Table C.1: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.4811	0.4882	0.106	0.7448
$SI \not\Rightarrow h_{Wheat\ 1}$	9.3629	0.0023***	39.2999	0***
$SI \not\Rightarrow h_{Wheat\ 2}$	10.7351	0.0011***	41.174	0***
$SI \not\Rightarrow h_{Wheat\ 3}$	21.0995	0***	35.8988	0***
$SI \not\Rightarrow h_{Wheat\ 4}$	7.7252	0.0056***	26.8297	0***
$h_{S\&P500} \not\Rightarrow SI$	0.1342	0.7143	1.1223	0.2897
$h_{Wheat\ 1} \not\Rightarrow SI$	0.02	0.8876	0.0078	0.9295
$h_{Wheat\ 2} \not\Rightarrow SI$	0.0053	0.9421	0.2467	0.6195
$h_{Wheat\ 3} \not\Rightarrow SI$	0.7531	0.3859	0.0027	0.9585
$h_{Wheat\ 4} \not\Rightarrow SI$	0.0137	0.9067	0.5552	0.4564

Note:

The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.2: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$OI \nRightarrow h_{S\&P500}$	0.3736	0.5413	0.0184	0.8921
$OI \nRightarrow h_{KC\ Wheat\ 1}$	0.0788	0.7791	3.1162	0.0779*
$OI \nRightarrow h_{KC\ Wheat\ 2}$	1.7841	0.1822	3.3738	0.0666*
$OI \nRightarrow h_{KC\ Wheat\ 3}$	2.3984	0.122	3.1167	0.0779*
$OI \nRightarrow h_{KC\ Wheat\ 4}$	4.0417	0.0449**	2.3293	0.1273
$h_{S\&P500} \nRightarrow OI$	0.3248	0.569	0.0759	0.7831
$h_{KC\ Wheat\ 1} \nRightarrow OI$	1.2452	0.2649	0.2053	0.6506
$h_{KC\ Wheat\ 2} \nRightarrow OI$	0.7483	0.3874	0.3625	0.5473
$h_{KC\ Wheat\ 3} \nRightarrow OI$	0.57	0.4506	0.2586	0.6112
$h_{KC\ Wheat\ 4} \nRightarrow OI$	0.2813	0.5961	0.2126	0.6449

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.3: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.5078	0.4764	0.9292	0.3353
$SI \not\Rightarrow h_{Corn\ 1}$	3.3371	0.0683*	0.9653	0.3261
$SI \not\Rightarrow h_{Corn\ 2}$	10.2706	0.0014***	0.466	0.495
$SI \not\Rightarrow h_{Corn\ 3}$	18.6174	0***	3.7556	0.053*
$SI \not\Rightarrow h_{Corn\ 4}$	19.7538	0***	1.4093	0.2355
$h_{S\&P500} \not\Rightarrow SI$	0.0039	0.9501	1.6101	0.2048
$h_{Corn\ 1} \not\Rightarrow SI$	0.0538	0.8166	0.2105	0.6465
$h_{Corn\ 2} \not\Rightarrow SI$	0.0842	0.7718	0.1918	0.6615
$h_{Corn\ 3} \not\Rightarrow SI$	0.0335	0.8549	0.289	0.591
$h_{Corn\ 4} \not\Rightarrow SI$	0.4196	0.5174	0.2141	0.6437

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.4: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.043	0.8359	1.0323	0.3099
$SI \not\Rightarrow h_{Soybean\ 1}$	0.024	0.877	0.5515	0.4579
$SI \not\Rightarrow h_{Soybean\ 2}$	0.9491	0.3304	0.1031	0.7482
$SI \not\Rightarrow h_{Soybean\ 3}$	0.0271	0.8694	0.0114	0.9149
$SI \not\Rightarrow h_{Soybean\ 4}$	0.084	0.772	0.5959	0.4404
$h_{S\&P500} \not\Rightarrow SI$	0.0102	0.9194	0.056	0.813
$h_{Soybean\ 1} \not\Rightarrow SI$	0.0041	0.949	0.1589	0.6903
$h_{Soybean\ 2} \not\Rightarrow SI$	0.4438	0.5056	0.0236	0.8781
$h_{Soybean\ 3} \not\Rightarrow SI$	1.1318	0.2878	0.0011	0.9734
$h_{Soybean\ 4} \not\Rightarrow SI$	1.2772	0.2589	2e-04	0.9883

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.5: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	1.4855	0.2234	1.0244	0.3118
$SI \not\Rightarrow h_{Soybean\ oil\ 1}$	0.1213	0.7277	0.0035	0.9527
$SI \not\Rightarrow h_{Soybean\ oil\ 2}$	0.055	0.8146	0.0192	0.8897
$SI \not\Rightarrow h_{Soybean\ oil\ 3}$	1.1295	0.2883	0.1471	0.7014
$SI \not\Rightarrow h_{Soybean\ oil\ 4}$	1.9742	0.1605	0.0011	0.9739
$h_{S\&P500} \not\Rightarrow SI$	0.2642	0.6075	0.6601	0.4167
$h_{Soybean\ oil\ 1} \not\Rightarrow SI$	0.0047	0.9455	0.5883	0.4433
$h_{Soybean\ oil\ 2} \not\Rightarrow SI$	0.0412	0.8392	0.7959	0.3726
$h_{Soybean\ oil\ 3} \not\Rightarrow SI$	0.0242	0.8765	1.1381	0.2864
$h_{Soybean\ oil\ 4} \not\Rightarrow SI$	0.0955	0.7574	1.279	0.2584

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.6: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	2.0153	0.1563	0.2955	0.5868
$SI \not\Rightarrow h_{Oats\ 1}$	0.5372	0.4639	0.5607	0.4542
$SI \not\Rightarrow h_{Oats\ 2}$	2.7227	0.0995*	0.9172	0.3385
$SI \not\Rightarrow h_{Oats\ 3}$	2.4624	0.1172	0.9728	0.3243
$h_{S\&P500} \not\Rightarrow SI$	2.4429	0.1186	0.3225	0.5702
$h_{Oats\ 1} \not\Rightarrow SI$	0.2597	0.6105	0.004	0.9498
$h_{Oats\ 2} \not\Rightarrow SI$	1.2253	0.2688	0.0618	0.8038
$h_{Oats\ 3} \not\Rightarrow SI$	0.4936	0.4826	0.0138	0.9064

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.7: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{SP500}$	0.3355	0.5627	0.0014	0.9701
$SI \not\Rightarrow h_{MPLS\ Wheat\ 1}$	9.3344	0.0024***	1.7557	0.1856
$SI \not\Rightarrow h_{MPLS\ Wheat\ 2}$	12.761	4e-04***	2.092	0.1485
$SI \not\Rightarrow h_{MPLS\ Wheat\ 3}$	12.9527	4e-04***	1.2403	0.2658
$SI \not\Rightarrow h_{MPLS\ Wheat\ 4}$	10.5119	0.0013***	1.3023	0.2542
$h_{SP500} \not\Rightarrow SI$	0.1211	0.728	0.0059	0.9388
$h_{MPLS\ Wheat\ 1} \not\Rightarrow SI$	0.1878	0.665	0.8644	0.3528
$h_{MPLS\ Wheat\ 2} \not\Rightarrow SI$	0.428	0.5133	0.6336	0.4263
$h_{MPLS\ Wheat\ 3} \not\Rightarrow SI$	0.6782	0.4106	2.3509	0.1256
$h_{MPLS\ Wheat\ 4} \not\Rightarrow SI$	0.5347	0.465	1.2621	0.2616

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.8: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.2092	0.6476	0.0556	0.8136
$SI \not\Rightarrow h_{Soybean\ meal\ 1}$	2.2119	0.1375	1.6854	0.1946
$SI \not\Rightarrow h_{Soybean\ meal\ 2}$	2.5208	0.1129	2.2468	0.1343
$SI \not\Rightarrow h_{Soybean\ meal\ 3}$	3.2664	0.0712*	2.4436	0.1184
$SI \not\Rightarrow h_{Soybean\ meal\ 4}$	3.3583	0.0674*	1.0826	0.2984
$h_{S\&P500} \not\Rightarrow SI$	0.4284	0.513	1.4401	0.2305
$h_{Soybean\ meal\ 1} \not\Rightarrow SI$	0.5688	0.451	0.1061	0.7448
$h_{Soybean\ meal\ 2} \not\Rightarrow SI$	1.1252	0.2893	0.1867	0.6658
$h_{Soybean\ meal\ 3} \not\Rightarrow SI$	2.6354	0.1051	0.2147	0.6432
$h_{Soybean\ meal\ 4} \not\Rightarrow SI$	2.3311	0.1274	0.5203	0.4709

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.9: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{SP500}$	1.0159	0.314	0.001	0.9751
$SI \not\Rightarrow h_{Rough\ rice\ 1}$	0.0141	0.9055	0.023	0.8796
$SI \not\Rightarrow h_{Rough\ rice\ 2}$	2.519	0.1131	0.5703	0.4503
$SI \not\Rightarrow h_{Rough\ rice\ 3}$	2.464	0.1171	0.0088	0.9251
$h_{SP500} \not\Rightarrow SI$	0.1824	0.6695	0.3507	0.5539
$h_{Rough\ rice\ 1} \not\Rightarrow SI$	0.0178	0.8938	0.1113	0.7387
$h_{Rough\ rice\ 2} \not\Rightarrow SI$	0.0147	0.9035	0.0434	0.835
$h_{Rough\ rice\ 3} \not\Rightarrow SI$	1.6071	0.2055	0.3369	0.5618

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.10: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.0269	0.8699	10.6059	0.0012***
$SI \not\Rightarrow h_{Coffee\ 1}$	3.6868	0.0553*	3.2848	0.0703*
$SI \not\Rightarrow h_{Coffee\ 2}$	3.0699	0.0803*	3.8938	0.0488**
$SI \not\Rightarrow h_{Coffee\ 3}$	4.1871	0.0412**	4.6124	0.032**
$SI \not\Rightarrow h_{Coffee\ 4}$	3.2804	0.0706*	4.2699	0.0391**
$h_{S\&P500} \not\Rightarrow SI$	5.4888	0.0195**	2e-04	0.9891
$h_{Coffee\ 1} \not\Rightarrow SI$	0.0225	0.8809	0.7989	0.3717
$h_{Coffee\ 2} \not\Rightarrow SI$	0.0787	0.7791	0.4932	0.4827
$h_{Coffee\ 3} \not\Rightarrow SI$	0.3553	0.5514	0.8136	0.3673
$h_{Coffee\ 4} \not\Rightarrow SI$	0.4117	0.5214	0.7136	0.3985

Note:

The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.11: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.0118	0.9135	1.1513	0.2836
$SI \not\Rightarrow h_{Sugar\ 1}$	1.1695	0.28	0.2233	0.6366
$SI \not\Rightarrow h_{Sugar\ 3}$	0.0707	0.7904	0.3438	0.5578
$SI \not\Rightarrow h_{Sugar\ 4}$	0.6628	0.4159	0.2559	0.6131
$h_{S\&P500} \not\Rightarrow SI$	1.3453	0.2466	0.1134	0.7363
$h_{Sugar\ 1} \not\Rightarrow SI$	0.1841	0.6681	4.1848	0.0411**
$h_{Sugar\ 3} \not\Rightarrow SI$	0.3328	0.5642	1.5447	0.2143
$h_{Sugar\ 4} \not\Rightarrow SI$	0.5067	0.4769	3.4536	0.0635*

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.12: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.0125	0.9111	0.8977	0.3437
$SI \not\Rightarrow h_{Cocoa\ 1}$	3.5069	0.0616*	8.1614	0.0044***
$SI \not\Rightarrow h_{Cocoa\ 2}$	4.6833	0.0309**	5.3759	0.0207**
$SI \not\Rightarrow h_{Cocoa\ 3}$	5.5593	0.0187**	5.8189	0.0161**
$SI \not\Rightarrow h_{Cocoa\ 4}$	5.1778	0.0232**	7.6515	0.0058***
$h_{S\&P500} \not\Rightarrow SI$	0.0271	0.8692	0.825	0.364
$h_{Cocoa\ 1} \not\Rightarrow SI$	0.1082	0.7423	4.0734	0.0439**
$h_{Cocoa\ 2} \not\Rightarrow SI$	0.0792	0.7785	4.9766	0.026**
$h_{Cocoa\ 3} \not\Rightarrow SI$	0.0146	0.9037	5.12	0.0239**
$h_{Cocoa\ 4} \not\Rightarrow SI$	0.0025	0.9603	4.1963	0.0408**

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.13: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.2362	0.6272	0.3787	0.5384
$SI \not\Rightarrow h_{Cotton\ 1}$	5.4081	0.0204**	0.9969	0.3184
$SI \not\Rightarrow h_{Cotton\ 2}$	0.1004	0.7515	1.3724	0.2417
$SI \not\Rightarrow h_{Cotton\ 3}$	0.182	0.6698	2.5309	0.112
$SI \not\Rightarrow h_{Cotton\ 4}$	0.2885	0.5914	2.1792	0.1403
$h_{S\&P500} \not\Rightarrow SI$	0.3291	0.5664	0.0694	0.7922
$h_{Cotton\ 1} \not\Rightarrow SI$	2.6784	0.1023	0.323	0.5699
$h_{Cotton\ 2} \not\Rightarrow SI$	1.5593	0.2123	0.035	0.8516
$h_{Cotton\ 3} \not\Rightarrow SI$	0.4604	0.4977	0.0432	0.8354
$h_{Cotton\ 4} \not\Rightarrow SI$	0.2761	0.5995	0.0923	0.7613

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.14: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	1.0334	0.3098	2.708	0.1002
$SI \not\Rightarrow h_{Orange\ juice\ 2}$	4e-04	0.9845	0.0923	0.7614
$SI \not\Rightarrow h_{Orange\ juice\ 3}$	0.1098	0.7405	0.0201	0.8872
$SI \not\Rightarrow h_{Orange\ juice\ 4}$	0.4124	0.521	0.2621	0.6088
$SI \not\Rightarrow h_{Orange\ juice\ 5}$	1.4116	0.2353	0.3227	0.5701
$h_{S\&P500} \not\Rightarrow SI$	0.119	0.7303	0.1694	0.6808
$h_{Orange\ juice\ 2} \not\Rightarrow SI$	0.0108	0.9173	0.1587	0.6904
$h_{Orange\ juice\ 3} \not\Rightarrow SI$	0.0029	0.9568	0.0447	0.8327
$h_{Orange\ juice\ 4} \not\Rightarrow SI$	0.0258	0.8724	0.1134	0.7364
$h_{Orange\ juice\ 5} \not\Rightarrow SI$	4e-04	0.9834	0.1228	0.7261

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.15: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.2597	0.6105	4.1351	0.0423**
$SI \not\Rightarrow h_{Lumber\ 1}$	0.902	0.3427	3.9658	0.0468**
$SI \not\Rightarrow h_{Lumber\ 2}$	0.8747	0.3501	4.91	0.027**
$h_{S\&P500} \not\Rightarrow SI$	0.4849	0.4865	0.1991	0.6555
$h_{Lumber\ 1} \not\Rightarrow SI$	1.0269	0.3113	0.0588	0.8085
$h_{Lumber\ 2} \not\Rightarrow SI$	0.1179	0.7314	0.3373	0.5615

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.16: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.1198	0.7294	1.6192	0.2036
$SI \not\Rightarrow h_{Live\ cattle\ 1}$	0.6857	0.408	2.1641	0.1416
$SI \not\Rightarrow h_{Live\ cattle\ 2}$	1e-04	0.9909	0.7918	0.3738
$SI \not\Rightarrow h_{Live\ cattle\ 3}$	1.4105	0.2355	3.4394	0.064*
$SI \not\Rightarrow h_{Live\ cattle\ 4}$	0.5949	0.4409	11.7712	6e-04***
$h_{S\&P500} \not\Rightarrow SI$	0.0164	0.8981	1.2029	0.2731
$h_{Live\ cattle\ 1} \not\Rightarrow SI$	0.0365	0.8485	0.6046	0.4371
$h_{Live\ cattle\ 2} \not\Rightarrow SI$	0.3271	0.5676	1.4808	0.224
$h_{Live\ cattle\ 3} \not\Rightarrow SI$	0.0199	0.888	3.0314	0.082*
$h_{Live\ cattle\ 4} \not\Rightarrow SI$	1.6704	0.1967	0.2056	0.6504

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.17: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	1.2725	0.2598	0.271	0.6028
$SI \not\Rightarrow h_{Feeder\ cattle\ 1}$	0.0179	0.8937	0.1867	0.6658
$SI \not\Rightarrow h_{Feeder\ cattle\ 2}$	0.0242	0.8763	2.8504	0.0917*
$SI \not\Rightarrow h_{Feeder\ cattle\ 3}$	0.5434	0.4613	4.0293	0.045**
$SI \not\Rightarrow h_{Feeder\ cattle\ 4}$	0.1877	0.665	5.5037	0.0192**
$h_{S\&P500} \not\Rightarrow SI$	0.547	0.4599	0.5994	0.439
$h_{Feeder\ cattle\ 1} \not\Rightarrow SI$	0.0487	0.8255	0.0179	0.8935
$h_{Feeder\ cattle\ 2} \not\Rightarrow SI$	0.6025	0.438	2e-04	0.9876
$h_{Feeder\ cattle\ 3} \not\Rightarrow SI$	0.2411	0.6236	0.0957	0.7571
$h_{Feeder\ cattle\ 4} \not\Rightarrow SI$	0.0017	0.9673	0.3334	0.5638

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.18: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.1689	0.6813	1.6106	0.2048
$SI \not\Rightarrow h_{Heating\ oil\ 1}$	1.0232	0.3122	2.7171	0.0997*
$SI \not\Rightarrow h_{Heating\ oil\ 2}$	3	0.0838*	3.9489	0.0472**
$SI \not\Rightarrow h_{Heating\ oil\ 3}$	3.3192	0.069*	4.7435	0.0297**
$SI \not\Rightarrow h_{Heating\ oil\ 4}$	3.8039	0.0516*	6.4214	0.0115**
$h_{S\&P500} \not\Rightarrow SI$	0.8492	0.3572	0.0831	0.7733
$h_{Heating\ oil\ 1} \not\Rightarrow SI$	0.1802	0.6713	0.6806	0.4096
$h_{Heating\ oil\ 2} \not\Rightarrow SI$	0.0594	0.8076	0.2534	0.6148
$h_{Heating\ oil\ 3} \not\Rightarrow SI$	0.3153	0.5747	0.0452	0.8317
$h_{Heating\ oil\ 4} \not\Rightarrow SI$	0.3617	0.5478	0.0078	0.9298

Note:

The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.19: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	2.671	0.1027	0.5136	0.4738
$SI \not\Rightarrow h_{Natural\ gas\ 1}$	0.0264	0.8711	6.3645	0.0118**
$SI \not\Rightarrow h_{Natural\ gas\ 2}$	0.7536	0.3857	3.9192	0.0481**
$SI \not\Rightarrow h_{Natural\ gas\ 3}$	0.3161	0.5742	0.808	0.369
$SI \not\Rightarrow h_{Natural\ gas\ 4}$	0.4519	0.5017	0.49	0.4841
$h_{S\&P500} \not\Rightarrow SI$	0.2763	0.5993	0.1764	0.6746
$h_{Natural\ gas\ 1} \not\Rightarrow SI$	0.0991	0.753	0.0016	0.9678
$h_{Natural\ gas\ 2} \not\Rightarrow SI$	0.0481	0.8265	0.0353	0.8511
$h_{Natural\ gas\ 3} \not\Rightarrow SI$	0.0569	0.8115	0.1777	0.6735
$h_{Natural\ gas\ 4} \not\Rightarrow SI$	0.0755	0.7835	0.6264	0.4289

Note:
The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.20: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	0.409	0.5228	0.7036	0.4018
$SI \not\Rightarrow h_{Gold\ 1}$	9.6535	0.002***	0.2078	0.6486
$SI \not\Rightarrow h_{Gold\ 2}$	9.7208	0.0019***	0.0802	0.7772
$SI \not\Rightarrow h_{Gold\ 3}$	9.1379	0.0026***	0.0593	0.8077
$SI \not\Rightarrow h_{Gold\ 4}$	10.9942	0.001***	0.0748	0.7845
$h_{S\&P500} \not\Rightarrow SI$	0.0393	0.8429	0.4021	0.5262
$h_{Gold\ 1} \not\Rightarrow SI$	0.0503	0.8227	0.0417	0.8382
$h_{Gold\ 2} \not\Rightarrow SI$	0.0609	0.8052	0.0247	0.8751
$h_{Gold\ 3} \not\Rightarrow SI$	0.068	0.7944	0.0133	0.9082
$h_{Gold\ 4} \not\Rightarrow SI$	0.0443	0.8333	0.0251	0.8741

Note:

The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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

Table C.21: Granger causality test between conditional volatility and speculation index

	Pre-financialisation		Financialisation	
Null Hypothesis	F Statistic	p-value	F Statistic	p-value
$SI \not\Rightarrow h_{S\&P500}$	4.6318	0.0318**	4.3592	0.0371**
$SI \not\Rightarrow h_{Copper\ 1}$	0.0114	0.9149	0.7915	0.3739
$SI \not\Rightarrow h_{Copper\ 2}$	0.005	0.9436	0.9584	0.3279
$SI \not\Rightarrow h_{Copper\ 3}$	3e-04	0.9869	1.8516	0.174
$SI \not\Rightarrow h_{Copper\ 4}$	0	0.9981	1.4352	0.2313
$h_{S\&P500} \not\Rightarrow SI$	3.1147	0.0781*	0.3452	0.557
$h_{Copper\ 1} \not\Rightarrow SI$	0.0441	0.8338	0.4614	0.4971
$h_{Copper\ 2} \not\Rightarrow SI$	0.0702	0.7911	0.4703	0.493
$h_{Copper\ 3} \not\Rightarrow SI$	0.0148	0.9033	0.5446	0.4607
$h_{Copper\ 4} \not\Rightarrow SI$	0.0706	0.7906	0.2434	0.6219

Note:

The table reports the results of the Granger causality test between the first differences of conditional volatility and the first differences of speculation index during pre-financialisation period and financialisation period. h, and SI represent conditional volatility, and speculation index respectively. Speculation index is measured by $\frac{Non\text{-}commercial\ Long\ Position - Non\text{-}commercial\ Short\ Position}{Total\ Open\ Interest}$.

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