

## Online Appendix

Table A1: 5-min logarithmic ratios of time varying information share measures a) SSEA & Oil b) SSEB & Oil  
 Note: Logarithmic ratios of information share measures are calculated as the natural logarithms of ratios of time varying information share measures of Shanghai Stock Exchange A and B-share indices over the other five assets. CSRATIO, ratio of component share; ISRATIO, ratio of information share; ILSRATIO, ratio of information leadership share. The first vertical line refers to the ending time of November 16, 2019 and the second one refers to the ending time of December 30, 2019.

Table A1: Descriptive statistics of return series (5-min data, high frequency robustness testing)

	SSEA	SSEB	Oil	Bitcoin	US dollar	Corn
<i>Full sample period: July 1, 2019 – April 10, 2020</i>						
Mean	7.37E-07	-2.16E-05	-6.98E-05	-3.22E-05	2.15E-06	8.54E-06
STD	0.001	0.001	0.006	0.007	4.66E-04	0.002
Maximum	0.020	0.046	0.131	0.257	0.019	0.065
Minimum	-0.091	-0.103	-0.140	-0.506	-0.014	-0.055
Skewness	-19.620	-31.475	-3.333	-20.159	7.055	6.608
Kurtosis	1212.049	2551.121	162.286	1820.196	495.269	606.862
JB test	8.85E+08***	3.93E+09***	6.88E+06***	2.00E+09***	1.47E+08***	9.57E+07***
<i>P1: July 1, 2019 – November 16, 2019</i>						
Mean	6.57E-06	-2.12E-05	2.44E-06	-3.50E-05	2.62E-06	-7.91E-06
STD	0.001	0.001	0.006	0.006	3.28E-04	0.001
Maximum	0.015	0.007	0.131	0.257	0.009	0.022
Minimum	-0.017	-0.011	-0.140	-0.142	-0.008	-0.014
Skewness	0.892	-1.541	-0.786	9.231	-2.424	2.173
Kurtosis	103.792	39.002	246.340	633.988	241.181	75.079
JB test	3.02E+06***	3.88E+05***	8.35E+06***	1.19E+08***	1.69E+07***	6.19E+05***
<i>P2: November 17, 2019 – December 30, 2019</i>						
Mean	2.13E-05	1.90E-06	8.92E-05	-6.41E-05	-5.80E-06	-3.92E-06
STD	0.001	0.001	0.003	0.004	2.50E-04	0.001
Maximum	0.008	0.006	0.033	0.092	0.004	0.010
Minimum	-0.004	-0.008	-0.033	-0.079	-0.005	-0.004
Skewness	0.803	-1.181	-0.283	4.137	-6.075	1.742
Kurtosis	15.400	25.018	55.441	219.894	210.876	37.984
JB test	1.53E+04***	4.81E+04***	1.09E+05***	4.62E+06***	4.26E+06***	7.15E+05***
<i>P3: December 31, 2019 – April 10, 2020</i>						
Mean	-1.72E-05	-3.33E-05	-2.52E-04	-1.33E-05	5.22E-06	3.97E-05
STD	0.002	0.002	0.008	0.010	0.001	0.003
Maximum	0.020	0.046	0.075	0.137	0.019	0.065
Minimum	-0.091	-0.103	-0.121	-0.506	-0.014	-0.055
Skewness	-18.069	-24.526	-4.462	-28.260	7.477	5.513
Kurtosis	748.611	1290.460	84.789	1557.708	317.621	350.672
JB test	1.16E+08***	3.47E+08***	6.11E+05***	5.06E+08***	2.07E+07***	1.04E+07***

Note: Returns are calculated by taking the first differences of logarithmic prices. SSEA is the Shanghai Stock Exchange A-share index; SSEB is the Shanghai Stock Exchange B-share index. Oil, the Chinese crude oil commodity futures traded in the Shanghai International Energy Exchange; Gold, the Chinese gold commodity futures; Corn, the Chinese corn commodity futures; Bitcoin, bitcoin traded in the Bitstamp cryptocurrency exchange; US dollar, US dollar currency index. STD denotes standard deviation. JB test is the Jarque-Bera normality test. E stands for scientific notation. \*\*\* represents significance at the 1% level.

Table A2: Two-state regime switching model, SSEA (Estimation from data at 5-min intervals)

Coef.	SSEA – Oil		SSEA – Bitcoin		SSEA – US dollar		SSEA - Corn	
	Reg 1 (i=1)	Reg 2 (i=2)	Reg 1 (i=1)	Reg 2 (i=2)	Reg 1 (i=1)	Reg 2 (i=2)	Reg 1 (i=1)	Reg 2 (i=2)
$u_i^s$	-9.46E-05	1.73E-05	-2.15E-06	8.28E-05	4.80E-07	9.04E-05	1.27E-05	-5.50E-05
	(0.5785)	(0.1648)	(0.6891)	(0.0867)	(0.9334)	(0.4884)	(0.2797)	(0.7884)
$a_i^s$	-0.040	0.016***	0.034***	0.239***	0.049***	0.083***	0.026	-0.046
	(0.5234)	(0.0083)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.1396)	(0.7110)
$b_i^s$	-0.005	0.004	-8.77E-05	-0.005	0.005	-0.012	0.009	-0.013
	(0.7774)	(0.3088)	(0.9745)	(0.8267)	(0.9231)	(0.9860)	(0.4408)	(0.8777)
$u_i^c$	-2.61E-04	1.10E-05	-3.04E-05*	-1.04E-05	-6.93E-07	2.64E-05	-2.46E-06	-2.84E-05
	(0.6730)	(0.4821)	(0.0539)	(0.8377)	(0.3737)	(0.6100)	(0.7985)	(0.8638)
$a_i^c$	-0.093	0.008	0.001	0.054	-0.001	0.001	0.001	-0.047
	(0.6730)	(0.4750)	(0.9288)	(0.3884)	(0.1376)	(0.9890)	(0.9086)	(0.5294)
$b_i^c$	-	-0.004	-	-	-0.004**	0.052	-	-0.449**
	0.507***	(0.1944)	0.009***	0.149***	(0.0179)	(0.6017)	0.141***	(0.0298)
	(0.0000)	(0.1944)	(0.0000)	(0.0000)	(0.0179)	(0.6017)	(0.0000)	(0.0298)
$h_i^s$	1.39E-05***	7.34E-07***	3.26E-07***	7.42E-06***	3.50E-07***	1.03E-05***	6.25E-07***	2.26E-05***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0005)
$\gamma_{i,1}^s$	-8.34E-06***	-1.82E-07***	-2.15E-07***	-6.13E-06***	-4.87E-08***	-7.11E-06***	-1.89E-07***	-1.80E-05***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$\gamma_{i,2}^s$	4.58E-05***	7.46E-07***	5.24E-07***	4.84E-05***	3.87E-07***	1.83E-05***	1.34E-06***	1.02E-04
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$h_i^c$	3.34E-04***	1.25E-06***	2.40E-06***	4.66E-04***	7.70E-09***	1.90E-06***	3.84E-07***	1.16E-05***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$\gamma_{i,1}^c$	-2.60E-04***	-6.19E-07***	2.13E-05***	-4.65E-04***	-3.96E-09***	-1.26E-07	-9.82E-08***	-8.51E-06***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.4533)	(0.0000)	(0.0019)
$\gamma_{i,2}^c$	6.39E-05***	1.41E-06***	6.72E-07***	0.001***	8.49E-09***	1.28E-06***	7.65E-08**	6.94E-05*
	(0.0015)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0174)	(0.0560)
$p_i$	0.013	0.132***	0.016	0.017	-0.017*	-4.11E-04	0.024*	-0.087*
	(0.7830)	(0.0000)	(0.1193)	(0.6393)	(0.0775)	(0.9984)	(0.0594)	(0.0522)
$a_i$	-	1.451***	3.563***	2.784***	1.260***	-	1.482***	3.528***
	5.257***	(0.0000)	(0.0000)	(0.0000)	(0.0000)	2.917***	(0.0000)	(0.0053)
	(0.0096)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0053)
$b_i$	0.001***	-3.21E-05	-2.28E-05	-1.15E-05	1.23E-04***	4.02E-04***	-7.85E-06	-0.101*
	(0.0021)	(0.3817)	(0.8038)	(0.9169)	(0.0004)	(0.0000)	(0.7209)	(0.0647)
Log-l.	65,924		149,701		191,562		70,013	
Hansen's	0.0000		0.0000		0.0000		0.0000	

Note: This table reports the estimation result of the two-state regime switching model. Estimation is done for five sample pairs consisting of one Shanghai Stock Exchange A- or B-share index and one commodity asset and results are separately shown. Coef. denotes model coefficients. SSEA index is the Shanghai Stock Exchange A-share index; SSEB index is the Shanghai Stock Exchange B-share index. Hansen (1992)'s standardised likelihood ratio test is employed to test the existence of regimes and associated p-value of test statistic is shown. E stands for scientific notation. Figures in parentheses are p values of significance check. \*\*\*, \*\* and \* represent significance at the 1%, 5% and 10%, respectively.

Table A3: Two-state regime switching model, SSEB (Estimation from data at 5-min intervals)

Coef.	SSEB – Oil		SSEB – Bitcoin		SSEB – US dollar		SSEB – Corn	
	Reg 1 (i=1)	Reg 2 (i=2)	Reg 1 (i=1)	Reg 2 (i=2)	Reg 1 (i=1)	Reg 2 (i=2)	Reg 1 (i=1)	Reg 2 (i=2)
$u_i^s$	2.98E-05*	-2.47E-05*	-9.17E-06	-8.62E-07	-5.94E-06	-1.45E-04	-3.02E-05**	-1.03E-05
	(0.0602)	(0.0588)	(0.1155)	(0.9156)	(0.2023)	(0.1150)	(0.0173)	(0.5165)
$a_i^s$	0.085***	0.083***	0.077***	0.105***	0.102***	0.076***	0.080***	0.083***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$b_i^s$	0.001	-1.32E-04	-1.52E-04	0.001	-0.002	0.023	0.010	-0.010
	(0.7976)	(0.9845)	(0.9592)	(0.7688)	(0.9529)	(0.9695)	(0.5873)	(0.6704)
$u_i^c$	1.50E-05	2.25E-05	-5.08E-05**	-1.56E-05	-6.98E-07	2.05E-05	-1.39E-05	-1.89E-06
	(0.4905)	(0.2823)	(0.0128)	(0.4199)	(0.3737)	(0.6577)	(0.2473)	(0.8746)
$a_i^c$	0.018	-0.003	-0.041	0.008	1.36E-06	0.003	-0.001	0.010
	(0.3633)	(0.8950)	(0.2259)	(0.7237)	(0.9990)	(0.9245)	(0.9650)	(0.1196)
$b_i^c$	-0.020***	3.21E-04	-0.007***	-0.021***	-0.005***	0.064	-0.128***	-0.185***
	(0.0000)	(0.9506)	(0.0003)	(0.0000)	(0.0018)	(0.5976)	(0.0000)	(0.0000)
$h_i^s$	9.62E-06***	4.83E-07***	2.07E-07***	3.97E-06***	2.01E-07***	4.07E-06***	3.73E-07***	1.19E-05***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$\gamma_{i,1}^s$	-9.32E-06***	9.59E-06***	3.45E-06***	-3.70E-06***	8.76E-08***	1.04E-06*	2.26E-06***	-1.17E-05***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0620)	(0.0000)	(0.0000)
$\gamma_{i,2}^s$	-8.72E-06***	7.42E-05***	6.38E-05***	-3.40E-06***	2.56E-07***	3.38E-05***	1.82E-04***	-1.06E-05***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$h_i^c$	4.62E-04***	1.25E-06***	2.57E-06***	4.95E-04***	7.36E-09***	1.49E-06***	3.49E-07***	9.48E-06***
	(0.0620)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$\gamma_{i,1}^c$	-4.61E-04***	3.97E-05***	2.37E-04***	-4.94E-04***	-3.74E-09***	-2.03E-07**	7.64E-07***	-9.26E-06***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0230)	(0.0000)	(0.0000)
$\gamma_{i,2}^c$	-4.58E-04***	4.73E-04***	0.001***	-4.92E-04***	1.41E-08***	2.53E-06***	9.98E-05***	-8.99E-06***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$p_i$	0.066***	0.072***	0.012	0.010	-0.010	-0.003	0.028	-0.001
	(0.0023)	(0.0002)	(0.3878)	(0.4499)	(0.3122)	(0.9910)	(0.2060)	(0.9690)
$a_i$	1.368***	3.296***	1.234***	-5.496***	2.708***	2.010***	3.202***	1.629***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
$b_i$	7.40E-05***	-4.76E-04***	1.91E-04***	0.001***	-1.24E-04***	-3.42E-04***	-2.01E-04***	3.01E-04***
	(0.0092)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0019)	(0.0000)

Note: This table reports the estimation result of the two-state regime switching model. Estimation is done for five sample pairs consisting of one Shanghai Stock Exchange A- or B-share index and one commodity asset and results are separately shown. Coef. denotes model coefficients. SSEA index is the Shanghai Stock Exchange A-share index; SSEB index is the Shanghai Stock Exchange B-share index. Hansen (1992)'s standardised likelihood ratio test is employed to test the existence of regimes and associated p-value of test statistic is shown. E stands for scientific notation. Figures in parentheses are p values of significance check. \*\*\*, \*\* and \* represent significance at the 1%, 5% and 10%, respectively.

Table A4: Logarithmic ratios of static information share measures at 5-min intervals: Ratios of information share measures between SSEA index and other assets

		Oil	Bitcoin	US dollar	Corn
<i>P1: July 1, 2019 – November 16, 2019</i>					
CS ratio		0.022	4.601	0.511	-3.621
IS ratio		-2.672	5.222	2.915	-5.251
ILS ratio		-5.388	1.242	4.809	-3.261
<i>P2: November 17, 2019 – December 30, 2019</i>					
CS ratio		1.117	-0.929	-3.025	1.538
IS ratio		0.231	-5.663	-3.886	3.502
ILS ratio		-1.773	-9.467	-1.723	3.928
<i>P3: December 31, 2019 – April 10, 2020</i>					
CS ratio		1.644	1.287	2.058	-0.657
IS ratio		1.276	-0.499	6.439	-0.783
ILS ratio		-0.736	-3.571	8.762	-0.251
<b>Changes in ratios between sub-periods</b>					
<i>Ratios in P2 minus Ratios in P1</i>					
CS ratio	Diff.	1.095	-5.53	-3.536	5.159
IS ratio	Diff.	2.903	-10.885	-6.801	8.753
ILS ratio	Diff.	3.615	-10.709	-6.532	7.189
<i>Ratios in P3 minus Ratios in P2</i>					
CS ratio	Diff.	0.527	2.216	5.083	-2.195
IS ratio	Diff.	1.045	5.164	10.325	-4.285
ILS ratio	Diff.	1.037	5.896	10.485	-4.179

Note: Logarithmic ratios of information share measures are calculated as the natural logarithms of ratios of static information share measures of Shanghai Stock Exchange A and B-share indices over the other five assets. CS, component share; IS, information share; ILS, information leadership share. Static information share measures are calculated based on estimates of the VECM at each Sub-period. SSEA index is the Shanghai Stock Exchange A-share index; SSEB index is the Shanghai Stock Exchange B-share index. Diff. represents the result of subtraction in ratios.

Table A5: Logarithmic ratios of static information share measures at 5-min intervals: Ratios of information share measures between SSEB index and other assets

		Oil	Bitcoin	US dollar	Corn
<i>P1: July 1, 2019 – November 16, 2019</i>					
CS ratio		0.022	4.601	0.511	-3.621
IS ratio		-2.672	5.222	2.915	-5.251
ILS ratio		-5.388	1.242	4.809	-3.261
<i>P2: November 17, 2019 – December 30, 2019</i>					
CS ratio		1.117	-0.929	-3.025	1.538
IS ratio		0.231	-5.663	-3.886	3.502
ILS ratio		-1.773	-9.467	-1.723	3.928
<i>P3: December 31, 2019 – April 10, 2020</i>					
CS ratio		1.644	1.287	2.058	-0.657
IS ratio		1.276	-0.499	6.439	-0.783
ILS ratio		-0.736	-3.571	8.762	-0.251
<b>Changes in ratios between sub-periods</b>					
<i>Ratios in P2 minus Ratios in P1</i>					
CS ratio	Diff.	1.095	-5.53	-3.536	5.159
IS ratio	Diff.	2.903	-10.885	-6.801	8.753
ILS ratio	Diff.	3.615	-10.709	-6.532	7.189
<i>Ratios in P3 minus Ratios in P2</i>					
CS ratio	Diff.	0.527	2.216	5.083	-2.195
IS ratio	Diff.	1.045	5.164	10.325	-4.285
ILS ratio	Diff.	1.037	5.896	10.485	-4.179

Note: Logarithmic ratios of information share measures are calculated as the natural logarithms of ratios of static information share measures of Shanghai Stock Exchange A and B-share indices over the other five assets. CS, component share; IS, information share; ILS, information leadership share. Static information share measures are calculated based on estimates of the VECM at each Sub-period. SSEA index is the Shanghai Stock Exchange A-share index; SSEB index is the Shanghai Stock Exchange B-share index. Diff. represents the result of subtraction in ratios.

Table A6: Means and standard deviations of logarithmic ratios of time varying information share measures at 5-min intervals, Ratios of information share measures between SSEA index and other assets

		Oil	Bitcoin	US dollar	Corn
<i>P1: July 1, 2019 – November 16, 2019</i>					
CS ratio	Mean	0.69	1.738	-1.109	-0.68
	STD	1.635	1.805	1.528	1.741
IS ratio	Mean	-1.25	-0.312	-0.063	-0.639
	STD	2.893	3.284	2.984	2.76
ILS ratio	Mean	-3.881	-4.1	2.092	0.083
	STD	2.572	3.007	2.921	2.208
<i>P2: November 17, 2019 – December 30, 2019</i>					
CS ratio	Mean	0.955	1.716	-2.106	-0.416
	STD	1.631	1.536	1.207	1.406
IS ratio	Mean	-0.067	-0.453	-2.329	-0.382
	STD	2.804	3.016	2.358	2.538
ILS ratio	Mean	-2.044	-4.339	-0.445	0.068
	STD	2.437	2.969	2.309	2.304
<i>P3: December 31, 2019 – April 10, 2020</i>					
CS ratio	Mean	0.653	1.309	-1.197	-0.978
	STD	1.606	1.664	1.551	1.564
IS ratio	Mean	-0.474	-0.325	-0.015	-1.126
	STD	2.835	3.28	3.028	2.33
ILS ratio	Mean	-2.255	-3.266	2.364	-0.297
	STD	2.572	3.234	2.965	1.754
<b>Changes in means between sub-periods</b>					
<i>Means in P2 minus Means in P1</i>					
CS ratio	Diff.	0.265	-0.022	-0.997	0.264
	F-stat	524.283***	1114.106***	810.615***	332.234***
IS ratio	Diff.	1.183	-0.141	-2.266	0.257
	F-stat	881.480***	1521.486***	1493.270***	702.086***
ILS ratio	Diff.	1.837	-0.239	-2.537	-0.015
	F-stat	1247.801***	1391.483***	2093.923***	704.760***
<i>Means in P3 minus Means in P2</i>					
CS ratio	Diff.	-0.302	-0.407	0.909	-0.562
	F-stat	319.551***	856.654***	559.341***	236.005***
IS ratio	Diff.	-0.407	0.128	2.314	-0.744
	F-stat	323.997***	607.354***	856.984***	394.328***
ILS ratio	Diff.	-0.211	1.073	2.809	-0.365
	F-stat	125.306***	714.320***	1316.120***	434.853***

Note: Logarithmic ratios of information share measures are calculated as the natural logarithms of ratios of time varying information share measures of Shanghai Stock Exchange A and B-share indices over the other five assets. CS, component share; IS, information share; ILS, information leadership share. Time varying information share measures are computed based on time varying error correction coefficients from a rolling window procedure as well as the variance-covariance matrix of innovations derived from a two-state regime switching model. SSEA index is the Shanghai Stock Exchange A-share index; SSEB index is the Shanghai Stock Exchange B-share index. STD is standard deviation. Diff. represents the result of subtraction in means. F-stat denotes the F test statistic for the hypothesis testing on equality between means of different Sub-periods. \*\*\* denotes significance at the 1% level.

Table A7: Means and standard deviations of logarithmic ratios of time varying information share measures at 5-min intervals, Ratios of information share measures between SSEB index and other assets

		Oil	Bitcoin	US dollar	Corn
<i>P1: July 1, 2019 – November 16, 2019</i>					
CS ratio	Mean	-0.005	1.861	-0.978	0.24
	STD	1.633	1.821	1.653	1.707
IS ratio	Mean	-2.67	-0.49	-0.434	0.645
	STD	2.349	3.438	3.232	3.242
ILS ratio	Mean	-5.33	-4.702	1.087	0.809
	STD	1.852	3.271	3.168	3.096
<i>P2: November 17, 2019 – December 30, 2019</i>					
CS ratio	Mean	-0.077	1.376	-1.536	-0.606
	STD	1.512	1.795	1.881	1.505
IS ratio	Mean	-1.226	-0.29	-1.022	-0.496
	STD	2.369	3.47	3.56	2.775
ILS ratio	Mean	-2.297	-3.334	1.03	0.221
	STD	1.854	3.604	3.394	2.569
<i>P3: December 31, 2019 – April 10, 2020</i>					
CS ratio	Mean	0.067	1.427	-0.925	-0.172
	STD	1.811	1.779	1.781	1.579
IS ratio	Mean	-1.407	0.166	0.445	0.296
	STD	2.641	3.425	3.463	2.838
ILS ratio	Mean	-2.948	-2.522	2.74	0.936
	STD	1.99	3.395	3.37	2.574
<b>Changes in means between sub-periods</b>					
<i>Means in P2 minus Means in P1</i>					
CS ratio	Diff.	-0.072	-0.485	-0.558	-0.846
	F-stat	457.620***	1271.815***	800.379***	533.094***
IS ratio	Diff.	1.444	0.2	-0.588	-1.141
	F-stat	628.906***	2621.249***	1575.733***	921.868***
ILS ratio	Diff.	3.033	1.368	-0.057	-0.588
	F-stat	1545.506***	2075.055***	2181.237***	1114.447***
<i>Means in P3 minus Means in P2</i>					
CS ratio	Diff.	0.144	0.051	0.611	0.434
	F-stat	283.069***	1044.275***	681.913***	468.359***
IS ratio	Diff.	-0.181	0.456	1.467	0.792
	F-stat	184.215***	1301.346***	976.941***	634.140***
ILS ratio	Diff.	-0.651	0.812	1.71	0.715
	F-stat	269.108***	407.429***	1519.163***	496.118***

Note: Logarithmic ratios of information share measures are calculated as the natural logarithms of ratios of time varying information share measures of Shanghai Stock Exchange A and B-share indices over the other five assets. CS, component share; IS, information share; ILS, information leadership share. Time varying information share measures are computed based on time varying error correction coefficients from a rolling window procedure as well as the variance-covariance matrix of innovations derived from a two-state regime switching model. SSEA index is the Shanghai Stock Exchange A-share index; SSEB index is the Shanghai Stock Exchange B-share index. STD is standard deviation. Diff. represents the result of subtraction in means. F-stat denotes the F test statistic for the hypothesis testing on equality between means of different Sub-periods. \*\*\* denotes significance at the 1% level.

Table A8: Static net spillovers of higher moments at 5-min intervals, Net spillovers from SSEA index to other assets

		Oil	Bitcoin	US dollar	Corn
<i>P1: July 1, 2019 – November 16, 2019</i>					
Volatility spillover		17.812***	15.159***	0.001	0.423***
	Wald-test	1152.89	3489.433	0.016	4917.586
Skewness spillover		0.132	-0.001	0.292***	0.116**
	Wald-test	1.995	0.007	372.246	4.189
Kurtosis spillover		0.747***	0.122***	0.006***	0.593***
	Wald-test	1205.412	245.727	180.763	981.752
<i>P2: November 17, 2019 – December 30, 2019</i>					
Volatility spillover		14.368***	37.815***	0.131***	0.396***
	Wald-test	246.743	1911.663	338.502	633.141
Skewness spillover		1.027***	-0.691**	1.153***	0.12
	Wald-test	44.899	4.36	1289.524	1.338
Kurtosis spillover		1.024***	0.041***	0.031***	0.376***
	Wald-test	1211.09	28.15	519.182	305.442
<i>P3: December 31, 2019 – April 10, 2020</i>					
Volatility spillover		6.188***	5.768***	-0.227	0.518***
	Wald-test	4035.036	4059.974	184.379	1.40E+04
Skewness spillover		0.203*	-0.005	0.063***	0.127*
	Wald-test	3.229	0.036	9.496	3.677
Kurtosis spillover		0.380***	0.070***	0.001***	0.927***
	Wald-test	845.629	156.604	8.979	1973.671
<b>Changes in spillovers between sub-periods</b>					
<i>Spillovers in P2 minus Spillovers in P1</i>					
Volatility spillover	Diff.	-3.444***	22.655***	0.130***	-0.027***
	Wald-test	42.077	1170.689	213.678	4.613
Skewness spillover	Diff.	0.895***	-0.689**	0.861***	0.004
	Wald-test	38.198	4.322	984.468	0.001
Kurtosis spillover	Diff.	0.277***	-0.082***	0.025***	-0.218***
	Wald-test	1043.929	122.14	603.659	840.567
<i>Spillovers in P3 minus Spillovers in P2</i>					
Volatility spillover	Diff.	-8.180***	-32.046***	-0.358***	0.122***
	Wald-test	93.472	1620.422	558.838	66.402
Skewness spillover	Diff.	-0.824***	0.686**	-1.090***	0.007
	Wald-test	14.73	4.27	606.74	0.004
Kurtosis spillover	Diff.	-0.643***	0.029***	-0.029***	0.551***
	Wald-test	1443.263	14.446	688.015	3211.889

Note: Net spillovers from the Shanghai Stock Exchange A- and B-share indices to other assets are calculated as the differences between absolute values of spillovers from A- and B-share indices to other assets and absolute values of spillovers of the other way around. Static spillovers are derived from estimates of an extended VAR(1) model. Time varying higher moments are obtained via a two-state regime switching model. SSEA index is the Shanghai Stock Exchange A-share index; SSEB index is the Shanghai Stock Exchange B-share index. Diff. represents the result of subtraction in spillovers. Wald-test denotes the Wald test statistic for the hypothesis testing of zero spillovers or differences. E stands for scientific notation. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels.



Table A9: Static net spillovers of higher moments at 5-min intervals, Net spillovers from SSEB index to other assets

		Oil	Bitcoin	US dollar	Corn
<i>P1: July 1, 2019 – November 16, 2019</i>					
Volatility spillover		12.652***	2.112***	-0.191***	0.04
	Wald-test	1317.912	329.981	144.296	0.631
Skewness spillover		-0.124***	0.015	0.143***	0.253***
	Wald-test	14.234	0.748	95.48	15.751
Kurtosis spillover		2.36E-04	0.008***	-0.002***	-0.004***
	Wald-test	0.027	62.833	14.146	19.149
<i>P2: November 17, 2019 – December 30, 2019</i>					
Volatility spillover		2.071***	1.064***	-0.488***	-0.088
	Wald-test	1045.763	234.866	259.69	1.525
Skewness spillover		0.013	0.053	0.385***	0.721***
	Wald-test	0.051	1.704	369.715	65.192
Kurtosis spillover		3.77E-04	0.010***	-7.56E-04	-0.008***
	Wald-test	0.017	15.761	2.487	21.307
<i>P3: December 31, 2019 – April 10, 2020</i>					
Volatility spillover		1.952***	0.422***	-1.127***	0.007
	Wald-test	1301.975	325.721	381.164	0.01
Skewness spillover		-0.152***	0.037*	-0.037	0.940***
	Wald-test	7.978	3.636	2.061	87.771
Kurtosis spillover		9.88E-05	0.006***	-0.014***	8.00E-04
	Wald-test	0.013	175.231	295.954	0.788
<b>Changes in spillovers between sub-periods</b>					
<i>Spillovers in P2 minus Spillovers in P1</i>					
Volatility spillover	Diff.	-10.581***	-1.048***	-0.297***	-0.129***
	Wald-test	1332.786	449.672	379.045	14.477
Skewness spillover	Diff.	0.137	0.039	0.242***	0.468***
	Wald-test	2.698	0.746	341.764	20.694
Kurtosis spillover	Diff.	1.41E-04	0.001	9.30E-04***	-0.004***
	Wald-test	0.004	0.449	47.712	3.300
<i>Spillovers in P3 minus Spillovers in P2</i>					
Volatility spillover	Diff.	-0.120***	-0.641***	-0.639***	0.095***
	Wald-test	25.381	190.423	465.215	15.209
Skewness spillover	Diff.	-0.165***	-0.016	-0.422***	0.218**
	Wald-test	12.381	0.117	99.149	4.302
Kurtosis spillover	Diff.	-2.78E-04	-0.004*	-0.013***	0.009***
	Wald-test	0.014	3.367	402.607	15.414

Note: Net spillovers from the Shanghai Stock Exchange A- and B-share indices to other assets are calculated as the differences between absolute values of spillovers from A- and B-share indices to other assets and absolute values of spillovers of the other way around. Static spillovers are derived from estimates of an extended VAR(1) model. Time varying higher moments are obtained via a two-state regime switching model. SSEA index is the Shanghai Stock Exchange A-share index; SSEB index is the Shanghai Stock Exchange B-share index. Diff. represents the result of subtraction in spillovers. Wald-test denotes the Wald test statistic for the hypothesis testing of zero spillovers or differences. E stands for scientific notation. \*\*\*, \*\* and \* denote significance at the 1%, 5% and 10% levels.

Table A10: Means and standard deviations of time varying net spillovers of higher moments at 5-min intervals, Net spillovers from SSEA index to other assets

		Oil	Bitcoin	US dollar	Corn
<i>P1: July 1, 2019 – November 16, 2019</i>					
Volatility spillover	Mean	15.764***	7.771***	-2.244***	0.247***
	STD	10.547	17.25	2.044	0.342
Skewness spillover	Mean	0.432***	-0.037***	0.067***	0.459***
	STD	0.423	0.094	0.068	0.38
Kurtosis spillover	Mean	2.103***	0.007***	0.154***	0.859***
	STD	3.474	1.221	0.653	1.152
<i>P2: November 17, 2019 – December 30, 2019</i>					
Volatility spillover	Mean	10.703***	0.728***	-1.556***	0.128***
	STD	7.295	3.365	3.086	0.119
Skewness spillover	Mean	0.769***	-0.922***	0.135***	0.248***
	STD	0.587	1.003	0.108	0.217
Kurtosis spillover	Mean	0.705***	-0.795***	-0.084***	0.381***
	STD	0.753	1.894	0.572	0.285
<i>P3: December 31, 2019 – April 10, 2020</i>					
Volatility spillover	Mean	6.526***	3.782***	-3.840***	0.311***
	STD	3.767	5.938	9.256	0.373
Skewness spillover	Mean	0.574***	-0.079***	0.060***	0.222***
	STD	0.487	0.138	0.086	0.257
Kurtosis spillover	Mean	1.300***	0.569***	0.491***	0.188***
	STD	0.74	2.279	0.753	0.957
<b>Changes in means between sub-periods</b>					
<i>Means in P2 minus Means in P1</i>					
Volatility spillover	Diff.	-5.061	-7.043	0.688	-0.119
	F-stat	1448.537***	11962.585***	188.762***	338.060***
Skewness spillover	Diff.	0.337	-0.885	0.068	-0.211
	F-stat	670.868***	6017.315***	1704.882***	2019.829***
Kurtosis spillover	Diff.	-1.398	-0.802	-0.238	-0.478
	F-stat	3701.009***	1089.062***	2300.782***	1221.995***
<i>Means in P3 minus Means in P2</i>					

Volatility spillover	Diff.	-4.177	3.054	-2.284	0.183
	F-stat	210.575***	92.839***	7052.538***	271.619***
Skewness spillover	Diff.	-0.195	0.843	-0.075	-0.026
	F-stat	971.075***	7343.567***	2762.557***	197.494***
Kurtosis spillover	Diff.	0.595	1.364	0.575	-0.193
	F-stat	30.5627***	4716.347***	2768.739***	480.306***

Note: Net spillovers from the Shanghai Stock Exchange A- and B-share indices to other assets are calculated as the differences between absolute values of spillovers from A- and B-share indices to other assets and absolute values of spillovers of the other way around. And time varying spillovers are derived via a rolling window procedure on an extended VAR(1) model. Time varying higher moments are obtained via a two-state regime switching model. The null hypothesis that means of net spillovers are zero is tested. SSEA index is the Shanghai Stock Exchange A-share index; SSEB index is the Shanghai Stock Exchange B-share index. STD is standard deviation. Diff. represents the result of subtraction in means. F-stat denotes the F test statistic for the hypothesis testing on equality between means of different Sub-periods. E stands for scientific notation. \*\*\* denotes significance at the 1% level.

Table A11: Means and standard deviations of time varying net spillovers of higher moments at 5-min intervals, Net spillovers from SSEB index to other assets

		Oil	Bitcoin	US dollar	Corn
<i>P1: July 1, 2019 – November 16, 2019</i>					
Volatility spillover	Mean	24.792***	42.794***	-1.031***	0.731***
	STD	24.865	71.599	1.076	0.083
Skewness spillover	Mean	0.728***	-0.016***	0.154***	2.531***
	STD	1.405	0.126	0.152	1.998
Kurtosis spillover	Mean	0.799***	0.045***	0.222***	0.573***
	STD	7.053	0.307	0.613	0.359
<i>P2: November 17, 2019 – December 30, 2019</i>					
Volatility spillover	Mean	8.387***	1.162***	-2.427***	0.180***
	STD	15.532	1.957	2.371	0.213
Skewness spillover	Mean	0.493***	0.263***	0.167***	2.396***
	STD	0.417	0.551	0.151	1.86
Kurtosis spillover	Mean	0.816***	0.284***	0.198***	0.293***
	STD	1.381	0.479	0.426	0.261
<i>P3: December 31, 2019 – April 10, 2020</i>					
Volatility spillover	Mean	12.974***	10.066***	-3.935***	-2.395***
	STD	35.122	11.822	19.586	17.598
Skewness spillover	Mean	0.565***	0.148***	0.176***	3.605***
	STD	0.523	0.407	0.219	3.044
Kurtosis spillover	Mean	0.405***	1.169***	0.739***	0.208***
	STD	0.822	6.414	0.874	0.525
<b>Changes in means between sub-periods</b>					
<i>Means in P2 minus Means in P1</i>					

Volatility spillover	Diff.	-16.405	-41.632	-1.396	-0.551
	F-stat	1.04E05***	4.30E04***	18.657***	9.190***
Skewness spillover	Diff.	-0.235	0.279	0.013	-0.135
	F-stat	2350.599***	1321.959***	907.233***	198.842***
Kurtosis spillover	Diff.	0.017	0.239	-0.024	-0.28
	F-stat	1.01E04***	29.683***	942.924***	849.493***
<i>Means in P3 minus Means in P2</i>					
Volatility spillover	Diff.	4.587	8.904	-1.508	-2.575
	F-stat	1.46E05***	3.816***	2.81E04***	6.21E04***
Skewness spillover	Diff.	0.072	-0.115	0.009	1.209
	F-stat	66.832***	1991.058***	1947.904***	800.702***
Kurtosis spillover	Diff.	-0.411	0.885	0.541	-0.085
	F-stat	27.737***	1678.559***	904.712***	454.343***

Note: Net spillovers from the Shanghai Stock Exchange A- and B-share indices to other assets are calculated as the differences between absolute values of spillovers from A- and B-share indices to other assets and absolute values of spillovers of the other way around. And time varying spillovers are derived via a rolling window procedure on an extended VAR(1) model. Time varying higher moments are obtained via a two-state regime switching model. The null hypothesis that means of net spillovers are zero is tested. SSEA index is the Shanghai Stock Exchange A-share index; SSEB index is the Shanghai Stock Exchange B-share index. STD is standard deviation. Diff. represents the result of subtraction in means. F-stat denotes the F test statistic for the hypothesis testing on equality between means of different Sub-periods. E stands for scientific notation. \*\*\* denotes significance at the 1% level.