Review of Natural Rubber Market – January to June 2009

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Association of Natural Rubber Producing Countries
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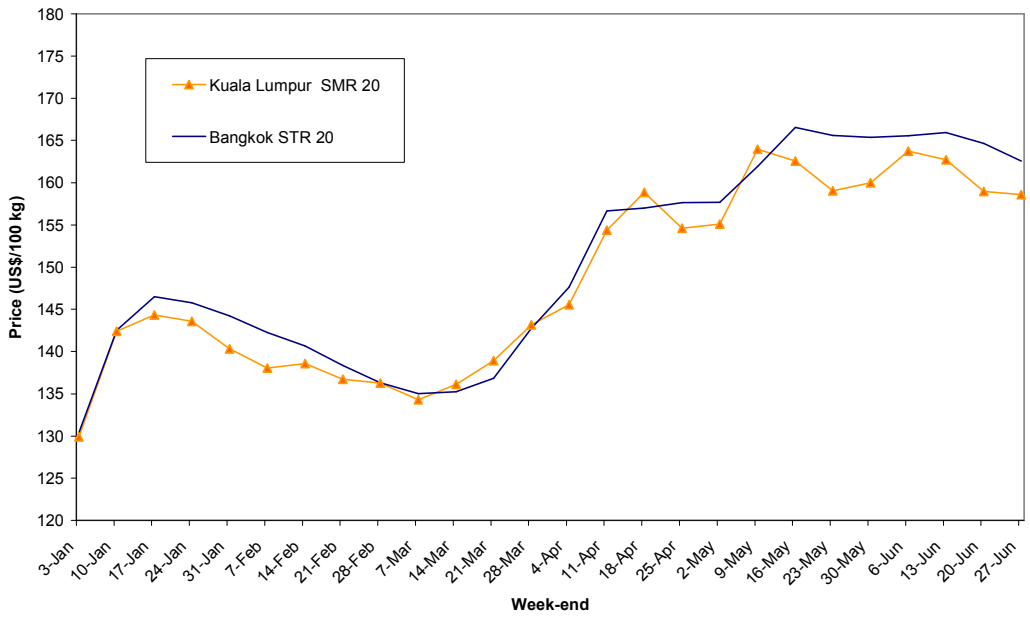
1. Trends in Prices

Trends in weekly average prices of TSR 20, the most popular traded form of NR, in Bangkok and Kuala Lumpur markets during the first half of 2009 are shown in Figure 1. Prices in both the markets rose from 1.30 US dollar per kg in the first week of the year, but started falling since mid-January with the trend continuing up to mid-March. Thereafter, the two markets registered a sharp recovery reaching around 1.65 US dollar per kg by mid-May and hovering around 1.60 US dollar per kg from there onwards till the end of June.

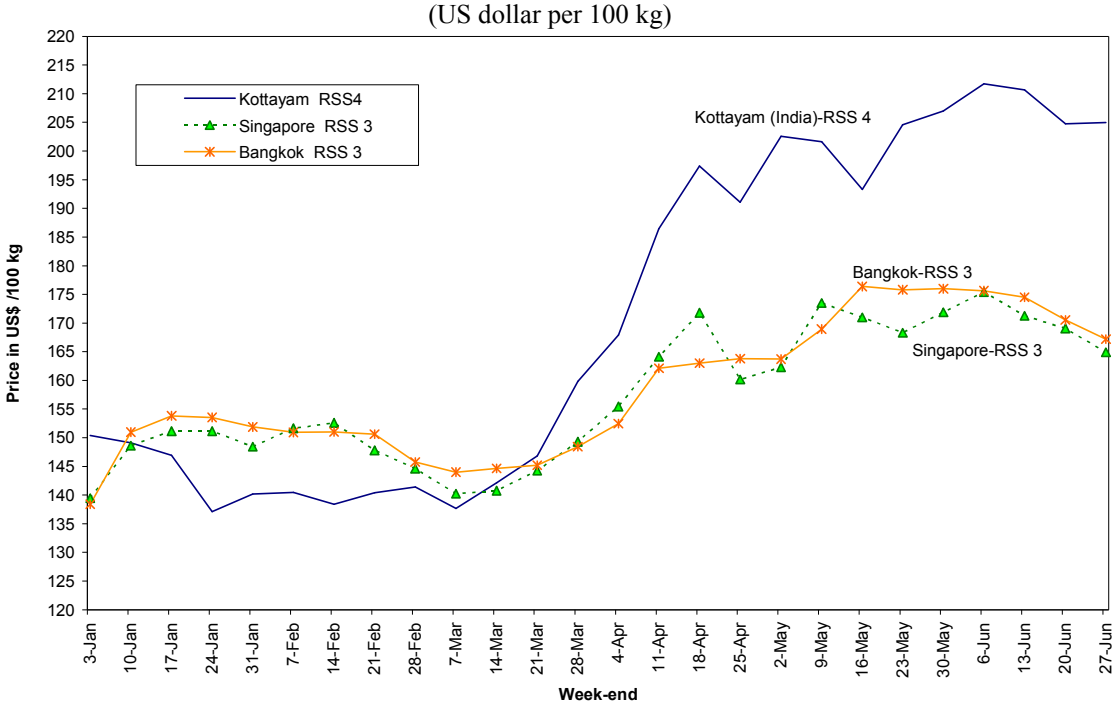
Figure 1: **Trends in Weekly Average Prices of TSR during 2009 H1**
(US$/100 kg)



Prices of RSS 3 in Singapore and Bangkok exhibited a rising trend at the beginning of the year before taking a downtrend starting from the second half of January continuing to mid-March. The period from mid-March to mid-May witnessed a sharp recovery in RSS 3 prices in the two markets. There had not been considerable fluctuations thereafter until June end.

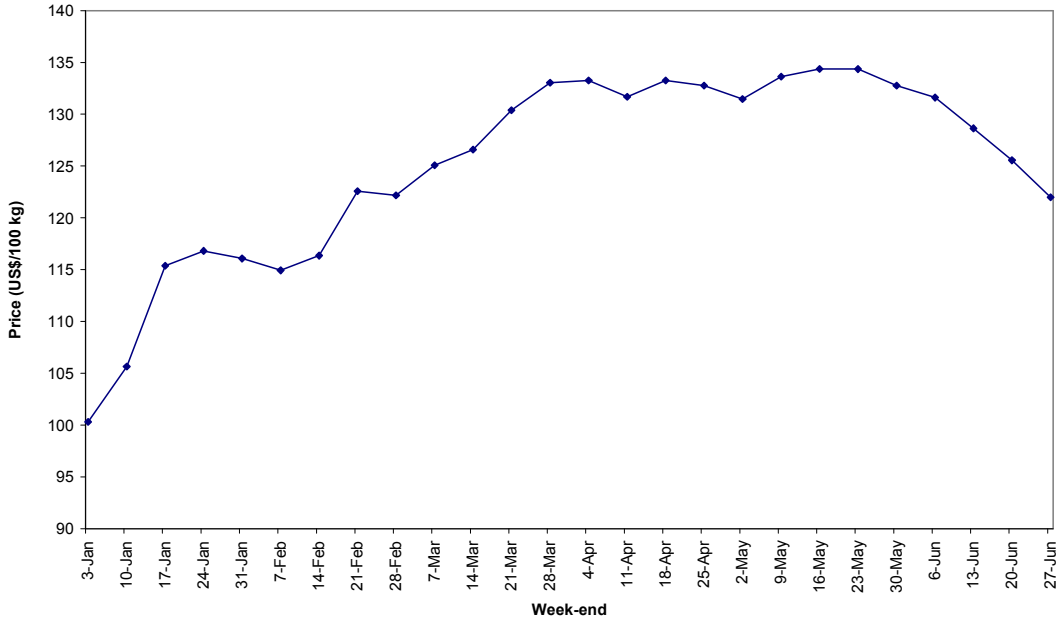
In Kottayam (India), the price RSS 4, the most popular grade in the country, exhibited wide deviations from RSS 3 markets in Singapore and Bangkok during the period under review. The extent of deviation progressively widened from April to June taking the prices at Kottayam much above the rates prevailed in Singapore and Bangkok markets (Figure 2).

Figure 2: **Trends in Weekly Average Prices of RSS during 2009 H1**
(US dollar per 100 kg)



Price of latex in Kuala Lumpur sharply rose from 1.0 US dollar per kg of dry rubber content (DRC) in the first week of January to touch 1.34 US dollar per kg in the week ended May 16. The market took a downtrend since the end of May which continued till end of June (Figure 3).

Figure 3: Price of Latex 60% in Kuala Lumpur during 2009 H1
(US$/100 kg of dry rubber content)



2. Stability in Natural Rubber Prices

Table 1 gives the minimum, maximum and average prices of TSR 20, RSS and Latex in prominent markets during the first half of 2009.

Table 1: **Minimum, Maximum and Average Price during 2009 H1**
(US dollar per 100 kg of dry weight)

	Minimum of weekly averages	Maximum of weekly averages	Average of weekly averages
TSR			
Bangkok STR 20	130[(1)]	167[(4)]	150
Kuala Lumpur SMR 20	130[(1)]	164[(3)]	148
RSS			
Singapore RSS 3	139[(1)]	175[(5)]	157
Bangkok RSS 3	138[(1)]	176[(4)]	158
Kottayam (India) RSS 4	137[(2)]	212[(5)]	171
Latex			
Kuala Lumpur	100[(1)]	134[(4)]	125

(1) Week ended January 3, (2) Week ended January 24, (3) Week ended May 9, (4) Week ended May 16
(5) Week ended June 6.

Variations in a series can arise from long term trends, short term fluctuations (instability) or both together. Uncertainty in a market generally originates from short-term fluctuations rather than long term trends. Therefore, a meaningful measure of instability is one representing short-term fluctuations alone. A limitation in measuring instability (i.e. market uncertainty) by using coefficient of variation (CV) is that it gives the total variation arising from both long-term trends

and short-term fluctuations. Economists prefer measuring instability by using the Instability Index (I_x) which gives a measure of variability arising from short term fluctuations after eliminating effect of long term fluctuations. Table 2 gives CVs and calculated Instability Indices of average weekly prices of major traded forms of NR[1].

Table 2: **Price Instability in 2009 H1 vis-à-vis 2008 H1**

	2008 (January-June)		2009 (January – June)	
	Total variability (CV)	Instability Index (I_x)	Total variability (CV)	Instability Index (I_x)
TSR				
Bangkok STR 20	7.3	2.5	8.0	3.9
Kuala Lumpur SMR 20	7.6	2.4	7.4	3.7
RSS				
Singapore RSS 3	7.2	2.0	7.5	4.2
Bangkok RSS 3	7.2	2.3	7.5	3.9
Kottayam (India) RSS 4	8.4	2.2	17.2	6.7
Latex				
Kuala Lumpur	6.2	2.8	7.5	2.0

The table reveals that uncertainty, measured in terms of instability index, was considerably higher in 2009 H1 as compared to 2008 H1, with the exception for latex in Kuala Lumpur. A higher instability in 2009 H1 was more pronounced in the case of RSS 4 in Kottayam. The index took the value 6.7 for 2009 H1 as against 2.2 for 2008 H1. The analysis leads to the conclusion that natural rubber markets had been more unstable in 2009 H1 as compared to 2008 H1.

3. Comparison of NR Prices between 2009 H1 and 2008 H1

Figures 4 to 9 compare the trends in prices between 2009 H1 and 2008 H1.

[1] $I_x = CV\sqrt{(1-R^2)}$, where R^2 is the explanatory power of the best fitting trend curve. If long-term trend is insignificant for a series, R^2 would be zero and I_x would be equal to CV.

Figure 4: **Prices of TSR 20 in Bangkok during 2009 H1 vis-à-vis 2008 H1**

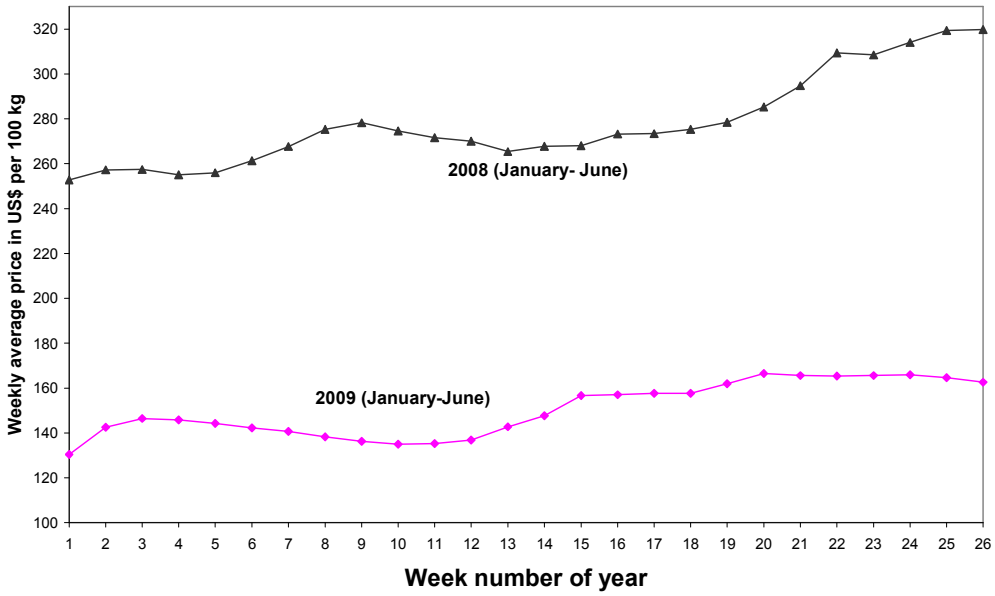


Figure 5: **Prices of TSR 20 in Kuala Lumpur during 2009 H1 vis-à-vis 2008 H1**

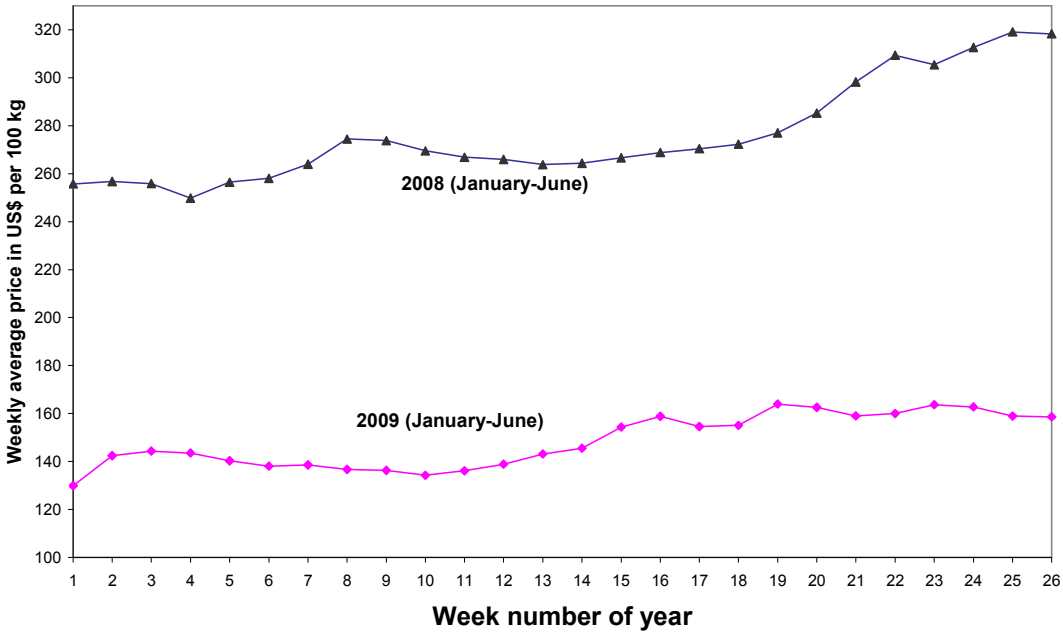


Figure 6: **Prices of RSS3 in Singapore during 2009 H1 vis-à-vis 2008 H1**

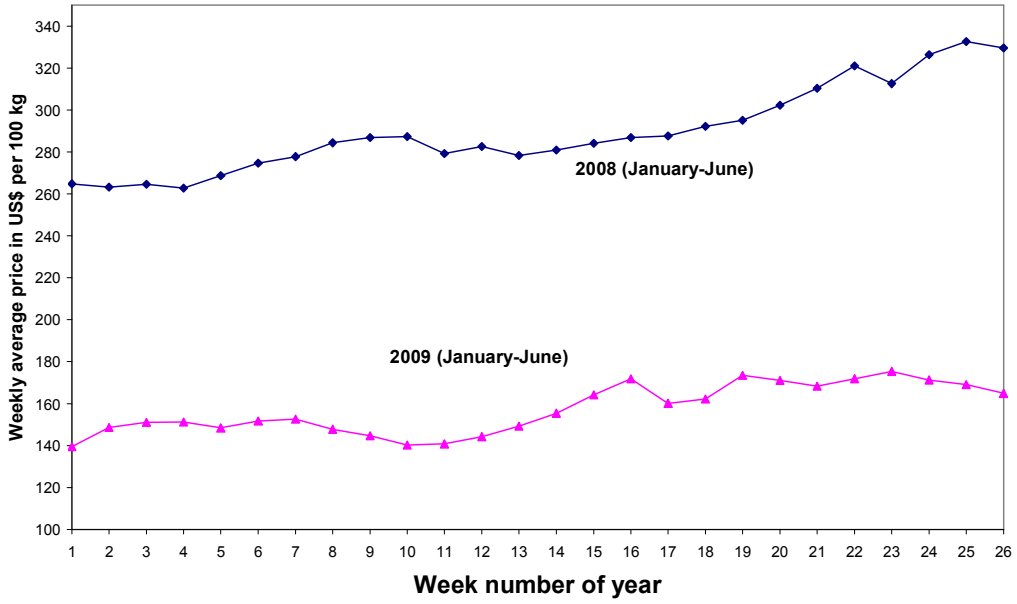


Figure 7: **Prices of RSS3 in Bangkok during 2009 H1 vis-à-vis 2008 H1**

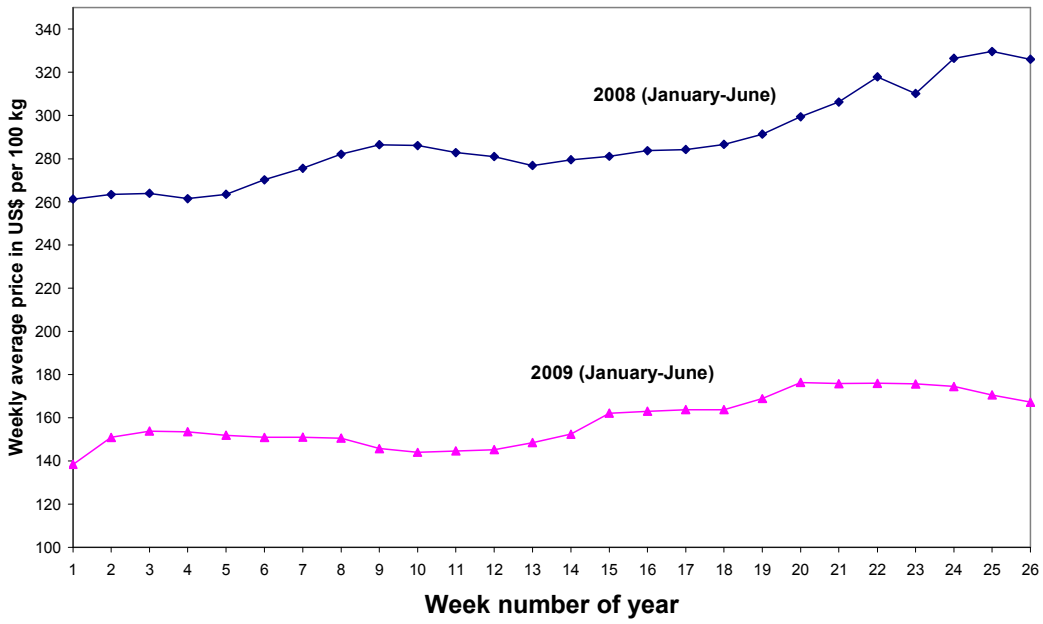


Figure 8: **Prices of RSS4 in Kottayam during 2009 H1 vis-à-vis 2008 H1**

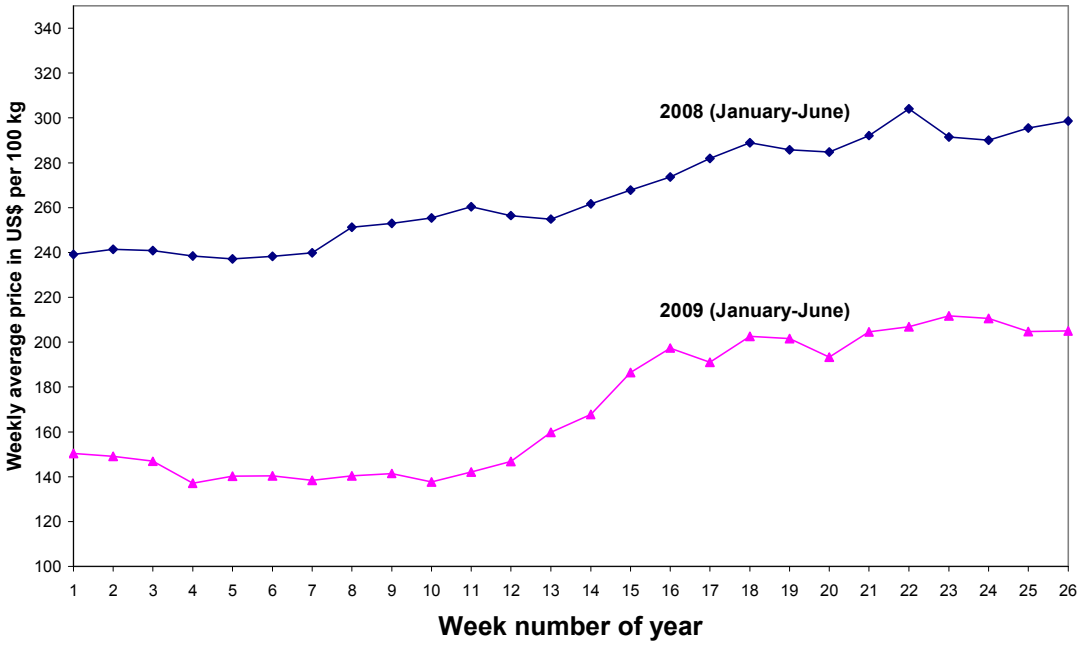
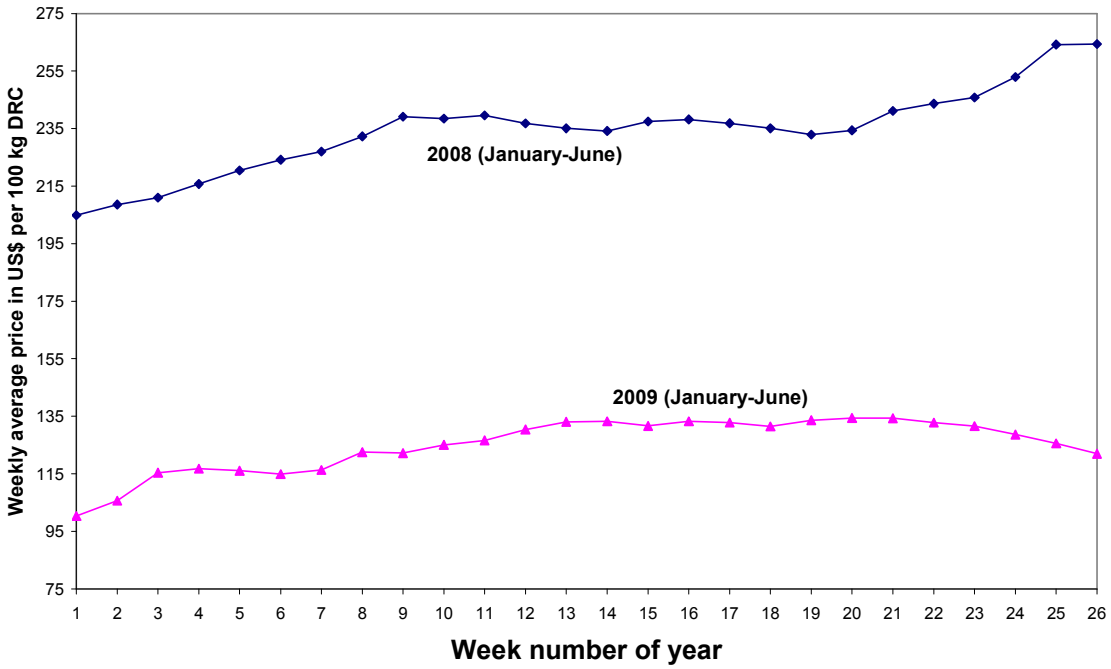


Figure 9: **Prices of Latex 60% in Kuala Lumpur during 2009 H1 vis-à-vis 2008 H1**



The following two key observations could be drawn from Figures 4 to 9:

(i) Prices of all grades in all markets in 2009 H1 ruled considerably below the corresponding rates in 2008 H1.

(ii) The pattern of price movements had been almost similar in 2009 H1 and 2008 H1 except in June.

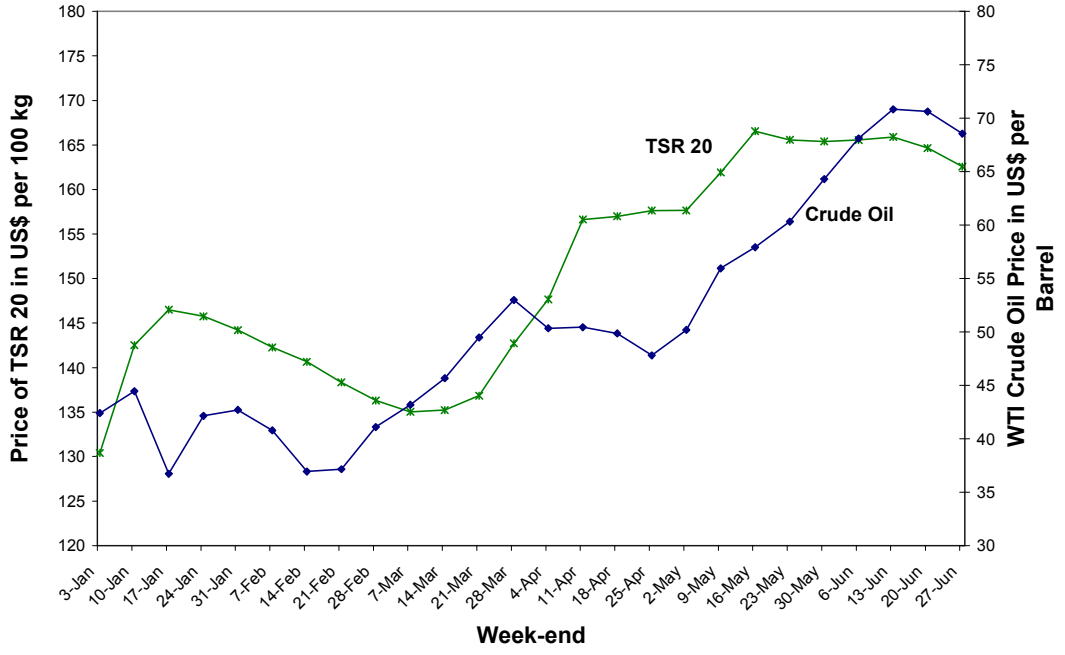
4. Factors Influenced NR Prices in 2009 H1

Trends in crude petroleum oil price, supply-demand position of NR, currency values in NR exporting countries and Japanese yen are the various factors generally considered as influencing NR prices. The following sub-sections provide a brief analysis of the influence of each factor.

(i) Trends in Crude Petroleum Oil Price

Price of crude petroleum oil influences NR market through synthetic rubber. The period from January to June 2009 had seen considerable fluctuations in oil price. Weekly average WTI (West Texas Intermediate) FOB spot prices of crude petroleum oil, which ruled in the range of 36-40 US dollar per barrel from mid-January to mid-February, took a sharp uptrend starting from the last week of February to cross 70 US dollar in mid-June. Figure 10 shows the trends in weekly average prices of crude petroleum oil (WTI spot FOB) and TSR 20 in (Bangkok) during the first half of 2009.

Figure 10: **Prices of WTI Crude Petroleum Oil vis-à-vis Bangkok TSR 20 During 2009 H1**



The graph provides evidence of an influence of oil price on NR price although the two series diverged at several points of time. A moderate influence of oil price on NR market during the period under review is also supported by a statistically significant estimated value of the coefficient of correlation (R^2 = 0.65). Statistical analysis further revealed that each percentage

change in crude petroleum oil price induced 0.32% change in NR price in the same direction[2]. It merits mention that NR price continued to rise even though oil price took a downswing in April 2009 indicating possible influence of other dominant factors.

(ii) Supply-Demand Position of NR

Table 3 summarises the trends in annual production of NR from 2007 to 2009 in Thailand, Indonesia, Malaysia, India, Vietnam, China and Sri Lanka. These seven countries accounted for 93% of the global production of NR in 2008.

Table 3: **Production of NR**

	Production (Thousand tonnes)			Annual Rate of Growth (%)		
	2007	2008	2009(2)	2007	2008	2009(2)
Thailand	3056	3090	2920	*-2.6*	*1.1*	*-5.5*
Indonesia	2755	2751	2665	*4.5*	*-0.1*	*-3.1*
Malaysia	1200	1072	895	*-6.5*	*-10.7*	*-17.1*
India	811	881	844	*-4.9*	*8.6*	*-4.2*
Vietnam	602	663	651	*8.5*	*10.1*	*-1.8*
China	588	548	637	*9.3*	*-9.9*	*16.2*
Sri Lanka	118	129	132	*8.3*	*9.3*	*2.3*
Total(1)	**9130**	**9134**	**8744**	***0.2***	***0.0***	***-4.3***

(1) Total of the above seven countries.
(2) Refers to the 12 months ended June 30, 2009.
Source: Data reported to the ANRPC Secretariat by respective governments.

Total production in the seven countries contracted 4.3% in the 12 months ended June 30, 2009 compared to 2008 full year. This is the biggest fall in global supply of NR after 1952.

Sources of the output fall in 2009 H1 could be diagnosed by examining the changes in tapped area and average annual yield. Table 4 gives the trends in tapped area in each country and the aggregate average yield for all the seven countries together.

[2] The estimated functional relationship between the two series is:

$$Ln(Price_{rubber}) = 0.315066\ Ln(Price_{crude\ oil}) + 3.779383;$$

($R^2 = 0.65$; F-Statistic= 44.6, Period: 27 weeks from January to June 2009).

In the above estimated regression equation, the coefficient 0.315066 measures elasticity. The estimated coefficient implies that each percentage change in crude petroleum oil price induces 0.32% change in NR price, in the same direction.

Table 4: **Tapped Area**
(Thousand hectare)

	2007	**2008**	**2009**
Thailand	1774	1819	1867
Indonesia	2776	2769	2693
Malaysia	1146	760	740
India	459	463	466
Vietnam	373	399	382
China	503	520	513
Sri Lanka	94	94	93
Total Mature Area	7125	6824	6754
Average Yield(1) (kg/ha)	1281	1339	1295

(1) Aggregate yield for all the 7 countries together, computed on the basis of total production and total tapped area in the 7 countries.
Source: Reported to the ANRPC Secretariat by respective governments.

The table reveals shrinkage in tapped area in 2008 and 2009 and a fall in average yield in 2009. Total tapped area in the seven producing countries shrank by 371,000 ha from 2007 to 2009. Average yield, aggregated for the seven producing countries, although improved from 1281 kg/ha in 2007 to 1339 kg/ha in 2008, fell to 1295 in 2009. A closer picture could be obtained by examining each country separately.

Thailand registered 5.5% fall in production in the 12 months ended June 30, 2009 from 2008 full year (Table 3). Rubber trees in 64,000 hectare in the country were replanted in 2009. However, tapped area expanded in 2009 by 48,000 ha as the area planted before 6 years attained tappable maturity. The average yield, measured in terms of production per hectare of tapped area progressively came down from 1723 kg in 2007 to 1699 in 2008 and further to 1564 kg© in 2009 due to a host of factors including adverse weather disrupting tapping, prolonged wintering, relatively lower price and the export reduction commitment under the IRCo's Agreed Export Tonnage Scheme.

In Indonesia, NR output contracted 3.1% in the 12 months ended June 30, 2009 from 2008 (January to December) as tappable area shrank 76,000 hectare during the year. Average yield came down in 2009 to 990 kg/ha© from 993 kg in the previous year due to unfavourable weather and the export reduction commitment which reduced harvesting intensity.

Production in Malaysia dropped 17.1% in the 12 months ended June 30, 2009 from 2008 full year as the tappable area came down by 20,000 ha in 2009 further to a shrinkage of 386,000 ha in 2008. Average yield fell in 2009 to 1201 kg/ha© from 1410 kg/ha in the previous year due to rain-induced tapping disruptions in the first quarter, an extended wintering in key rubber producing regions in the country and a relatively low rubber prices.

© Computed by using the production data for the 12 months ended June 30, 2009.

NR output in India dropped 4.2% in the 12 months to June 30, 2009 from 2008 full year. The southwest monsoon in the State of Kerala was unusually weak during June this year, for the second consecutive year, helping continuation of harvesting without interruption. However, a higher output in June could not fully offset a drastic fall in supply in February-May period caused by an unusually severe drought in the State during the period. The State of Kerala accounts for more than 90% of the country's NR output. Although the tapped area expanded 3,000 ha in 2009, average yield came down during the year to 1811 kg/ha© from 1903 kg/ha in 2008 full year.

In Vietnam, the production fell 1.8% in the 12 months to June 30, 2009 from 2008 January to December due to an ongoing replanting programme which reduced the tappable area by 17,000 hectare. The average yield improved from 1662 kg/ha in 2008 to 1704 kg/ha© in 2009.

In sharp contrast to other producing countries, China and Sri Lanka witnessed a rise in NR output in the first half of 2009. Production in China rose 16.2% in the year ended June 30, 2009 from 2008 January to December. The sharp rise largely shadows the previous year's drastic fall in output due to adverse weather. Average yield improved this year to 1242 kg/ha© from 1054 kg/ha in the previous year thanks to a favourable weather. A higher output has also been contributed by a 25,000 ha expansion in tappable area this year.

In Sri Lanka, the production rose 2.3% in the year ended June 30, 2009. While the tapped area shrank by 1,000 ha, average yield improved in 2009 to 1419 kg/ha© from 1372 kg/ha in 2008.

The ANRPC's main activity domain is the supply side of NR. Therefore, the Association usually makes assessment on global consumption and stock position of NR on the basis of data available from secondary sources. Global consumption of NR fell by 5.9% in the 12 months ended June 30, 2009 (Table 5). A 4.3% fall in global supply during the same period (Table 3) should have helped in offsetting its adverse effect on the market.

Stock expressed in term of number of months' average consumption is a standardised indicator for ascertaining the stock position at any point of time. Values of the indicator for 2007 to 2009, computed on the basis of consumption and stock data reported by the International Rubber Study Group (IRSG) are given in Table 5.

Table 5: **Stock of NR**

	2007	2008	2009
Global consumption (Thousand tonnes)[2]	10,230	10,088	9,488[1]
Global stock at end of June (Thousand tonnes)[2]	1,155	709	759
Stock in terms of number of months' average consumption	1.35	0.84	0.96

[1] Refers to 12 months to June 30, 2009

[2] Revised data from the IRSG, incorporating NR content of relevant compound rubber imported in China.

© Computed by using the production data for the 12 months ended June 30, 2009.

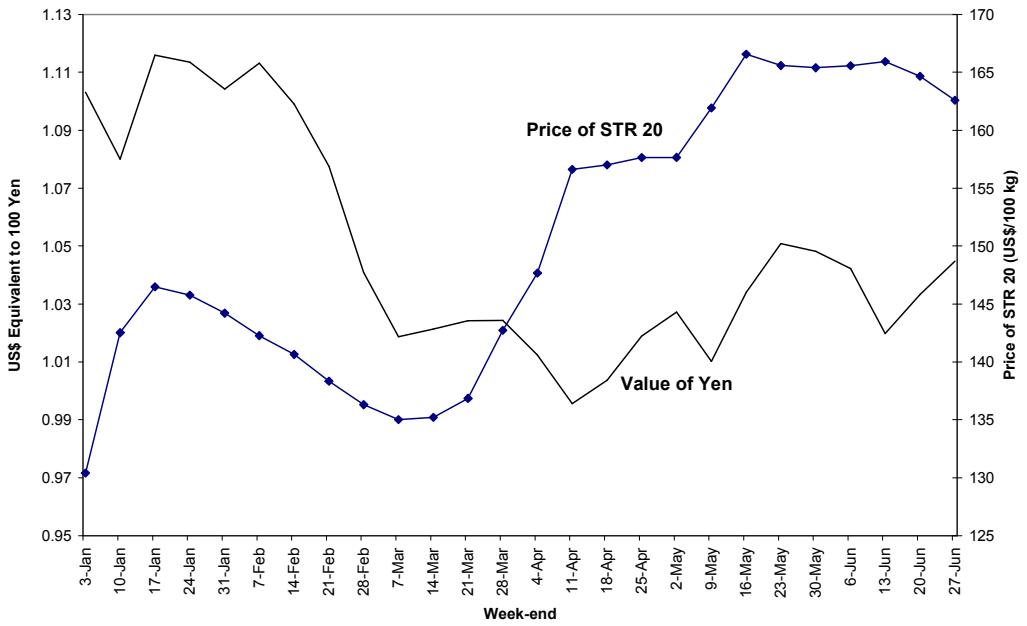
The stock in June 2007 was equivalent to the quantity required for meeting the global consumption for 1.35 months. This came down to 0.84 months in June 2008 before marginally improving to 0.96 in June 2009. The stock figures support the view that market fundamental did not undergo any significant change in 2009 H1 as compared to the same period previous year.

(iii) Trends in Value of Japanese Yen

International trading in NR is generally done in terms of US dollar. An appreciation in currencies of NR exporting countries against the dollar helps NR prices to rise in US dollar terms. However, the relationship between Japanese yen and NR prices is just the opposite. When the yen devaluates, speculators invest it in commodities, helping upward movement of TOCOM rubber futures and *vice versa*.

Figure 11 shows the trends in the movement of the yen vis-à-vis prices of TSR 20 in Bangkok market.

Figure 11: **Value of Yen vis-a-vis Price of STR 20 during 2009 H1**



The yen deprecated against the dollar from the first week of February till mid-April and thereafter, until end of June, it kept on marginally appreciating against the dollar with a few exceptions. However, NR prices did not always move opposite to the direction of movement of the yen as expected. It is concluded that other dominant factors should have eclipsed any possible influence of the yen on natural rubber prices during 2009 H1.

(iv) Trends in Currency Values of NR Exporting Countries

Trends in currency values of the three major NR exporting countries against the US dollar are shown in Figures 12-14 vis-à-vis NR prices.

Figure 12: **Value of Baht vis-a-vis Price of STR 20 during 2009 H1**

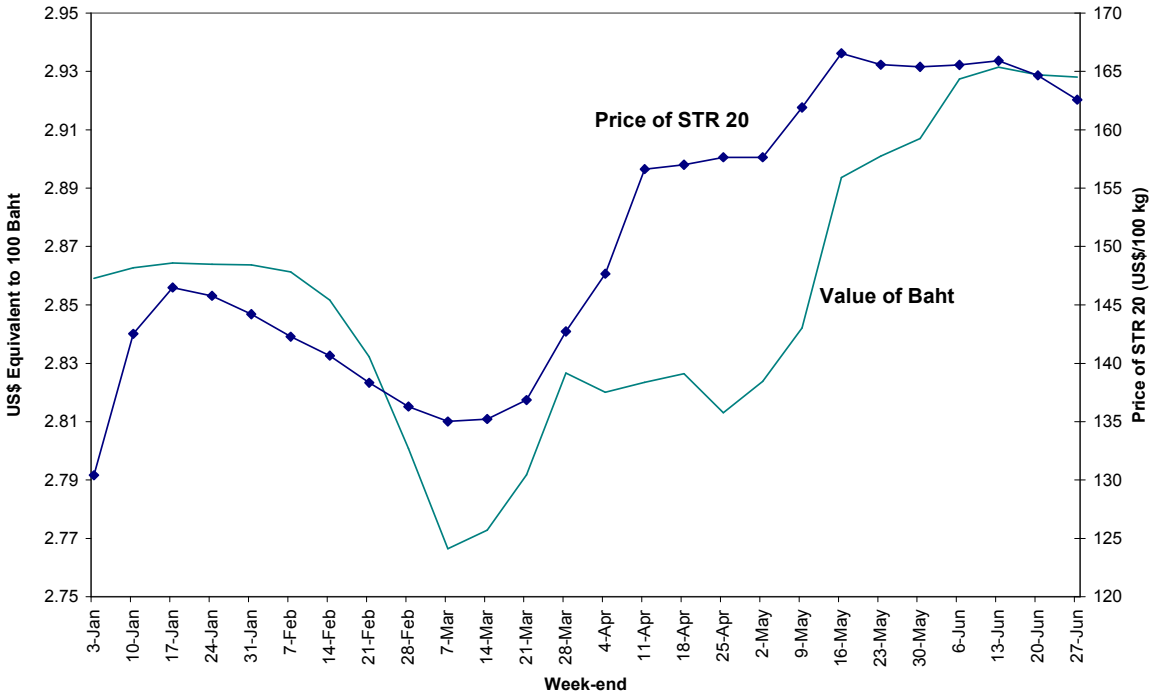


Figure 13: **Value of Indonesian Rupiah during 2009 H1**

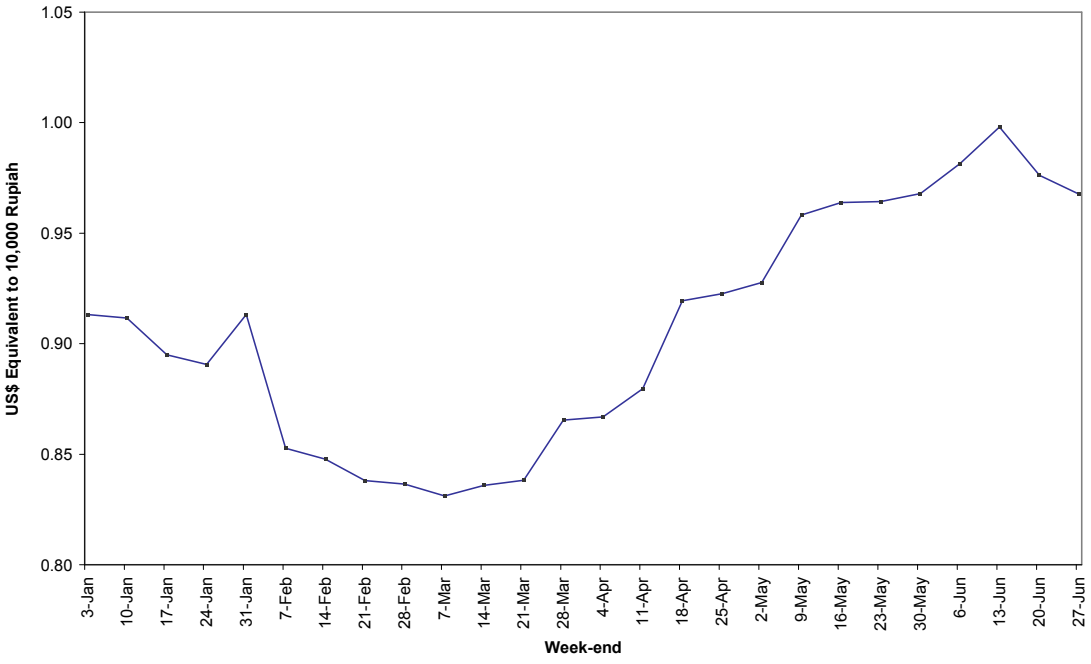
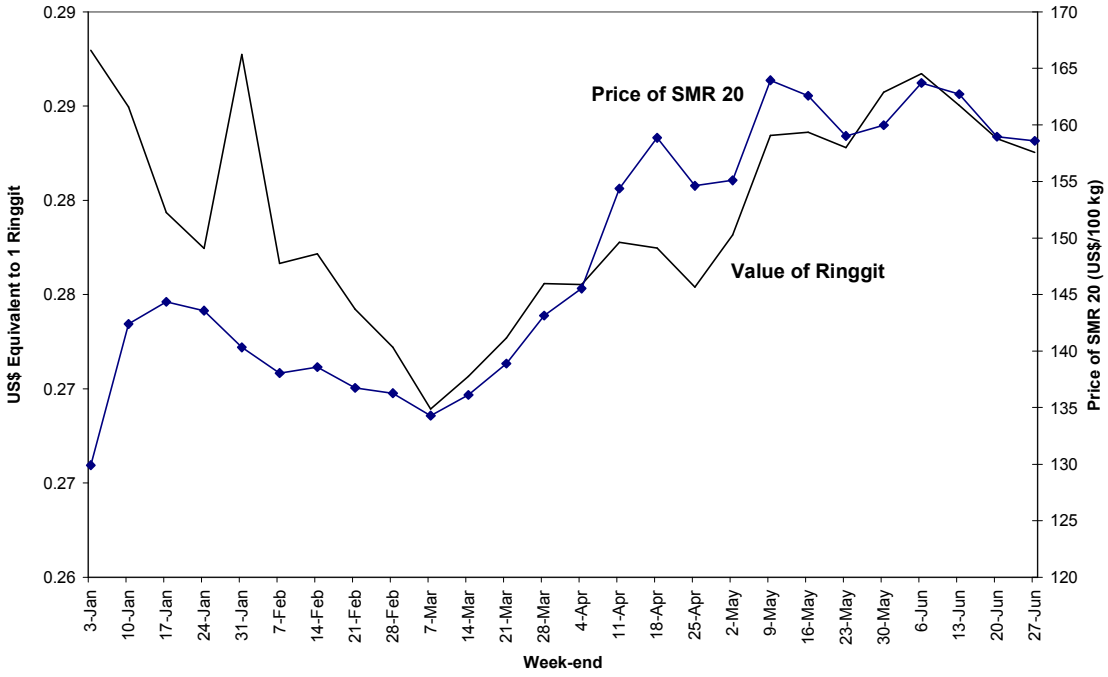


Figure 14: **Value of Malaysian Ringgit vis-a-vis Price of SMR 20 during 2009 H1**



It is evident from the Figures 12-14 that Thai Baht, Indonesian Ruppiah and Malaysian Ringgit depreciated against the dollar from mid-January to mid-March, with a few exceptions, and NR prices tracked almost similar trends. NR prices rose sharply starting from around mid-March until May end, closely tracking the appreciation in the three currencies. Moreover, NR prices experienced a marginal downswing in June when the three currencies marginally lost their strength against the dollar.

It is concluded that the currencies of the three major NR exporting countries had a strong influence in determining the trends in NR prices during the first half of 2009. The fall in NR prices from mid-January to mid-March and the rise from mid-March to end of May and a marginal fall in June were in agreement with the trends in currency values of the three major NR exporting countries.

5. Conclusion

The analysis revealed a drastic fall in NR prices coupled with a substantial rise in price instability in 2009 H1 as compared to 2008 H1. A 4.6% drop in the global output helped the market to cushion potential adverse effects of a slump in the commodity's global demand in the 12 months ended June 30. While currencies of the three major NR exporting countries supported NR prices from mid-March until end of May 2009, they exerted downward pressure on the market from mid-January to mid-March 2009 and also in June 2009. Japanese yen had no conspicuous role in influencing NR prices in the first half of 2009. Regression analysis revealed a statistically significant influence of oil price on NR prices during 2009 H1 although NR prices did not track oil price movement throughout the period.

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