Table C.22: Regression Results

				De	pendent vari	lable:				
		]	Pre-financialisation period			Fi	nancialisation period			
	$h_{S\&P500}$	$h_{Wheat\ 1}$	$h_{Wheat\ 2}$	h Wheat 3	h Wheat 4	$h_{S\&P500}$	$h_{Wheat\ 1}$	$h_{Wheat\ 2}$	h Wheat 3	$h_{Wheat 4}$
$\zeta_1 SI$	0.0005	-0.00000	0.003	0.001	0.002	0.001	0.006	0.004	0.005	0.006
	(0.002)	(0.00000)	(0.004)	(0.001)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
$\zeta_2OI$	-0.005	-0.00000	0.009	0.007**	0.018*	-0.002	-0.002	-0.0004	0.002	0.002
	(0.004)	(0.00001)	(0.010)	(0.003)	(0.010)	(0.005)	(0.008)	(0.008)	(0.007)	(0.008)
$\zeta_0$	-0.00001	-0.00000****	0.00000	0.00001	-0.00000	-0.00000	-0.00001	-0.00001	-0.00001	-0.0000
	(0.0001)	(0.00000)	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.002	0.0002	0.002	0.009	0.006	0.0005	0.002	0.001	0.002	0.003
Adjusted R <sup>2</sup>	-0.002	-0.003	-0.001	0.005	0.002	-0.002	-0.00000	-0.001	-0.001	0.0003

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses.  $h, \zeta_0, \zeta, SI$ , and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Dopen\ Interest}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*,\*\* and \* denote statistical significance at 1%, 5%, and 10% level.

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Table C.1: Regression Results

					Dependent v	ariable:				
		Pre	-financialisation per	riod		Fi	nancialisation peri	iod		
	$h_{S\&P500}$ $h$	1 KC Wheat 1	$h_{\ KC\ Wheat\ 2}$	$h_{\ KC\ Wheat\ 3}\ h$	KC Wheat 4	$h_{S\&P500}$	$h_{\ KC\ Wheat\ 1}$	$h_{\ KC\ Wheat\ 2}\ h$	KC Wheat 3 h	KC Wheat 4
$\zeta_1 SI$	-0.003	0.006	0.004	0.002	0.004	0.002	0.004**	0.006**	0.005	0.006
	(0.003)	(0.005)	(0.003)	(0.003)	(0.004)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)
$\zeta_2OI$	-0.003	-0.010	-0.012	-0.004	-0.007	-0.011	-0.008	-0.015	-0.017	-0.017
	(0.008)	(0.016)	(0.011)	(0.009)	(0.012)	(0.011)	(0.009)	(0.012)	(0.014)	(0.018)
ζο	-0.00001	-0.00000	-0.00000	0.00001	-0.00001	-0.00000	0.00001	0.00001	0.00001	0.0000
	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.002	0.003	0.005	0.002	0.003	0.003	0.008	0.008	0.006	0.005
Adjusted R <sup>2</sup>	-0.001	-0.0003	0.001	-0.002	-0.0003	0.0003	0.006	0.006	0.004	0.002

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses.  $h, \zeta_0$ , ζ, SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by Non-commercial Long Position—Non-commercial Short Position following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% Total Open Interest level.

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Table C.3: Regression Results

				L	Dependent variable	e:				
		Pre-	financialisation period			Fir	nancialisation period			
	$h_{S\&P500}$	$h_{\ Corn\ 1}$	$h_{\ Corn\ 2}$	$h_{Corn \beta}$	$h_{Corn~4}$	$h_{S\&P500}$	$h_{Corn\ 1}$	$h_{Corn\ 2}$	$h_{Corn\ 3}$	$h_{\ Corn\ 4}$
$\zeta_1 SI$	-0.002	0.001	0.004	0.00001*	0.00000	0.003	0.003	0.008	$0.007^{*}$	0.003
	(0.002)	(0.006)	(0.003)	(0.00000)	(0.00000)	(0.003)	(0.006)	(0.005)	(0.004)	(0.003)
$\zeta_2OI$	0.0003	-0.0001	-0.001	0.00000	0.00000	-0.003	0.001	-0.001	0.00002	-0.002
	(0.001)	(0.003)	(0.002)	(0.00000)	(0.00000)	(0.002)	(0.004)	(0.003)	(0.003)	(0.002)
$\zeta_0$	-0.00001	-0.00000	-0.00001	0.00000***	-0.00000***	-0.00000	-0.00001	-0.00001	-0.00001	-0.0000
	(0.0001)	(0.0002)	(0.0001)	(0.00000)	(0.00000)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.001	0.00002	0.003	0.005	0.005	0.004	0.0005	0.003	0.004	0.002
Adjusted R <sup>2</sup>	-0.002	-0.003	-0.001	0.002	0.002	0.002	-0.002	0.001	0.001	-0.0001

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.4: Regression Results

_					Dependent variab	le:				
		Pı	re-financialisation period			Fii	nancialisation perio	od		
	$h_{S\&P500}$ $H$	Na Soybean 1	$h_{Soybean\ 2}$	$h_{Soybean 3}$	h Soybean 4	$h_{S\&P500}$	h Soybean 1	$h_{Soybean\ 2}$	h Soybean 3	h Soybean 4
$\zeta_1 SI$	-0.00004	-0.004	-0.001	-0.00000	-0.00000	-0.001	0.004	0.006	0.010***	0.008**
	(0.002)	(0.004)	(0.003)	(0.00000)	(0.00000)	(0.003)	(0.007)	(0.004)	(0.004)	(0.003)
$\zeta_2OI$	-0.002	0.010**	0.001	0.00000	-0.00000	-0.003	-0.002	-0.002	-0.003	-0.004
	(0.003)	(0.005)	(0.003)	(0.00000)	(0.00000)	(0.003)	(0.008)	(0.005)	(0.005)	(0.004)
$\zeta_0$	-0.00001	0.00001	0.00000	0.00000***	0.00000***	-0.00000	-0.00001	-0.00001	-0.00001	-0.00001
	(0.0001)	(0.0002)	(0.0001)	(0.00000)	(0.00000)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.001	0.008	0.0001	0.001	0.001	0.001	0.001	0.003	0.008	0.008
Adjusted R <sup>2</sup>	-0.002	0.005	-0.003	-0.003	-0.002	-0.001	-0.002	0.001	0.006	0.006

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.5: Regression Results

				D	ependent varia	able:				
		I	Pre-financialisation period			F	inancialisation peri	od		
	$h_{S\&P500}$	$h_{Soybean\ oil\ 1}$	$h_{\ Soybean\ oil\ 2}$	$h_{Soybean\ oil\ 3}$	h Soybean oil 4	$h_{S\&P500}$	$h_{Soybean\ oil\ 1}$	h Soybean oil 2 h	Soybean oil 3 h	l Soybean oil 4
$\zeta_1 SI$	0.001	-0.00000	-0.00000	-0.00000	-0.001	-0.001	0.004***	0.004***	0.004***	0.004***
	(0.002)	(0.00000)	(0.00000)	(0.00000)	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
$\zeta_2OI$	-0.016	0.00000	0.00000	0.0001	0.033*	-0.0001	0.001	0.002	0.002	0.002
	(0.017)	(0.00000)	(0.00000)	(0.00004)	(0.019)	(0.007)	(0.004)	(0.004)	(0.004)	(0.004)
$\zeta_0$	-0.00001	0.00000***	0.00000***	0.00000***	-0.00001	-0.00001	-0.00000	-0.00000	-0.00000	-0.00000
	(0.0001)	(0.000)	(0.00000)	(0.00000)	(0.0001)	(0.0001)	(0.00005)	(0.00005)	(0.00005)	(0.00005)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.002	0.002	0.003	0.004	0.006	0.0001	0.009	0.010	0.011	0.009
Adjusted R <sup>2</sup>	-0.002	-0.001	-0.001	0.001	0.002	-0.002	0.007	0.007	0.008	0.007

Note:The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.6: Regression Results

_				Depen	dent variable.	:		
			Pre-financialisation period			Fir	ancialisation period	
	$h_{S\&P500}$	h Oats 1	$h_{Oats\ 2}$	$h_{Oats\ 3}$	$h_{S\&P500}$	$h_{Oats\ 1}$	$h_{Oats\ 2}$	$h_{Oats\ 3}$
$\zeta_1 SI$	0.00004	0.002	0.003	0.004	-0.0005	-0.0001	-0.001	-0.001
	(0.002)	(0.004)	(0.005)	(0.004)	(0.002)	(0.0003)	(0.001)	(0.001)
$\zeta_2OI$	-0.014	-0.033	-0.003	-0.008	-0.059	0.004	-0.019	-0.032
	(0.024)	(0.053)	(0.065)	(0.045)	(0.121)	(0.018)	(0.050)	(0.049)
$\zeta_0$	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001	-0.00000	-0.00001	-0.00001
	(0.0001)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.00001)	(0.00003)	(0.00003)
Observations	572	572	572	572	833	833	833	833
$\mathbb{R}^2$	0.001	0.001	0.001	0.002	0.0004	0.0001	0.003	0.003
Adjusted R <sup>2</sup>	-0.003	-0.003	-0.003	-0.001	-0.002	-0.002	0.0003	0.001

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 S I_i + \zeta_2 O I_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non\text{-}commercial\ Long\ Position\text{-}Non\text{-}commercial\ Short\ Position}}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

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Table C.7: Regression Results

_					Dependent u	variable:				
		Pr	e-financialisation per	iod		F	inancialisation peri	od		
	$h_{SP500}$	h <sub>MPLS</sub> Wheat 1	$h_{\ MPLS\ Wheat\ 2}$	$h_{MPLS\ Wheat\ 3}\ h$	MPLS Wheat 4	$h_{SP500}$	$h_{MPLS\ Wheat\ 1}$	$h_{MPLS\ Wheat\ 2}\ h$	MPLS Wheat 3 h	MPLS Wheat 4
$\zeta_1 SI$	-0.005	0.002	0.003	0.002	0.002	-0.002	-0.003	-0.003	-0.002	0.0001
	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)	(0.002)	(0.005)	(0.006)	(0.006)	(0.006)
$\zeta_2OI$	0.001	-0.027	$-0.052^*$	-0.050*	-0.049**	-0.046	0.092	0.113	0.106	0.116*
	(0.023)	(0.029)	(0.029)	(0.028)	(0.025)	(0.029)	(0.067)	(0.072)	(0.071)	(0.070)
$\zeta_0$	-0.00002	0.00000	0.00000	-0.00000	-0.00001	-0.00000	-0.00001	-0.00001	-0.00001	-0.00001
	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Observations	463	463	463	463	463	749	749	749	749	749
$\mathbb{R}^2$	0.003	0.002	0.007	0.007	0.009	0.004	0.003	0.004	0.003	0.004
Adjusted R <sup>2</sup>	-0.001	-0.002	0.003	0.003	0.004	0.001	0.0003	0.001	0.001	0.001

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses.  $h, \zeta_0$ , ζ, SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by Non-commercial Long Position—Non-commercial Short Position following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% of the statistical significance at 1%, 5%, and 10 level.

Table C.8: Regression Results

_					Dependent	variable:				
		Pr	e-financialisation per	iod		Fi	inancialisation peri	od		
	$h_{S&P500}$	h Soybean meal 1	h Soybean meal 2	h <sub>Soybean meal 3</sub> h	Soybean meal 4	$h_{S\&P500}$	h Soybean meal 1	h Soybean meal 2 h	Soybean meal 3 h	Soybean meal 4
$\zeta_1 SI$	-0.002	-0.007	-0.002	-0.0002	0.001	-0.002	0.003	0.002	0.001	0.001
	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.003)	(0.006)	(0.002)	(0.001)	(0.001)
$\zeta_2OI$	-0.050**	0.112***	0.033	0.021	0.021	-0.007	0.004	0.0005	-0.001	-0.002
	(0.020)	(0.040)	(0.021)	(0.018)	(0.020)	(0.009)	(0.018)	(0.007)	(0.004)	(0.004)
$\zeta_0$	-0.00000	-0.00002	-0.00000	0.00000	0.00000	-0.00000	-0.00003	-0.00002	-0.00002	-0.00002
	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.00004)	(0.00003)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.015	0.016	0.005	0.002	0.002	0.001	0.0004	0.002	0.001	0.002
Adjusted R <sup>2</sup>	0.012	0.012	0.001	-0.001	-0.001	-0.001	-0.002	-0.001	-0.001	-0.001

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and innancialisation period. Standard errors  $e_{ij,t}$  in parentheses.  $h, \zeta_0, \zeta, SI$ , and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10%

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Table C.9: Regression Results

				I	Dependent v	ariable:		
		Pre	e-financialisation peri	od		Fi	nancialisation period	
	$h_{SP500}$ $h$	Rough rice 1	$h_{\ Rough\ rice\ 2}$	$h_{Rough\ rice\ 3}$	$h_{SP500}$	h Rough rice 1	$h_{Rough\ rice\ 2}$	$h_{\ Rough\ rice}$ 3
$\zeta_1 SI$	0.002	0.009	0.001	0.0003	-0.002	-0.005**	-0.001	-0.001
	(0.003)	(0.009)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.001)
$\zeta_2OI$	-0.136	-1.071	-0.109	-0.007	-0.242*	-0.007	-0.056	-0.031
	(0.306)	(0.957)	(0.074)	(0.058)	(0.131)	(0.122)	(0.103)	(0.095)
$\zeta_0$	-0.00002	0.00000	0.00002	0.00002	-0.00001	-0.00001	-0.00001	-0.00001
	(0.0001)	(0.0004)	(0.00003)	(0.00002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Observations	481	481	481	481	833	833	833	833
$\mathbb{R}^2$	0.001	0.004	0.006	0.0005	0.006	0.008	0.001	0.001
Adjusted R <sup>2</sup>	-0.003	-0.0001	0.002	-0.004	0.004	0.005	-0.001	-0.002

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses.  $h, \zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.10: Regression Results

_					Dependen	t variable:				
			Pre-financialisation period				Financialisation period			
	$h_{S\&P500}$	h Coffee 1	$h_{Coffee\ 2}$	$h_{Coffee\ 3}$	h Coffee 4	$h_{S\&P500}$	$h_{Coffee\ 1}$	$h_{Coffee\ 2}$	$h_{Coffee\ 3}$	$h_{Coffee\ 4}$
$\zeta_1 SI$	0.001	0.007	0.008	0.008	0.008	-0.003	0.002**	0.003**	0.003**	0.003**
	(0.001)	(0.006)	(0.006)	(0.006)	(0.005)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)
$\zeta_2OI$	0.031	-0.183	-0.154	-0.133	-0.084	-0.012	0.0003	0.0003	0.0001	-0.0003
	(0.039)	(0.161)	(0.163)	(0.161)	(0.148)	(0.012)	(0.005)	(0.005)	(0.006)	(0.006)
$\zeta_0$	-0.00001	0.00001	0.00000	0.00001	0.00000	-0.00000	0.00000	0.00000	0.00000	0.00000
	(0.0001)	(0.0004)	(0.0004)	(0.0004)	(0.0003)	(0.0001)	(0.00003)	(0.00004)	(0.00004)	(0.00004)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.002	0.005	0.005	0.004	0.004	0.003	0.005	0.006	0.007	0.006
Adjusted R <sup>2</sup>	-0.002	0.002	0.001	0.001	0.001	0.0001	0.003	0.004	0.005	0.004

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta_1$ , and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.11: Regression Results

				Dependen	t variable:			
		]	Pre-financialisation period			Fir	nancialisation period	
	$h_{S\&P500}$	$h_{Sugar\ 1}$	$h_{Sugar\ 3}$	$h_{Sugar\ 4}$	$h_{S\&P500}$	$h_{Sugar\ 1}$	$h_{Sugar \beta}$	$h_{Sugar\ 4}$
$\zeta_1 SI$	0.0002	-0.005***	-0.002	-0.001	0.001	0.002	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.001)	(0.003)	(0.004)	(0.004)	(0.004)
$\zeta_2OI$	0.00004	0.017	0.019**	0.005	0.0002	-0.010**	-0.003	-0.005
	(0.011)	(0.011)	(0.010)	(0.006)	(0.004)	(0.004)	(0.004)	(0.004)
$\zeta_0$	-0.00001	0.00000	-0.00001	-0.00001	-0.00001	-0.00000	-0.00001	-0.00001
	(0.0001)	(0.0001)	(0.0001)	(0.00005)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Observations	572	572	572	572	833	833	833	833
$\mathbb{R}^2$	0.00001	0.018	0.009	0.003	0.00003	0.007	0.001	0.002
Adjusted R <sup>2</sup>	-0.004	0.014	0.006	-0.001	-0.002	0.004	-0.002	-0.0001

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non\text{-}commercial\ Long\ Position\text{-}Non\text{-}commercial\ Short\ Position}}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*,

\*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.12: Regression Results

					Dependen	t variable:				
		I	Pre-financialisation period				Financialisation period			
	$h_{S\&P500}$	$h_{Cocoa\ 1}$	$h_{Cocoa~2}$	$h_{Cocoa\ 3}$	$h_{Cocoa\ 4}$	$h_{S\&P500}$	$h_{Cocoa\ 1}$	h Cocoa 2	h Cocoa 3	$h_{Cocoa~4}$
$\zeta_1 SI$	-0.005*	0.006**	0.005*	0.005**	0.005**	0.002	-0.001	-0.001	-0.001	-0.0002
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.001)	(0.001)	(0.001)	(0.001)
$\zeta_2OI$	0.001	-0.017	-0.030	-0.025	-0.026	-0.004	0.007	0.007	0.006	0.001
	(0.027)	(0.032)	(0.031)	(0.028)	(0.027)	(0.011)	(0.005)	(0.005)	(0.005)	(0.005)
$\zeta_0$	-0.00001	0.00004	0.00004	0.00004	0.00004	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.00004)	(0.00004)	(0.00004)	(0.00004)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.007	0.007	0.007	0.008	0.008	0.001	0.002	0.002	0.002	0.0001
Adjusted R <sup>2</sup>	0.003	0.004	0.004	0.004	0.004	-0.002	-0.0004	-0.0003	-0.0004	-0.002

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses.  $h, \zeta_0, \zeta, SI$ , and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

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Table C.13: Regression Results

					Dependent	variable:				
		Pre	-financialisation peri	od		Fi	nancialisation perio	od		
	$h_{S\&P500}$	h Cotton 1	$h_{Cotton\ 2}$	$h_{Cotton 3}$	h Cotton 4	$h_{S\&P500}$	$h_{Cotton\ 1}$	$h_{Cotton\ 2}$	$h_{Cotton\ 3}$	$h_{Cotton~4}$
$\zeta_1 SI$	0.001	-0.001	0.0002	0.002	0.001	-0.001	-0.002	-0.004	-0.004	-0.005
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.004)	(0.003)	(0.003)	(0.003)
$\zeta_2OI$	-0.046*	0.020	-0.025	-0.017	-0.022	-0.020**	-0.020	-0.004	-0.001	-0.009
	(0.027)	(0.040)	(0.033)	(0.031)	(0.031)	(0.010)	(0.019)	(0.012)	(0.012)	(0.016)
ζο	-0.00001	0.00003	0.00002	0.00004	0.0001	-0.00000	-0.00001	-0.00001	-0.00001	-0.00001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0001)	(0.0001)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.006	0.001	0.001	0.003	0.002	0.006	0.002	0.003	0.003	0.004
Adjusted R <sup>2</sup>	0.002	-0.002	-0.002	-0.001	-0.002	0.004	-0.001	0.0004	0.001	0.001

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.14: Regression Results

					Dependent	variable:				
		Pr	e-financialisation per	iod		F	inancialisation peri	od		
	$h_{S\&P500}$	h Orange juice 2	$h_{Orange\ juice\ 3}$	h Orange juice 4	h Orange juice 5	$h_{S\&P500}$	$h_{\ Orange\ juice\ 2}$	$h$ $_{Orange\ juice\ 3}$ $h$	Orange juice 4 h	Orange juice 5
$\zeta_1 SI$	0.001	0.0002	0.0003	0.0005	0.001	-0.002	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
$\zeta_2OI$	0.043	0.014	0.001	0.004	-0.004	-0.059	-0.139***	-0.137***	-0.115***	-0.125***
	(0.058)	(0.025)	(0.027)	(0.026)	(0.027)	(0.059)	(0.053)	(0.050)	(0.044)	(0.045)
$\zeta_0$	-0.00001	-0.00002	-0.00002	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001	-0.00001
	(0.0001)	(0.00004)	(0.00004)	(0.00004)	(0.00004)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.001	0.001	0.0004	0.001	0.001	0.003	0.009	0.010	0.009	0.010
Adjusted R <sup>2</sup>	-0.002	-0.003	-0.003	-0.002	-0.002	0.0001	0.007	0.008	0.006	0.007

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses.  $h, \zeta_0, \zeta, SI$ , and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% Note:

level.

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Table C.15: Regression Results

				Dependent var	riable:		
		Pre	-financialisation peri	iod			
	$h_{S\&P500}$	$h_{Lumber\ 1}$	$h_{\ Lumber\ 2}$	$h_{S\&P500}$	h Lumber 1	$h_{\ Lumber\ 2}$	
$\zeta_1 SI$	-0.0002	-0.002*	-0.002	-0.001	0.003**	0.002**	
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	
$\zeta_2OI$	-0.396	-0.061	-0.018	-0.142	0.095	0.001	
	(0.275)	(0.285)	(0.211)	(0.137)	(0.140)	(0.109)	
$\zeta_0$	-0.00001	0.00000	-0.00000	-0.00001	0.00000	-0.00000	
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	
Observations	572	572	572	833	833	833	
$\mathbb{R}^2$	0.004	0.006	0.004	0.002	0.005	0.005	
Adjusted R <sup>2</sup>	0.0002	0.002	0.001	-0.0001	0.003	0.003	

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.16: Regression Results

					Dependent v	ariable:				
		Pr	e-financialisation peri	od		F	inancialisation perio	od		
	$h_{S\&P500}$	h Live cattle 1	$h_{\ Live\ cattle\ 2}$	$h_{\ Live\ cattle\ 3}$	h Live cattle 4	$h_{S\&P500}$	$h_{\ Live\ cattle\ 1}$	h Live cattle 2	h Live cattle 3	h Live cattle 4
$\zeta_1 SI$	0.004*	-0.0005	-0.002	-0.0001	-0.0003	-0.005	-0.002	-0.001	-0.001	-0.001
	(0.002)	(0.001)	(0.001)	(0.0005)	(0.0003)	(0.004)	(0.001)	(0.002)	(0.001)	(0.001)
$\zeta_2OI$	-0.030	0.017	0.027**	0.011**	0.009***	0.007	0.004	-0.0004	0.002	-0.004*
	(0.024)	(0.011)	(0.011)	(0.005)	(0.003)	(0.010)	(0.004)	(0.004)	(0.003)	(0.002)
$\zeta_0$	-0.00001	0.00002	0.00001	0.00001	0.00001	-0.00001	-0.00000	0.00000	-0.00000	0.00000
	(0.0001)	(0.00004)	(0.00004)	(0.00002)	(0.00001)	(0.0001)	(0.00003)	(0.00003)	(0.00002)	(0.00002)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.007	0.004	0.013	0.010	0.013	0.003	0.004	0.0002	0.001	0.006
Adjusted R <sup>2</sup>	0.003	0.0004	0.009	0.006	0.009	0.001	0.002	-0.002	-0.002	0.004

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses.  $h, \zeta_0, \zeta, SI$ , and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

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Table C.17: Regression Results

					Dependent	variable:					
	Pre-financialisation period Financialisation period										
	$h_{S\&P500}$	h Feeder cattle 1	$h_{Feeder\ cattle\ 2}$	h Feeder cattle 3 $h$	Feeder cattle 4	$h_{S\&P500}$	$h_{Feeder\ cattle\ 1}$	h Feeder cattle 2 h	Feeder cattle 3 h	Feeder cattle 4	
$\zeta_1 SI$	-0.001	-0.00005	-0.001	-0.001	-0.002*	-0.002	-0.004*	-0.005**	-0.003	-0.003*	
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	
$\zeta_2OI$	-0.065	0.142***	-0.119*	-0.105*	-0.071	-0.143***	0.015	-0.039	-0.046	-0.027	
	(0.091)	(0.043)	(0.071)	(0.054)	(0.045)	(0.046)	(0.034)	(0.039)	(0.033)	(0.032)	
$\zeta_0$	-0.00001	0.00002	0.00002	0.00002	0.00001	0.00000	-0.00000	0.00000	0.00000	0.00000	
	(0.0001)	(0.00004)	(0.0001)	(0.0001)	(0.00004)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	
Observations	572	572	572	572	572	833	833	833	833	833	
$\mathbb{R}^2$	0.002	0.019	0.006	0.007	0.009	0.013	0.004	0.009	0.006	0.005	
Adjusted R <sup>2</sup>	-0.002	0.016	0.002	0.004	0.006	0.011	0.002	0.007	0.004	0.003	

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses.  $h, \zeta_0$ , Note:ζ, SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by Non-commercial Long Position—Non-commercial Short Position following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% Total Open Interest level.

Table C.18: Regression Results

_					$Dependent \ vo$	iriable:					
		Pı	e-financialisation peri	od		Financialisation period					
	$h_{S\&P500}$	h Heating oil 1	$h_{Heating\ oil\ 2}$	$h_{Heating\ oil\ 3}$	h Heating oil 4	$h_{S\&P500}$	$h_{Heating\ oil\ 1}$	h Heating oil 2 h	Heating oil 3 h	Heating oil 4	
$\zeta_1 SI$	0.002	-0.008	-0.001	-0.001	-0.001	$-0.007^*$	-0.003	-0.004	-0.004	-0.004	
	(0.003)	(0.007)	(0.001)	(0.001)	(0.001)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	
$\zeta_2OI$	-0.021*	-0.022	-0.006	-0.004	-0.003	-0.002	0.006	0.004	0.004	0.004	
	(0.011)	(0.029)	(0.004)	(0.004)	(0.004)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	
$\zeta_0$	-0.00001	-0.00000	0.00002	0.00002	0.00002	-0.00001	-0.00001	-0.00001	-0.00001	-0.0000	
	(0.0001)	(0.0002)	(0.00003)	(0.00003)	(0.00003)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	
Observations	572	572	572	572	572	833	833	833	833	833	
$\mathbb{R}^2$	0.007	0.003	0.006	0.004	0.004	0.004	0.001	0.002	0.002	0.002	
Adjusted R <sup>2</sup>	0.004	-0.0003	0.002	0.001	0.0002	0.002	-0.001	-0.001	-0.001	-0.001	

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

Table C.19: Regression Results

					Dependent u	variable:				
		Pre	e-financialisation per	riod		Fi	nancialisation peri	od		
	$h_{S\&P500}$	h Natural gas 1	$h_{\ Natural\ gas\ 2}$	$h_{Natural\ gas\ 3}\ h$	Natural gas 4	$h_{S\&P500}$	$h_{Natural\ gas\ 1}$	$h_{Natural\ gas\ 2}\ h$	Natural gas 3 h	Natural gas 4
$\zeta_1 SI$	0.001	0.004	-0.004	-0.003	-0.005	-0.003	0.001	-0.003	-0.004	-0.001
	(0.003)	(0.009)	(0.003)	(0.003)	(0.003)	(0.006)	(0.020)	(0.013)	(0.014)	(0.014)
$\zeta_2OI$	-0.011	-0.061***	-0.011	0.003	0.006	-0.002	-0.001	-0.003	-0.001	-0.004
	(0.007)	(0.020)	(0.007)	(0.007)	(0.007)	(0.003)	(0.010)	(0.006)	(0.007)	(0.007)
$\zeta_0$	-0.00001	0.00005	0.00002	0.00001	-0.00001	-0.00000	-0.00000	0.00000	-0.00000	0.00000
	(0.0001)	(0.0003)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0003)	(0.0002)	(0.0002)	(0.0002)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.004	0.016	0.007	0.002	0.005	0.001	0.00002	0.0005	0.0002	0.0004
Adjusted R <sup>2</sup>	0.001	0.012	0.003	-0.001	0.002	-0.002	-0.002	-0.002	-0.002	-0.002

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses.  $h, \zeta_0$ , Note:ζ, SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by Non-commercial Long Position—Non-commercial Short Position following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10% Total Open Interest level.

Table C.20: Regression Results

					Dependent	variable:				
		P	re-financialisation period				Financialisation period			
	$h_{S\&P500}$	$h_{Gold\ 1}$	$h_{Gold\ 2}$	$h_{Gold 3}$	$h_{Gold\ 4}$	$h_{S\&P500}$	$h_{\ Gold\ 1}$	$h_{Gold\ 2}$	$h_{Gold 3}$	$h_{\ Gold\ 4}$
$\zeta_1 SI$	-0.003***	-0.001	-0.001	-0.001	-0.001	-0.001	-0.003**	-0.002	-0.002*	-0.003**
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
$\zeta_2OI$	-0.030***	-0.010	-0.010	-0.009	-0.013	-0.003	-0.003	-0.004	-0.004	-0.004*
	(0.009)	(0.007)	(0.007)	(0.007)	(0.010)	(0.004)	(0.002)	(0.002)	(0.003)	(0.002)
$\zeta_0$	-0.00000	0.00000	0.00000	0.00001	0.00001	-0.00000	-0.00001	-0.00000	-0.00001	-0.00001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.00004)	(0.00005)	(0.00005)	(0.00005)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.031	0.005	0.005	0.004	0.004	0.001	0.010	0.007	0.008	0.010
Adjusted R <sup>2</sup>	0.028	0.001	0.001	0.001	0.0002	-0.001	0.008	0.005	0.006	0.008

The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*\*, and \* denote statistical significance at 1%, 5%, and 10% level.

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Table C.21: Regression Results

				1	Dependent var	iable:				
		F	Pre-financialisation period			Fi	nancialisation period	1		
	$h_{S\&P500}$	$h_{Copper\ 1}$	$h_{Copper\ 2}$	$h_{Copper 3}$	$h_{Copper~4}$	$h_{S\&P500}$	$h_{Copper\ 1}$	$h_{Copper\ 2}$	$h_{Copper 3}$	$h_{Copper 4}$
$\zeta_1 SI$	-0.002	-0.0001	-0.0002	-0.0003	-0.0002	-0.001	-0.001	-0.002	-0.002	-0.001
	(0.002)	(0.0003)	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
$\zeta_2OI$	0.00001	0.003	0.008	0.008	0.008	-0.006	0.002	0.004	0.004	0.002
	(0.023)	(0.004)	(0.008)	(0.008)	(0.008)	(0.009)	(0.008)	(0.009)	(0.008)	(0.007)
$\zeta_0$	-0.00001	0.00000	0.00000	0.00000	0.00000	-0.00000	-0.00001	-0.00001	-0.00001	-0.0000
	(0.0001)	(0.00001)	(0.00003)	(0.00003)	(0.00003)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Observations	572	572	572	572	572	833	833	833	833	833
$\mathbb{R}^2$	0.003	0.001	0.002	0.002	0.002	0.001	0.0003	0.001	0.001	0.0003
Adjusted R <sup>2</sup>	-0.0001	-0.002	-0.001	-0.001	-0.002	-0.001	-0.002	-0.001	-0.001	-0.002

Note: The table reports estimated results from the regression:  $h_{ij,t} = \zeta_0 + \zeta_1 SI_i + \zeta_2 OI_i + e_{ij,t}$  examines the impact of speculative activity and open interests on conditional volatility of equities and commodities during pre-financialisation and financialisation period. Standard errors  $e_{ij,t}$  in parentheses. h,  $\zeta_0$ ,  $\zeta$ , SI, and OI represent conditional volatility, constant term, coefficient, speculation index, and open interest respectively. Speculation index is measured by  $\frac{Non-commercial\ Long\ Position-Non-commercial\ Short\ Position}{Total\ Open\ Interest}$  following Hedegaard (2011). \*\*\*, \*\*, and \* denote statistical significance at 1%, 5%, and 10%

level.