rlest	0.211	-0.083	0.445	-0.076	0.002	-0.005
rtail	0.145	-0.069	0.110	-0.168	-0.219	0.018
rubbr	0.097	-0.022	-0.007	0.055	-0.153	0.107
ships	0.062	-0.070	0.063	0.037	-0.065	0.017
smoke	0.031	-0.001	0.084	0.025	-0.276	-0.105
soda	0.039	-0.074	-0.041	-0.233	-0.181	0.046
steel	0.036	-0.024	-0.014	-0.018	-0.034	0.071
telcm	0.046	-0.034	0.064	-0.010	-0.099	0.032
toys	0.078	-0.060	-0.021	-0.195	-0.198	-0.143
trans	0.090	-0.071	0.082	-0.170	-0.020	0.032
txtls	0.174	-0.160	0.302	-0.172	-0.065	0.107
util	0.049	-0.076	0.037	-0.079	-0.223	0.007
whlsl	0.140	-0.028	0.115	0.000	-0.102	-0.005

Appendix Table 5. Partial autocorrelation coefficients for 566 monthly returns on six risk factors for the total sample from January 1970 to February 2017, and for two subsamples (79 returns), before and after the Dodd-Frank Act. Significant values are indicated with bold for levels of 10% or lower.

	Total sample		January2004- July2010		August2010- February2017	
	lag 1	lag 2	lag 1	lag 2	lag 1	lag 2
Market	0.084	-0.046	0.380	-0.238	-0.147	0.003
Size	0.030	0.041	-0.066	-0.010	-0.273	-0.019
Value	0.166	0.011	0.328	-0.209	0.220	-0.042
Momentum	0.070	-0.058	0.308	-0.177	-0.029	0.040
Investment	0.133	0.026	0.146	0.112	0.147	0.045
Profitability	0.146	0.010	0.147	0.026	0.164	-0.089

Appendix Table 6. Benchmark OLS regression estimates of $r_t^{ind} = \beta_0 + \beta_1 r_{t-1}^{ind} + \beta_2 r_{t-1}^{banks} + \varepsilon_t^{ind}$ total sample (566 returns) from January 1970 to February 2017, and for two subsamples (79 returns), before and after the Dodd-Frank Act. Significant values are indicated with bold for levels of 10% or lower.

	Total sample		January2004- July2010		August2010- February2017	
	β_1	β_2	β_1	β_2	β_1	β_2
aero	0.066	0.111	-0.153	0.410	0.094	-0.177
agric	-0.033	0.101	0.236	-0.089	-0.295	0.211
autos	0.024	0.148	0.019	0.333	0.202	-0.438
beer	-0.023	0.071	-0.177	0.077	-0.113	-0.092
bldmt	-0.079	0.215	-0.070	0.357	-0.177	-0.012
books	0.134	0.051	0.211	0.196	-0.158	-0.071
boxes	-0.003	0.043	0.033	0.097	-0.093	0.011
bussv	0.035	0.058	0.182	0.080	-0.127	-0.098
chems	-0.016	0.052	0.219	0.073	0.018	-0.184
chips	0.013	0.086	0.067	0.105	0.080	-0.223
clths	0.153	0.012	-0.041	0.338	-0.059	-0.194
cnstr	0.020	0.172	0.028	0.226	-0.072	-0.061
coal	0.049	0.004	0.171	0.497	0.031	-0.233
drugs	-0.058	0.035	-0.036	0.037	-0.074	-0.057
comps	0.020	0.078	0.082	0.208	0.025	-0.265
elceq	-0.070	0.136	-0.055	0.264	-0.010	-0.062
fabpr	0.007	0.206	0.034	0.343	0.038	-0.134
fin	0.126	0.026	0.494	-0.177	0.057	-0.101
food	0.013	0.041	-0.134	0.194	-0.239	0.011
fun	0.105	0.107	0.026	0.491	-0.026	-0.094
gold	-0.029	-0.082	-0.152	-0.213	-0.043	-0.552
guns	-0.015	0.125	-0.195	0.341	0.042	-0.051
hlth	0.118	0.138	0.032	0.246	0.185	-0.170
hshld	-0.010	0.101	-0.054	0.178	-0.017	-0.051
insur	0.088	0.016	0.145	0.109	-0.199	0.047
labeq	0.042	0.109	0.087	0.207	0.130	-0.134
mach	0.019	0.092	0.144	0.164	-0.073	-0.098
meals	0.104	0.052	-0.100	0.193	0.051	-0.152
medeq	0.014	0.074	0.078	0.173	-0.080	-0.051
mines	-0.007	0.104	0.063	0.170	-0.091	-0.231
oil	-0.044	0.052	-0.103	0.291	0.140	-0.147
other	0.072	0.075	-0.006	0.290	-0.107	-0.073
paper	-0.102	0.156	-0.028	0.291	0.079	-0.157
persv	0.059	0.072	-0.150	0.207	-0.209	-0.124
rlest	0.056	0.267	-0.077	0.707	0.125	-0.196
rtail	0.144	-0.013	0.154	0.001	-0.112	-0.123
rubbr	-0.063	0.235	-0.143	0.466	-0.184	0.011
ships	-0.002	0.123	-0.090	0.485	0.077	-0.308
smoke	0.017	0.036	-0.154	0.203	-0.225	-0.102
soda	0.021	0.029	0.082	0.120	-0.186	-0.013
steel	-0.042	0.172	0.075	0.372	0.141	-0.355
telcm	0.015	0.037	0.051	0.151	-0.007	-0.109
toys	-0.015	0.168	0.082	0.134	-0.057	-0.217
trans	0.015	0.088	-0.064	0.222	0.252	-0.341
txtls	0.048	0.191	-0.215	0.786	0.031	-0.173
util	0.033	0.011	0.163	0.148	-0.219	-0.041
whlsl	0.075	0.080	0.105	0.184	-0.018	-0.087

Appendix Table 7. Benchmark OLS regression estimates of $r_t^{ind} = \beta_0 + \beta_1 r_{t-1}^{ind} + \beta_2 r_{t-1}^{banks} + \varepsilon_t^{ind}$ total sample (566 returns) from January 1970 to February 2017, and for two subsamples (79 returns), before and after the Dodd-Frank Act. Significant values are indicated with bold for levels of 10% or lower.

	Total sample		January2004- July2010		August2010- February2017	
	β_1	β_2	β_1	β_2	β_1	β_2
Market	-0.003	0.074	0.170	0.108	-0.026	-0.099
Size	-0.002	0.122	-0.148	0.092	-0.306	0.036
Value	0.166	0.021	0.197	0.039	0.196	0.016
Momentum	0.038	-0.074	0.204	-0.078	0.019	0.088
Investment	0.150	0.017	0.166	0.003	0.150	0.008
Profitability	0.143	-0.023	0.123	-0.014	0.087	-0.034

Appendix Table 8. Quantile regression autocorrelation coefficient $\beta_1(\tau)$ estimates of $r_t^{ind} = \beta_0(\tau) + \beta_1(\tau)r_{t-1}^{ind} + \beta_2(\tau)r_{t-1}^{banks} + \varepsilon_t^{ind}$. Based on 566 monthly returns over the period from January 1970 to February 2017. Significant autocorrelations are indicated in boldface for significance levels of 10% or lower.

τ	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
aero	0.134	0.061	0.057	0.056	0.033	-0.006	0.007	-0.014	0.107
agric	0.042	0.015	0.021	0.003	0.022	-0.049	-0.117	-0.128	-0.139
autos	0.078	-0.012	0.023	0.038	0.042	0.014	-0.069	-0.142	-0.158
beer	0.113	-0.034	-0.055	-0.080	-0.055	-0.012	-0.019	-0.007	-0.126
blfmt	-0.047	0.041	0.007	-0.045	-0.043	-0.095	-0.088	-0.120	-0.307
books	0.150	0.205	0.163	0.106	0.134	0.092	0.092	0.095	0.033
boxes	0.119	0.105	0.033	0.031	0.068	0.005	-0.048	-0.132	-0.198
bussv	0.089	0.143	0.134	0.114	-0.017	-0.032	-0.028	-0.057	-0.153
chems	0.144	0.040	0.031	0.005	-0.022	-0.133	-0.163	-0.219	-0.187
chips	0.027	0.130	0.064	0.013	0.028	0.043	-0.027	-0.046	-0.071
clths	0.314	0.234	0.198	0.165	0.110	0.058	0.047	-0.022	0.010
cnstr	0.040	0.015	0.020	-0.025	-0.046	-0.003	0.026	0.033	0.115
coal	0.134	0.013	0.015	-0.075	-0.088	-0.100	-0.043	-0.011	0.130
comps	0.138	0.090	0.039	-0.041	-0.022	-0.071	-0.018	-0.037	-0.097
drugs	0.144	0.018	0.046	0.028	-0.022	-0.091	-0.135	-0.200	-0.219
elceq	-0.013	-0.045	0.002	0.003	-0.019	-0.097	-0.172	-0.203	-0.226
fabpr	0.016	0.059	0.053	0.112	0.096	0.020	-0.013	-0.079	-0.067
fin	0.194	0.273	0.299	0.203	0.112	0.087	-0.001	0.016	0.009
food	0.209	0.087	0.017	0.025	0.063	0.011	-0.042	-0.100	-0.194
fun	0.135	0.036	0.088	0.075	0.110	0.087	0.097	0.074	0.074
gold	-0.003	0.001	-0.018	-0.057	-0.061	-0.035	-0.030	0.021	-0.004
guns	0.066	0.034	-0.029	-0.001	-0.040	-0.067	-0.067	-0.085	-0.119
hlth	0.231	0.163	0.198	0.211	0.110	0.095	0.089	0.063	0.028
hshld	0.240	0.136	0.058	0.032	-0.001	0.004	-0.040	-0.086	-0.204
insur	0.178	0.092	0.083	0.144	0.076	0.015	-0.019	-0.092	-0.083
labeq	0.274	0.126	0.107	0.142	0.053	-0.017	-0.032	-0.158	-0.114
mach	0.180	0.138	0.127	0.099	0.065	-0.014	-0.092	-0.187	-0.258
meals	0.225	0.118	0.107	0.104	0.077	0.065	0.013	0.081	0.131
medeq	0.064	0.149	0.110	0.040	0.029	-0.053	-0.056	-0.114	-0.148
mines	0.051	-0.010	-0.056	-0.025	-0.039	0.000	0.030	-0.020	-0.085
oil	-0.023	0.009	-0.004	-0.002	-0.033	-0.115	-0.152	-0.095	-0.142
other	0.098	0.176	0.167	0.131	0.079	0.042	0.030	-0.044	-0.116
paper	-0.053	-0.111	-0.117	-0.085	-0.095	-0.056	-0.065	-0.066	-0.179
persv	0.149	0.108	0.130	0.066	0.096	0.006	-0.055	-0.089	-0.244
rlest	0.086	0.082	0.101	0.125	0.176	0.104	0.085	-0.024	-0.110
rtail	0.186	0.153	0.137	0.127	0.119	0.085	0.081	0.002	0.119
rubbr	0.028	-0.047	-0.008	-0.040	-0.037	-0.070	-0.166	-0.148	-0.107
ships	0.115	0.105	0.128	0.089	0.058	-0.007	-0.081	-0.086	-0.189
smoke	0.023	-0.016	0.051	-0.013	0.021	0.013	0.030	0.035	0.026
soda	-0.021	-0.078	-0.086	0.015	0.058	0.059	0.068	0.073	0.004
steel	0.110	0.038	-0.047	-0.131	-0.127	-0.148	-0.109	-0.163	-0.076
telcm	-0.086	-0.057	-0.060	0.039	0.110	0.152	0.097	0.050	0.045
toys	0.008	0.006	0.051	-0.044	-0.010	0.006	0.050	-0.020	-0.146
trans	0.109	0.064	0.137	0.039	0.040	-0.029	-0.010	-0.111	-0.236
txtls	0.152	0.136	0.151	0.047	0.035	-0.017	-0.030	-0.101	-0.038
util	-0.068	0.034	0.005	0.034	-0.017	0.032	0.079	0.107	0.094
whlsl	0.154	0.203	0.165	0.120	0.077	-0.008	-0.013	0.008	-0.153

Appendix Table 9. Quantile regression autocorrelation coefficient $\beta_1(\tau)$ estimates of $r_t^{ind} = \beta_0(\tau) + \beta_1(\tau)r_{t-1}^{ind} + \beta_2(\tau)r_{t-1}^{banks} + \varepsilon_t^{ind}$. Based on 79 monthly returns over the period from January 2004 to July 2010. Significant autocorrelations are indicated in boldface for significance levels of 10% or lower.

τ	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
aero	0.290	0.054	-0.023	-0.200	-0.273	-0.306	-0.434	-0.534	-0.784
agric	0.475	0.421	0.338	0.242	0.057	0.049	0.195	0.218	0.012
autos	0.093	-0.081	-0.091	-0.156	-0.015	0.011	-0.048	-0.120	-0.169
beer	0.079	-0.257	-0.185	-0.191	-0.232	-0.082	-0.056	-0.034	-0.233
blfmt	-0.188	-0.368	-0.132	-0.087	-0.021	0.008	-0.050	0.059	-0.173
books	0.093	0.086	0.165	0.285	0.231	0.189	0.151	0.084	-0.067
boxes	-0.051	-0.033	-0.130	-0.191	-0.027	-0.003	-0.082	-0.056	-0.057
bussv	0.004	0.119	0.071	0.145	0.019	0.028	0.141	0.194	0.163
chems	0.600	0.286	0.083	0.028	-0.124	-0.097	-0.110	-0.214	-0.751
chips	0.463	0.326	0.110	-0.065	-0.158	-0.158	-0.236	-0.284	-0.227
clths	0.189	0.122	-0.114	-0.229	-0.237	-0.218	-0.156	-0.160	-0.138
cnstr	0.023	-0.185	-0.201	-0.055	-0.088	-0.105	-0.034	0.130	0.173
coal	0.193	0.199	0.118	-0.012	0.045	0.018	0.147	0.319	0.112
comps	0.015	0.186	0.009	0.076	0.139	0.094	0.129	0.012	0.031
drugs	-0.087	0.047	0.088	0.107	-0.010	-0.115	-0.062	-0.208	-0.398
elceq	-0.226	-0.153	-0.131	-0.067	-0.101	-0.411	-0.311	-0.355	-0.144
fabpr	0.143	-0.020	-0.010	-0.042	0.133	-0.093	-0.158	-0.259	-0.227
fin	0.644	0.813	0.536	0.345	0.219	0.244	0.247	0.166	0.458
food	-0.212	-0.131	-0.163	-0.218	-0.166	-0.128	-0.058	-0.036	0.085
fun	0.011	0.026	-0.099	-0.046	-0.082	-0.053	-0.121	-0.204	-0.620
gold	-0.047	-0.209	-0.329	-0.245	-0.332	-0.290	-0.150	-0.299	0.078
guns	-0.231	-0.121	-0.003	-0.046	-0.040	-0.378	-0.460	-0.319	-0.557
hlth	0.166	0.165	-0.064	-0.169	-0.257	-0.224	-0.192	-0.248	-0.247
hshld	-0.048	-0.123	-0.079	0.009	-0.037	-0.103	-0.212	-0.235	-0.049
insur	0.234	-0.116	-0.003	0.064	0.207	0.250	0.239	0.023	-0.227
labeq	0.081	0.067	0.108	-0.039	-0.025	-0.027	-0.122	-0.338	-0.279
mach	0.315	0.013	0.096	0.010	-0.096	-0.201	-0.305	-0.307	-0.657
meals	-0.148	-0.263	-0.261	-0.055	-0.095	-0.052	-0.147	0.041	0.096
medeq	0.477	0.119	-0.051	0.070	-0.046	-0.262	-0.389	-0.247	-0.206
mines	0.552	0.103	-0.068	-0.091	-0.116	-0.204	-0.256	-0.115	-0.177
oil	-0.173	-0.032	-0.083	-0.201	-0.159	-0.164	-0.254	-0.153	-0.215
other	-0.085	0.086	0.233	0.308	0.169	-0.026	-0.343	-0.653	-0.518
paper	0.056	-0.246	-0.221	-0.188	-0.079	0.037	0.028	0.062	0.062
persv	0.025	-0.048	0.038	-0.044	-0.021	-0.140	-0.274	-0.207	-0.417
rlest	-0.041	-0.027	-0.078	-0.134	-0.045	-0.157	-0.296	-0.300	-0.364
rtail	-0.110	0.047	0.027	0.015	0.096	0.208	0.080	0.244	0.080
rubbr	-0.068	-0.108	-0.304	-0.220	-0.045	0.043	-0.080	-0.219	-0.121
ships	-0.078	-0.050	-0.088	-0.263	-0.296	-0.227	-0.127	-0.256	-0.255
smoke	0.089	-0.316	-0.432	-0.357	-0.371	-0.242	-0.160	-0.077	0.006
soda	0.080	-0.020	-0.002	-0.008	-0.026	0.073	0.122	0.156	0.077
steel	0.215	0.237	-0.002	-0.135	-0.209	-0.303	-0.319	-0.301	-0.263
telcm	-0.014	-0.204	-0.204	-0.191	-0.045	0.048	0.149	0.098	0.079
toys	-0.079	0.134	0.337	0.235	0.029	-0.093	0.026	0.099	-0.014
trans	-0.031	-0.177	-0.149	-0.038	-0.063	-0.029	0.004	-0.030	-0.196
txtls	-0.262	-0.332	-0.316	-0.355	-0.384	-0.354	-0.340	-0.252	-0.365
util	0.595	0.309	0.301	0.200	0.221	0.163	0.044	0.183	0.146
whlsl	0.084	0.175	0.055	0.023	-0.079	-0.303	-0.271	-0.091	-0.094

Appendix Table 10. Quantile regression autocorrelation coefficient $\beta_1(\tau)$ estimates of $r_t^{ind} = \beta_0(\tau) + \beta_1(\tau)r_{t-1}^{ind} + \beta_2(\tau)r_{t-1}^{banks} + \varepsilon_t^{ind}$. Based on 79 monthly returns over the period from August 2010 to February 2017. Significant autocorrelations are indicated in boldface for significance levels of 10% or lower.

τ	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
aero	0.108	0.150	0.088	-0.073	0.114	0.164	0.172	0.088	0.016
agric	-0.256	-0.164	-0.257	-0.208	-0.123	-0.091	-0.132	-0.220	-0.358
autos	-0.289	0.440	0.309	0.149	0.104	0.190	0.248	0.321	0.033
beer	-0.543	-0.386	-0.233	-0.062	-0.092	-0.064	-0.144	-0.196	0.002
blfmt	0.015	0.211	0.248	0.173	-0.030	-0.116	-0.159	-0.197	-0.009
books	-0.080	0.114	0.098	-0.095	-0.174	-0.221	-0.334	-0.247	-0.215
boxes	-0.032	0.021	0.018	-0.055	-0.218	-0.146	-0.121	-0.140	-0.107
bussv	-0.253	-0.129	-0.183	-0.174	-0.126	-0.125	-0.172	-0.194	0.023
chems	0.341	0.284	0.154	0.171	0.116	-0.052	-0.058	-0.127	-0.221
chips	0.415	0.303	0.159	0.169	0.056	-0.003	-0.109	-0.180	-0.150
clths	0.030	0.164	0.047	-0.091	-0.069	-0.096	-0.066	0.055	-0.059
cnstr	0.063	0.059	0.063	-0.155	-0.269	-0.162	-0.103	0.011	-0.063
coal	0.239	0.187	-0.053	-0.284	-0.216	-0.210	-0.111	-0.042	-0.025
comps	0.027	-0.140	-0.142	-0.081	-0.036	-0.128	0.084	0.073	0.125
drugs	-0.242	-0.102	-0.012	-0.079	-0.090	-0.040	-0.071	-0.203	-0.239
elceq	-0.054	0.183	0.206	0.221	0.025	0.020	0.031	-0.152	-0.218
fabpr	-0.254	-0.059	0.003	0.179	0.246	0.244	0.059	0.006	0.181
fin	0.759	0.386	0.254	0.192	0.002	0.004	-0.165	-0.302	-0.600
food	-0.089	-0.136	-0.191	-0.358	-0.422	-0.326	-0.355	-0.282	-0.154
fun	-0.011	0.086	0.041	0.048	0.026	-0.256	-0.192	-0.146	-0.037
gold	0.093	-0.182	-0.223	-0.073	-0.103	-0.131	-0.107	0.015	-0.167
guns	0.002	0.097	0.161	0.121	0.093	-0.009	0.033	-0.005	0.065
hlth	0.033	0.313	0.265	0.263	0.101	0.089	0.019	0.167	0.209
hshld	0.217	0.265	0.041	-0.002	0.171	-0.030	-0.012	-0.008	-0.301
insur	0.556	0.083	-0.145	-0.186	-0.384	-0.404	-0.541	-0.280	-0.654
labeq	0.525	0.501	0.376	0.244	0.225	-0.032	0.033	0.019	0.027
mach	-0.180	0.015	0.098	0.211	0.178	0.213	0.095	-0.044	-0.261
meals	0.000	0.313	0.172	0.207	0.105	0.177	0.119	0.057	-0.052
medeq	-0.075	0.119	-0.016	-0.093	-0.085	-0.107	-0.088	-0.170	-0.511
mines	0.151	0.076	-0.021	-0.062	-0.002	-0.160	-0.038	0.074	-0.120
oil	0.508	0.043	0.197	0.261	0.059	0.078	0.014	0.110	-0.060
other	-0.076	0.037	0.112	-0.055	-0.140	-0.217	-0.019	-0.058	-0.203
paper	-0.129	0.330	0.274	0.073	-0.077	-0.048	-0.109	-0.037	-0.080
persv	-0.097	-0.115	-0.145	-0.082	-0.147	-0.250	-0.153	-0.365	-0.616
rlest	0.047	0.132	0.066	0.043	0.115	0.084	-0.181	-0.088	-0.442
rtail	-0.525	-0.191	-0.077	-0.049	0.069	-0.018	-0.067	-0.118	-0.244
rubbr	-0.579	-0.149	0.004	-0.179	-0.174	-0.082	-0.098	-0.189	-0.319
ships	0.062	0.176	0.165	0.205	0.211	0.046	0.208	0.275	-0.057
smoke	-0.565	-0.451	-0.362	-0.332	-0.139	-0.125	-0.116	-0.037	-0.286
soda	-0.420	-0.358	-0.256	-0.129	-0.045	0.031	0.127	0.150	-0.236
steel	0.014	0.084	0.133	0.199	0.175	0.014	0.071	0.156	0.288
telcm	0.198	0.006	-0.095	-0.005	-0.054	-0.153	-0.275	-0.292	-0.216
toys	-0.276	0.144	0.067	-0.091	0.005	0.060	-0.026	-0.121	-0.221
trans	0.404	0.430	0.437	0.467	0.321	0.185	0.161	0.120	0.240
txtls	0.121	0.090	0.130	0.123	0.084	0.093	-0.001	-0.079	0.003
util	-0.350	-0.325	-0.100	-0.121	-0.179	-0.115	-0.217	-0.260	-0.149
whlsl	0.088	0.293	0.236	0.186	0.063	0.013	-0.160	-0.103	-0.252