

Research Analysts

Monday, February 18, 2008

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Sector Ratings:

Asia-Pacific E&P: Market Weight

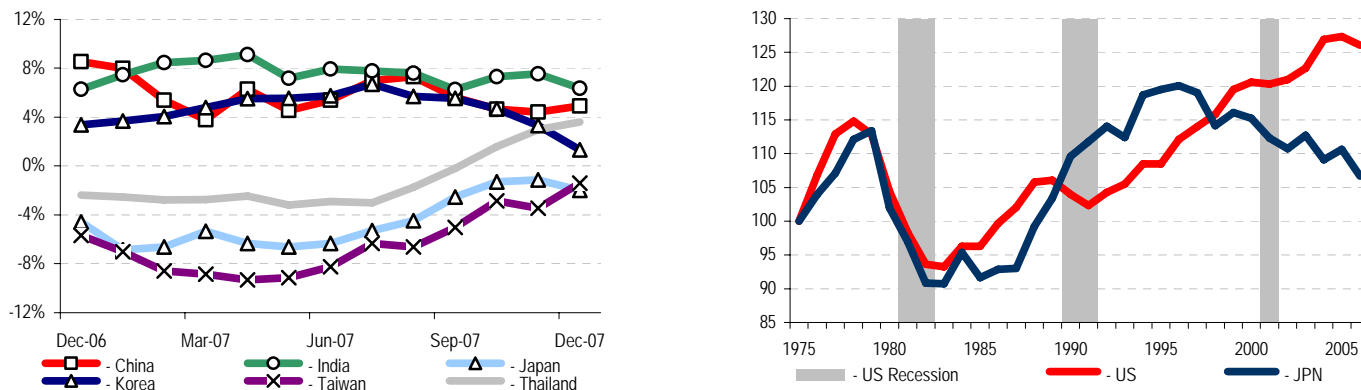
Asia-Pacific Integrated Oil & Gas: Market Weight

Asia-Pacific Refining: Market Overweight

Asia-Pacific Thermal Coal: Market Overweight

- Demand Destruction Strengthens.** Asia-Pacific oil demand weakened further in December 2007 as high oil prices stifled demand. As always, Asia-Pacific data are clouded by China's unreliable reporting and the continuation of subsidized prices in China and India. Nevertheless, by our estimates, Korean, Taiwanese, and Japanese oil demand weakened, while Indian and Chinese demand growth stalled. An acceleration in demand growth for gasoline and diesel in China and India has been offset by a slowdown in demand growth for non-price-controlled products such as fuel oil and naphtha. With the exception of diesel, growth trends for most oil products, including gasoline, LPG, naphtha and fuel oil, showed significant signs of weakness. Crude oil price gains have outpaced local currency appreciation over the U.S. dollar, hurting demand, whereas fuel switching where practical (i.e., naphtha to natural gas) has also had an impact, particularly in India. With oil trading at US\$95/bbl (WTI), we expect January and February data to show further signs of weakness.
- China's Storms – Short-Term Impact.** Snow and ice storms knocked out a substantial portion of China's power supply in late January/early February, forcing homes and businesses to switch to diesel power generation where available. As China recovers and ramps up coal supplies, we expect power supplies to return to normal – perhaps by mid-March. We expect a pickup in diesel consumption during this period but not to the extent witnessed in 2004, when China's power supply problems were the result of insufficient generation capacity.
- U.S. Recession and Asia-Pacific Oil Demand – Worst Case Inconclusive and Best Case Not Correlated.** The threat of a recession in the United States impacting Asia-Pacific oil demand is of increasing concern. The threat of lower exports to the U.S. obviously leads one to believe that Asia-Pacific economic activity would suffer. However, if Asia-Pacific economies focus on domestic infrastructure and consumer spending, the region could offset the impact of a U.S. recession. The problem is, there is little documented evidence of the impact of a U.S. recession on Asia-Pacific oil demand. Indeed, during the 1990-91 U.S. recession Japanese oil consumption continued to grow despite 31% of exports going to the U.S. (21% of China's exports were to the U.S. in 2006). In our opinion, for a material decline or a stagnation in Asia-Pacific oil demand to occur there needs to be an Asia-Pacific recession like that of 1997, and/or China or India liberalizes product prices.

Figure 1. Six-month Moving (6 MM) Average YoY Change in Oil Demand (LHS) & U.S. and Japanese Oil Demand (indexed) vs U.S. Recessions



Note: CIJKTT = China, India, Japan, Korea, Taiwan and Thailand.
Source: Bear Stearns Asia Ltd., Bloomberg, China OGP, EPPO, KMOS, PPAC, IEEJ.

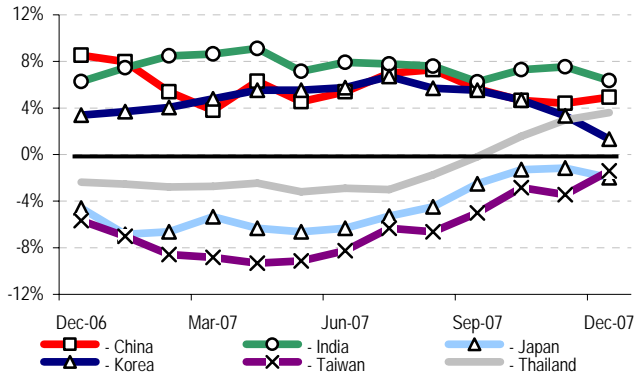
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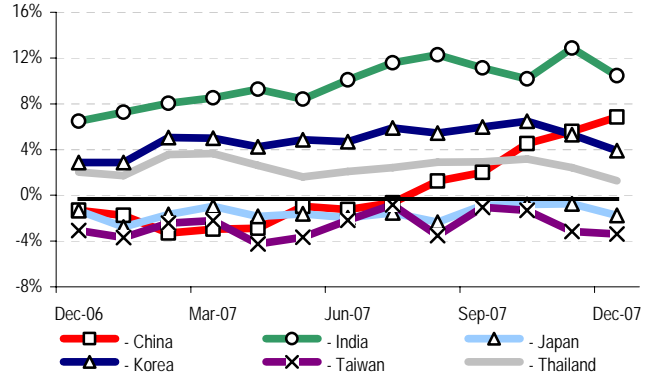
Please read the important disclosure and analyst certification information in the Addendum section of this report.

Figure 2. Asia-Pacific Oil Demand Changes: Six-month Moving (6 MM) Average YoY Changes (Dec 2006 to Dec 2007)

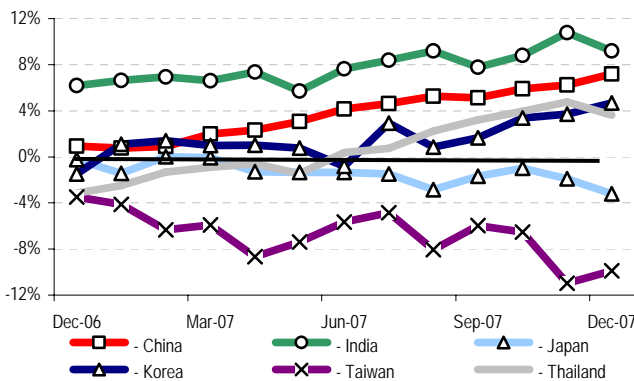
Asia-Pacific: YoY Changes in 6 MM avg - Oil



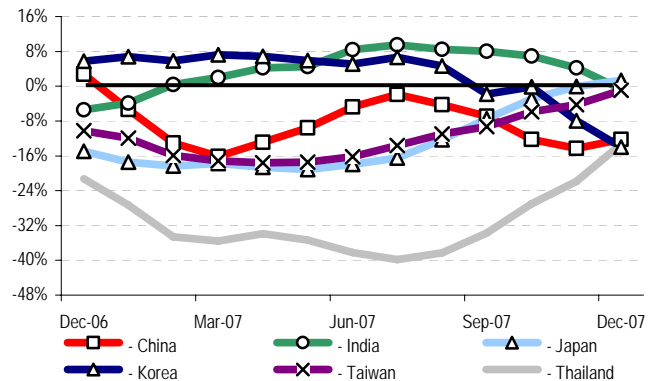
Asia-Pacific: YoY Changes in 6 MM avg - Gasoline



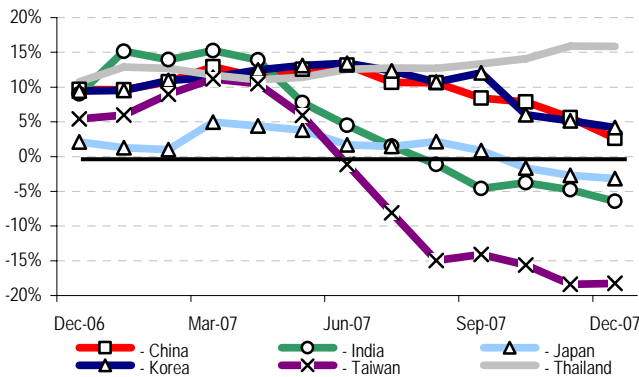
Asia-Pacific: YoY Changes in 6 MM avg - Diesel



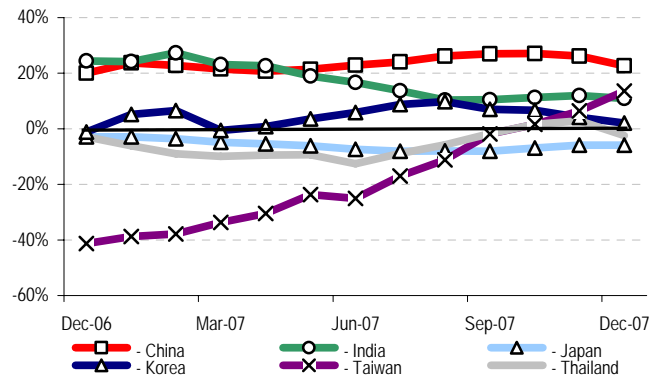
Asia-Pacific: YoY Changes in 6 MM avg - Fuel Oil



Asia-Pacific: YoY Changes in 6 MM avg - LPG/Naphtha



Asia-Pacific: YoY Changes in 6 MM avg - Auto



Source: Bear Stearns Asia Ltd., Bloomberg, China OGP, EPPO, KMOS, PPAC, IEEJ.

Note: Chinese product data is not fully reliable as 10%-15% of refining capacity output is not reported in official statistics. This helps to explain some of the sharp differences between overall implied oil consumption vs. implied oil product consumption data.

▪ **Asia-Pacific Oil Demand.** Provisional December oil demand data have been released, but we will wait until next month to make final 2007 adjustments to our Asia-Pacific oil demand model as government-re-stated adjustments can be material.

Figure 3. Asia-Pacific: Oil Demand Forecast @ US\$77/bbl (2008) and US\$80/bbl Long Term, and Adjustments for Alternative Fuel Supplies

Demand	1980	1985	1990	1995	2000	2005 ac	2005	2006	2007E	2008E	2009E	2010E	2015E ac
- Australia	594	639	737	810	872	919	919	920	900	907	914	922	922
- China	1,765	1,885	2,296	3,363	4,796	6,720	6,720	7,350	7,704	8,320	8,944	9,574	15,177
- India	643	895	1,168	1,575	2,127	2,438	2,438	2,499	2,682	2,916	3,155	3,399	5,131
- Indonesia	408	465	651	807	1,037	1,270	1,270	1,219	1,056	1,113	1,171	1,231	1,904
- Japan	4,960	4,436	5,303	5,694	5,495	5,305	5,305	5,159	4,981	4,965	4,949	4,932	4,957
- Korea, South	537	552	1,048	2,008	2,135	2,191	2,191	2,174	2,281	2,348	2,415	2,484	2,527
- Taiwan	380	378	542	737	865	970	970	951	901	915	929	944	1,021
- Thailand	224	225	407	679	725	929	929	929	937	958	980	1,002	1,227
- Others (17 Countries)	977	1,038	1,450	1,987	2,414	2,706	2,706	2,728	2,777	2,902	3,024	3,163	4,006
Total	10,488	10,513	13,602	17,659	20,467	23,448	23,448	23,928	24,218	25,345	26,482	27,652	36,873
- % Change		0.2%	29.4%	29.8%	15.9%	14.6%	2.6%	2.0%	1.2%	4.7%	4.5%	4.4%	33.3%
Change In Demand	1981	1985	1990	1995	2000	2005 ac	2005	2006	2007E	2008E	2009E	2010E	2015E ac
- Australia	-10	45	98	73	62	46	17	2	-20	7	7	7	1
- China	-60	120	411	1,067	1,433	1,924	283	630	354	616	623	631	5,603
- India	86	252	273	406	553	311	8	61	183	234	239	244	1,732
- Indonesia	47	57	186	156	229	233	37	-51	-162	57	58	60	673
- Japan	-112	-524	867	391	-198	-190	14	-146	-178	-16	-16	-16	25
- Korea, South	-1	15	496	960	128	56	36	-18	107	67	68	68	44
- Taiwan	-40	-2	164	195	128	105	22	-19	-50	14	14	15	77
- Thailand	-10	1	182	272	46	204	14	0	8	22	22	22	224
- Others (17 Countries)	12	61	412	537	427	292	94	22	49	125	122	140	843
Total	-87	25	3,089	4,057	2,808	2,981	525	480	291	1,126	1,137	1,170	9,221
Change In Demand (%)	1980	1985	1990	1995	2000	2005 ac	2005	2006	2007E	2008E	2009E	2010E	2015E ac
- Australia		7.6%	15.3%	9.9%	7.7%	5.3%	1.9%	0.2%	-2.2%	0.8%	0.8%	0.8%	0.1%
- China		6.8%	21.8%	46.5%	42.6%	40.1%	4.4%	9.4%	4.8%	8.0%	7.5%	7.1%	58.5%
- India		39.2%	30.6%	34.8%	35.1%	14.6%	0.3%	2.5%	7.3%	8.7%	8.2%	7.7%	50.9%
- Indonesia		14.0%	40.0%	24.0%	28.4%	22.5%	3.0%	-4.0%	-13.3%	5.4%	5.2%	5.1%	54.7%
- Japan		-10.6%	19.5%	7.4%	-3.5%	-3.5%	0.3%	-2.7%	-3.5%	-0.3%	-0.3%	-0.3%	0.5%
- Korea, South		2.8%	89.9%	91.6%	6.4%	2.6%	1.7%	-0.8%	4.9%	2.9%	2.9%	2.8%	1.8%
- Taiwan		-0.5%	43.3%	36.1%	17.4%	12.1%	2.3%	-2.0%	-5.3%	1.6%	1.6%	1.6%	8.1%
- Thailand		0.4%	80.8%	67.0%	6.8%	28.1%	1.5%	0.0%	0.9%	2.3%	2.3%	2.2%	22.4%
- Others		6.3%	39.7%	37.0%	21.5%	12.1%	3.6%	0.8%	1.8%	4.5%	4.2%	4.6%	26.6%
Total		0.2%	29.4%	29.8%	15.9%	14.6%	2.3%	2.0%	1.2%	4.7%	4.5%	4.4%	33.3%
Oil Deficit/(Surplus)	1980	1985	1990	1995	2000	2005 ac	2005	2006	2007E	2008E	2009E	2010E	2015E ac
- Australia	154	-1	99	196	80	381	381	403	248	210	176	202	181
- China	-349	-620	-478	373	1,547	3,111	3,111	3,664	3,952	4,437	4,901	5,496	11,669
- India	461	273	498	824	1,391	1,643	1,643	1,685	1,844	2,018	2,183	2,330	4,348
- Indonesia	-1,239	-904	-888	-771	-482	135	135	131	-56	-12	34	-53	929
- Japan	4,949	4,421	5,289	5,676	5,477	5,286	5,286	5,142	4,964	4,948	4,932	4,915	4,944
- Korea, South	537	552	1,048	2,008	2,122	2,181	2,181	2,165	2,272	2,339	2,406	2,475	2,521
- Taiwan	373	374	538	735	864	969	969	950	900	914	929	943	1,020
- Thailand	224	173	350	590	555	639	639	628	631	643	656	678	972
- Others (17 Countries)	361	322	471	701	917	1,182	1,182	1,176	1,226	1,154	1,293	1,530	2,733
Total	5,470	4,590	6,927	10,332	12,473	15,528	15,528	15,945	15,981	16,650	17,512	18,517	29,316
Oil Balance	1980	1985	1990	1995	2000	2005 ac	2005	2006	2007E	2008E	2009E	2010E	2015E ac
- Regional Demand	10,488	10,513	13,602	17,659	20,467	23,448	23,448	23,928	24,218	25,345	26,482	27,652	36,873
- Regional Supply	5,018	5,923	6,675	7,327	7,994	7,920	7,920	7,983	8,238	8,694	8,970	9,134	7,557
Regional Deficit	5,470	4,590	6,927	10,332	12,473	15,528	15,528	15,945	15,981	16,650	17,512	18,517	29,316
- Change		-881	2,337	3,404	2,141	3,055	512	417	36	670	861	1,006	8,723
- % Change		-16.1%	50.9%	49.1%	20.7%	20.3%	3.4%	2.7%	0.2%	4.2%	5.2%	5.7%	42.4%
Oil Balance For Alternative Supply	1980	1985	1990	1995	2000	2005 ac	2005	2006	2007E	2008E	2009E	2010E	2015E ac
- Crude Oil Demand	10,488	10,513	13,602	17,659	20,467	23,448	23,391	23,816	24,063	25,028	25,973	26,691	34,474
- Crude Oil Supply	5,018	5,923	6,675	7,327	7,994	7,920	7,920	7,983	8,238	8,694	8,970	9,134	7,557
- Deficit	5,470	4,590	6,927	10,332	12,473	15,528	15,471	15,833	15,825	16,334	17,002	17,556	26,917

Source: Bear Stearns Asia Ltd. estimates, BP, Energy Information Agency.

Figure 4. Asia-Pacific: Implied Oil Demand
CIJKT: Oil and Oil Product Demand

	Units	Oct-07	Nov-07	Dec-07	YoY Change		YoY % Change		2003	2004	2005	2006	2007		
					O-D 07	YTD	O-D 07	YTD							
- Oil	mt	70.1	71.0	73.4	215	851	5.1	20.2	2.4%	2.4%	645	784	804	831	851
- Gasoline	mt	10.5	10.1	10.7	31	121	0.7	1.6	2.3%	1.4%	102	116	118	119	121
- Diesel	mt	18.7	19.0	20.6	58	220	3.8	9.3	6.9%	4.4%	141	196	208	211	220
- Fuel Oil	mt	8.6	8.1	8.7	25	107	-0.8	-9.0	-3.1%	-7.8%	116	127	122	116	107
- Naphtha/LPG	mt	11.0	11.5	11.9	34	138	-1.0	5.9	-2.7%	4.5%	103	118	125	132	138
- Net Product Imports	mt	-0.7	-0.3	4.3	3	4	0.7	-11.5	26.0%	-73.6%	42	38	21	16	4
- Auto Sales	k	1,482	1,613	1,571	4,665	18,343	357	1,467	8.3%	8.7%	13,816	14,651	15,556	16,877	18,343

China: Oil and Oil Product Demand

	Units	Oct-07	Nov-07	Dec-07	YoY Change		YoY % Change		2003	2004	2005	2006	2007		
					O-D 07	YTD	O-D 07	YTD							
- Oil	kt	29,215	29,704	29,425	88,343	367,969	4,141	18,041	4.9%	5.2%	270,311	320,887	320,166	349,928	367,969
- Gasoline	kt	4,267	4,128	4,416	12,811	47,270	999	1,309	8.5%	2.8%	37,514	44,118	44,778	45,961	47,270
- Diesel	kt	9,597	9,785	11,050	30,432	113,730	2,716	6,135	9.8%	5.7%	79,962	99,685	105,480	107,595	113,730
- Fuel Oil	kt	2,259	2,117	2,141	6,517	33,451	(554)	(3,073)	-7.8%	-8.4%	36,841	42,288	37,502	36,524	33,451
- Naphtha	kt	2,675	2,683	2,794	8,152	34,590	(198)	2,507	-2.4%	7.8%	23,335	24,719	27,815	32,083	34,590
- Net Product Imports	kt	1,064	819	1,410	3,293	18,266	(663)	(5,750)	-16.8%	-23.9%	14,364	26,416	16,996	24,016	18,266
- Auto Sales	k	705	809	847	2,361	8,885	357	1,651	17.8%	22.8%	4,668	5,221	5,970	7,234	8,885

India: Oil and Oil Product Demand

	Units	Oct-07	Nov-07	Dec-07	YoY Change		YoY % Change		2003	2004	2005	2006	2007		
					O-D 07	YTD	O-D 07	YTD							
- Oil Product	kt	10,690	10,600	10,950	32,240	123,387	2,283	8,229	7.6%	7.1%	105,099	111,135	110,606	115,158	123,387
- Gasoline	kt	810	860	880	2,550	10,047	243	963	10.5%	10.6%	7,658	8,235	8,570	9,084	10,047
- Diesel	kt	3,964	4,173	4,380	12,517	46,532	1,270	3,602	11.3%	8.4%	38,760	41,328	40,714	42,930	46,532
- Fuel Oil	kt	1,021	970	979	2,970	12,622	-134	473	-4.3%	3.9%	12,805	13,307	13,182	12,149	12,622
- Naphtha	kt	1,170	1,130	1,005	3,305	13,242	-235	-131	-6.6%	-1.0%	11,932	13,492	12,698	13,373	13,242
- Net Product Imports	kt	-2,053	-961	-1,065	-4,078	-21,808	-318	-6,320	8%	41%	-3,061	-6,619	-8,696	-15,488	-21,808
- Auto Sales	k	182	171	158	511	1,990	54	241	11.9%	13.8%	1,080	1,345	1,440	1,750	1,990

Japan: Oil and Oil Product Demand

	Units	Oct-07	Nov-07	Dec-07	YoY Change		YoY % Change		2003	2004	2005	2006	2007		
					O-D 07	YTD	O-D 07	YTD							
- Oil Product	mn l	18,764	19,370	21,311	59,445	224,501	-1,817	-9,842	-3.0%	-4.2%	249,038	242,324	243,508	234,343	224,501
- Gasoline	mn l	5,034	4,836	5,078	14,948	59,782	-535	-1,130	-3.5%	-1.9%	60,133	61,231	61,611	60,912	59,782
- Diesel	mn l	3,144	3,117	3,053	9,314	35,954	-358	-846	-3.7%	-2.3%	38,280	38,101	37,346	36,800	35,954
- Fuel Oil	mn l	3,980	3,831	4,460	12,271	45,348	418	-4,556	3.5%	-9.1%	61,790	56,294	55,219	49,903	45,348
- Naphtha	mn l	4,052	4,209	4,459	12,720	49,173	-854	-396	-6.3%	-0.8%	48,403	48,597	49,414	49,569	49,173
- Net Product Imports	mn l	307	635	471	1,413	4,236	-2,681	-9,239	-65.5%	-68.6%	24,489	20,423	14,496	13,476	4,236
- Auto Sales	k	406	451	368	1,225	5,354	-47	-386	-3.7%	-6.7%	5,832	5,910	5,852	5,740	5,354

Source: Bear Stearns Asia Ltd., China OGP, Press Information of India, Petroleum Authority of Japan, Petronet EPPO.

Figure 4. (cont...). Asia-Pacific: Implied Oil Demand
Korea: Oil and Oil Product Demand

	Units	Oct-07	Nov-07	Dec-07	O-D 07	YTD	YoY Change		YoY % Change		2003	2004	2005	2006	2007
							O-D 07	YTD	O-D 07	YTD					
- Oil Product	Mbbl	65,688	67,863	70,937	204,488	786,712	-1,846	26,651	-0.9%	3.5%	760,129	750,208	758,945	760,061	786,712
- Gasoline	Mbbl	5,415	5,106	5,195	15,716	62,490	133	2,563	0.9%	4.3%	60,484	58,211	59,563	59,927	62,490
- Diesel	Mbbl	13,272	13,032	13,236	39,540	145,289	1,286	2,643	3.4%	1.9%	145,366	144,533	142,546	142,646	145,289
- Fuel Oil	Mbbl	7,250	7,509	7,723	22,482	92,804	-4,730	-4,076	-17.4%	-4.2%	115,821	105,229	100,541	96,880	92,804
- Naphtha	Mbbl	22,992	25,967	27,530	76,489	309,266	253	24,405	0.3%	8.6%	252,417	262,870	273,867	284,861	309,266
- Net Product Imports	Mbbl	-9,078	-10,764	18,210	-1,632	-56,127	23,234	41,201	-93.4%	-42.3%	10,492	-40,371	-83,425	-97,328	-56,127
- Auto Sales	k	106	103	115	324	1,210	0	45	-0.1%	3.9%	1,344	1,128	1,145	1,164	1,210

Taiwan: Oil and Oil Product Demand

	Units	Oct-07	Nov-07	Dec-07	O-D 07	YTD	YoY Change		YoY % Change		2003	2004	2005	2006	2007
							O-D 07	YTD	O-D 07	YTD					
- Oil Product	kt	2,326	2,065	2,185	6,576	26,141	-13	-1,346	-0.2%	-4.9%	26,668	26,812	27,167	27,486	26,141
- Gasoline	kt	533	463	522	1,518	6,466	-126	-184	-7.7%	-2.8%	6,523	6,673	6,824	6,650	6,466
- Diesel	kt	388	341	398	1,127	4,718	-179	-399	-13.7%	-7.8%	4,908	5,028	5,028	5,118	4,718
- Fuel Oil	kt	848	784	792	2,424	9,432	72	-931	3.0%	-9.0%	10,708	10,158	10,158	10,363	9,432
- LPG	kt	103	106	115	325	1,359	-81	-148	-19.9%	-9.8%	1,249	1,390	1,390	1,507	1,359
- Net Product Imports	kt	1,718	1,319	1,751	4,788	17,359	766	2,763	19.0%	18.9%	9,986	13,359	13,359	14,596	17,359
- Auto Sales	kt	25	20	19	64	273	7	-34	12.9%	-11.0%	362	422	422	307	273

Thailand: Oil and Oil Product Demand

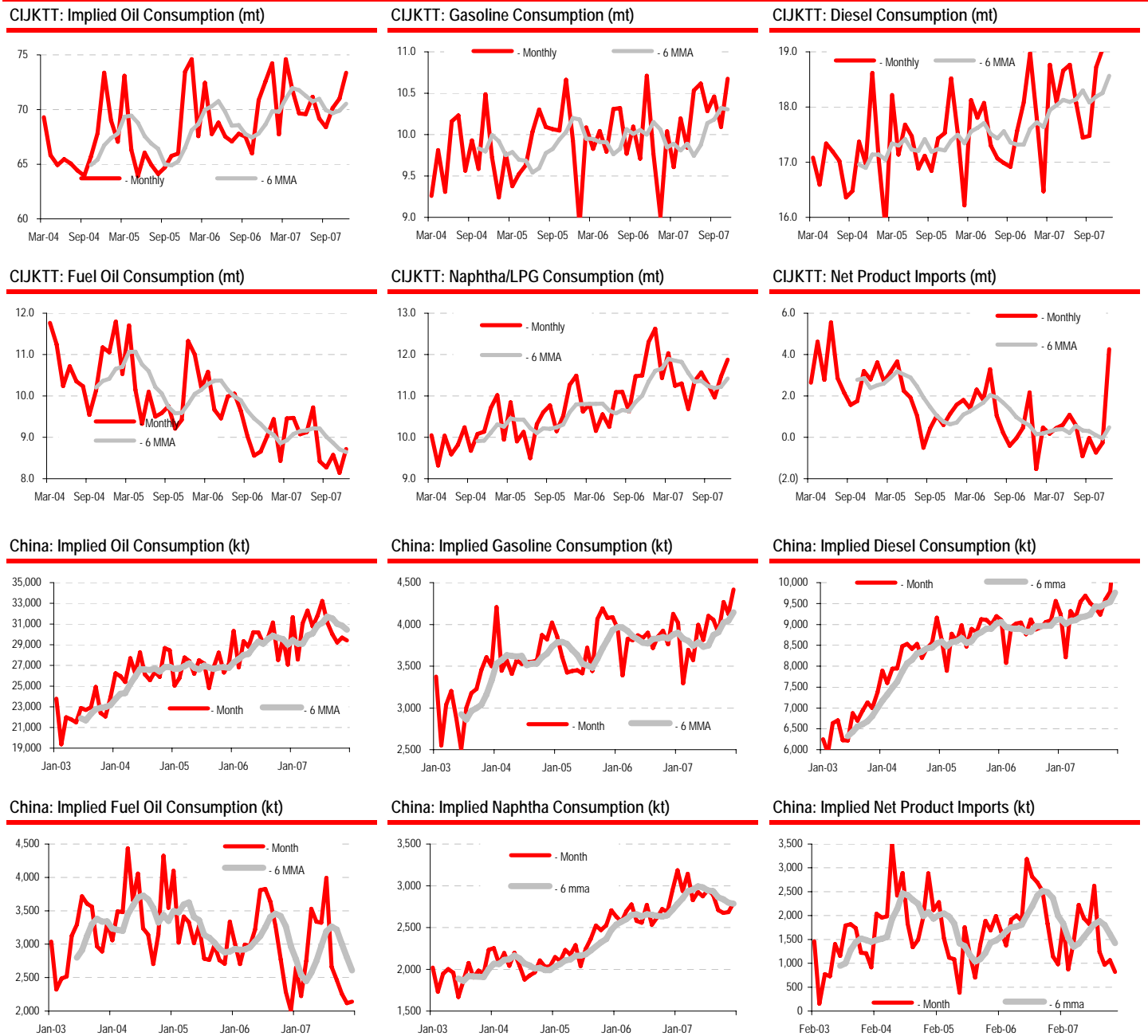
	Units	Oct-07	Nov-07	Dec-07	O-D 07	YTD	YoY Change		YoY % Change		2003	2004	2005	2006	2007
							O-D 07	YTD	O-D 07	YTD					
- Oil Product	mn l	3,570	3,491	3,611	10,672	42,016	512	103	5.0%	0.2%	33,973	42,678	42,824	41,914	42,016
- Gasoline	mn l	620	589	622	1,831	7,337	-32	120	-1.7%	1.7%	7,635	7,661	7,248	7,216	7,337
- Diesel	mn l	1,500	1,534	1,611	4,644	18,710	82	356	1.8%	1.9%	17,550	19,640	19,645	18,354	18,710
- Fuel Oil	mn l	434	328	333	1,096	4,221	102	-1,636	10.3%	-27.9%	4,991	6,064	6,205	5,858	4,221
- LPG	mn l	614	619	605	1,837	6,798	282	851	18.1%	14.3%	0	5,047	5,413	5,948	6,798
- Net Product Imports	mn l	-612	-642	-796	-2,049	-6,813	37	82	-1.8%	-1.2%	-5,132	-5,179	-4,931	-6,895	-6,813
- Auto Sales	k	58	58	64	180	631	-14	-51	-7.1%	-7.5%	531	626	703	682	631

Vietnam: Oil and Oil Product Demand

	Units	Oct-07	Nov-07	Dec-07	O-D 07	YTD	YoY Change		YoY % Change		2003	2004	2005	2006	2007
							O-D 07	YTD	O-D 07	YTD					
- Implied Oil	kt	1,070	1,012	1,096	3,178	12,423	570	1,082	21.9%	9.5%		11,354	11,766	11,341	12,423
- Oil Exports	kt	1,026	1,016	1,027	3,796	14,788	-216	-1,373	-5.4%	-8.5%		19,062	17,669	16,161	14,788
- Oil Product Imports	kt	1,240	1,320	1,236	3,100	11,999	532	958	20.7%	8.7%		10,875	11,335	11,041	11,999

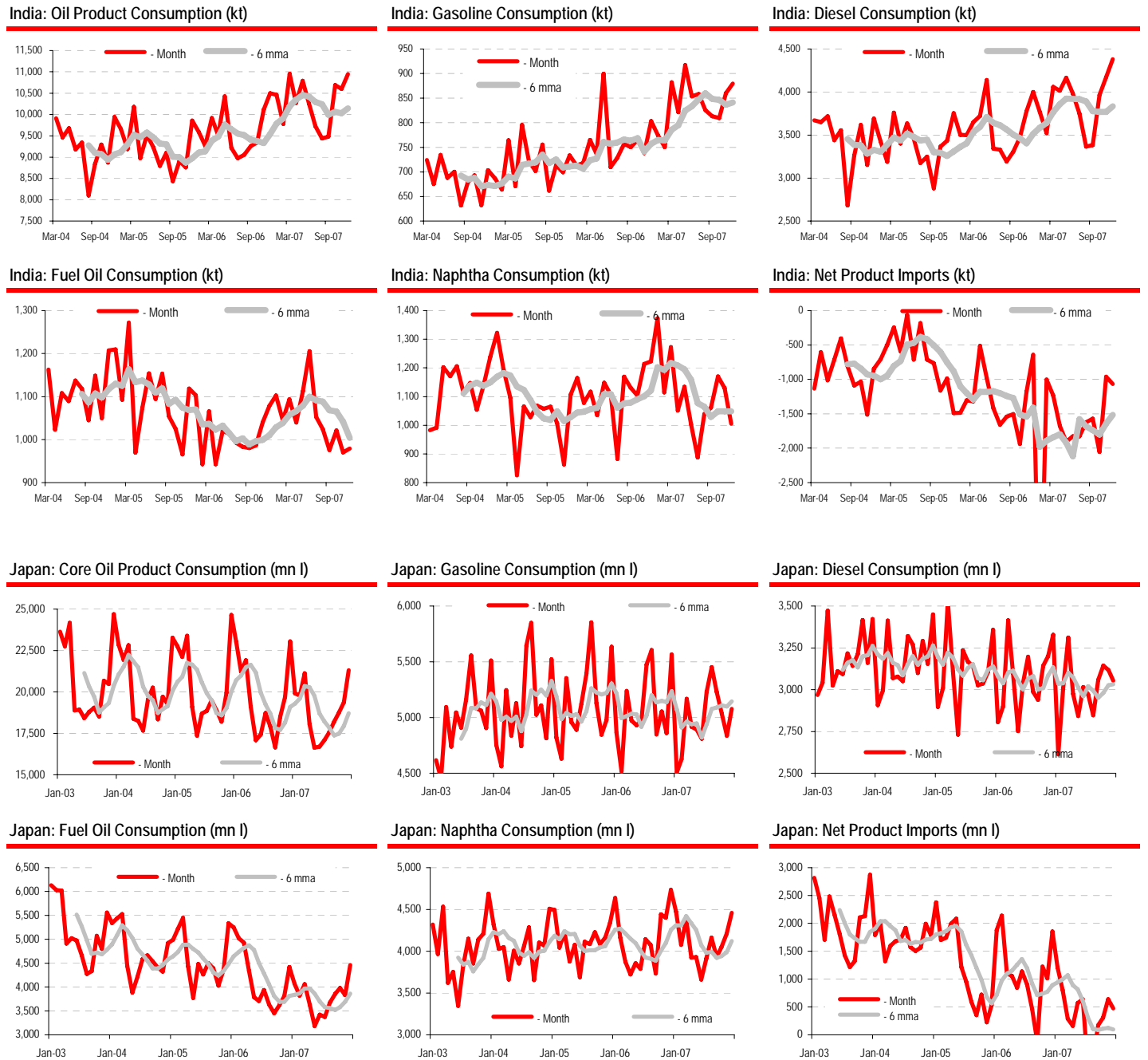
Source: Bear Stearns Asia Ltd., China OGP, Press Information of India, Petroleum Authority of Japan, Petronet EPPO.

Figure 5. Asia-Pacific: Implied Oil and Oil Product Demand (January 2003-December 2007)



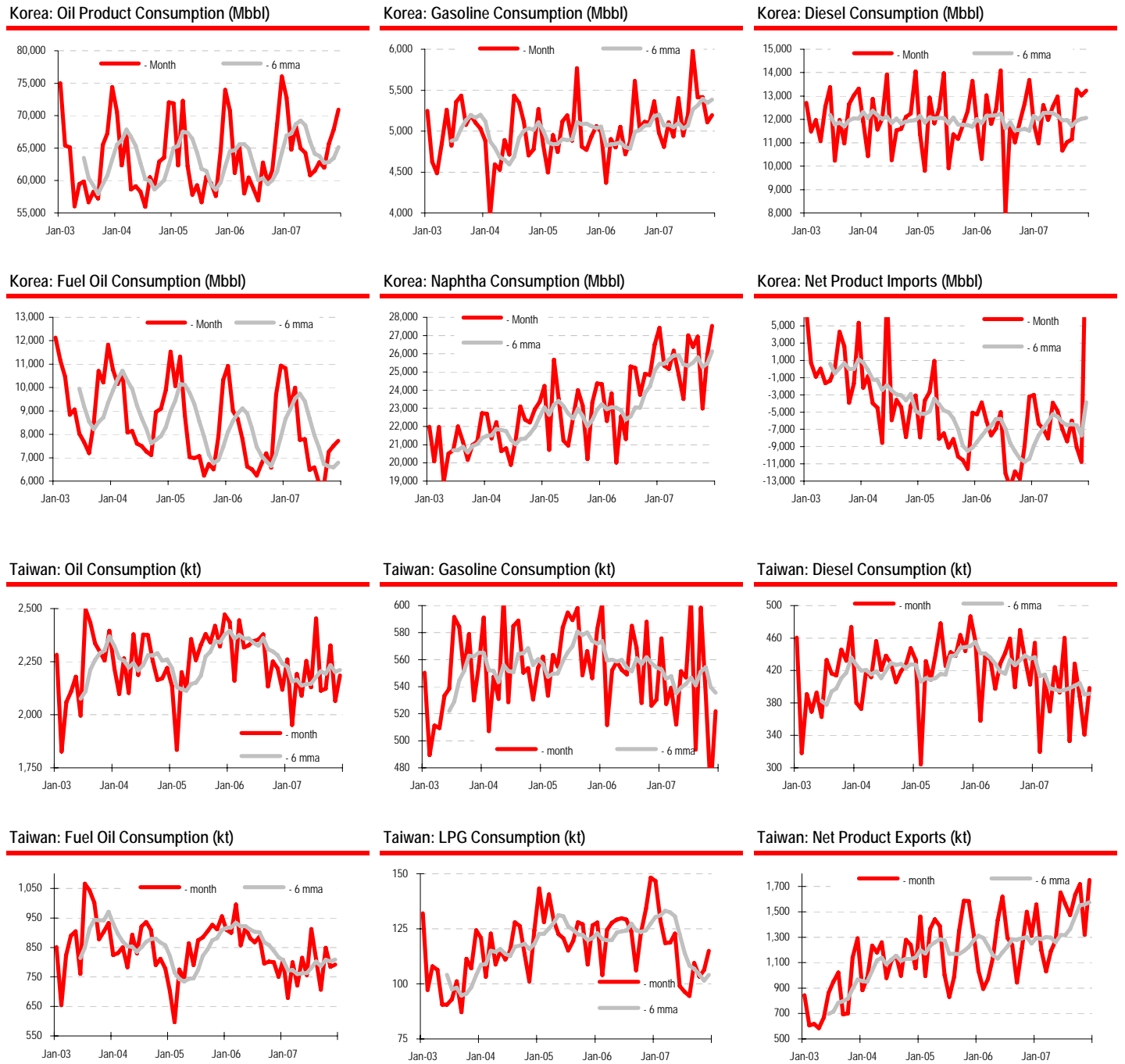
Source: Bear Stearns Asia Ltd., China OGP, Press Information of India, Petroleum Authority of Japan, Petronet EPPO.

Figure 5. (cont...). Asia-Pacific: Implied Oil and Oil Product Demand (January 2003-December 2007)



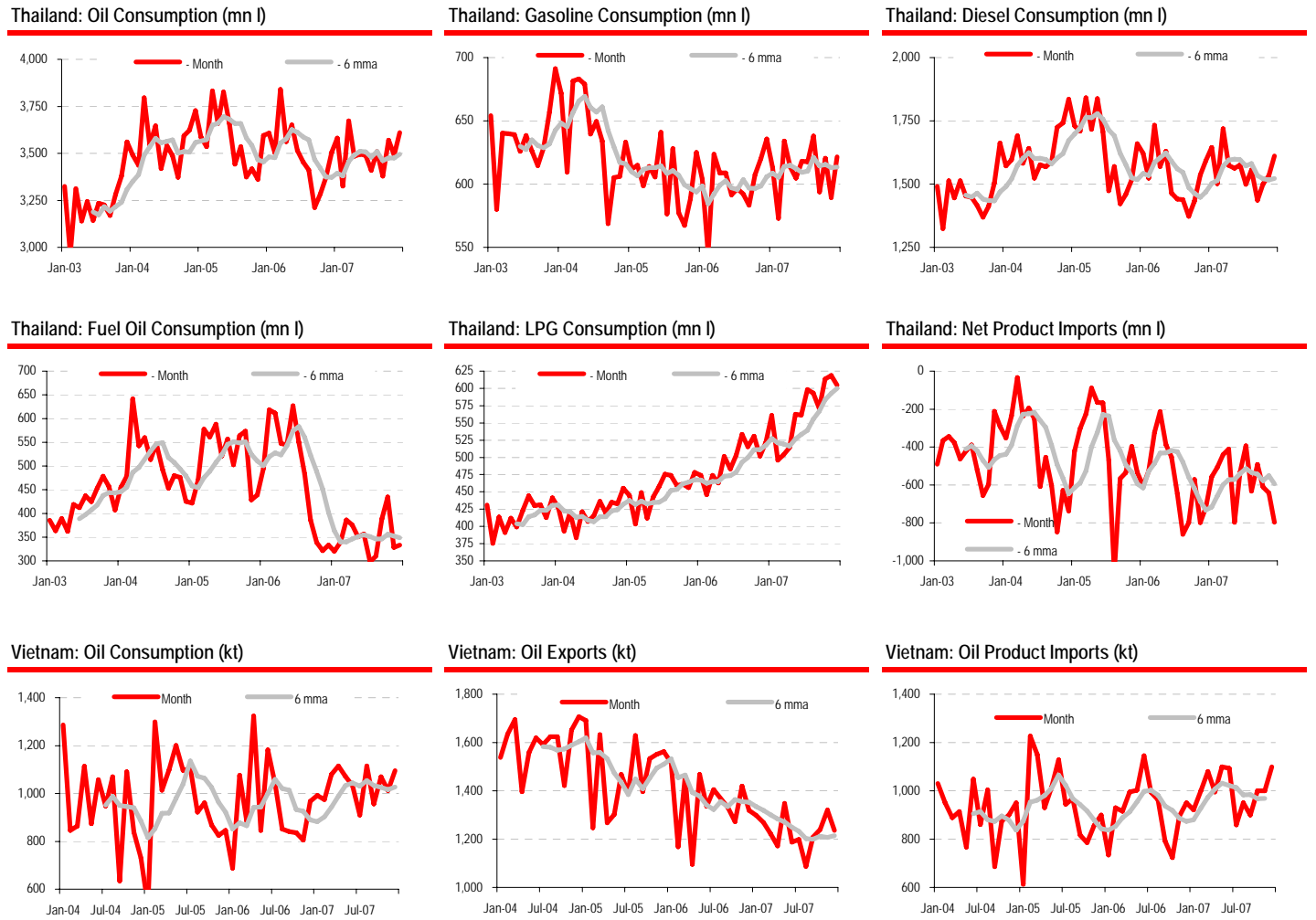
Source: Bear Stearns Asia Ltd., China OGP, Press Information of India, Petroleum Authority of Japan, Petronet EPPO.

Figure 5. (cont...). Asia-Pacific: Implied Oil and Oil Product Demand (January 2003-November 2007)



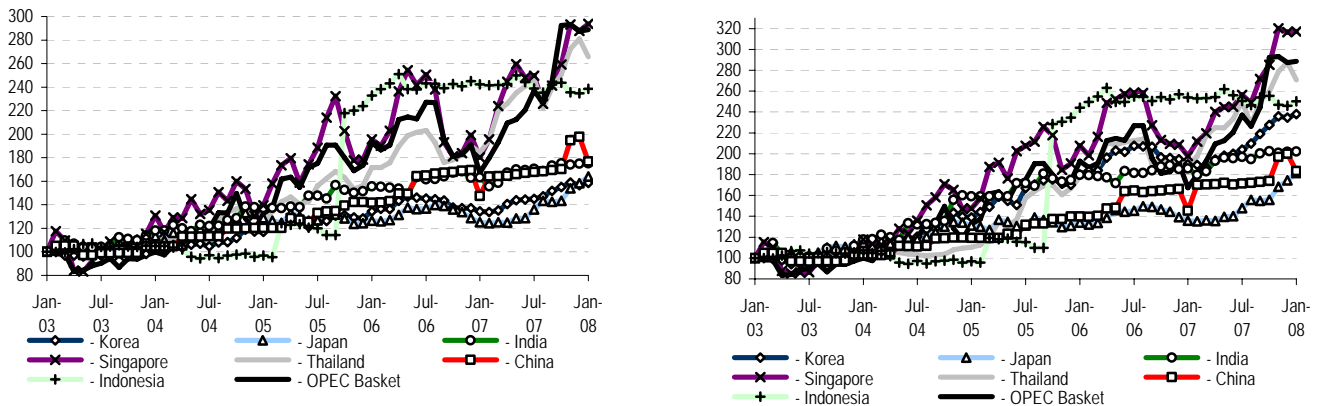
Source: Bear Stearns Asia Ltd., China OGP, Press Information of India, Petroleum Authority of Japan, Petronet EPPO.

Figure 5. (cont...). Asia-Pacific: Implied Oil and Oil Product Demand (January 2003-November 2007)



Source: Bear Stearns Asia Ltd., China OGP, Press Information of India, Petroleum Authority of Japan, Petronet EPPO.

Figure 7. Asia-Pacific Oil Retail Prices Indexed January 2003 = 100 to January 2007: Gasoline (LHS) and Diesel (RHS)



Source: Bear Stearns Asia Ltd., Bloomberg, China OGP, EPPO, KMOS, PPAC, IEEJ.

Figure 8. Asia-Pacific: Retail Product Prices (January 2003 vs. January 2007)

	--- China ---			--- India ---			--- Indonesia ---			--- Japan ---			--- Korea ---			--- Singapore ---			--- Thailand ---		
	Jan-03	Jan-08	Chg	Jan-03	Jan-08	Chg	Jan-03	Jan-08	Chg	Jan-03	Jan-08	Chg	Jan-03	Jan-08	Chg	Jan-03	Jan-08	Chg	Jan-03	Jan-08	Chg
Product Prices (Local Currency/Liter)																					
- Gasoline	2.89	4.43	53.4%	30.15	43.49	44.2%	1,810	4,500	148.6%	104.99	152.89	45.6%	1,305	1,661	27.3%	0.89	2.13	139.2%	16.80	32.79	95.2%
- Diesel	2.94	4.68	59.1%	19.47	32.42	66.5%	1,650	4,300	160.6%	81.99	132.09	61.1%	766	1,464	91.1%	0.61	1.57	158.2%	14.65	29.14	98.9%
Product Prices (US\$/Liter)																					
- Gasoline	0.35	0.62	76.8%	0.63	1.10	75.1%	0.20	0.49	138.7%	0.88	1.44	64.0%	1.11	1.76	58.5%	0.51	1.50	193.6%	0.39	1.04	165.6%
- Diesel	0.36	0.65	83.3%	0.41	0.82	102.1%	0.19	0.47	150.2%	0.68	1.24	81.4%	0.65	1.55	138.0%	0.35	1.10	217.0%	0.34	0.93	170.7%
Product Prices (US\$/bb)																					
- Gasoline	55.49	98.10	76.8%	100.29	175.59	75.1%	32.44	77.43	138.7%	139.26	228.36	64.0%	176.78	280.22	58.5%	81.40	239.02	193.6%	62.46	165.92	165.6%
- Diesel	56.52	103.62	83.3%	64.77	130.89	102.1%	29.57	73.99	150.2%	108.76	197.30	81.4%	103.77	246.95	138.0%	55.42	175.67	217.0%	54.47	147.45	170.7%
- OPEC Basket (US\$/bb)	30.34	87.60	188.7%	30.34	87.60	188.7%	30.34	87.60	188.7%	30.34	87.60	188.7%	30.34	87.60	188.7%	30.34	87.60	188.7%	30.34	87.60	188.7%
- Gasoline-OPEC Basket Spread	25.15	10.50	-58.3%	69.95	87.99	25.8%	2.10	(10.17)	-58.4%	108.92	140.76	29.2%	146.44	192.62	31.5%	51.06	151.42	196.6%	32.12	78.32	143.8%
- Diesel-OPEC Basket Spread	26.18	16.02	-38.8%	34.43	43.29	25.8%	(0.77)	(13.61)	167.9%	78.42	109.70	39.9%	73.43	159.35	117.0%	25.08	88.07	251.2%	24.13	59.85	148.0%

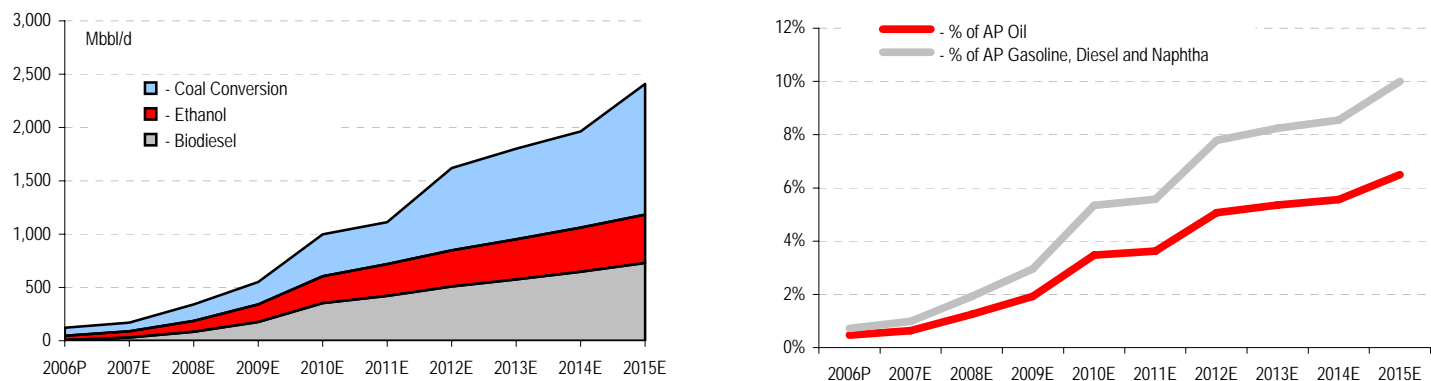
Source: Bear Stearns Asia Ltd., Bloomberg, China OGP, EPPO, KMOS, PPAC, IEEJ Bloomberg.

Figure 9. Asia-Pacific: Biodiesel (LHS) and Ethanol (RHS), Mix Targets and Estimates

BIODIESEL											ETHANOL																
	2004	2005	2006P	2007E	2008E	2009E	2010E	2011E	2012E	2013E	2014E	2015E		2004	2005	2006P	2007E	2008E	2009E	2010E	2011E	2012E	2013E	2014E	2015E		
- Australia				increasing to B5														increasing to E10								> E10 expected	
- China				increasing to B5														increasing to E5								> E5 expected	
- India			increasing to B5															- E5 -								E10 expected	
- Indonesia				B5 increasing to B10														E5 increasing to E10								> E10 expected	
- Japan				increasing from nil to B10														increasing from nil to E10									
- South Korea				- B0.5 -				increasing to B3										increasing to E5				E5 increasing to E10					
- Malaysia					- B5 -																					- E3.4 -	
- New Zealand					increasing to B2.25																						> E10 expected
- Philippines				- B1 -				- B2 -										- E1 -				- E5 -		- E10 -		> E10 expected	
- Taiwan								- B1 -																		- E3 -	
- Thailand					- B2 -			increasing to B5										E5 increasing to E10					- E10 -			> E10 expected	

Source: Bear Stearns Asia Ltd. estimates, CBOT, Oil World, Bloomberg.

Figure 10. Asia-Pacific: Ethanol, Biodiesel and Coal Conversion Production (LHS) and Oil, Gasoline, Diesel and Naphtha Displaced (RHS)



Source: Bear Stearns Asia Ltd. estimates, various sources.

Figure 11. Asia-Pacific: Alternative Fuel Supply

Mbbbl/d	2006P	2007E	2008E	2009E	2010E	2015E
- Biodiesel	7	34	94	195	385	838
- Ethanol	29	42	73	118	181	337
- Coal To Liquids	0	0	30	52	178	905
- Coal To Methanol	73	73	80	80	74	85
- Coal to DME	2	5	12	33	79	142
- Coal to Olefins	0	4	33	44	63	94
Total	112	158	322	522	960	2,401
- <i>Change</i>	<i>55</i>	<i>46</i>	<i>165</i>	<i>200</i>	<i>438</i>	<i>1,441</i>
- <i>% Change</i>	<i>98%</i>	<i>41%</i>	<i>104%</i>	<i>62%</i>	<i>84%</i>	<i>74%</i>

Source: Bear Stearns Asia Ltd. estimates.

Figure 12. Asia-Pacific: Alternative Fuel Capacity

Displaced Oil (Mboe/d)	2005	2006P	2007E	2008E	2009E	2010E	2011E	2012E	2013E	2014E	2015E
- Australia	0.0	0.5	1.0	1.9	3.4	24.0	28.8	90.8	95.6	100.5	105.4
- China	54.7	98.0	111.9	219.6	362.2	702.0	740.0	969.6	1,070.8	1,144.7	1,446.2
- India	0.0	3.9	10.6	24.9	35.6	65.4	87.0	202.3	231.1	263.2	298.6
- Indonesia	0.0	1.3	15.3	32.4	43.0	47.5	61.2	74.6	94.2	113.9	121.0
- Japan	0.0	0.0	0.1	3.0	7.7	10.9	15.3	19.6	24.0	28.4	32.7
- Korea	0.0	1.4	1.9	13.2	22.2	26.7	31.2	31.3	31.4	31.5	31.6
- Philippines	0.0	1.7	4.2	4.4	8.2	10.9	11.6	14.2	17.0	20.1	83.0
- Thailand	1.0	1.8	5.7	7.4	11.6	21.3	36.3	62.6	79.9	100.4	127.6
Sub Total	56	109	151	307	494	909	1,011	1,465	1,644	1,803	2,246
- Remaining AP (+10%)	0.9	3.3	6.9	15.2	28.4	51.5	61.8	121.8	131.7	142.4	154.3
Total	57	112	158	322	522	960	1,073	1,587	1,776	1,945	2,400
- AP Oil Demand	23,448	24,228	25,016	26,246	27,489	28,765	30,538	32,340	34,170	36,028	37,915
- % Displaced	0.2%	0.5%	0.6%	1.2%	1.9%	3.3%	3.5%	4.9%	5.2%	5.4%	6.3%
- AP Gasoline, Diesel & Napthpa	15,241	15,748	16,260	17,060	17,868	18,697	19,850	21,021	22,210	23,418	24,645
- % Displaced	0.4%	0.7%	1.0%	1.9%	2.9%	5.1%	5.4%	7.5%	8.0%	8.3%	9.7%

ETHANOL (Mboe/d)	2005	2006P	2007E	2008E	2009E	2010E	2011E	2012E	2013E	2014E	2015E
- Australia	-	0.2	0.5	0.9	1.6	2.3	4.6	7.0	9.3	11.6	13.9
- China	7.6	20.2	24.9	36.3	59.3	102.4	117.7	128.6	139.7	150.9	162.2
- India	-	3.9	5.8	9.3	13.2	17.7	21.4	25.5	30.0	34.9	40.4
- Indonesia	-	0.2	1.6	6.6	10.4	12.7	18.0	22.0	24.0	26.0	28.1
- Japan	-	-	0.1	2.4	4.7	5.7	8.0	10.2	12.5	14.8	17.1
- Korea	-	-	-	4.5	9.0	9.0	9.0	9.0	9.0	9.0	9.0
- Philippines	-	0.5	2.0	2.1	2.2	4.6	4.9	5.7	6.6	7.6	9.2
- Thailand	0.8	1.4	3.4	4.5	6.8	10.2	11.4	16.5	19.0	23.3	26.3
TOTAL	8	26	38	67	107	165	195	225	250	278	306
- Remaining AP +(10%)	0.8	2.6	3.8	6.7	10.7	16.5	19.5	22.5	25.0	27.8	30.6
Total	9.2	29	42	73	118	181	215	247	275	306	337

BIODIESEL (Mboe/d)	2005	2006P	2007E	2008E	2009E	2010E	2011E	2012E	2013E	2014E	2015E
- Australia	-	0.3	0.5	1.0	1.8	2.5	5.1	7.6	10.2	12.7	15.3
- China	-	2.5	5.2	28.6	93.4	224.8	247.6	270.6	293.9	317.5	341.4
- India	-	-	4.9	15.7	22.4	47.7	65.6	100.4	124.7	151.9	181.8
- Indonesia	-	1.1	13.8	25.8	32.7	34.8	43.2	52.6	57.4	62.3	67.2
- Japan	-	-	-	0.6	3.0	5.2	7.3	9.4	11.5	13.6	15.7
- Korea	-	1.4	1.9	8.7	13.2	17.7	22.2	22.3	22.4	22.4	22.5
- Philippines	-	1.2	2.2	2.3	6.0	6.3	6.6	8.4	10.4	12.5	16.5
- Thailand	0.2	0.4	2.3	2.9	4.8	11.1	24.9	46.1	60.9	77.0	101.3
TOTAL	0.2	7	31	86	177	350	423	518	591	670	762
- Remaining AP +(10%)	0.0	0.7	3.1	8.6	17.7	35.0	42.3	51.8	59.1	67.0	76.2
Total	0.2	7	34	94	195	385	465	569	651	737	838

Coal Conversion (Mboe/d)	2005	2006P	2007E	2008E	2009E	2010E	2011E	2012E	2013E	2014E	2015E
- Australia	-	-	-	-	-	19.1	19.1	76.2	76.2	76.2	76.2
- China	47.1	75.4	81.8	154.7	209.5	374.8	374.8	570.4	637.1	676.3	942.6
- India	-	-	-	-	-	-	-	76.4	76.4	76.4	76.4
- Indonesia	-	-	-	-	-	-	-	-	12.8	25.7	25.7
- Japan	-	-	-	-	-	-	-	-	-	-	-
- Korea	-	-	-	-	-	-	-	-	-	-	-
- Philippines	-	-	-	-	-	-	-	-	-	-	57.3
- Thailand	-	-	-	-	-	-	-	-	-	-	-
- New Zealand	-	-	-	-	-	-	-	47.6	47.6	47.6	47.6
Total	47	75	82	155	210	394	394	770	850	902	1,226

Source: Bear Stearns Asia Ltd. estimates, various sources.

Addendum
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