

Table C.1: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Wheat\ 1}$	0.609	0.4355	1.9428	0.1637
$DOI \nRightarrow \rho_{S\&P500-Wheat\ 2}$	0.0237	0.8776	1.728	0.189
$DOI \nRightarrow \rho_{S\&P500-Wheat\ 3}$	0.0982	0.7541	1.8713	0.1717
$DOI \nRightarrow \rho_{S\&P500-Wheat\ 4}$	0.1151	0.7345	1.5917	0.2074
$\rho_{S\&P500-Wheat\ 4} \nRightarrow DOI$	2.223	0.1365	1.3653	0.243
$\rho_{S\&P500-Wheat\ 4} \nRightarrow DOI$	0.6896	0.4067	1.0431	0.3074
$\rho_{S\&P500-Wheat\ 4} \nRightarrow DOI$	0.3507	0.554	1.2642	0.2612
$\rho_{S\&P500-Wheat\ 4} \nRightarrow DOI$	0.0999	0.7521	1.0695	0.3013

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.2: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-KC\ Wheat\ 1}$	0.0119	0.9131	5.3307	0.0212**
$DOI \nRightarrow \rho_{S\&P500-KC\ Wheat\ 2}$	0.0054	0.9414	5.7171	0.017**
$DOI \nRightarrow \rho_{S\&P500-KC\ Wheat\ 3}$	0.0039	0.9501	5.5601	0.0186**
$DOI \nRightarrow \rho_{S\&P500-KC\ Wheat\ 4}$	0.355	0.5515	5.5844	0.0184**
$\rho_{S\&P500-KC\ Wheat\ 4} \nRightarrow DOI$	0.638	0.4248	2.1796	0.1402
$\rho_{S\&P500-KC\ Wheat\ 4} \nRightarrow DOI$	0.1354	0.713	1.9536	0.1626
$\rho_{S\&P500-KC\ Wheat\ 4} \nRightarrow DOI$	0.203	0.6525	2.0278	0.1548
$\rho_{S\&P500-KC\ Wheat\ 4} \nRightarrow DOI$	0.0507	0.8219	2.1576	0.1422

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.3: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Corn\ 1}$	0.2141	0.6438	0.1253	0.7234
$DOI \nRightarrow \rho_{S\&P500-Corn\ 2}$	0.0807	0.7764	0.083	0.7733
$DOI \nRightarrow \rho_{S\&P500-Corn\ 3}$	0.003	0.9561	0.0141	0.9054
$DOI \nRightarrow \rho_{S\&P500-Corn\ 4}$	0.0158	0.8999	0.0245	0.8757
$\rho_{S\&P500-Corn\ 4} \nRightarrow DOI$	2.4342	0.1193	0.5564	0.4559
$\rho_{S\&P500-Corn\ 4} \nRightarrow DOI$	0.6037	0.4375	0.2984	0.585
$\rho_{S\&P500-Corn\ 4} \nRightarrow DOI$	0.0099	0.9208	0.8281	0.3631
$\rho_{S\&P500-Corn\ 4} \nRightarrow DOI$	0.7638	0.3825	2.0854	0.1491

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.4: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Soybean\ 1}$	0.0021	0.9637	0.265	0.6069
$DOI \nRightarrow \rho_{S\&P500-Soybean\ 2}$	0.0518	0.82	0.2148	0.6432
$DOI \nRightarrow \rho_{S\&P500-Soybean\ 3}$	0.0016	0.9684	0.345	0.5571
$DOI \nRightarrow \rho_{S\&P500-Soybean\ 4}$	0.1595	0.6897	0.3517	0.5533
$\rho_{S\&P500-Soybean\ 4} \nRightarrow DOI$	0.3617	0.5478	1.4706	0.2256
$\rho_{S\&P500-Soybean\ 4} \nRightarrow DOI$	0.4492	0.503	1.6336	0.2016
$\rho_{S\&P500-Soybean\ 4} \nRightarrow DOI$	0.5169	0.4725	1.2407	0.2657
$\rho_{S\&P500-Soybean\ 4} \nRightarrow DOI$	0.2079	0.6486	1.1953	0.2746

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.5: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Soybean\ Oil\ 1}$	0.181	0.6707	1.5409	0.2148
$DOI \nRightarrow \rho_{S\&P500-Soybean\ Oil\ 2}$	0.2073	0.6491	1.6786	0.1955
$DOI \nRightarrow \rho_{S\&P500-Soybean\ Oil\ 3}$	0.0678	0.7947	1.4965	0.2216
$DOI \nRightarrow \rho_{S\&P500-Soybean\ Oil\ 4}$	0.1095	0.7408	1.4423	0.2301
$\rho_{S\&P500-Soybean\ Oil\ 4} \nRightarrow DOI$	3.9674	0.0469**	0.705	0.4013
$\rho_{S\&P500-Soybean\ Oil\ 4} \nRightarrow DOI$	2.764	0.097*	0.7009	0.4027
$\rho_{S\&P500-Soybean\ Oil\ 4} \nRightarrow DOI$	2.7584	0.0973*	0.7686	0.3809
$\rho_{S\&P500-Soybean\ Oil\ 4} \nRightarrow DOI$	2.8334	0.0929*	1.0086	0.3155

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.6: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Oats\ 1}$	0.0138	0.9064	0.7217	0.3958
$DOI \nRightarrow \rho_{S\&P500-Oats\ 2}$	0.2598	0.6104	1.0973	0.2952
$DOI \nRightarrow \rho_{S\&P500-Oats\ 3}$	0.2573	0.6122	2.6159	0.1062
$\rho_{S\&P500-Oats\ 3} \nRightarrow DOI$	1.3651	0.2431	0.4032	0.5256
$\rho_{S\&P500-Oats\ 3} \nRightarrow DOI$	0.5859	0.4443	0.0198	0.8883
$\rho_{S\&P500-Oats\ 3} \nRightarrow DOI$	0.1414	0.707	0.039	0.8436

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.7: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-MPLS \text{ Wheat } 1}$	0.0417	0.8383	0.9513	0.3297
$DOI \nRightarrow \rho_{S\&P500-MPLS \text{ Wheat } 2}$	0.1249	0.7239	0.6514	0.4199
$DOI \nRightarrow \rho_{S\&P500-MPLS \text{ Wheat } 3}$	0.044	0.834	0.9703	0.3249
$DOI \nRightarrow \rho_{S\&P500-MPLS \text{ Wheat } 4}$	0.0573	0.811	1.2445	0.265
$\rho_{S\&P500-MPLS \text{ Wheat } 4} \nRightarrow DOI$	0.4059	0.5244	0.2354	0.6277
$\rho_{S\&P500-MPLS \text{ Wheat } 4} \nRightarrow DOI$	0.4293	0.5127	0.6275	0.4285
$\rho_{S\&P500-MPLS \text{ Wheat } 4} \nRightarrow DOI$	0.5274	0.4681	0.4621	0.4969
$\rho_{S\&P500-MPLS \text{ Wheat } 4} \nRightarrow DOI$	0.1395	0.709	0.192	0.6614

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.8: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Soybean \text{ Meal } 1}$	0.0763	0.7825	0.3937	0.5306
$DOI \nRightarrow \rho_{S\&P500-Soybean \text{ Meal } 2}$	0.3541	0.552	0.6873	0.4073
$DOI \nRightarrow \rho_{S\&P500-Soybean \text{ Meal } 3}$	0.7525	0.386	0.6141	0.4335
$DOI \nRightarrow \rho_{S\&P500-Soybean \text{ Meal } 4}$	0.6593	0.4172	0.785	0.3759
$\rho_{S\&P500-Soybean \text{ Meal } 4} \nRightarrow DOI$	3.1723	0.0754*	0.0245	0.8756
$\rho_{S\&P500-Soybean \text{ Meal } 4} \nRightarrow DOI$	4.4222	0.0359**	0.1642	0.6854
$\rho_{S\&P500-Soybean \text{ Meal } 4} \nRightarrow DOI$	4.3756	0.0369**	0.0067	0.9347
$\rho_{S\&P500-Soybean \text{ Meal } 4} \nRightarrow DOI$	3.8868	0.0492**	9e-04	0.9762

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.9: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Rough\ Rice\ 1}$	0.0397	0.8422	0.8108	0.3682
$DOI \nRightarrow \rho_{S\&P500-Rough\ Rice\ 2}$	0.2034	0.6522	0.825	0.364
$DOI \nRightarrow \rho_{S\&P500-Rough\ Rice\ 3}$	0.6235	0.4301	0.3194	0.5721
$\rho_{S\&P500-Rough\ Rice\ 3} \nRightarrow DOI$	5.0088	0.0257**	0.0325	0.857
$\rho_{S\&P500-Rough\ Rice\ 3} \nRightarrow DOI$	3.6837	0.0555*	0.0043	0.9479
$\rho_{S\&P500-Rough\ Rice\ 3} \nRightarrow DOI$	3.5257	0.061*	3e-04	0.9866

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.10: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Coffee\ 1}$	0.0212	0.8842	0.2522	0.6157
$DOI \nRightarrow \rho_{S\&P500-Coffee\ 2}$	0.0028	0.958	0.2215	0.638
$DOI \nRightarrow \rho_{S\&P500-Coffee\ 3}$	0.0724	0.788	0.323	0.57
$DOI \nRightarrow \rho_{S\&P500-Coffee\ 4}$	0.0118	0.9135	0.2519	0.6159
$\rho_{S\&P500-Coffee\ 4} \nRightarrow DOI$	1.5608	0.2121	0.2289	0.6325
$\rho_{S\&P500-Coffee\ 4} \nRightarrow DOI$	1.918	0.1666	0.1837	0.6683
$\rho_{S\&P500-Coffee\ 4} \nRightarrow DOI$	2.1098	0.1469	0.1897	0.6633
$\rho_{S\&P500-Coffee\ 4} \nRightarrow DOI$	1.9623	0.1618	0.1618	0.6876

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.11: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Sugar\ 1}$	0.3822	0.5367	0.2277	0.6333
$DOI \nRightarrow \rho_{S\&P500-Sugar\ 3}$	5e-04	0.9825	0.7149	0.3981
$DOI \nRightarrow \rho_{S\&P500-Sugar\ 4}$	0.0794	0.7782	0.6802	0.4097
$\rho_{S\&P500-Sugar\ 4} \nRightarrow DOI$	9e-04	0.9758	0.0767	0.782
$\rho_{S\&P500-Sugar\ 4} \nRightarrow DOI$	0.0179	0.8936	0.6055	0.4367
$\rho_{S\&P500-Sugar\ 4} \nRightarrow DOI$	0.1392	0.7092	0.3606	0.5484

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.12: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Cocoa\ 1}$	0.0351	0.8515	0.3708	0.5427
$DOI \nRightarrow \rho_{S\&P500-Cocoa\ 2}$	0.5712	0.4501	1.0489	0.306
$DOI \nRightarrow \rho_{S\&P500-Cocoa\ 3}$	0.3938	0.5306	1.0787	0.2993
$DOI \nRightarrow \rho_{S\&P500-Cocoa\ 4}$	0.6334	0.4264	1.017	0.3135
$\rho_{S\&P500-Cocoa\ 4} \nRightarrow DOI$	3.1397	0.0769*	0.8266	0.3635
$\rho_{S\&P500-Cocoa\ 4} \nRightarrow DOI$	2.8831	0.0901*	0.4285	0.5129
$\rho_{S\&P500-Cocoa\ 4} \nRightarrow DOI$	2.8441	0.0923*	0.4282	0.5131
$\rho_{S\&P500-Cocoa\ 4} \nRightarrow DOI$	3.7205	0.0542*	0.3859	0.5346

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.13: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Cotton\ 1}$	1.01	0.3153	0.159	0.6902
$DOI \nRightarrow \rho_{S\&P500-Cotton\ 2}$	1.2377	0.2664	0.4741	0.4913
$DOI \nRightarrow \rho_{S\&P500-Cotton\ 3}$	1.8674	0.1723	1.8396	0.1754
$DOI \nRightarrow \rho_{S\&P500-Cotton\ 4}$	3.3016	0.0697*	2.2388	0.135
$\rho_{S\&P500-Cotton\ 4} \nRightarrow DOI$	0.0094	0.9228	0.1432	0.7053
$\rho_{S\&P500-Cotton\ 4} \nRightarrow DOI$	1.2437	0.2652	0.3461	0.5565
$\rho_{S\&P500-Cotton\ 4} \nRightarrow DOI$	1.7632	0.1848	0.1275	0.7211
$\rho_{S\&P500-Cotton\ 4} \nRightarrow DOI$	2.7961	0.095*	0.0136	0.9071

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.14: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Orange\ Juice\ 2}$	5.5204	0.0191**	0.4031	0.5257
$DOI \nRightarrow \rho_{S\&P500-Orange\ Juice\ 3}$	2.9943	0.0841*	0.2164	0.6419
$DOI \nRightarrow \rho_{S\&P500-Orange\ Juice\ 4}$	4.4064	0.0362**	0.1262	0.7225
$DOI \nRightarrow \rho_{S\&P500-Orange\ Juice\ 5}$	4.3766	0.0369**	0.0323	0.8573
$\rho_{S\&P500-Orange\ Juice\ 5} \nRightarrow DOI$	1.2752	0.2593	1.627	0.2025
$\rho_{S\&P500-Orange\ Juice\ 5} \nRightarrow DOI$	1.8523	0.1741	2.1433	0.1436
$\rho_{S\&P500-Orange\ Juice\ 5} \nRightarrow DOI$	1.6654	0.1974	2.3918	0.1224
$\rho_{S\&P500-Orange\ Juice\ 5} \nRightarrow DOI$	1.4531	0.2285	2.8315	0.0928*

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.15: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{SP500-Lumber\ 1}$	0.4254	0.5145	4.1193	0.0427**
$DOI \nRightarrow \rho_{SP500-Lumber\ 2}$	0.393	0.531	0.9349	0.3339
$\rho_{SP500-Lumber\ 2} \nRightarrow DOI$	1.6963	0.1933	0.2269	0.634
$\rho_{SP500-Lumber\ 2} \nRightarrow DOI$	1.7153	0.1908	0.8511	0.3565

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.16: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{SP500-Live\ Cattle\ 1}$	0.0537	0.8168	5.3525	0.0209**
$DOI \nRightarrow \rho_{SP500-Live\ Cattle\ 2}$	1e-04	0.9937	3.4458	0.0638*
$DOI \nRightarrow \rho_{SP500-Live\ Cattle\ 3}$	0.3023	0.5826	4.9973	0.0257**
$DOI \nRightarrow \rho_{SP500-Live\ Cattle\ 4}$	0.3371	0.5617	4.377	0.0367**
$\rho_{SP500-Live\ Cattle\ 4} \nRightarrow DOI$	0.5028	0.4786	0.3932	0.5308
$\rho_{SP500-Live\ Cattle\ 4} \nRightarrow DOI$	0.0018	0.9664	0.0681	0.7942
$\rho_{SP500-Live\ Cattle\ 4} \nRightarrow DOI$	0.1478	0.7008	0.5625	0.4535
$\rho_{SP500-Live\ Cattle\ 4} \nRightarrow DOI$	0.4863	0.4859	0.038	0.8455

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.



Table C.17: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Feeder\ Cattle\ 1}$	0.0217	0.8829	0.8064	0.3694
$DOI \nRightarrow \rho_{S\&P500-Feeder\ Cattle\ 2}$	0.3136	0.5757	0.2543	0.6142
$DOI \nRightarrow \rho_{S\&P500-Feeder\ Cattle\ 3}$	2.5296	0.1123	0.1385	0.7099
$DOI \nRightarrow \rho_{S\&P500-Feeder\ Cattle\ 4}$	1.2796	0.2584	0.2721	0.6021
$\rho_{S\&P500-Feeder\ Cattle\ 4} \nRightarrow DOI$	4.0727	0.0441**	1.196	0.2744
$\rho_{S\&P500-Feeder\ Cattle\ 4} \nRightarrow DOI$	4.7457	0.0298**	0.679	0.4102
$\rho_{S\&P500-Feeder\ Cattle\ 4} \nRightarrow DOI$	4.7962	0.0289**	0.4131	0.5206
$\rho_{S\&P500-Feeder\ Cattle\ 4} \nRightarrow DOI$	4.9595	0.0263**	0.2646	0.6071

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.18: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Heating\ Oil\ 1}$	5.9769	0.0148**	0.8872	0.3465
$DOI \nRightarrow \rho_{S\&P500-Heating\ Oil\ 2}$	5.3384	0.0212**	1.3597	0.2439
$DOI \nRightarrow \rho_{S\&P500-Heating\ Oil\ 3}$	4.9549	0.0264**	1.6547	0.1987
$DOI \nRightarrow \rho_{S\&P500-Heating\ Oil\ 4}$	4.3	0.0386**	2.1375	0.1441
$\rho_{S\&P500-Heating\ Oil\ 4} \nRightarrow DOI$	0.1391	0.7093	0.0376	0.8463
$\rho_{S\&P500-Heating\ Oil\ 4} \nRightarrow DOI$	0.1047	0.7464	0.0097	0.9215
$\rho_{S\&P500-Heating\ Oil\ 4} \nRightarrow DOI$	0.0445	0.8331	0.0296	0.8634
$\rho_{S\&P500-Heating\ Oil\ 4} \nRightarrow DOI$	0.0488	0.8253	0.0876	0.7673

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.19: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Natural\ Gas\ 1}$	0.3985	0.5281	0.0808	0.7763
$DOI \nRightarrow \rho_{S\&P500-Natural\ Gas\ 2}$	0.7999	0.3715	0.1337	0.7147
$DOI \nRightarrow \rho_{S\&P500-Natural\ Gas\ 3}$	0.6127	0.4341	0.2284	0.6328
$DOI \nRightarrow \rho_{S\&P500-Natural\ Gas\ 4}$	0.3053	0.5808	0.1914	0.6619
$\rho_{S\&P500-Natural\ Gas\ 4} \nRightarrow DOI$	0.1464	0.7022	0.1372	0.7112
$\rho_{S\&P500-Natural\ Gas\ 4} \nRightarrow DOI$	0.0204	0.8864	0.0453	0.8315
$\rho_{S\&P500-Natural\ Gas\ 4} \nRightarrow DOI$	0.1591	0.6901	0.383	0.5362
$\rho_{S\&P500-Natural\ Gas\ 4} \nRightarrow DOI$	0.3072	0.5796	1.2325	0.2672

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.20: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Gold\ 1}$	0.8134	0.3675	3.0283	0.0822*
$DOI \nRightarrow \rho_{S\&P500-Gold\ 2}$	0.8555	0.3554	3.6924	0.055*
$DOI \nRightarrow \rho_{S\&P500-Gold\ 3}$	0.6976	0.404	3.147	0.0764*
$DOI \nRightarrow \rho_{S\&P500-Gold\ 4}$	0.8209	0.3653	2.5408	0.1113
$\rho_{S\&P500-Gold\ 4} \nRightarrow DOI$	0.2214	0.6382	1.2256	0.2686
$\rho_{S\&P500-Gold\ 4} \nRightarrow DOI$	0.3957	0.5295	1.3005	0.2545
$\rho_{S\&P500-Gold\ 4} \nRightarrow DOI$	0.3602	0.5486	1.2578	0.2624
$\rho_{S\&P500-Gold\ 4} \nRightarrow DOI$	0.3032	0.5821	1.1986	0.2739

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.21: Granger causality test between conditional correlation and detrended open interest

Null Hypothesis	Pre-financialisation		Financialisation	
	F Statistic	p-value	F Statistic	p-value
$DOI \nRightarrow \rho_{S\&P500-Copper\ 1}$	2.5021	0.1143	0.3668	0.5449
$DOI \nRightarrow \rho_{S\&P500-Copper\ 2}$	1.9167	0.1668	0.381	0.5373
$DOI \nRightarrow \rho_{S\&P500-Copper\ 3}$	2.6307	0.1054	0.319	0.5723
$DOI \nRightarrow \rho_{S\&P500-Copper\ 4}$	2.3983	0.122	0.1488	0.6997
$\rho_{S\&P500-Copper\ 4} \nRightarrow DOI$	0.0751	0.7842	0.6339	0.4262
$\rho_{S\&P500-Copper\ 4} \nRightarrow DOI$	0.0656	0.798	0.6459	0.4218
$\rho_{S\&P500-Copper\ 4} \nRightarrow DOI$	0.086	0.7694	0.5052	0.4774
$\rho_{S\&P500-Copper\ 4} \nRightarrow DOI$	0.0574	0.8107	0.7072	0.4006

*Note:*

The table reports the results of the Granger causality test between the first differences of conditional correlation and the first differences of open interest during pre-financialisation period and financialisation period.  $\rho$  and  $DOI$  represent conditional correlation and detrended open interest respectively.

\*  $\nRightarrow$  means “does not Granger-cause”. \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.