Who Influences the Fundamental Value of Commodity Futures in Japan?

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Motivation & Contributions

- Microstructure theory suggests informed trades have a persistent impact on a security's price.
  - Informed investors should be profitable over the long run.
- Adapting Hasbrouck's (1991) approach, we investigate the information content of commodity futures trades.
- We present evidence on information asymmetry in the trades of different types of commodity futures investors.
- We relate differences in the relative influence of various types of investor over the "*efficient price*" to the nature of the underlying commodity, international market interconnectedness and associated fundamental information.

Who Influences the Efficient Price?

Findings in Brief:

- Gold – Foreign Investors.
- Platinum – Investment Funds.
- Gasoline – Retail Investors.
- Rubber – "*Public information*" followed by Investment Funds.

Related Literature on Investor Types & Information

- Foreign equity investors at an informational disadvantage to domestic investors.
  - Choe et al. (2005); Coval and Moskowitz (1999, 2001); Grinblatt and Keloharju (2001); Kang and Stulz (1997); Karolyi and Stulz (2003).
- Foreign equity investors with a relatively small market impact.
  - Choe et al. (1999); Richards (2005); Yang (2017).
- Foreign equity investors at an informational advantage.
  - Grinblatt and Keloharju (2000); Kamesaka et al. (2003); Karolyi (2002); Seasholes (2000).
- Some speculative commodity futures investors are profitable, while hedgers tend to trade at a loss but exert pressure on prices.
  - Fishe and Smith (2012); DeRoon et al. (2000); Dewally et al. (2013).
- To our knowledge there is no published research on the influence of different types of investors on the efficient price of commodities futures.

TOCOM and Four Commodities

- **Tokyo Commodity Exchange:** An important exchange for a number of commodities, but relatively little research the microstructure of its markets.
- **Gold:** Decentralised trade across the globe in similar underlying. Tokyo relatively small.
- **Platinum:** Relatively concentrated. Tokyo is a globally important market in physical and futures trade.
- **Gasoline:** Domestic grade underlying. Closely linked to domestic supply and demand factors influencing the crack spread and crude.
- **Rubber:** Major natural rubber supply and demand in Asia, regional market. Several grades traded on various exchanges. Tokyo an important centre.

Six Investor Groups

- **Commercial:** entities hedging physical positions.
- **Dealer:** market-making brokers and dealers, and prop traders with direct trade access to TOCOM.
- **Fund:** all types of funds managed by financial institutions, both active and passive.
- **General:** domestic individual (retail) investors.
- **Agency:** financial intermediaries without direct trade access to TOCOM.
- **Foreign:** foreign domiciled investors, mainly funds, prop traders and dealers.

Price and Transactions Data

- Daily data from TOCOM for 20 September 2016 to 28 February 2018.
  - Corresponds with introduction of the J-GATE trading system.
- **Close of day-session futures prices** for the farthest (most actively traded) contract in each commodity.
  - Trading day defined as night session open (16:30) to next day session close (15:15).
- **Number of contracts purchased and sold** by each investor group during each trading day over all open contracts for each commodity.
  - Six futures contract maturities open for each commodity.
  - Contract months are all even months of the year for gold and platinum, and six consecutive months for gasoline and rubber.

Daily Returns and Trade Ratio

- **Returns** calculated from the beginning of the night session to the end of the day session, which aligns with the transactions.
- **Trade ratio**, $x_{g,t}$, for each investor group g at time t defined as:

$$x_{g,t} = \frac{B^{\star}_{g,t} - S^{\star}_{g,t}}{B^{\star}_{g,t} + S^{\star}_{g,t}} \tag{1}$$

  where $B^{\star}_{g,t}$ and $S^{\star}_{g,t}$ represent the number of futures contracts bought and sold by investor group g at time t, respectively.
- A positive (negative) trade ratio shows the investor group has bought (sold) more contracts than it has sold (bought) during the day.
- The trade ratio is stationary and in the range $[-1, 1]$.
- Trades are typically serially correlated.

Gold Futures Market

Table 1: Summary Statistics for Trades and Return

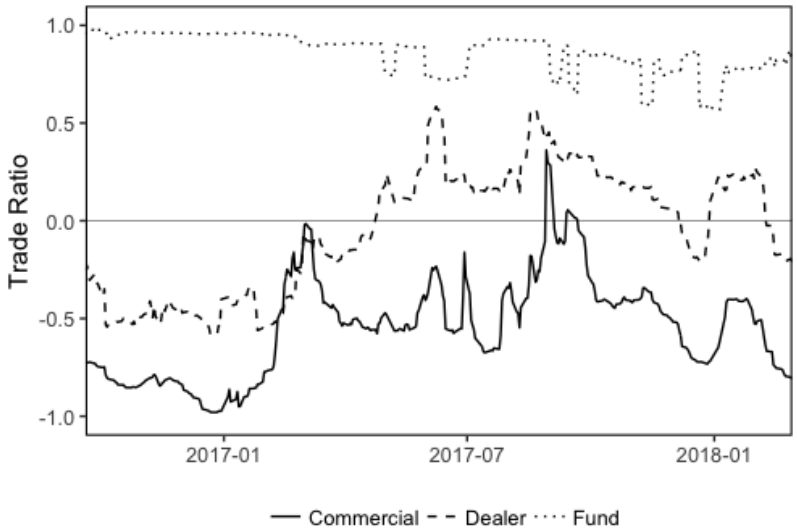
	Commercial		Dealer		Fund		General		Agency		Foreign		Return
	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	
Mean	6248	23876	13382	14774	601	35	50212	40898	6745	6023	12017	3682	0.017
Med.	6292	21724	12602	13938	459	25	47802	41257	6209	6007	13008	2539	0.022
Max.	11991	49951	28053	25434	1201	99	82821	63654	11509	9009	27273	15317	1.480
Min.	326	4193	5569	4107	336	12	24505	20954	3422	3311	1337	188	-2.465
S.D.	2986	10375	5807	5646	251	20	13562	9778	1997	1322	5969	3248	0.474
Skew.	0.03	0.36	0.94	0.13	0.84	1.58	0.38	0.08	0.73	0.15	-0.07	1.44	-0.490
Kurt.	2.35	2.34	3.00	1.88	2.01	4.81	2.16	2.38	2.53	2.47	2.11	4.78	2.776
Obs.	354	354	354	354	354	354	354	354	354	354	354	354	353

Table 2: Correlations Between Trade Ratios

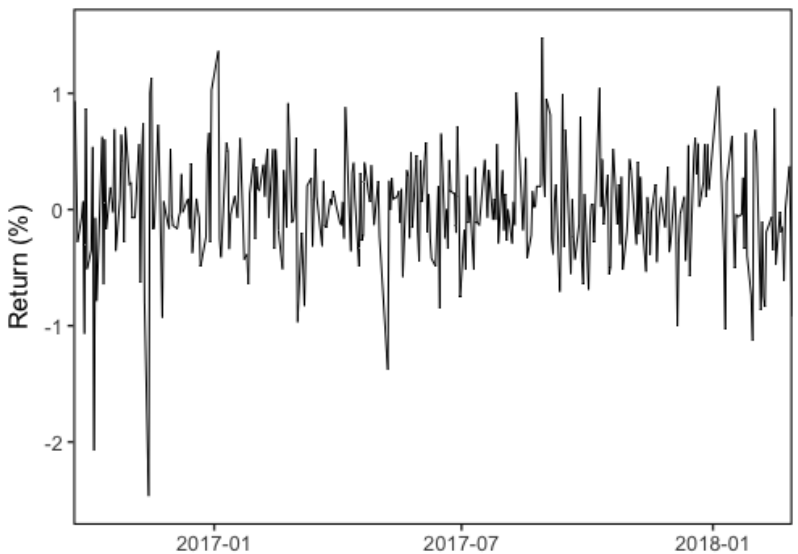
	Commercial	Dealer	Fund	General	Agency	Foreign
Commercial	1.00					
Dealer	0.74	1.00				
Fund	-0.36	-0.57	1.00			
General	-0.88	-0.80	0.31	1.00		
Agency	-0.88	-0.79	0.42	0.96	1.00	
Foreign	0.54	0.42	-0.16	-0.79	-0.79	1.00

Gold Futures Market

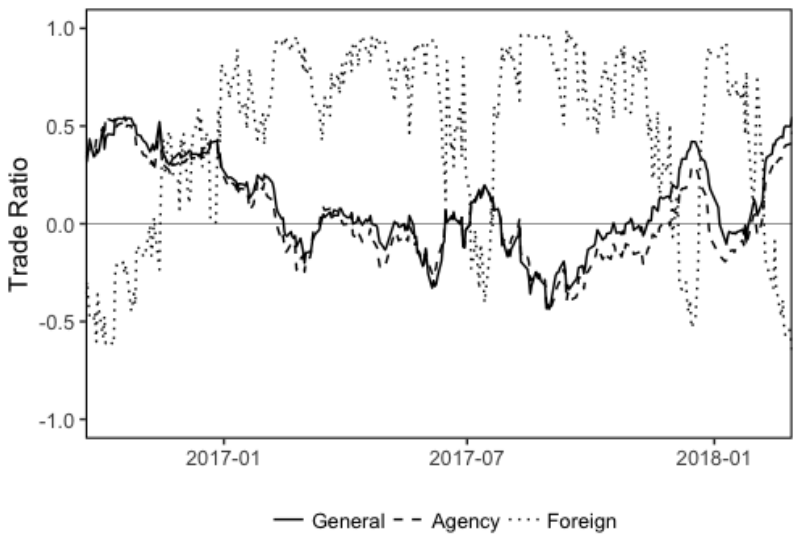
(a) Price



(b) Trade Ratio



(c) Return



(d) Trade Ratio

Platinum Futures Market

Table 3: Summary Statistics for Trades and Return

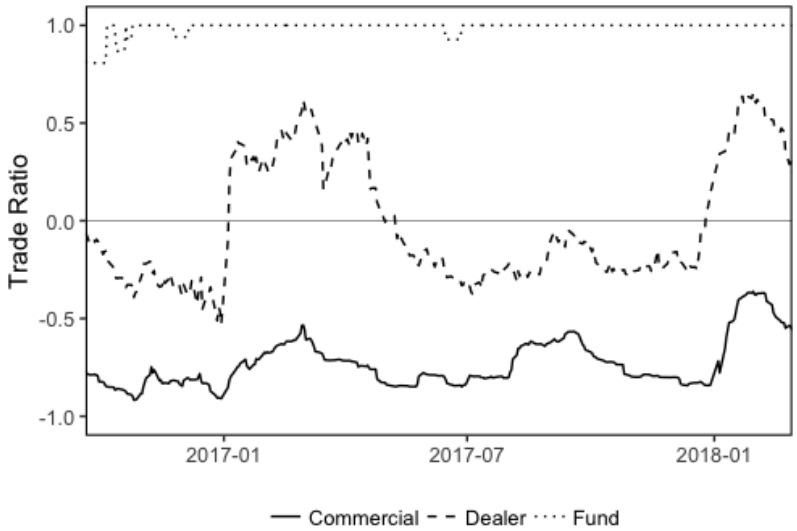
	Commercial		Dealer		Fund		General		Agency		Foreign		Return
	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	
Mean	4055	26599	3627	4136	282	2	37895	16615	5056	1678	5027	6991	0.006
Med.	3710	25953	3640	3266	266	0	38520	16938	5266	1697	3768	7157	0.000
Max.	8140	35920	7781	10167	476	42	53752	23572	6383	2544	15705	19301	4.014
Min.	1083	14910	700	1003	224	0	20792	6435	2625	816	1093	162	-3.204
S.D.	1744	6206	1447	2666	51	8	7965	3810	972	335	3486	4071	0.862
Skew.	0.67	-0.28	0.02	0.71	1.66	4.02	-0.09	-0.45	-0.91	-0.37	0.87	0.79	0.185
Kurt.	2.61	1.76	3.03	2.30	4.59	18.56	2.40	2.51	2.77	2.68	2.72	3.87	1.322
Obs.	354	354	354	354	354	354	354	354	354	354	354	354	353

Table 4: Correlations Between Trade Ratios

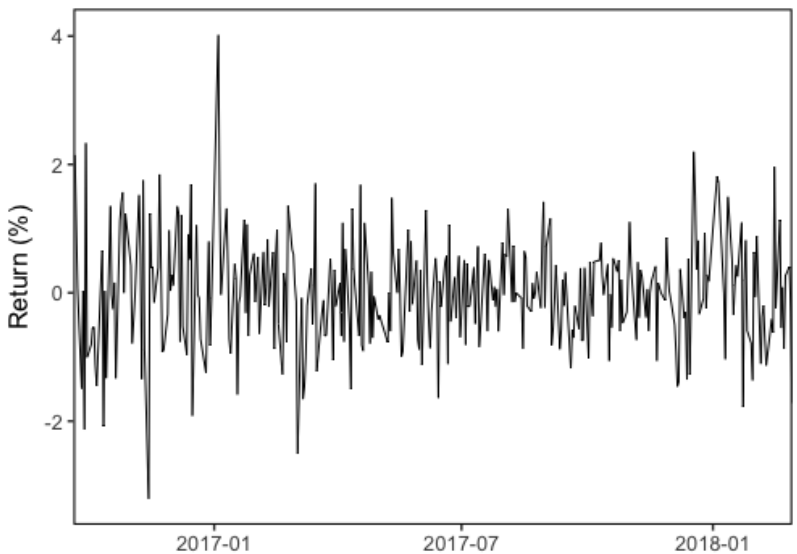
	Commercial	Dealer	Fund	General	Agency	Foreign
Commercial	1.00					
Dealer	0.72	1.00				
Fund	0.22	0.17	1.00			
General	-0.71	-0.71	-0.08	1.00		
Agency	-0.73	-0.75	-0.09	0.94	1.00	
Foreign	0.40	0.21	0.27	-0.61	-0.48	1.00

Platinum Futures Market

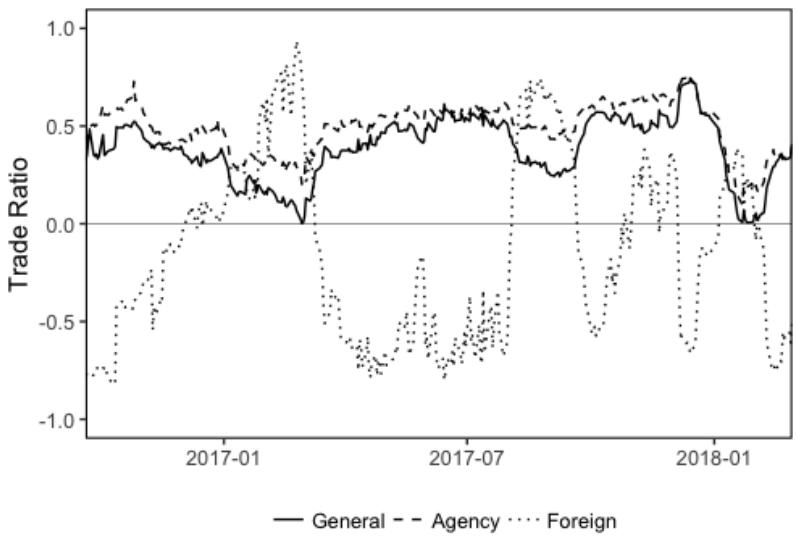
(a) Price



(b) Trade Ratio



(c) Return



(d) Trade Ratio

Gasoline Futures Market

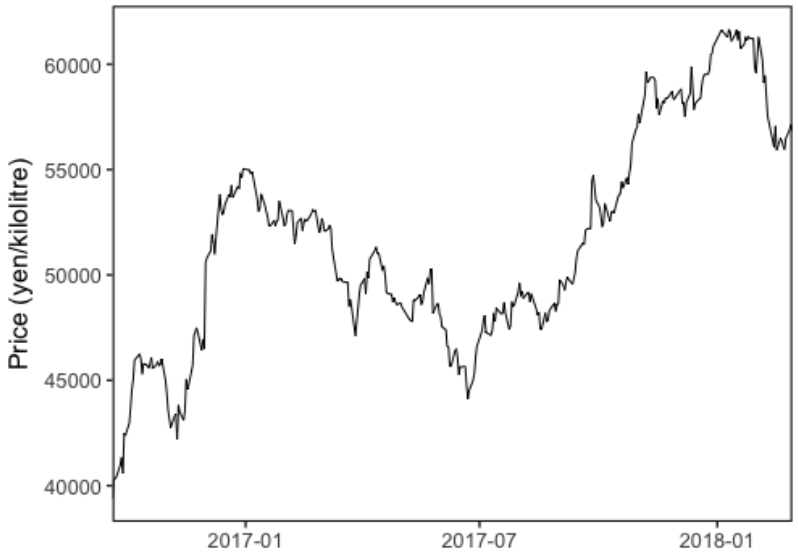
Table 5: Summary Statistics for Trades and Return

	Commercial		Dealer		Fund		General		Agency		Foreign		Return
	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	
Mean	4344	3574	1577	1756	7	42	2649	2436	301	257	497	1296	0.111
Med.	4301	3593	1479	1577	0	28	2619	2393	283	247	203	1502	0.170
Max.	6334	5777	2859	3114	65	171	3749	3454	560	503	2435	2356	8.774
Min.	1791	1567	676	410	0	23	1436	1269	94	131	20	48	-4.157
S.D.	1192	1082	492	720	13	30	557	365	118	62	588	671	1.245
Skew.	-0.15	0.10	0.66	0.13	1.69	2.52	0.14	0.46	0.43	1.11	1.47	-0.49	1.070
Kurt.	1.85	2.20	2.80	1.75	4.69	9.32	2.02	3.07	2.35	4.72	4.20	1.84	6.886
Obs.	354	354	354	354	354	354	354	354	354	354	354	354	353

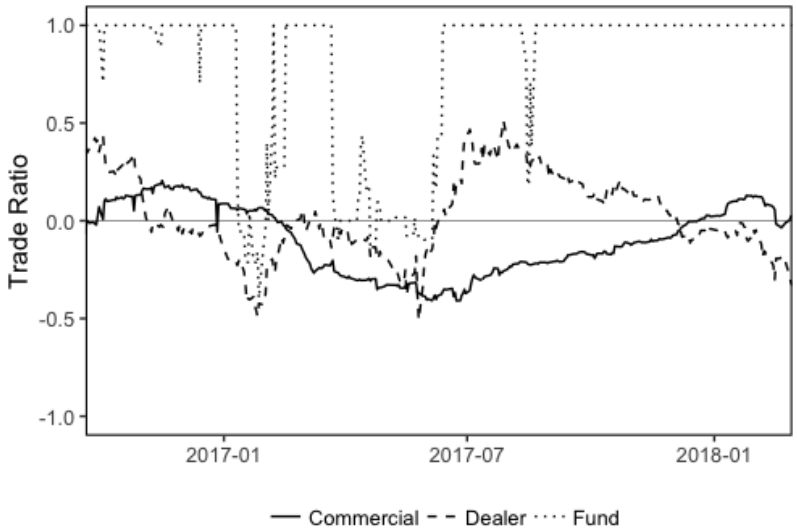
Table 6: Correlations Between Trade Ratios

	Commercial	Dealer	Fund	General	Agency	Foreign
Commercial	1.00					
Dealer	-0.16	1.00				
Fund	0.34	0.58	1.00			
General	-0.25	-0.43	-0.52	1.00		
Agency	-0.57	-0.09	-0.43	0.84	1.00	
Foreign	-0.73	-0.03	-0.19	-0.21	-0.02	1.00

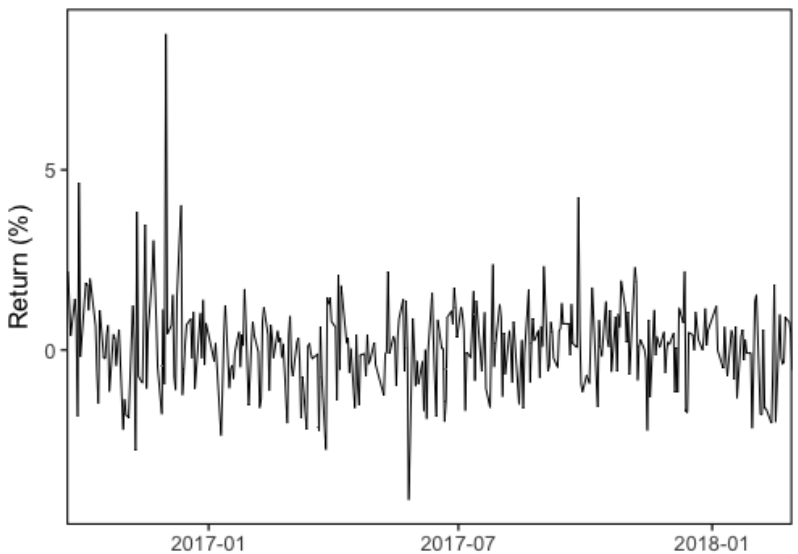
Gasoline Futures Market



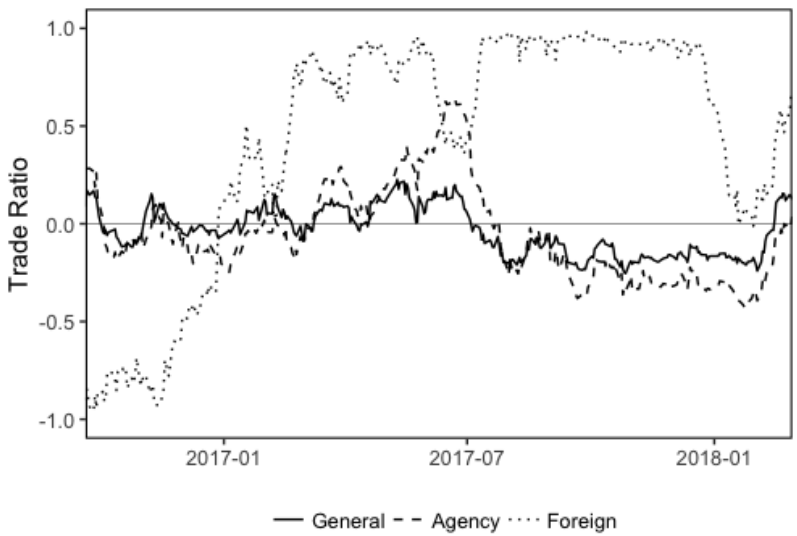
(a) Price



(b) Trade Ratio



(c) Return



(d) Trade Ratio

Rubber Futures Market

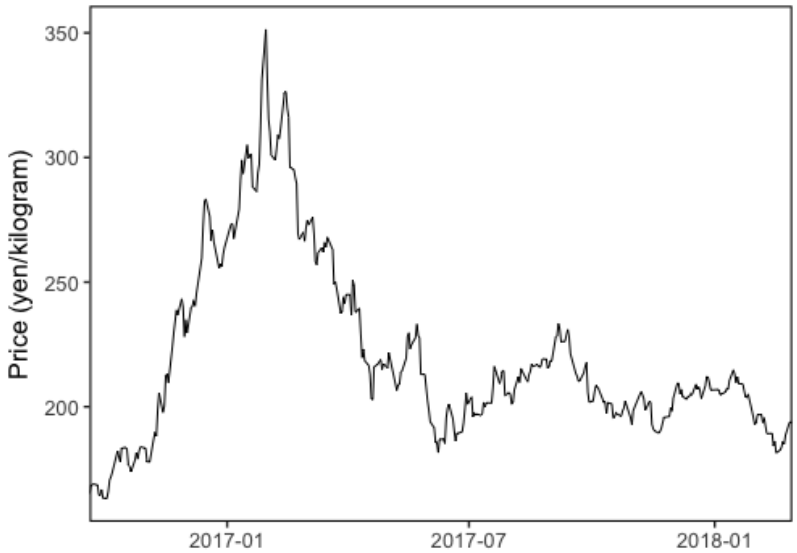
Table 7: Summary Statistics for Trades and Return

	Commercial		Dealer		Fund		General		Agency		Foreign		Return
	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	Buy	Sell	
Mean	2254	4195	1676	1675	24	5	8538	5798	792	1229	8575	8993	0.072
Med.	2332	4029	1526	1515	14	0	8434	4782	793	1063	8002	8076	0.061
Max.	4587	9615	4435	4472	122	35	13780	12327	1130	2684	19430	21464	6.969
Min.	336	1337	620	326	9	0	2529	2672	300	517	1835	2016	-6.943
S.D.	1174	1585	660	690	22	6	3055	2626	175	456	3598	3873	2.297
Skew.	0.17	0.88	1.26	1.10	2.56	1.65	0.01	0.94	-0.40	1.13	0.79	0.98	-0.012
Kurt.	1.91	4.04	5.04	4.40	9.56	6.13	1.92	2.44	2.77	3.61	3.64	3.87	0.747
Obs.	354	354	354	354	354	354	354	354	354	354	354	354	353

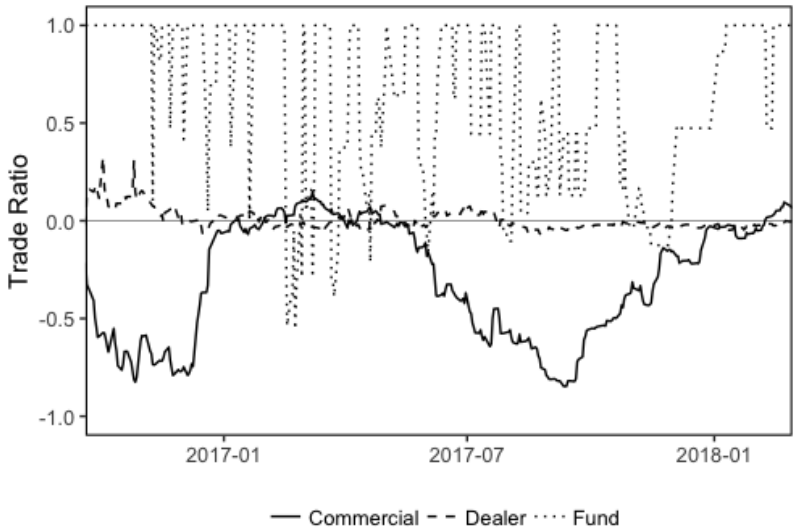
Table 8: Correlations Between Trade Ratios

	Commercial	Dealer	Fund	General	Agency	Foreign
Commercial	1.00					
Dealer	-0.27	1.00				
Fund	-0.04	0.35	1.00			
General	-0.04	-0.21	-0.18	1.00		
Agency	0.25	-0.05	-0.18	0.76	1.00	
Foreign	-0.18	0.25	0.23	-0.89	-0.77	1.00

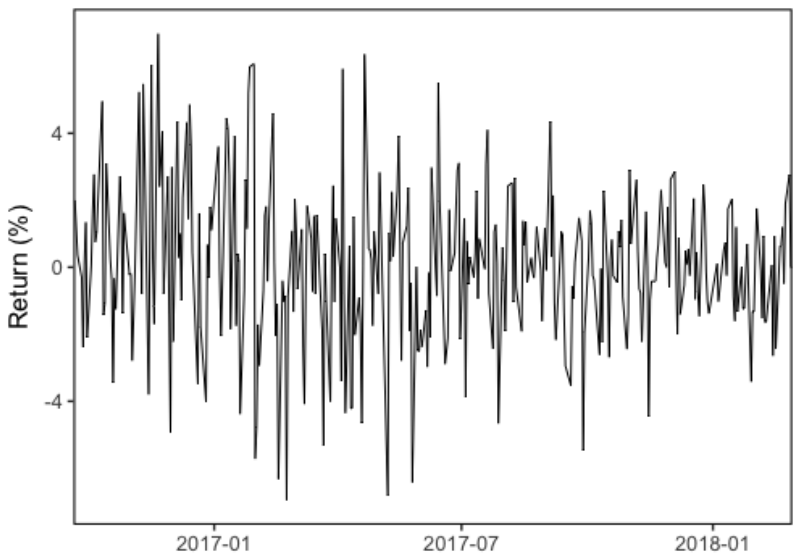
Rubber Futures Market



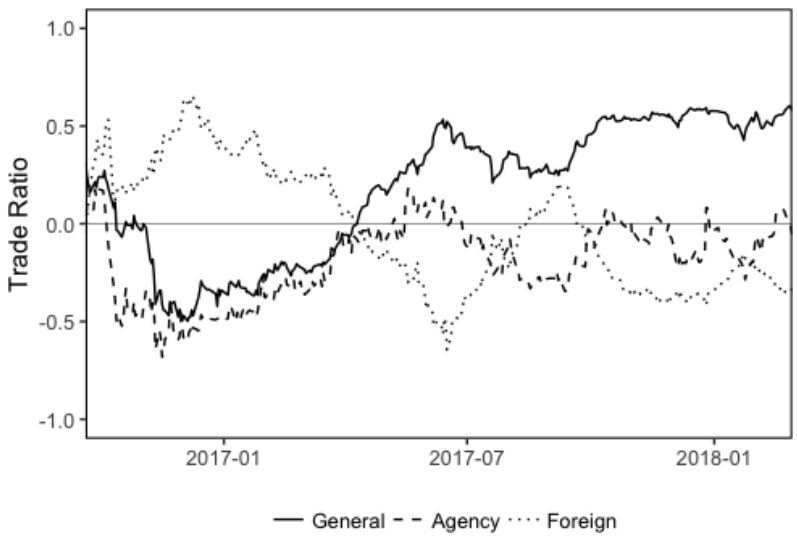
(a) Price



(b) Trade Ratio



(c) Return



(d) Trade Ratio

Efficient Price and Mispricing

- Hasbrouck (1991a, 1991b).
- The price of a security, p_t, may be defined as the sum of the **efficient price** m_t and **mispricing** s_t:

$$p_t = m_t + s_t \tag{2}$$

  where m_t follows a random walk process and s_t is a mean-zero covariance stationary process, and $\lim_{h \to \infty} E\left(s_{t+h}\right) = 0$.

- The efficient price (m_t) is decomposed into **trade-related (private)** and **non-trade-related (public)** information.

The VAR Model

- The VAR model can be expressed as:

$$BY_t = \Phi_0 + \Phi_1 Y_{t-1} + \Phi_2 Y_{t-2} + \cdots + \epsilon_t \tag{3}$$

where:

$$Y_t = \begin{bmatrix} X_t \\ r_t \end{bmatrix}, \quad X_t = \begin{bmatrix} x_{1,t} \\ x_{2,t} \\ x_{3,t} \\ x_{4,t} \\ x_{5,t} \\ x_{6,t} \end{bmatrix} \quad \text{and} \quad B = \begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 0 & -b_1 \\ 0 & 1 & 0 & 0 & 0 & 0 & -b_2 \\ 0 & 0 & 1 & 0 & 0 & 0 & -b_3 \\ 0 & 0 & 0 & 1 & 0 & 0 & -b_4 \\ 0 & 0 & 0 & 0 & 1 & 0 & -b_5 \\ 0 & 0 & 0 & 0 & 0 & 1 & -b_6 \\ -c_1 & -c_2 & -c_3 & -c_4 & -c_5 & -c_6 & 1 \end{bmatrix}$$

- X_t is the set of trade ratios $x_{g,t}$ for investor group $g = 1, \ldots, 6$.
- The b_g are coefficients on the returns explaining the trade ratios.
- The c_g are coefficients on the trade ratios explaining the returns.
- The Φ_i are 7×7 coefficient matrices.

Long Run Price Impact of Trade (Cumulative IRF)

Table 9: Price Impact of Trade (at 30 Days)

	Gold	Platinum	Gasoline	Rubber
Commercial	-0.04	-0.29	-0.43	-0.79
Dealer	-0.02	-0.15	-0.94	1.09
Fund	0.06	0.20	0.14	1.13
General	0.37	-0.31	0.75	-1.01
Agency	0.04	-0.13	0.26	-0.84
Foreign	0.17	-0.26	0.25	0.55
Return	-0.04	0.29	0.16	2.57

- A low absolute number suggests unexpected trades have little cumulative long-run influence on price.
- A **positive (negative)** sign indicates investors may be **informed (a liquidity provider)**.
- Relative magnitudes across markets indicate relative **liquidity**.

Variance Decompositions Compared

Table 10: Forecast Error and Efficient Price Variance Decompositions (%)

	Gold		Platinum		Gasoline		Rubber	
	FE	EP	FE	EP	FE	EP	FE	EP
Commercial	0.88	39.48	1.91	27.55	8.08	4.86	1.59	0.29
Dealer	0.71	8.06	0.32	0.43	20.14	17.79	2.80	1.25
Fund	0.70	5.80	0.65	29.16	0.43	4.08	32.02	27.70
General	89.23	0.41	86.67	6.36	11.42	57.94	5.16	17.50
Agency	2.21	0.36	2.58	3.13	3.41	3.97	8.07	5.65
Foreign	1.42	45.64	1.95	14.90	15.73	7.98	0.83	0.28
Return	4.85	0.24	5.92	18.47	40.79	3.38	49.53	47.34
Share by Trades	95.15	99.76	94.08	81.53	59.21	96.62	50.47	52.66

- FE represents the standard forecast error variance decomposition of price ($m_t + s_t$), EP is the variance decomposition of the efficient price (m_t only).
- General investors have a large influence over price in the gold and platinum markets, but a small influence over the efficient price.
- Non-trade information has a large but transitory influence over gasoline futures, and general investors are influential over the efficient price.
- Non-trade information is relatively influential in the rubber market followed by fund investors for both the FE and EP decompositions.
- Foreign & Commercial have the greatest influence over the efficient price in gold, Fund & Commercial in platinum and General in gasoline.

Discussion

Gold:

- Foreign investors (influential and informed) may have access to information on global macroeconomic and financial conditions, forecast safe haven or inflation hedge demand.
- Commercials influence the efficient price, but are not informed.
- Retail investors likely not well informed on the drivers of price.
- Little role for non-trade (public) information.

Platinum:

- Commercials (influential liquidity providers) consistent with TOCOM as a globally important hedging venue.
- Funds (influential and informed) and Foreign (influential).
- General investors not expected to be well informed.
- Less liquid than gold, nontrade-related information has a small influence on the efficient price.

Discussion

Gasoline:

- General (influential and informed) may have an informational advantage being located close the sources of information domestic gasoline demand and supply, inventory.
- Less liquid market, nontrade information influences prices in the short term but not the efficient price.

Rubber:

- Importance of public information in the rubber market consistent with it's relative illiquidity, reported detachment from fundamentals, recent lack of hedging activity.
- Opacity, information cost, several grades and exchanges.
- News surpises have a substantial influence on price.
- Funds (influential and informed) appear to tade short-term and may benefit trading against General investors (influential and liquidity providers).

Conclusion

- The efficient price in the gold, platinum and gasoline markets is mainly influenced by trade-related innovations.
- Foreign investors have the greatest influence over the efficient price in the gold market, investment funds in the platinum market and retail investors in the gasoline market.
    - Under microstructure theory, these investor groups are expected to be the most profitable in the long-run.
- Both trade and non-trade related innovations have an equal influence on the efficient price of rubber, with trades by investment funds having the largest private information content.

Thank you

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Appendix

VMA Representation of the Model

- The VAR can be inverted to VMA:

$$Y_t = \left(I + \theta_1 L + \theta_2 L^2 + \theta_3 L^3 + \dots \right) \epsilon_t = \theta \left(L \right) \epsilon_t \qquad (4)$$

where L is the lag operator, the θ_i are 7×7 matrices of coefficients, and ϵ_t is a white noise error process with $E\left(\epsilon_t\right) = 0$ and $Var\left(\epsilon_t\right) = \Omega$.

Variance of the Permanent Components

- Variance of the **permanent component** is estimated as:

$$\sigma_{\omega}^{2} = [\theta(1)]_{7} \, \Omega \, [\theta(1)]_{7}' \tag{5}$$

where $[\theta(1)]_{7}$ denotes the seventh row of $[\theta(1)]$ that corresponds to returns, and $[\theta(1)] = (I + \theta_1 + \theta_2 + \dots)$.

- Variance of the **trade-related component**:

$$\sigma_{\omega,x_g}^{2} = [\theta^{\star}(1)]_{7} \, \Omega \, [\theta^{\star}(1)]_{7}' \tag{6}$$

where $\theta^{\star}$ represents θ from the VMA with the coefficients related to all other investor groups and returns set to zero.

- Similarly the variance of the **non-trade related component**:

$$\sigma_{\omega,r}^{2} = [\theta^{\star\star}(1)]_{7} \, \Omega \, [\theta^{\star\star}(1)]_{7}' \tag{7}$$

where $\theta^{\star\star}$ represents θ from the VMA with the coefficients related to all investor groups set to zero.

Extracting the Variances

- Trade innovations for different investor groups are likely to be correlated, thus Ω is **non-diagonal**. Accordingly, use Cholesky factorisation to extract σ_ω^2.
- Set $\Omega = F'F$, where where F is the upper triangular Cholesky factor, and let $d = [\theta(1)]_7 F'$. Then:

$$\sigma_w^2 = \sum d_i^2 \tag{8}$$

- From the factorisation, we obtain the variance due to trade and non-trade components, which we express relative to σ_ω^2.
- The relative trade-related variance component for an investor group provides a measure of the relative influence of that group's trades on the efficient price.

Estimation

- The number of lags in the VAR model for each commodity was determined using AIC.
- Three lags are included for platinum, two for gold and gasoline, and one for rubber.
- Each VAR model was estimated using maximum likelihood.

Recall the VMA – Unexpected Component of Trade

- The VMA model can be written as:

$$\begin{bmatrix} x_{1,t} \\ x_{2,t} \\ x_{3,t} \\ x_{4,t} \\ x_{5,t} \\ x_{6,t} \\ r_t \end{bmatrix} = \begin{bmatrix} a_1(L) & b_1(L) & c_1(L) & d_1(L) & e_1(L) & f_1(L) & g_1(L) \\ a_2(L) & b_2(L) & c_2(L) & d_2(L) & e_2(L) & f_2(L) & g_2(L) \\ \vdots & & & & & \vdots & \\ a_7(L) & b_7(L) & c_7(L) & d_7(L) & e_7(L) & f_7(L) & g_7(L) \end{bmatrix} \begin{bmatrix} \epsilon_{1,t} \\ \epsilon_{2,t} \\ \epsilon_{3,t} \\ \epsilon_{4,t} \\ \epsilon_{5,t} \\ \epsilon_{6,t} \\ \epsilon_{7,t} \end{bmatrix} \tag{9}$$

- For example, the ultimate effect of the unexpected component of a trade by the Commercial investor group ($g = 1$) on price is:

$$\Psi_{30} = \sum_{k=0}^{30} a_{7,k}(\epsilon_{1,0}) \tag{10}$$

which is equivalent to the cumulative impulse response of return to the Commercial trade ratio.

Variance Decomposition of the Efficient Price

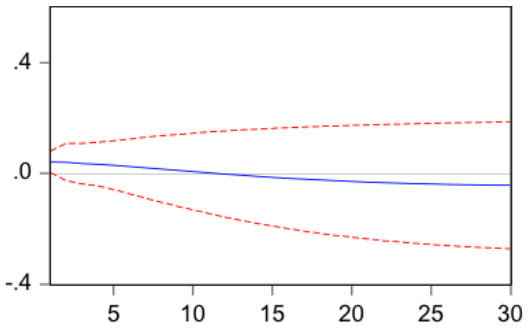
- We want to know how important **trade-related information** is for each investor group, relative to the efficient price, which we interpret as the private information in the trades of each group.

- Calculate the ratio of the variance of the trade-related component, σ^2_{ω,x_g} to the variance of the permanent component, σ^2_{ω}.

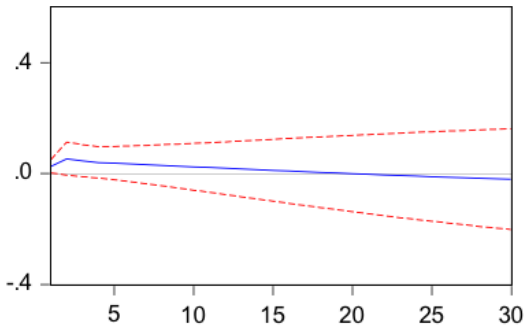
- We also want to know the relative importance of **non-trade related information**, which we interpret as public information.

- Calculate the ratio of the variance of the trade-related component, $\sigma^2_{\omega,r}$ to the variance of the permanent component, σ^2_{ω}.

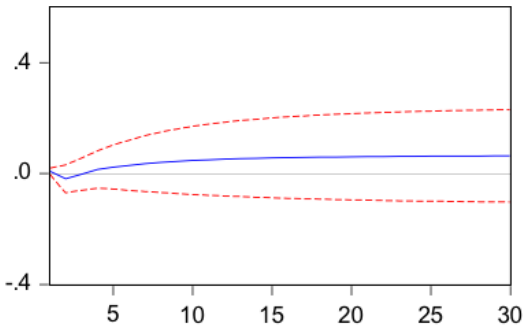
Cumulative Impulse Responses for Gold



(a) Commercial



(b) Dealer



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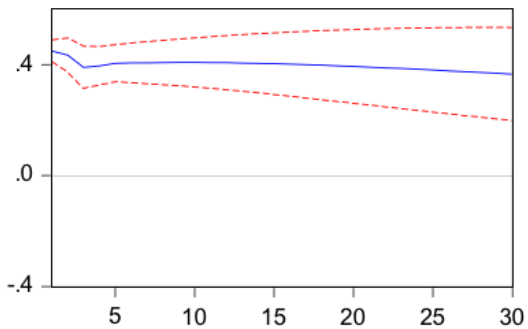

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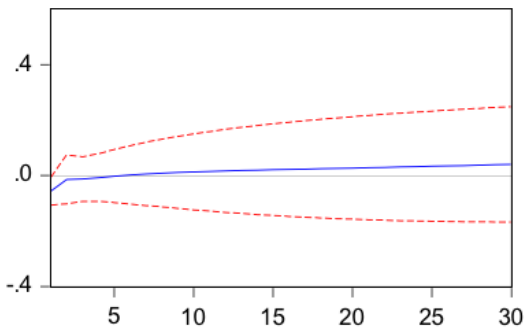

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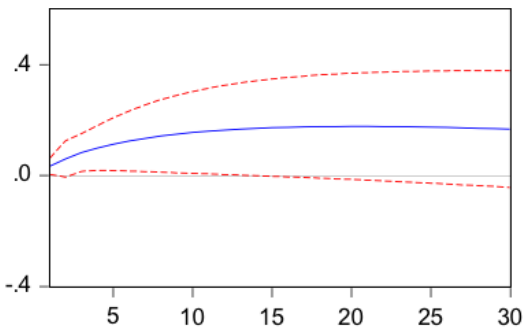
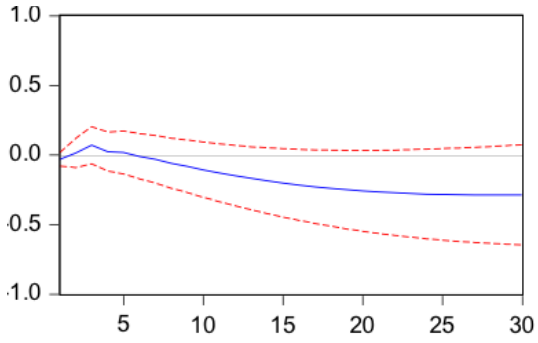
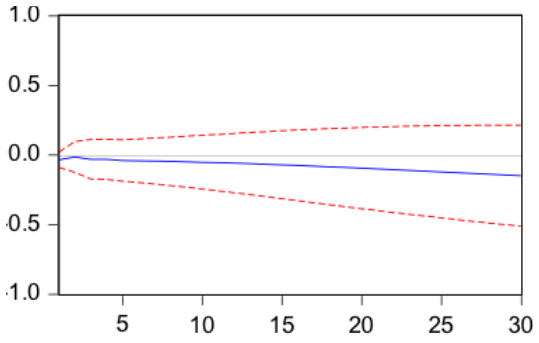


(f) Foreign

Cumulative Impulse Responses for Platinum



(a) Commercial



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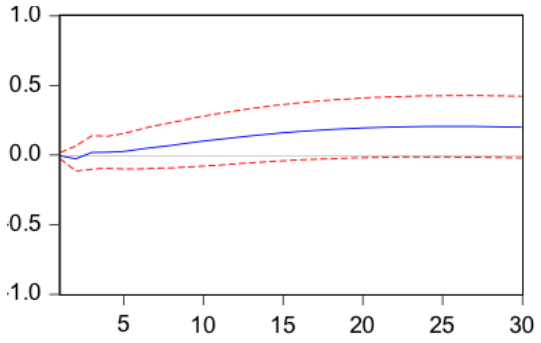

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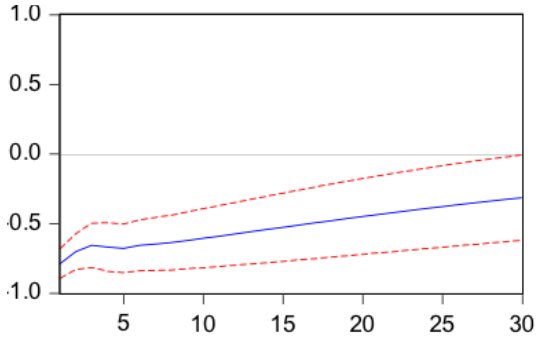

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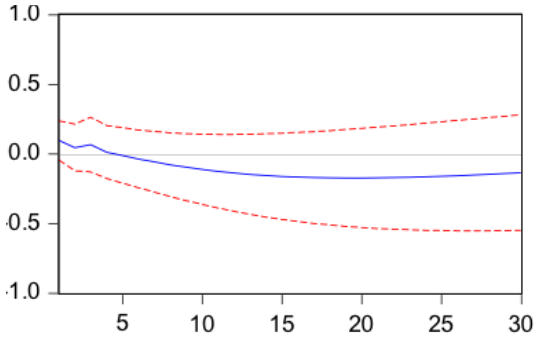

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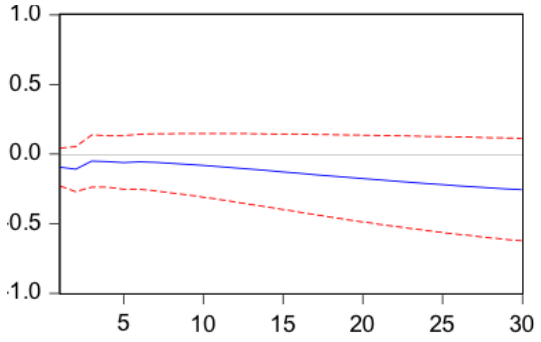
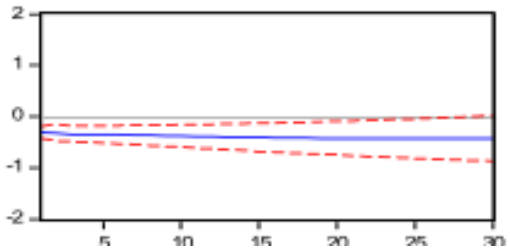
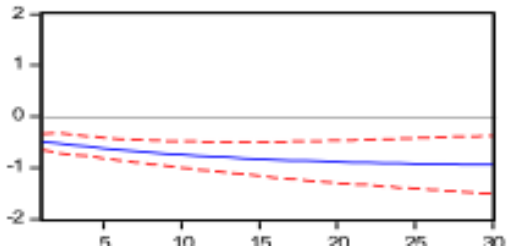


(f) Foreign

Cumulative Impulse Responses for Gasoline



(a) Commercial



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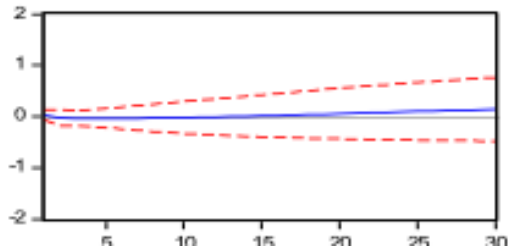

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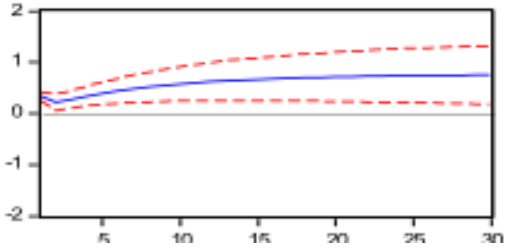
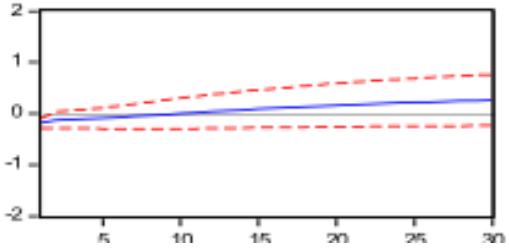
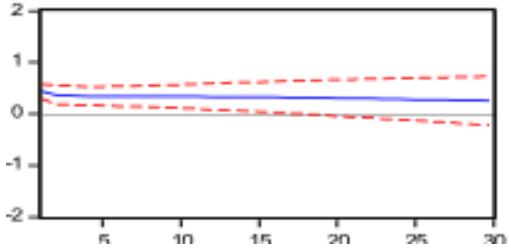


(d) General

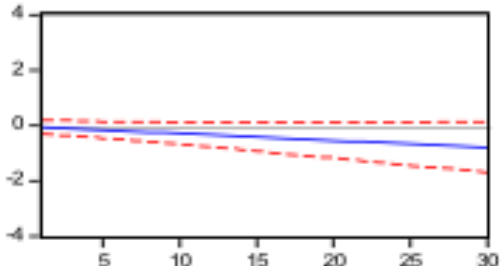


(e) Agency

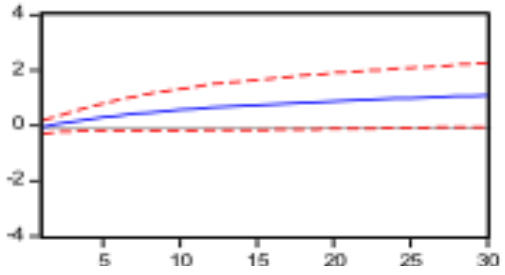


(f) Foreign

Cumulative Impulse Responses for Rubber



(a) Commercial



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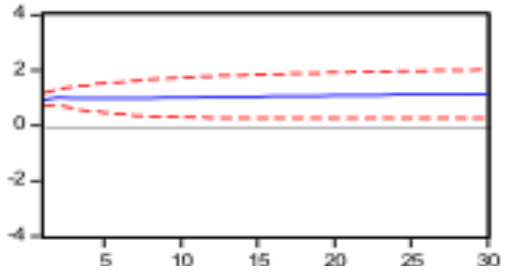

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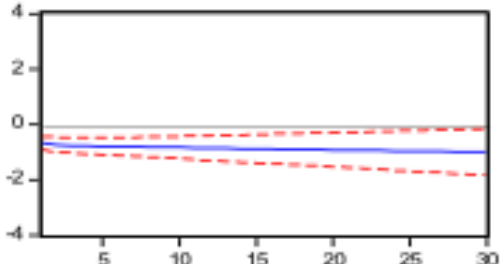

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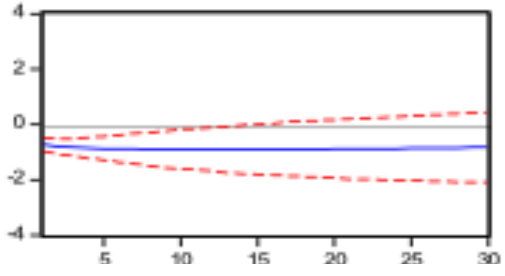

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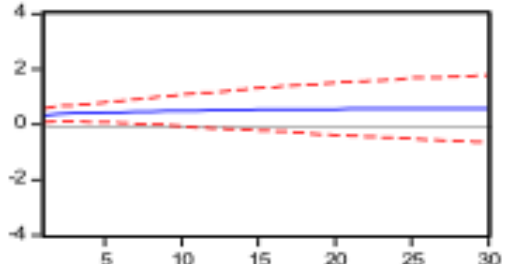

(f) Foreign

Contemporaneous Coefficient Estimates for Gold

Table 11: Model for the Gold Futures Market

	Dependent variable	Explanatory variable	Coeff.		Standard Error	P-value
Eq.1	Commercial	Return	0.035	***	0.006	0.000
Eq.2	Dealer	Return	0.036	***	0.004	0.000
Eq.3	Fund	Return	-0.008	*	0.004	0.090
Eq.4	General	Return	-0.290	**	0.115	0.012
Eq.5	Agency	Return	-0.066	***	0.004	0.000
Eq.6	Foreign	Return	0.199	***	0.016	0.000
Eq.7	Return	Commercial	14.682	***	1.330	0.000
		Dealer	11.605	***	1.595	0.000
		Fund	3.326	***	1.432	0.020
		General	64.024	***	2.567	0.000
		Agency	-35.243	***	2.324	0.000
		Foreign	4.390	***	0.469	0.000

Contemporaneous Coefficient Estimates for Platinum

Table 12: Model for the Platinum Futures Market

	Dependent variable	Explanatory variable	Coeff.		Standard Error	P-value
Eq.1	Commercial	Return	0.007	***	0.001	0.000
Eq.2	Dealer	Return	0.024	***	0.003	0.000
Eq.3	Fund	Return	0.002	*	0.001	0.076
Eq.4	General	Return	0.049		0.051	0.334
Eq.5	Agency	Return	-0.018	***	0.003	0.000
Eq.6	Foreign	Return	0.077	***	0.012	0.000
Eq.7	Return	Commercial	-10.750	***	3.763	0.004
		Dealer	-4.216	***	1.321	0.001
		Fund	-1.668		3.639	0.647
		General	-67.258	***	3.997	0.000
		Agency	23.450	***	2.958	0.000
		Foreign	-5.247	***	0.675	0.000

Contemporaneous Coefficient Estimates for Gasoline

Table 13: Model for the Gasoline Futures Market

	Dependent variable	Explanatory variable	Coeff.		Standard Error	P-value
Eq.1	Commercial	Return	-0.002		0.001	0.244
Eq.2	Dealer	Return	-0.007	*	0.004	0.082
Eq.3	Fund	Return	0.001		0.008	0.880
Eq.4	General	Return	-0.019	***	0.002	0.000
Eq.5	Agency	Return	-0.013	***	0.002	0.000
Eq.6	Foreign	Return	-0.001		0.005	0.859
Eq.7	Return	Commercial	23.989	***	4.088	0.000
		Dealer	16.751	***	2.156	0.000
		Fund	0.334		0.543	0.539
		General	18.396	***	2.410	0.000
		Agency	-7.791	***	1.907	0.000
		Foreign	10.713	***	1.435	0.000

Contemporaneous Coefficient Estimates for Rubber

Table 14: Model for the Rubber Futures Market

	Dependent variable	Explanatory variable	Coeff.		Standard Error	P-value
Eq.1	Commercial	Return	0.000		0.002	0.835
Eq.2	Dealer	Return	0.000		0.001	0.909
Eq.3	Fund	Return	0.004		0.040	0.912
Eq.4	General	Return	-0.002		0.002	0.292
Eq.5	Agency	Return	-0.003		0.004	0.422
Eq.6	Foreign	Return	0.003		0.002	0.107
Eq.7	Return	Commercial	-3.732		2.305	0.106
		Dealer	-1.383		3.225	0.668
		Fund	3.260	***	0.731	0.000
		General	-11.326	***	3.100	0.000
		Agency	-8.696	***	2.167	0.000
		Foreign	-3.075		1.940	0.113