

Global Mining Research

Metal Prospects

The Outlook for Metals & Bulk Commodities in 2010

RBC Dominion Securities Inc.

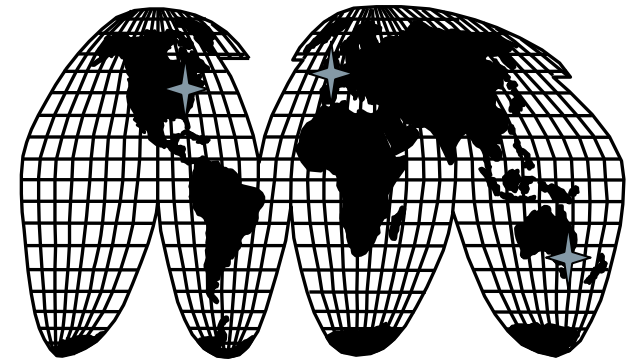
H. Fraser Phillips, Managing Director (416) 842-7859 fraser.phillips@rbccm.com

December 8, 2009

This report is priced as of market close December 3, 2009.

All values in U.S. dollars unless otherwise noted.

For Required Conflicts Disclosures, please see page 32.



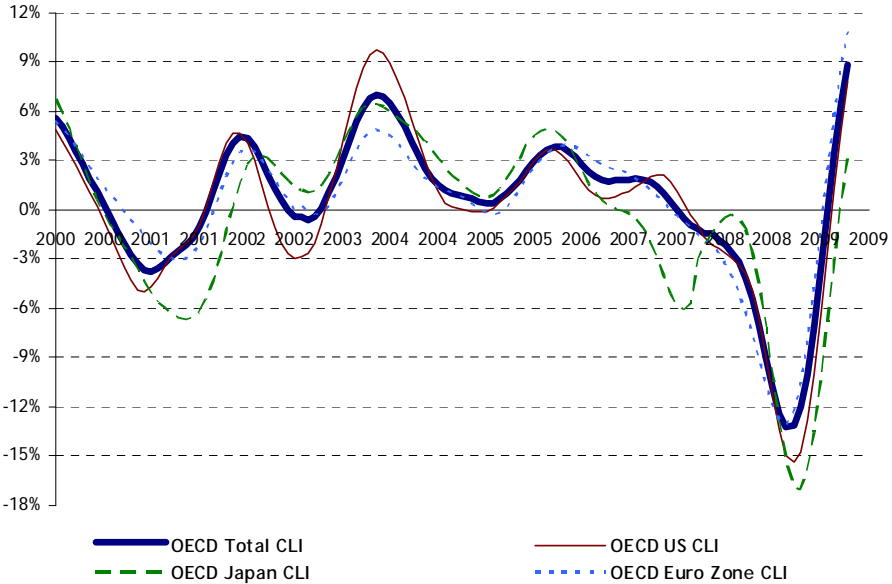
RBC Capital Markets®

Investment Outlook

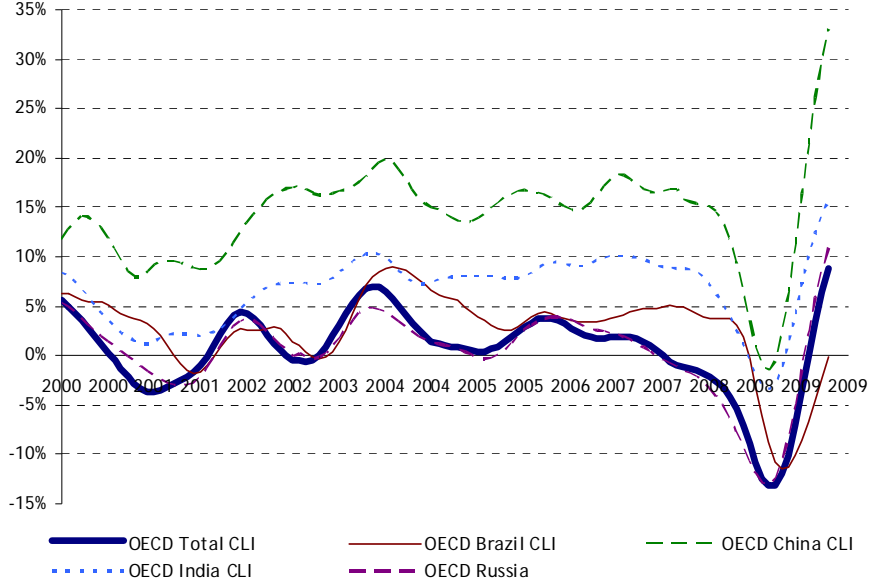
- **The longer-term secular commodity story remains very attractive.** The combination of strong demand growth led by the developing world and continuing supply constraints should support strong commodity prices.
- **However, the near-term outlook is uncertain.** Chinese restocking appears to be coming to an end, and while the outlook for economic growth and commodity demand outside of China is improving, it is unclear whether growth will be strong enough to offset slowing Chinese offtake. The transition from the restocking phase to sustainable real underlying levels of demand growth that is underway in China could lead to renewed commodity inventory builds.
- **Investment funds flows have been a key driver of commodity prices.** Fund flows, not fundamentals, have been the key determinant of prices over the past three months and we believe prices are, to varying degrees, ahead of the underlying fundamentals. Over the longer term we believe that the fundamentals will reassert themselves.
- **After a breathtaking rally in 2009, the near-term risk of a correction is rising.** The rally could be extended for a time, driven by continued improvements in leading indicators, further U.S. dollar weakness and investment funds flows. However, the eventual reassertion of commodity market fundamentals could lead to a pull back and/or period of consolidation.
- **Commodity Preferences:** Copper remains our top pick amongst the commodities in 2010, followed by iron ore, coking coal and thermal coal.

Economic Activity

OECD Composite Leading Indicators - Developed World



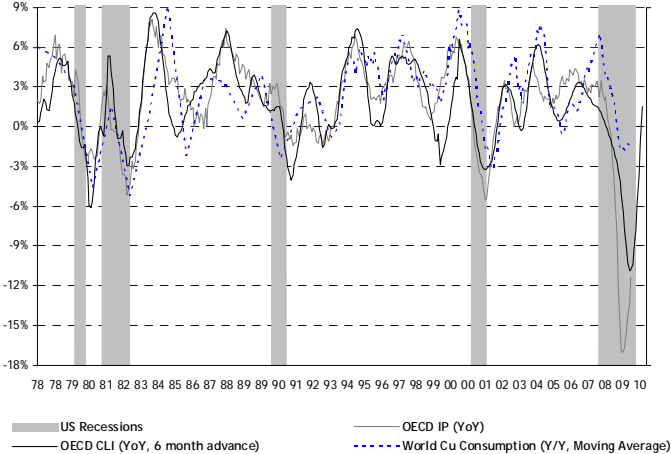
OECD Composite Leading Indicators – Developing World



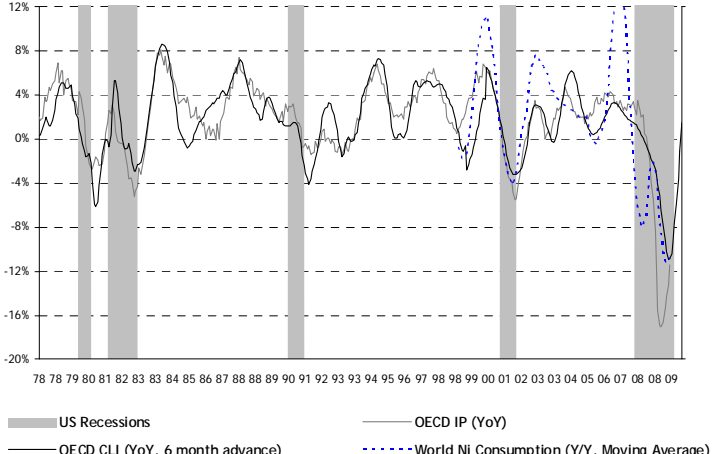
Source: OECD, RBC Capital Markets Estimates

Economic Activity & Metal Demand

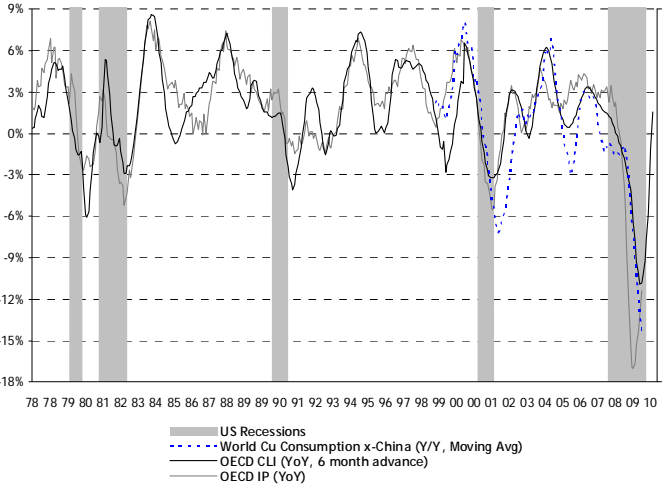
OECD IP, CLI, and Global Copper Consumption



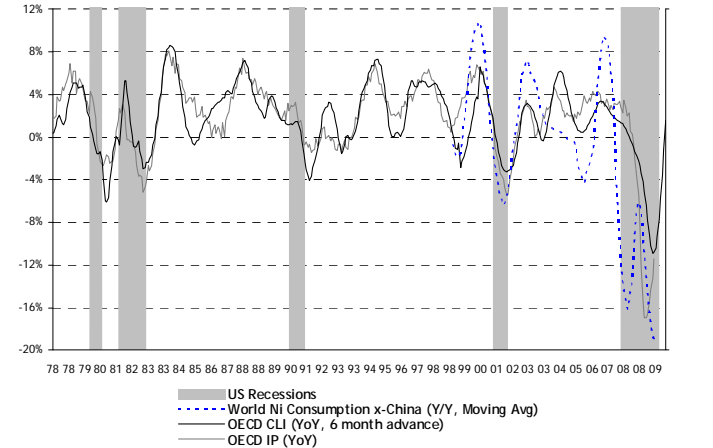
OECD IP, CLI, and Global Nickel Consumption



OECD IP, CLI, and Global Copper Consumption Ex-China



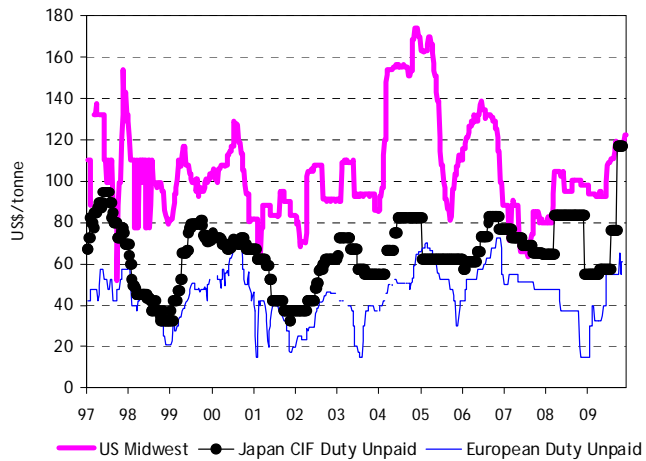
OECD IP, CLI, and Global Nickel Consumption Ex-China



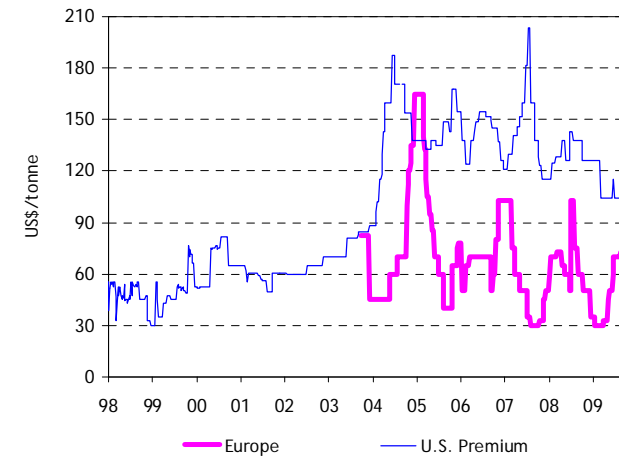
Source: OECD, RBC Capital Markets Estimates

Physical Premiums

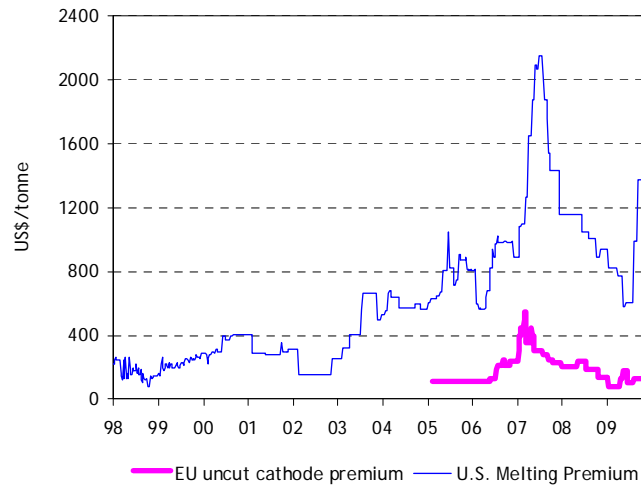
Aluminium



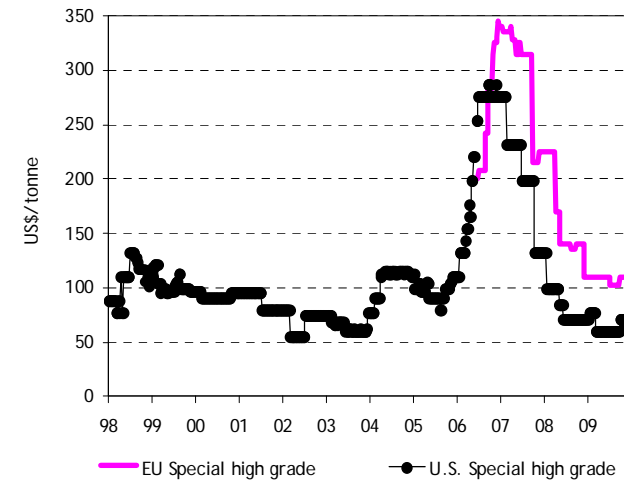
Copper



Nickel



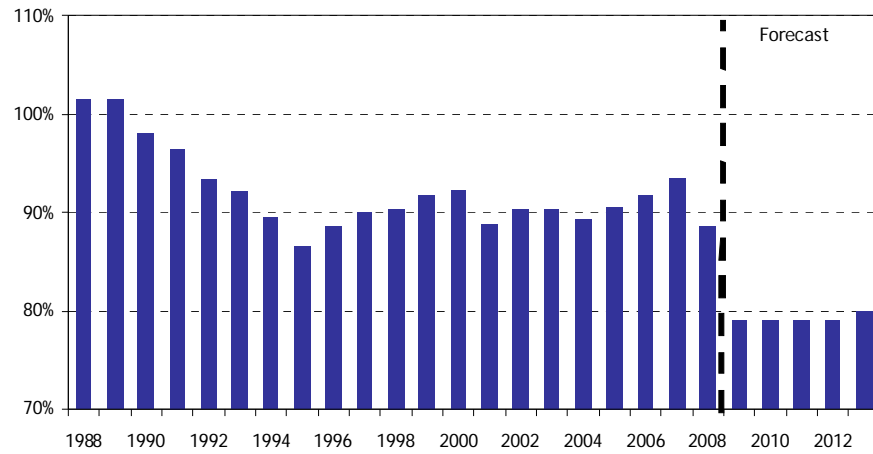
Zinc



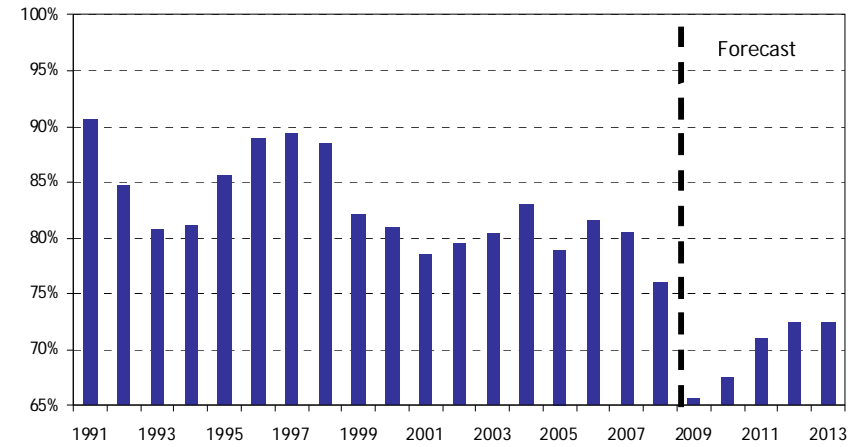
Source: Bloomberg, RBC Capital Markets Estimates

Capacity Utilization Rates

Refined Aluminium



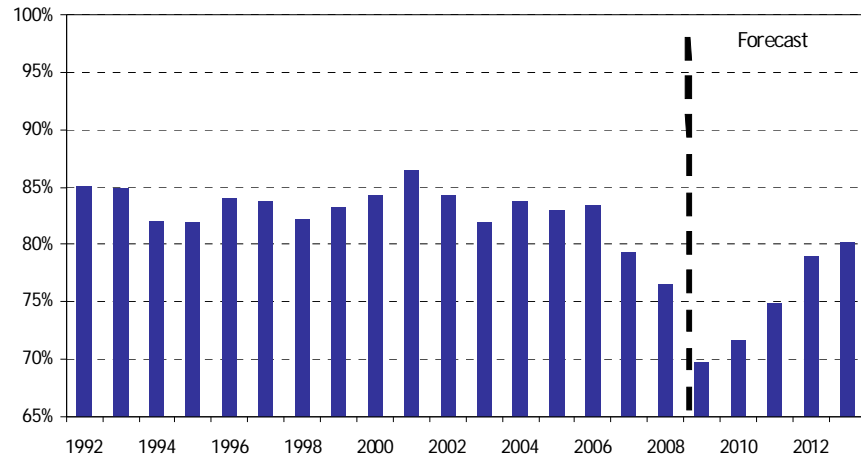
Refined Nickel



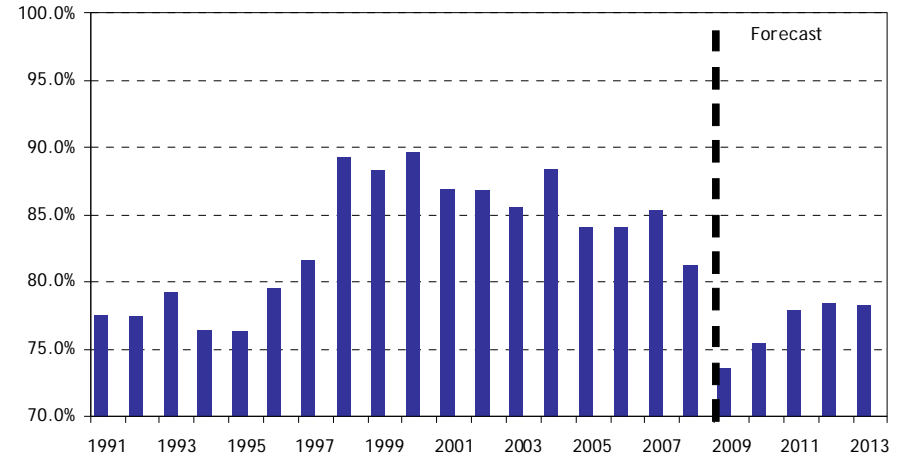
Source: Brook Hunt, RBC Capital Markets Estimates

Capacity Utilization Rates

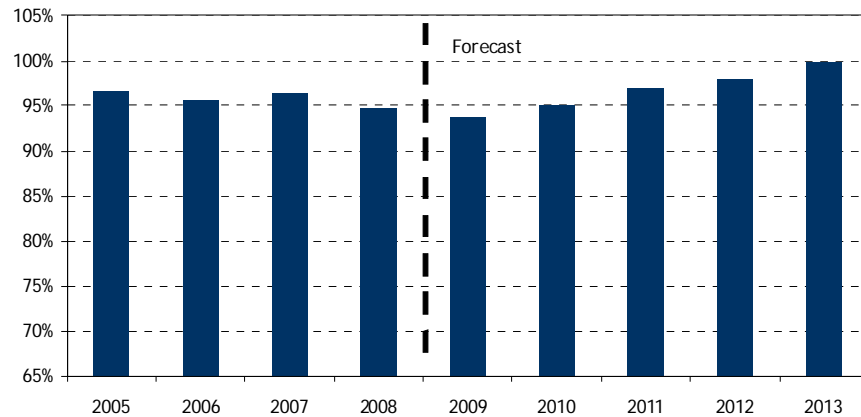
Refined Copper



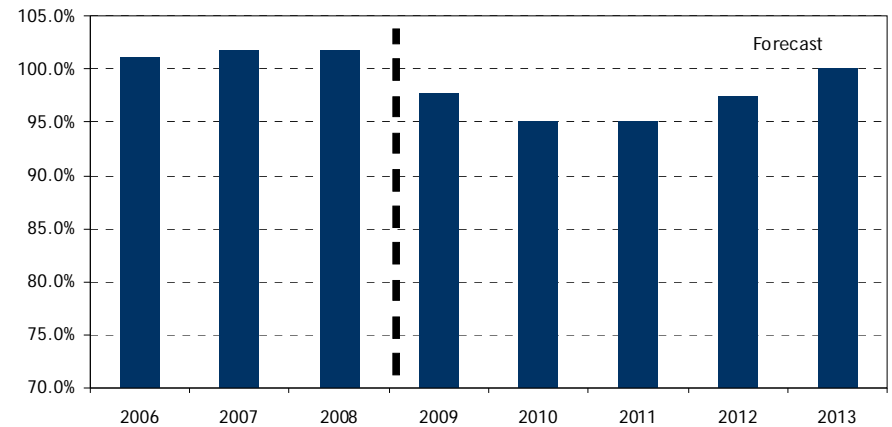
Refined Zinc



Mined Copper



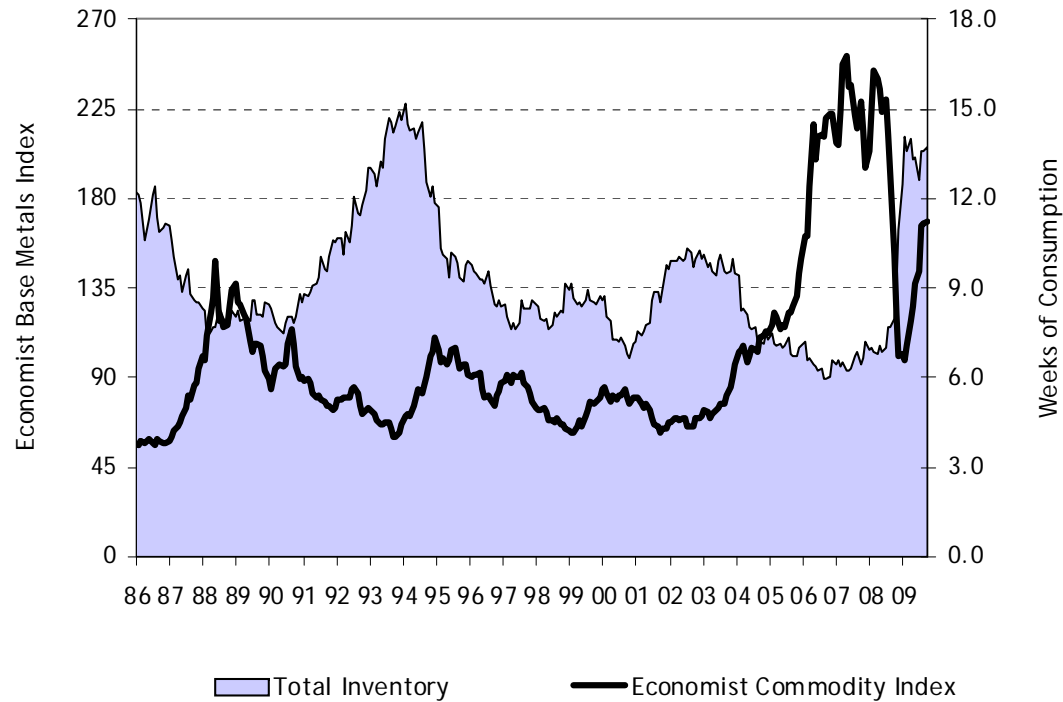
Mined Zinc



Source: Brook Hunt, RBC Capital Markets Estimates

Total Inventories & Price

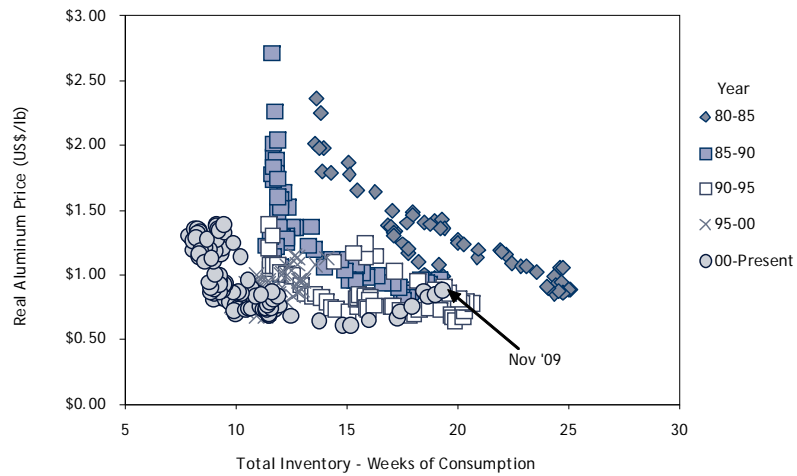
Total Al, Cu, Ni and Zn Inventories in Weeks of Consumption vs. Economist Base Metal Price Index



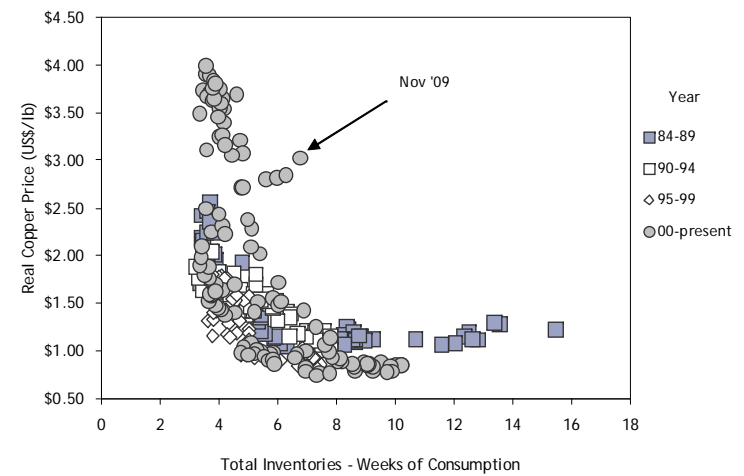
Source: RBC Capital Markets Estimates, LME

Inventories vs Real Prices

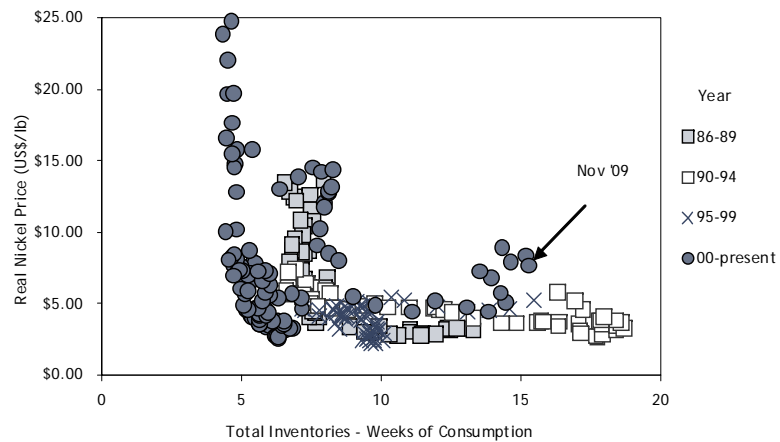
Aluminium



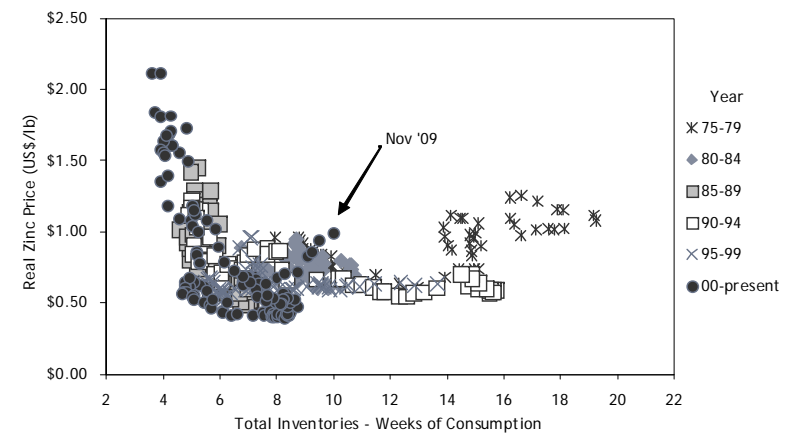
Copper



Nickel



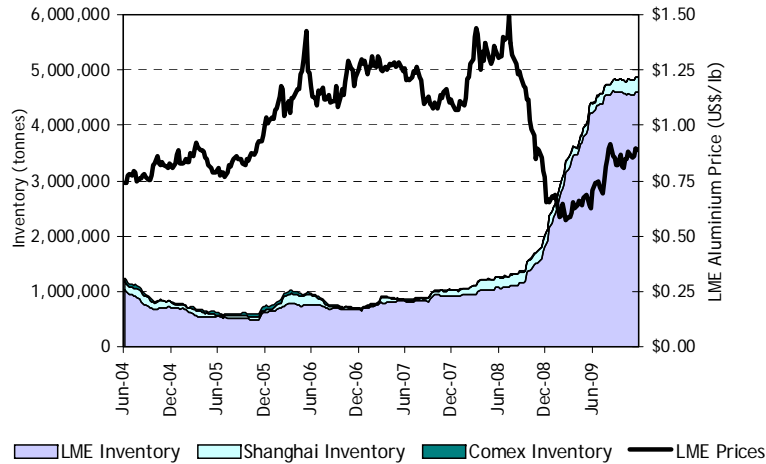
Zinc



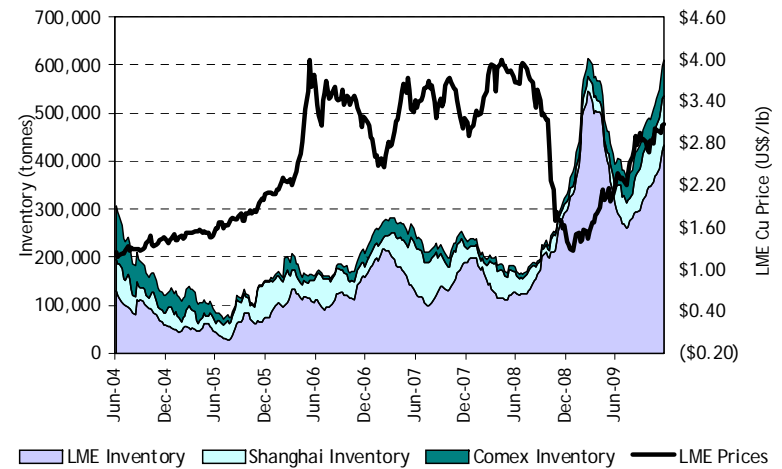
Source: Bloomberg, RBC Capital Markets Estimates

Exchange Inventories & Prices

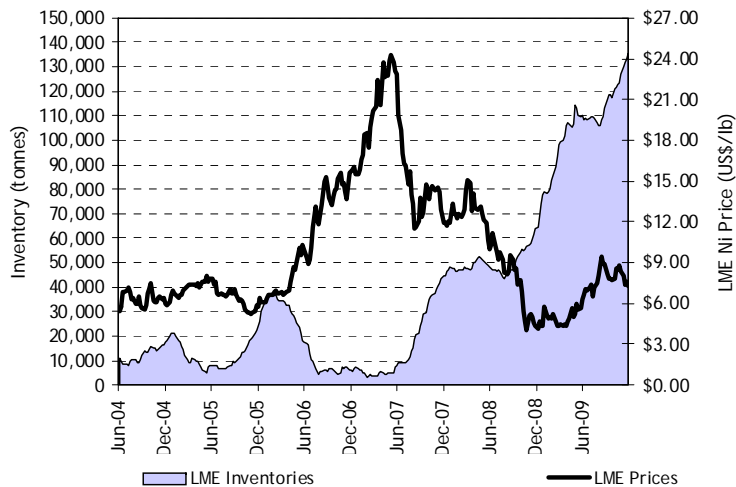
Aluminium



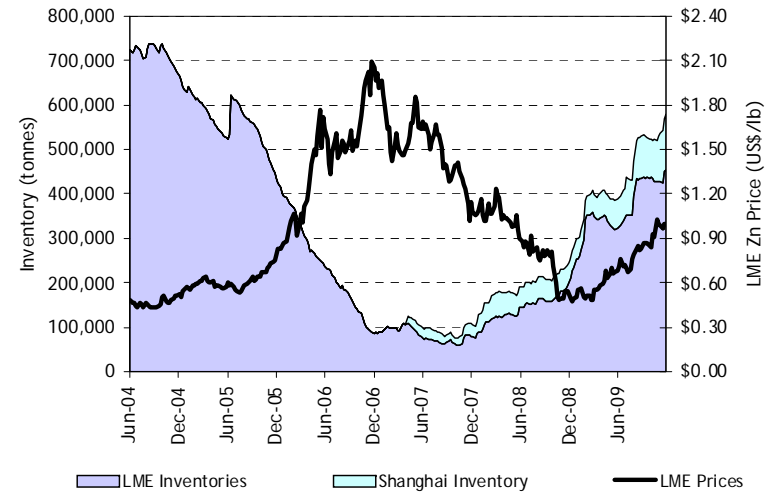
Copper



Nickel



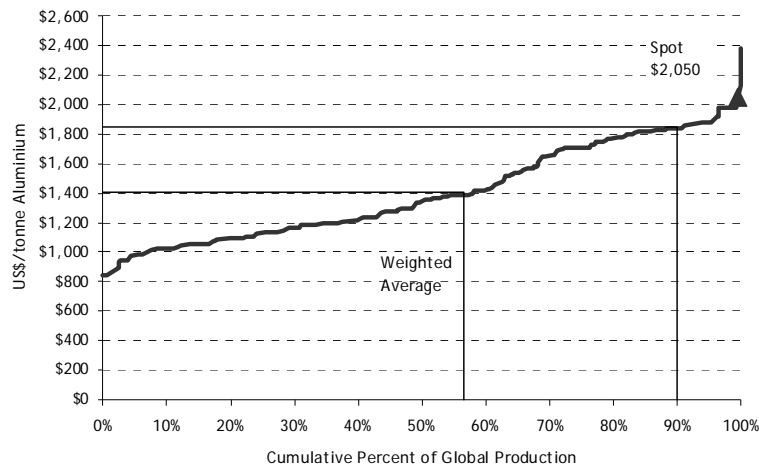
Zinc



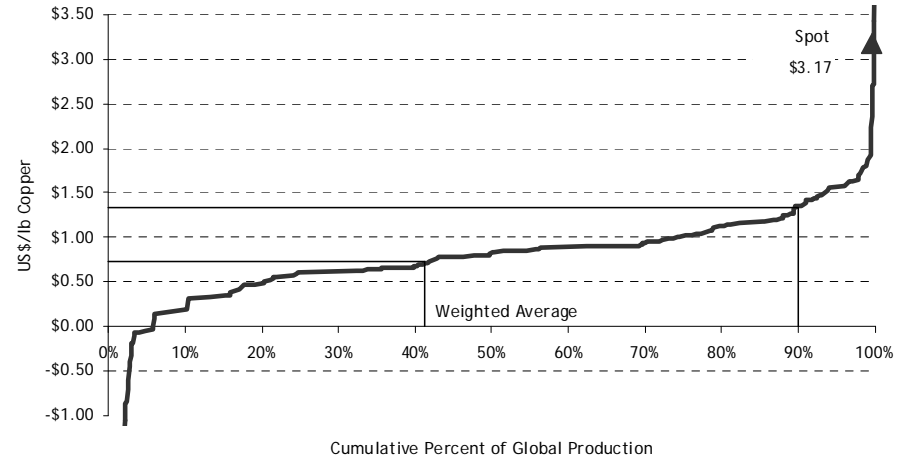
Source: Bloomberg, RBC Capital Markets Estimates

Cash Cost Curves

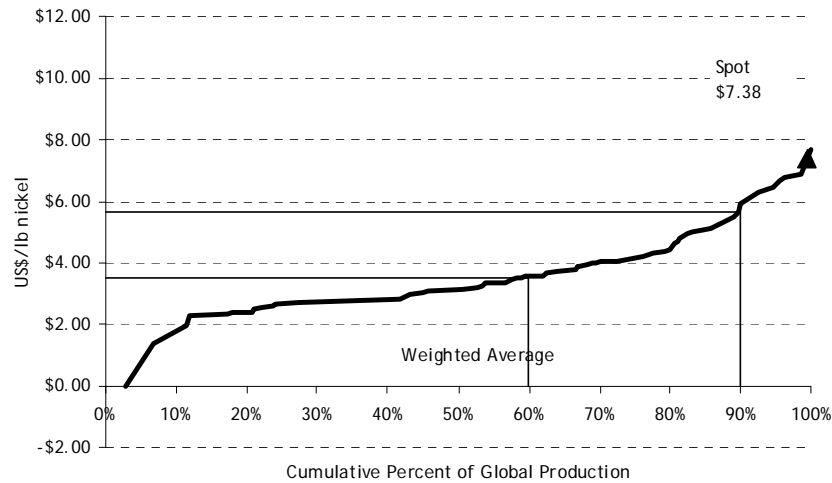
Aluminium



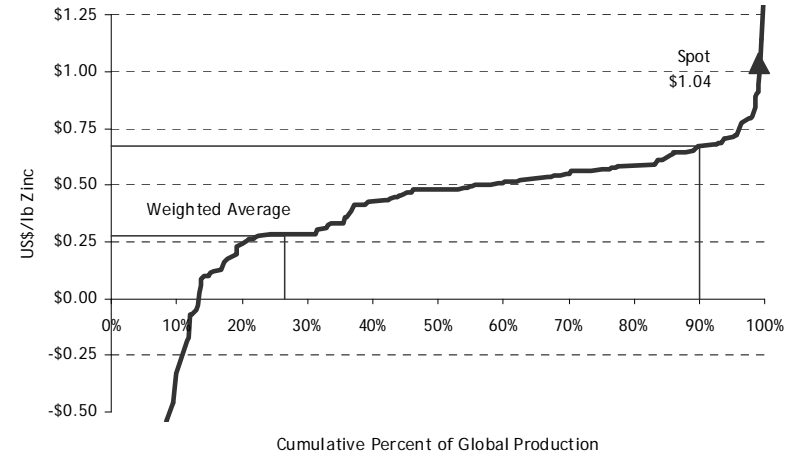
Copper



Nickel

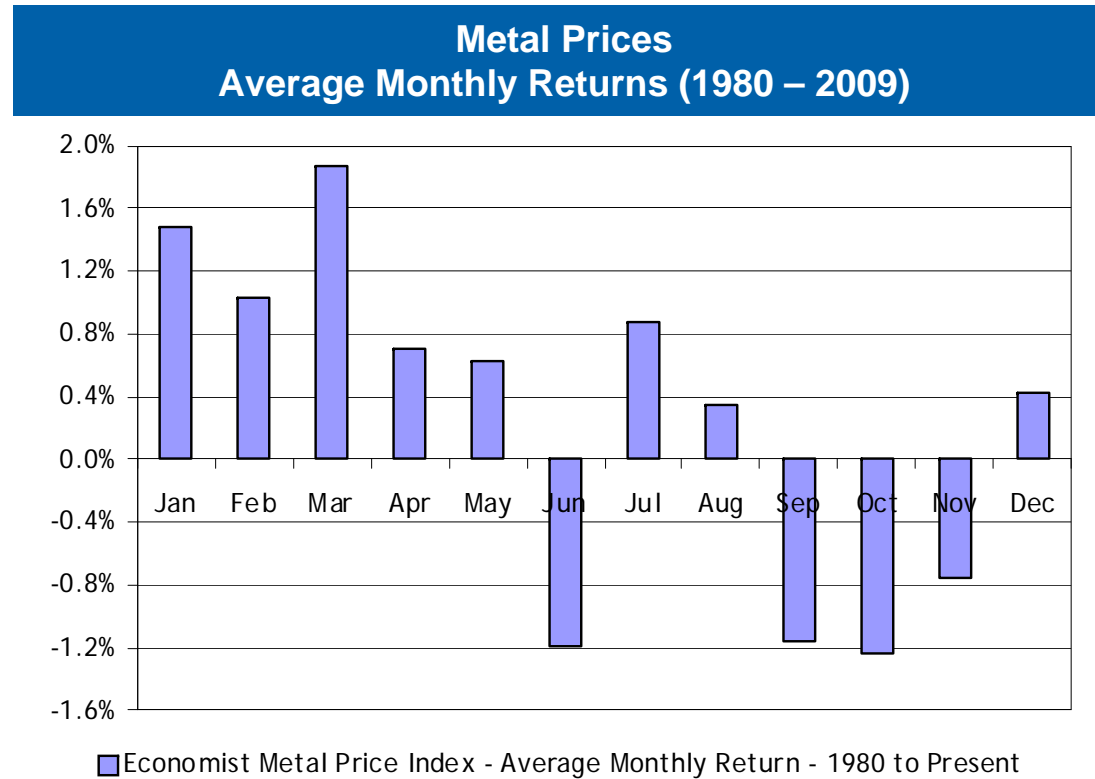


Zinc



Source: Brook Hunt, RBC Capital Markets Estimates

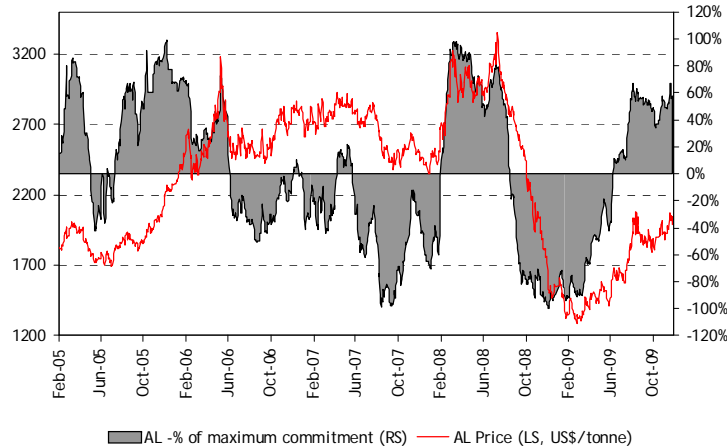
Seasonality



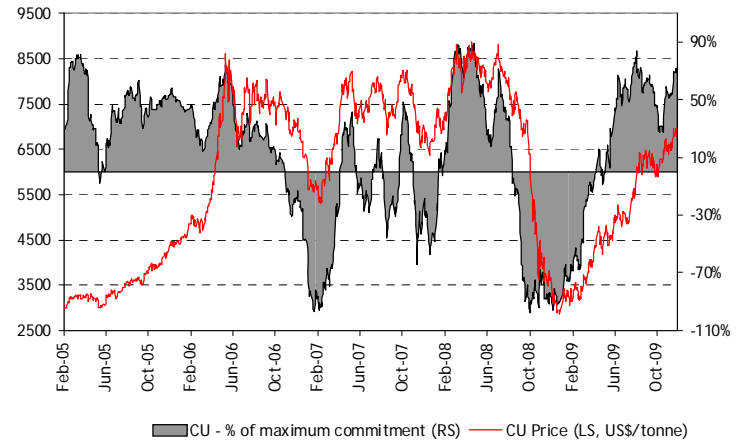
Source: RBC Capital Markets Estimates, Bloomberg, The Economist

Investment Demand

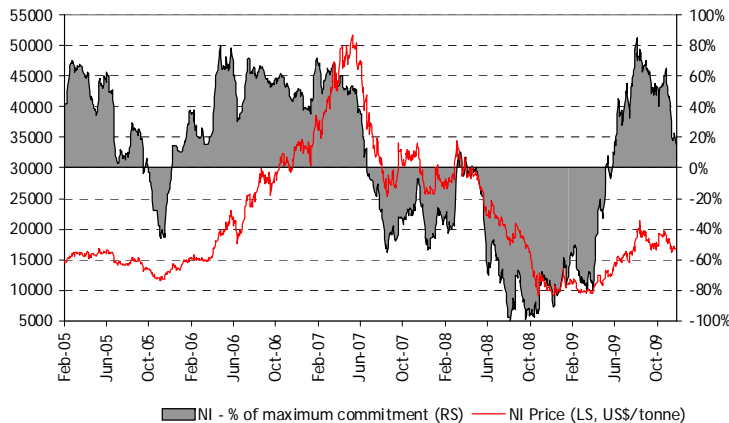
LME Aluminium Price vs. RBCCM Systematic Commitment (Net Long/Short)



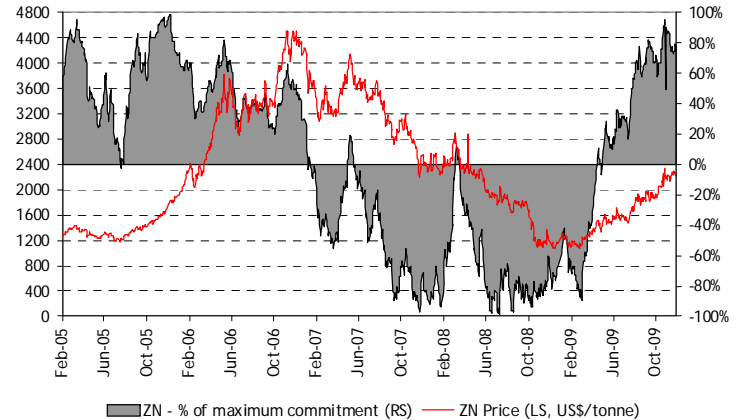
LME Copper Price vs. RBCCM Systematic Commitment (Net Long/Short)



LME Nickel Price vs. RBCCM Systematic Commitment (Net Long/Short)



LME Zinc Price vs. RBCCM Systematic Commitment (Net Long/Short)



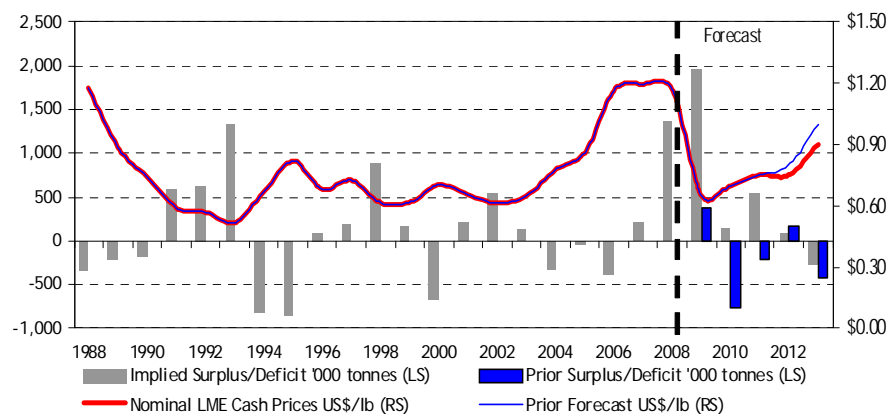
Source: Brook Hunt, RBC Capital Markets Estimates

Aluminium Market Outlook

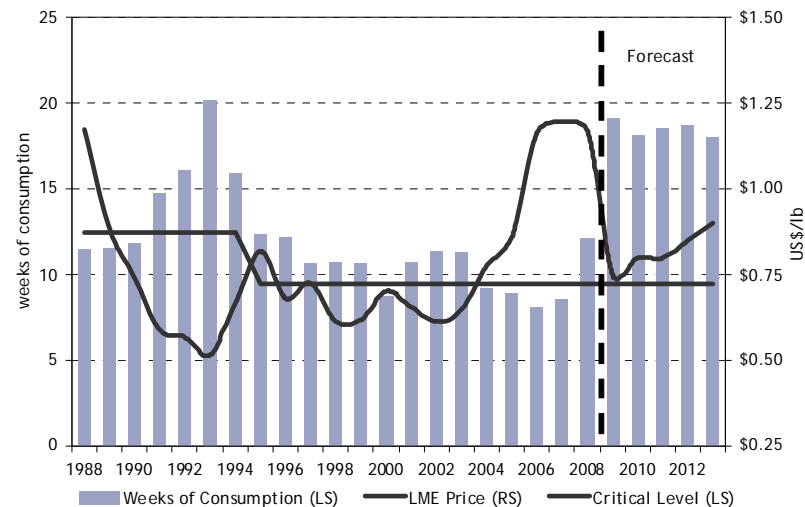
Aluminium Supply/Demand Balance

		2005	2006	2007	2008	2009E	2010E	2011E	2012E	2013E
Supply	'000 tonnes	32,006	33,978	38,159	39,546	37,392	39,909	43,354	44,943	46,759
% change		6.9%	6.2%	12.3%	3.6%	-5.4%	6.7%	8.6%	3.7%	4.0%
Total Global Primary Demand	'000 tonnes	32,038	34,366	37,954	38,172	35,428	39,753	42,815	44,854	47,021
% change		5.9%	7.3%	10.4%	0.6%	-7.2%	12.2%	7.7%	4.8%	4.8%
Implied Surplus / (Deficit)	'000 tonnes	(32)	(388)	205	1,374	1,964	156	539	90	(262)
Total Reported Stocks	'000 tonnes	3,942	3,682	3,881	5,510	7,474	7,630	8,169	8,259	7,997
Weeks of Consumption (Western World)		8.9	8.1	8.6	12.1	19.0	18.0	18.5	18.3	17.3
Nominal LME Cash Price	US\$/lb	\$0.86	\$1.16	\$1.20	\$1.17	\$0.65	\$0.70	\$0.75	\$0.75	\$0.90
Long Term Price (2014 and beyond)	2009 US\$									\$0.90

Global Aluminium Supply/Demand and Prices



Total Aluminium Inventories and Price



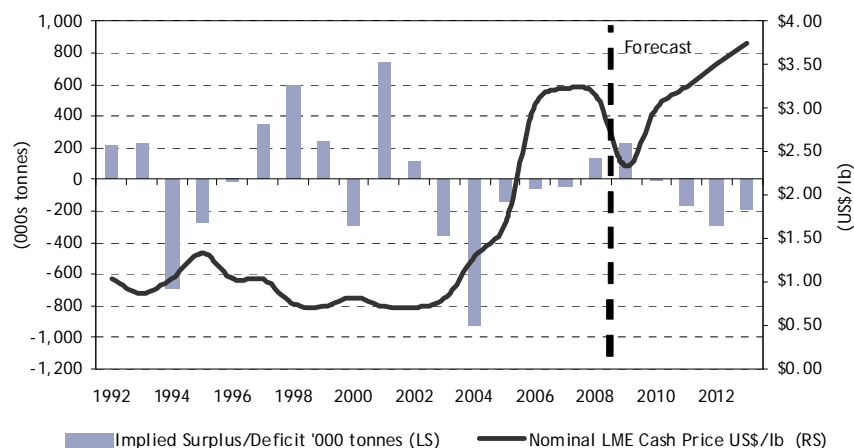
Source: RBC Capital Markets Estimates, Brook Hunt, LME

Copper Market Outlook

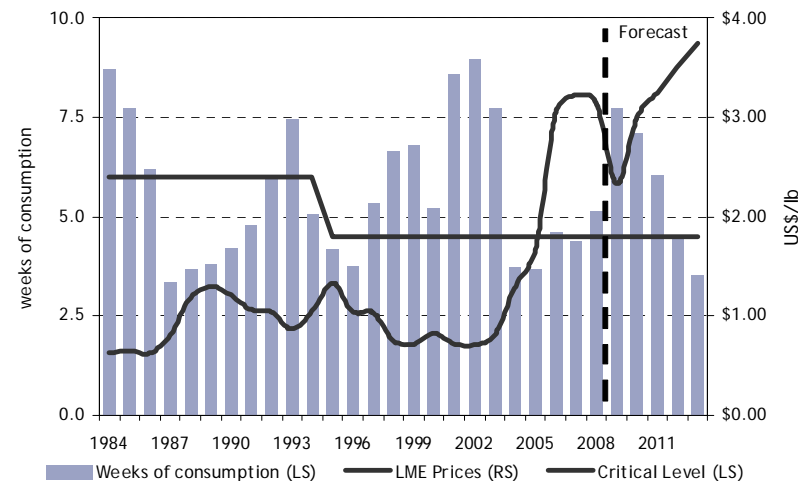
Copper Supply/Demand Balance

		2005	2006	2007	2008	2009E	2010E	2011E	2012E	2013E
Supply	'000 tonnes	16,583	17,310	17,957	18,245	17,909	19,073	20,068	21,294	21,699
Inventory Movements	'000 tonnes	-	-	-	-	-	-	-	-	-
Base Case Supply	'000 tonnes	16,583	17,310	17,957	18,245	17,909	19,073	20,068	21,294	21,699
% change		4.0%	4.4%	3.7%	1.6%	-1.8%	6.5%	5.2%	6.1%	1.9%
Total Global Demand	'000 tonnes	16,719	17,367	18,253	18,102	17,362	19,293	20,390	21,189	22,028
% change		-0.9%	3.9%	5.1%	-0.8%	-4.1%	11.1%	5.7%	3.9%	4.0%
Implied Surplus / (Deficit)	'000 tonnes	(136)	(57)	(296)	144	546	(219)	(322)	105	(329)
Total Reported Stocks	'000 tonnes	845.68	1,090.83	1,017.21	1,154.48	1,700.84	1,481.65	1,159.68	1,265.13	936.20
Weeks of Consumption (Western World)		3.7	4.6	4.4	5.1	8.3	6.7	5.1	5.4	3.9
Nominal LME Cash Price	US\$/lb	\$1.67	\$3.05	\$3.23	\$3.15	\$1.85	\$2.10	\$2.25	\$2.25	\$2.50
Long Term Price (2014 and beyond) 2009 US\$	US\$/lb									\$1.75

Global Copper Supply/Demand and Prices



Total Copper Inventories and Price



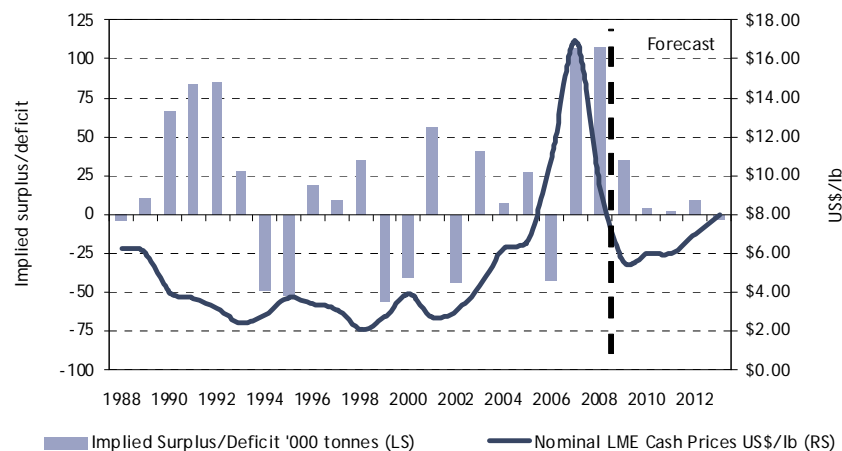
Source: RBC Capital Markets Estimates, Brook Hunt, LME

Nickel Market Outlook

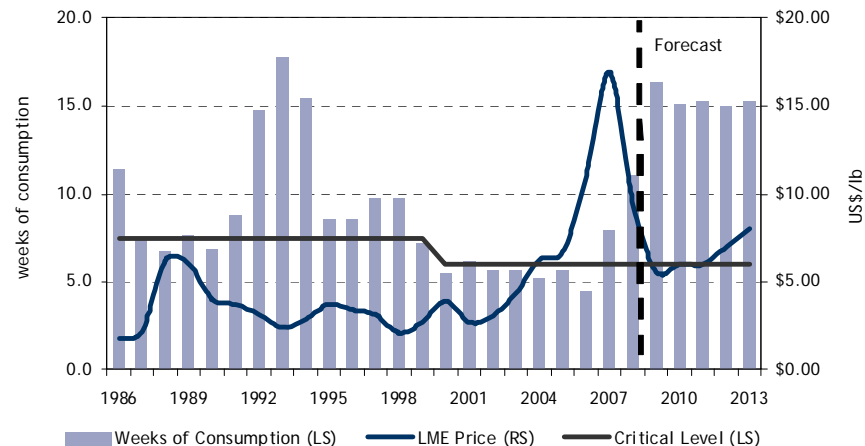
Nickel Supply/Demand Balance

		2005	2006	2007	2008	2009E	2010E	2011E	2012E	2013E
Supply	'000 tonnes	1,274	1,350	1,420	1,378	1,213	1,361	1,479	1,534	1,611
Inventory Movements	'000 tonnes	1	2	-	-	-	-	-	-	-
Base Case Supply	'000 tonnes	1,275	1,352	1,420	1,378	1,213	1,361	1,479	1,534	1,611
% change		1.7%	6.0%	5.0%	-3.0%	-11.9%	12.2%	8.7%	3.7%	5.1%
Total Global Demand	'000 tonnes	1,249	1,401	1,323	1,278	1,178	1,353	1,471	1,534	1,602
% change		0.1%	12.2%	-5.6%	-3.4%	-7.8%	14.8%	8.7%	4.3%	4.4%
Implied Surplus / (Deficit)	'000 tonnes	26	(49)	97	99	35	8	9	(0)	9
Total Reported Stocks	'000 tonnes	111	94	145	187	222	230	239	238	248
Weeks of Consumption (Western World)		5.7	4.4	7.9	11.1	16.4	15.1	15.3	15.0	15.3
Nominal LME Cash Price	US\$/lb	\$6.69	\$11.02	\$16.91	\$9.57	\$6.65	\$7.00	\$7.00	\$7.00	\$8.00
Long Term Price (2014 and beyond) 2009 US\$	US\$/lb									\$7.50

Global Nickel Supply/Demand and Prices



Total Nickel Inventories and Price



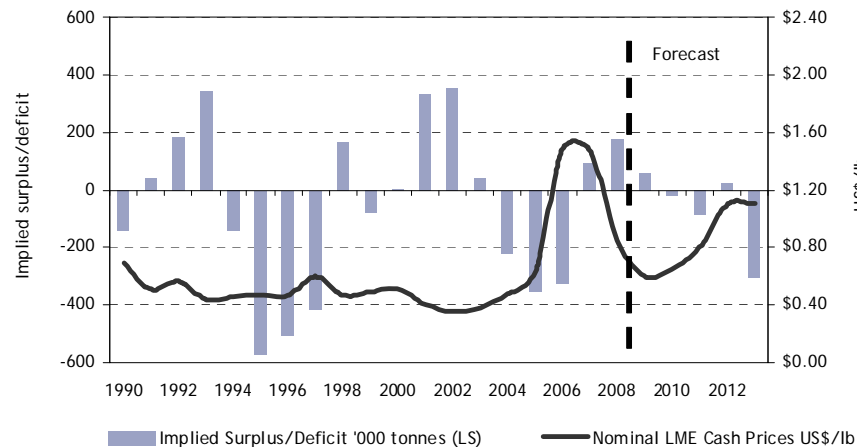
Source: RBC Capital Markets Estimates, Brook Hunt, LME

Zinc Market Outlook

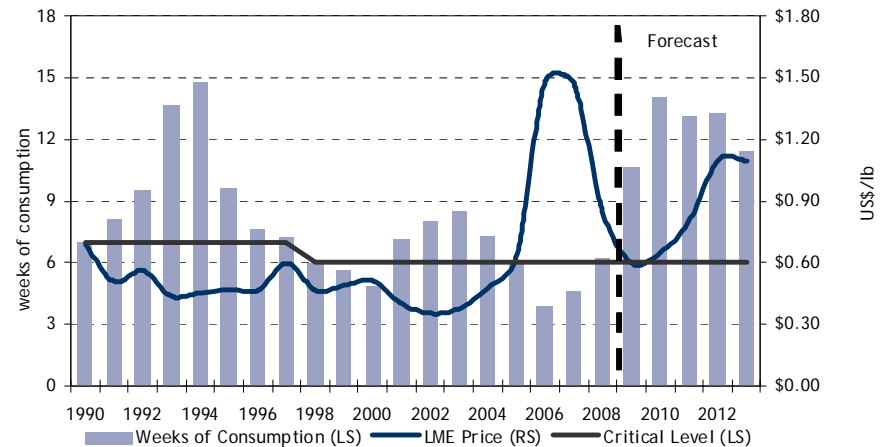
Zinc Supply/Demand Balance

		2005	2006	2007	2008	2009E	2010E	2011E	2012E	2013E
Supply	'000 tonnes	10,225	10,654	11,359	11,665	10,965	11,769	12,414	12,900	12,781
DLA Sales	'000 tonnes	29	29	8	-	-	-	-	-	-
Base Case Supply	'000 tonnes	10,254	10,683	11,367	11,665	10,965	11,769	12,414	12,900	12,781
% change		-1.6%	4.2%	6.4%	2.6%	-6.0%	7.3%	5.5%	3.9%	-0.9%
Total Global Demand	'000 tonnes	10,612	11,013	11,276	11,487	10,903	11,791	12,499	12,877	13,088
YoY % Change		-0.3%	3.8%	2.4%	1.9%	-5.1%	8.1%	6.0%	3.0%	1.6%
Implied Surplus / (Deficit)	'000 tonnes	(358)	(330)	91	178	62	(21)	(85)	23	(307)
Total Reported Stocks	'000 tonnes	810	547	631	835	897	876	791	814	507
Weeks of Consumption (Western World)		6.0	3.9	4.6	6.3	7.5	7.1	6.2	6.3	3.9
Nominal LME Cash Price	US\$/lb	\$0.63	\$1.48	\$1.47	\$0.85	\$0.60	\$0.65	\$0.80	\$1.10	\$1.10
Long Term Price (2014 and beyond) 2009 US\$	US\$/lb									\$0.70

Global Zinc Supply/Demand and Prices



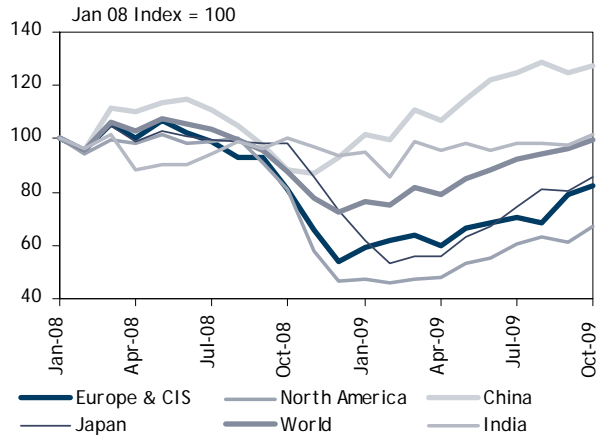
Total Zinc Inventories and Price



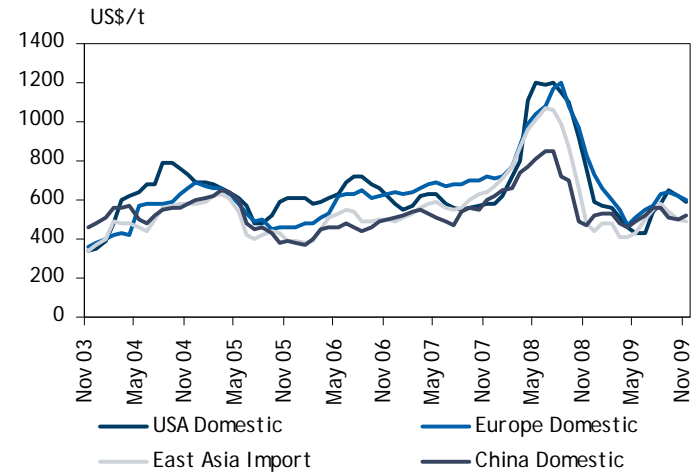
Source: RBC Capital Markets Estimates, Brook Hunt, LME

Steel Market Outlook

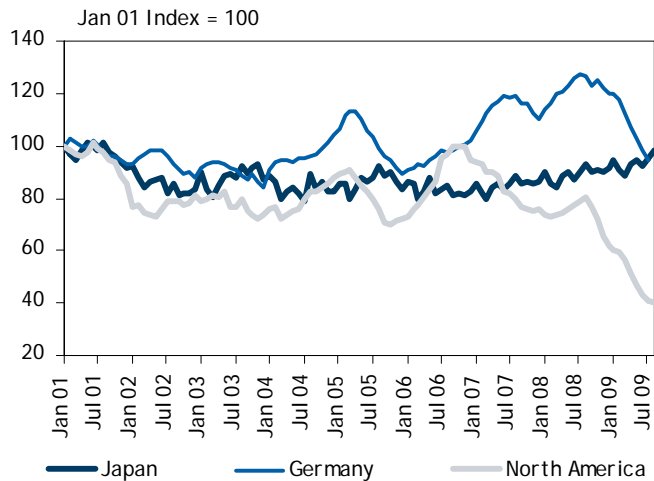
Global steel production



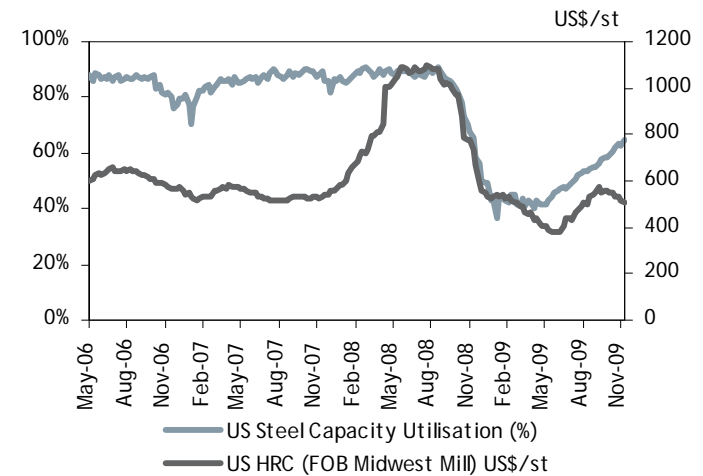
Regional HRC prices



Regional steel inventories (indexed)



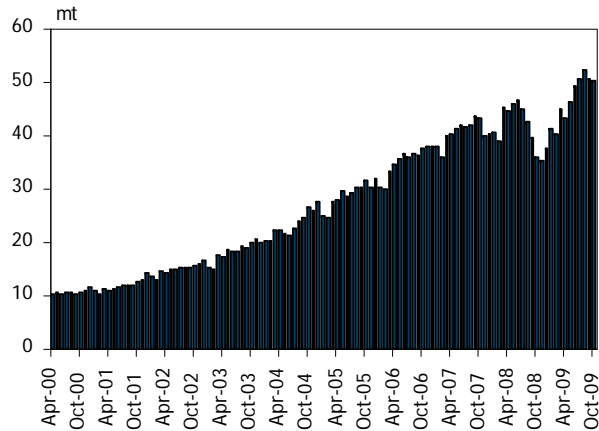
US utilisation rising, but prices weak



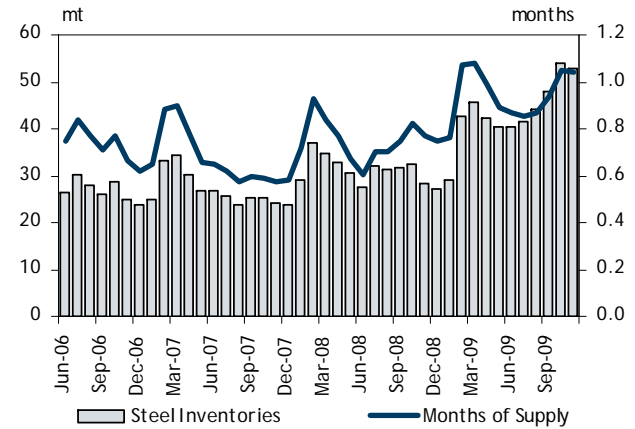
Source: Steel Business Briefing, CRU, WSA

Steel Market Outlook

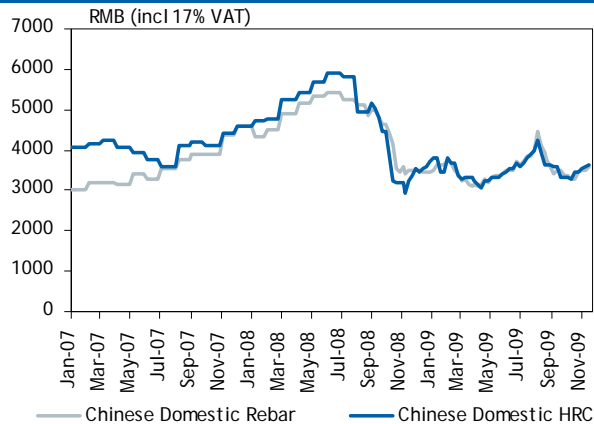
Production continues to grow



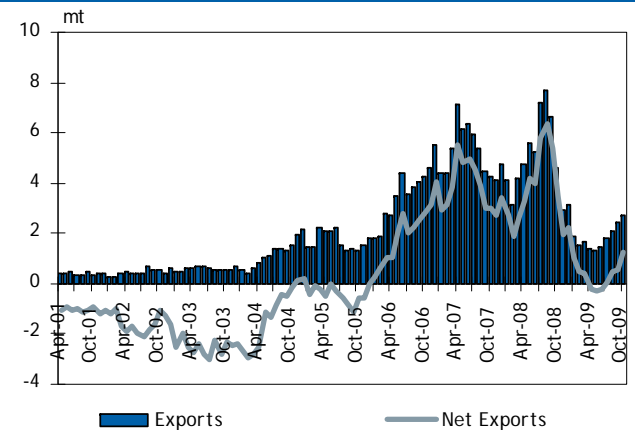
Chinese steel inventories



Regional steel inventories (indexed)



US utilisation rising, but prices weak



Source: Steel Business Briefing, CRU, WSA

Steel Market Outlook



Source: Company reports, RBC Capital Markets estimates

Steel Market Outlook

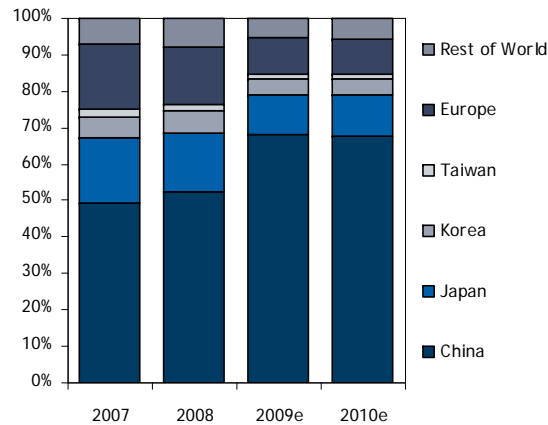
Global steel production

Global Steel Production (mt)	2007	2008	2009e	2010e	2011e	2012e
China	489	500	565	610	659	698
<i>Chinese production growth rate</i>	<i>16%</i>	<i>2%</i>	<i>13%</i>	<i>8%</i>	<i>8%</i>	<i>6%</i>
Japan	120	119	85	95	103	108
India	53	55	55	60	66	73
Other Asia	92	75	63	70	77	80
European Union (27)	210	199	130	145	157	163
Other Europe	30	31	28	31	32	33
North America	133	125	79	95	105	113
South America	48	48	36	45	50	52
CIS	124	114	94	105	111	116
Africa, Middle East, Oceania	44	42	36	39	44	46
Total	1344	1307	1171	1295	1402	1482
<i>Global growth</i>	<i>8%</i>	<i>-3%</i>	<i>-10%</i>	<i>11%</i>	<i>8%</i>	<i>6%</i>
<i>World ex-China (mt)</i>	<i>855</i>	<i>807</i>	<i>606</i>	<i>685</i>	<i>743</i>	<i>783</i>
<i>World ex-China growth</i>	<i>3%</i>	<i>-6%</i>	<i>-25%</i>	<i>13%</i>	<i>9%</i>	<i>5%</i>

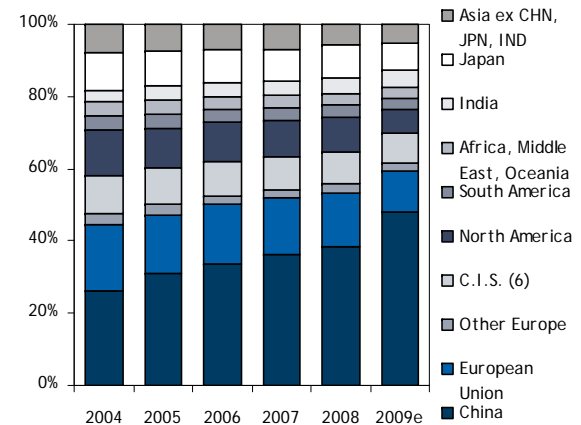
Source: RBC Capital Markets estimates

Iron Ore Market Outlook

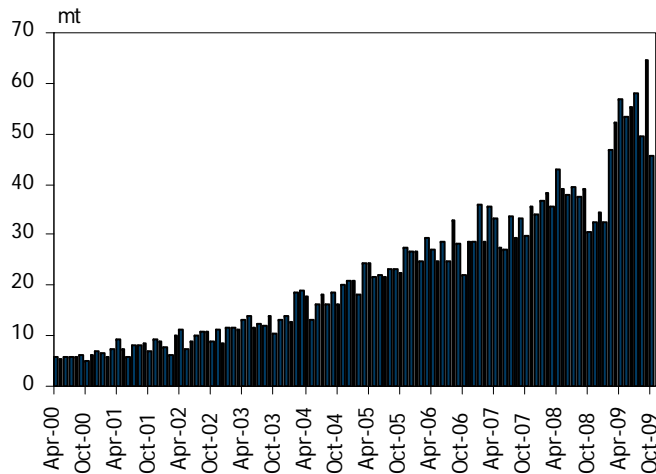
Iron ore imports by region, % of total



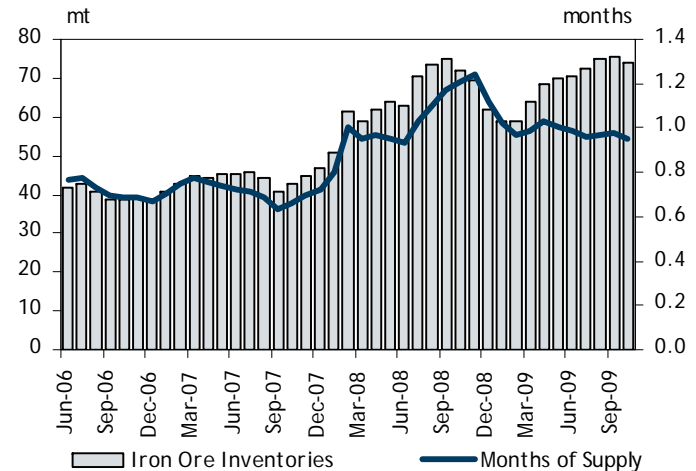
Steel production by region, % of total



Chinese iron ore imports



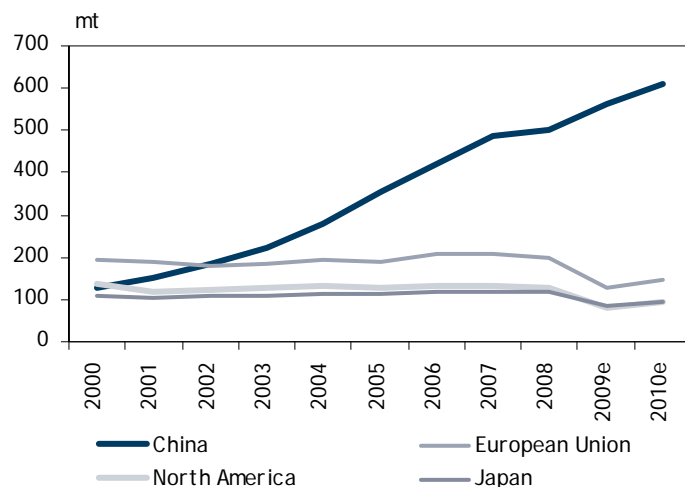
Chinese Iron Ore Inventories



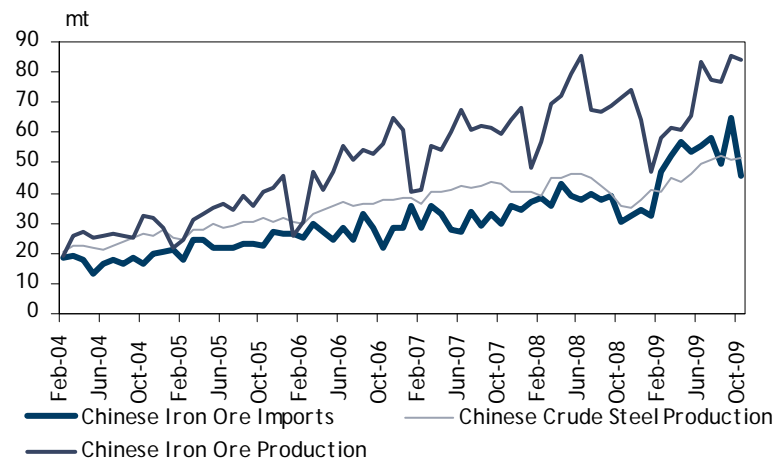
Source: WSA, RBC Capital Markets estimates

Iron Ore Market Outlook

No signs of capacity constraint



Steel production driving iron ore imports

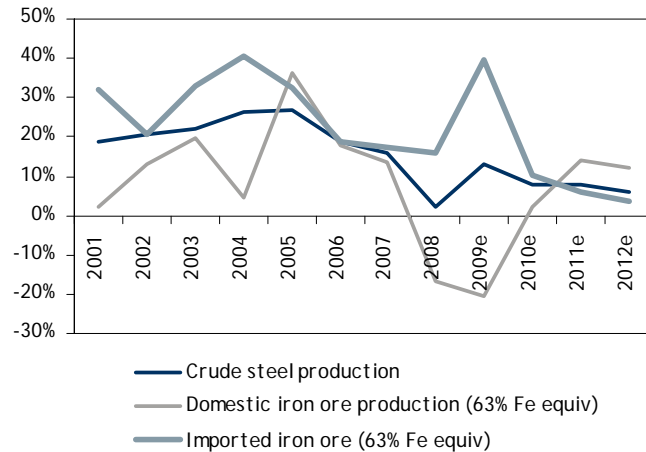


China supply/demand balance		2007	2008	2009e	2010e	2011e	2012e	2013e
Crude steel production	mt	489	500	565	610	659	698	740
Crude steel production growth	%	15.8%	2.2%	13.0%	8.0%	8.0%	6.0%	6.0%
Pig iron production	mt	471	471	542	586	632	670	711
Pig iron to crude steel ratio	%	96%	94%	96%	96%	96%	96%	96%
Iron ore demand (63% Fe equiv)	wmt	748	748	861	930	1,004	1,064	1,128
Domestic iron ore production	wmt	696	824	860	860	882	899	917
Domestic production growth	%	18.3%	18.4%	4.4%	0.0%	2.5%	2.0%	2.0%
Domestic production avg Fe grade	% Fe	33%	23%	18%	18%	20%	22%	22%
Domestic iron ore production (63% Fe equiv)	wmt	365	304	241	246	280	314	320
Imported iron ore (63% Fe equiv)	wmt	384	444	620	684	724	750	808
% Imports of total consumption		51%	59%	72%	74%	72%	70%	72%

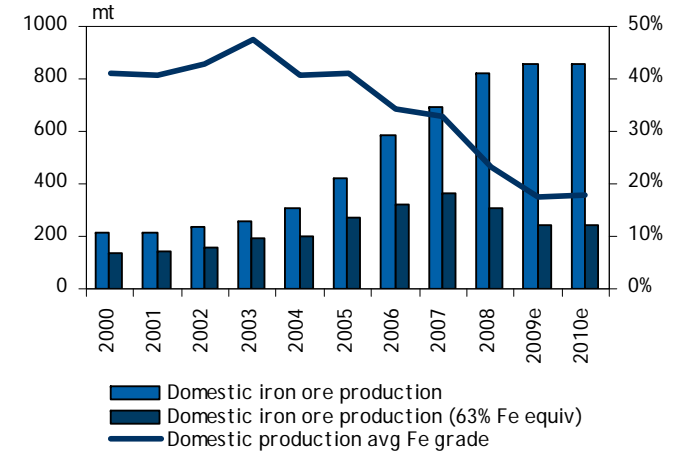
Source: WSA, RBC Capital Markets estimates

Iron Ore Market Outlook

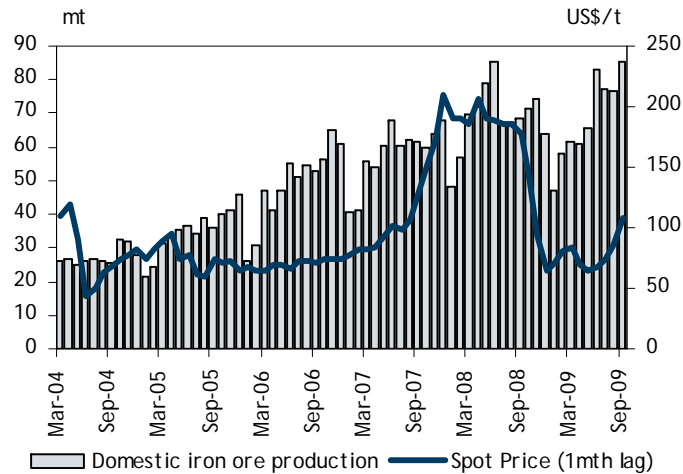
Growth



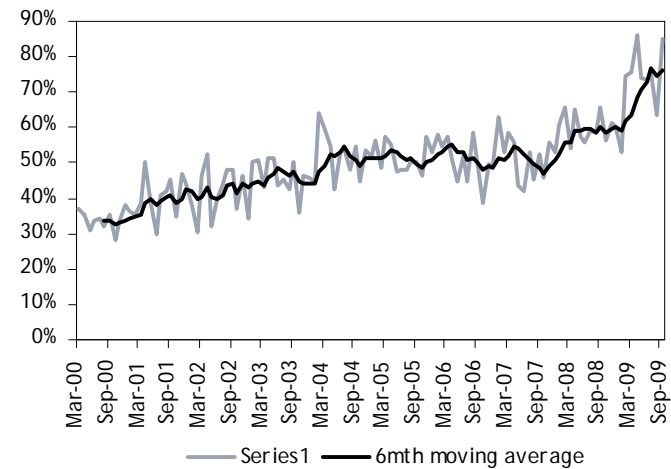
Implied grades



Chinese iron ore production vs spot Fe price



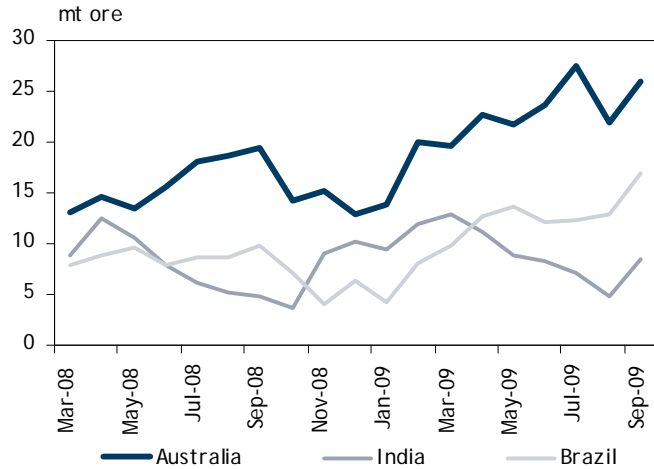
Imports as a % of iron ore consumption



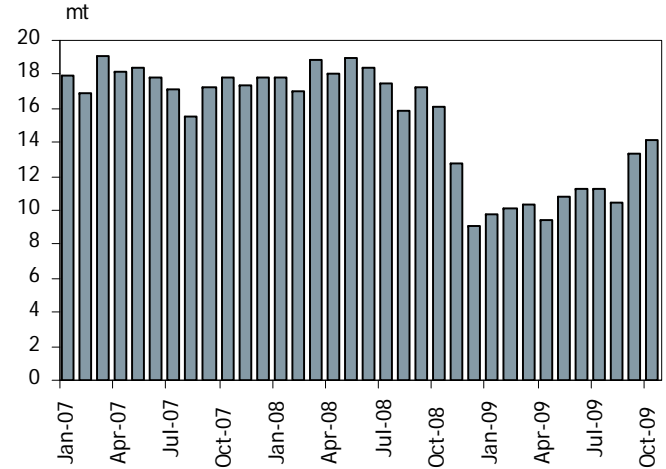
Source: WSA, TEX Report

Iron Ore Market Outlook

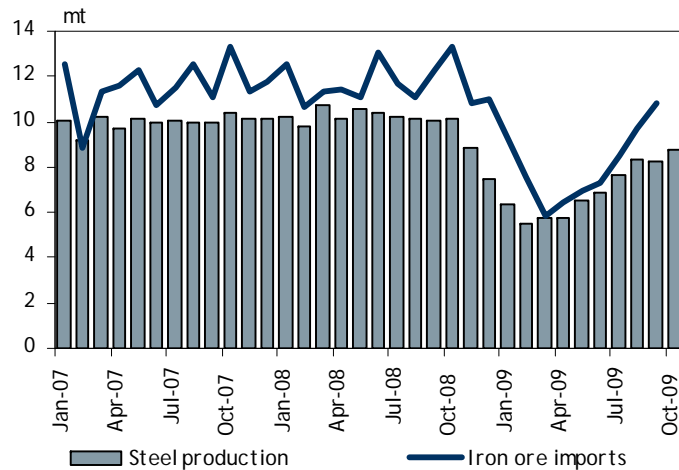
Chinese iron ore imports by country of origin



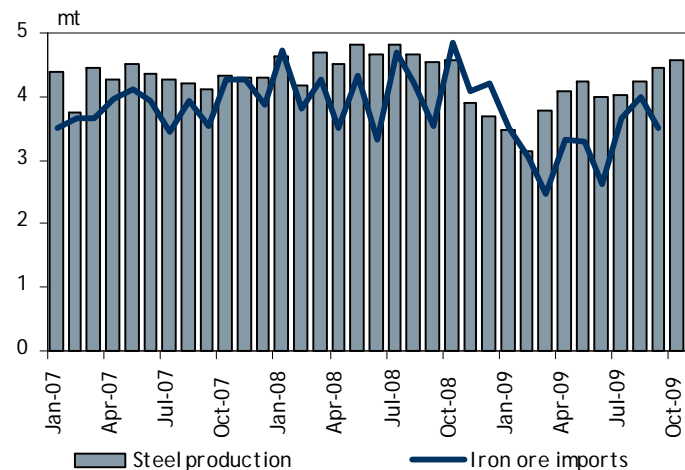
European steel production



Japanese steel production and iron ore imports



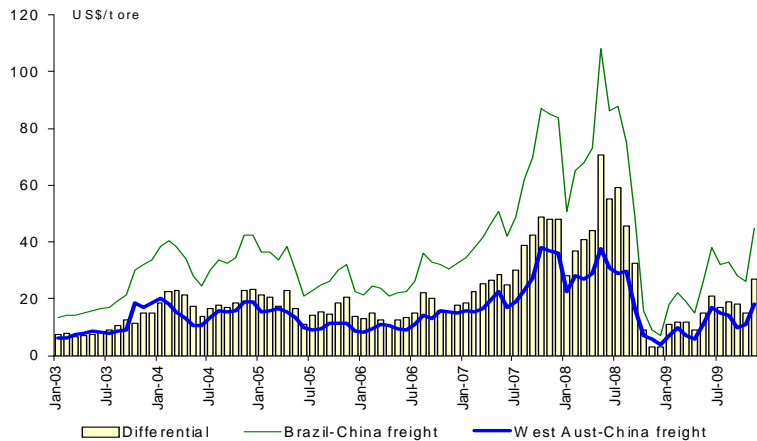
South Korean steel production and iron ore imports



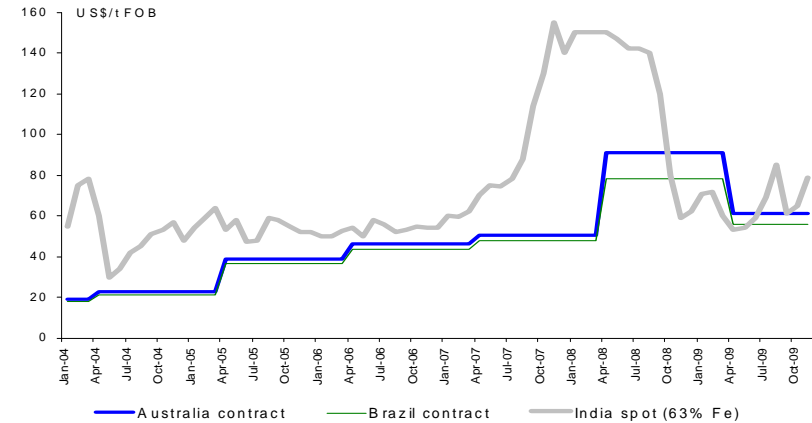
Source: WSA, TEX Report

Iron Ore Market Outlook

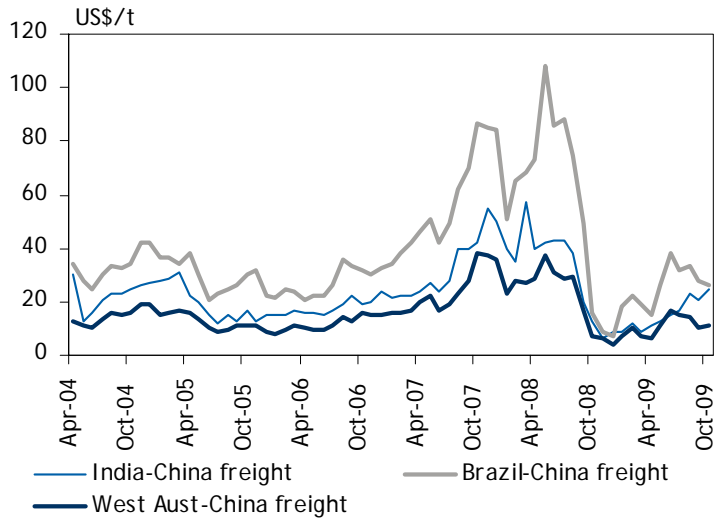
Iron Ore Freight Rates



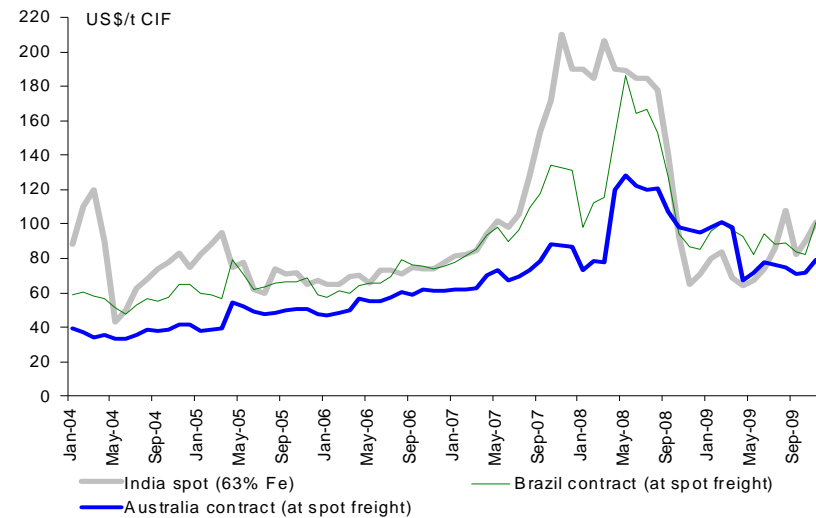
Iron Ore Prices



Chinese Import Freight Rates



Iron Ore Prices



Source: RBC Capital Markets Estimates, CRU, Tex Report

Iron Ore Market Outlook

Iron Ore Price Forecasts		2007	2008	2009	2010e	2011e	2012e	LT
Fines (Hamersley FOB)	US\$/dmtu	80	145	97	116	116	105	75
	% y-o-y	10%	80%	-33%	20%	0%	-10%	
	US\$/dmt	51	91	61	73	73	66	47
Lump (Hamersley FOB)	US\$/dmtu	103	202	112	134	134	121	98
	% y-o-y	10%	96%	-44%	20%	0%	-10%	
	US\$/dmt	65	127	71	85	85	76	61
BF pellets (ex Brazil into Europe)	US\$/dmtu	118	220	114	143	143	128	115
	% y-o-y	5%	87%	-48%	25%	0%	-10%	
Global Steel Production (mt)		2007	2008	2009e	2010e	2011e	2012e	
China		489	500	565	610	659	698	
	<i>Chinese production growth rate</i>	<i>16%</i>	<i>2%</i>	<i>13%</i>	<i>8%</i>	<i>8%</i>	<i>6%</i>	
Japan		120	119	85	95	103	108	
India		53	55	55	60	66	73	
Other Asia		92	75	63	70	77	80	
European Union (27)		210	199	130	145	157	163	
Other Europe		30	31	28	31	32	33	
North America		133	125	79	95	105	113	
South America		48	48	36	45	50	52	
CIS		124	114	94	105	111	116	
Africa, Middle East, Oceania		44	42	36	39	44	46	
Total		1344	1307	1171	1295	1402	1482	
	<i>Global growth</i>	<i>8%</i>	<i>-3%</i>	<i>-10%</i>	<i>11%</i>	<i>8%</i>	<i>6%</i>	
	<i>World ex-China (mt)</i>	<i>855</i>	<i>807</i>	<i>606</i>	<i>685</i>	<i>743</i>	<i>783</i>	
	<i>World ex-China growth</i>	<i>3%</i>	<i>-6%</i>	<i>-25%</i>	<i>13%</i>	<i>9%</i>	<i>5%</i>	
Iron Ore Supply								
Australia		291	334	385	430	471	510	
Brazil		304	306	276	323	348	373	
India		90	100	118	110	106	101	
Canada		28	28	29	30	32	32	
South Africa		30	37	47	50	50	50	
Sweden		19	22	13	20	22	25	
Rest of World		60	65	60	50	40	40	
Total Seaborne Supply		822	892	927	1,013	1,069	1,131	
Iron Ore Demand								
China		384	444	620	684	724	750	
Japan		139	140	99	111	119	125	
Korea		46	50	41	46	50	52	
Taiwan		16	16	12	13	15	15	
Europe		140	135	88	99	106	111	
Rest of World		55	65	49	55	60	63	
Total Seaborne Demand		780	850	909	1,007	1,075	1,117	
	<i>% chg yoy</i>	<i>9%</i>	<i>7%</i>	<i>11%</i>	<i>7%</i>	<i>4%</i>		
	<i>% chg ex-China</i>	<i>3%</i>	<i>-29%</i>	<i>12%</i>	<i>8%</i>	<i>5%</i>		
Implied iron ore surplus / (deficit)		42	42	18	6	-6	14	

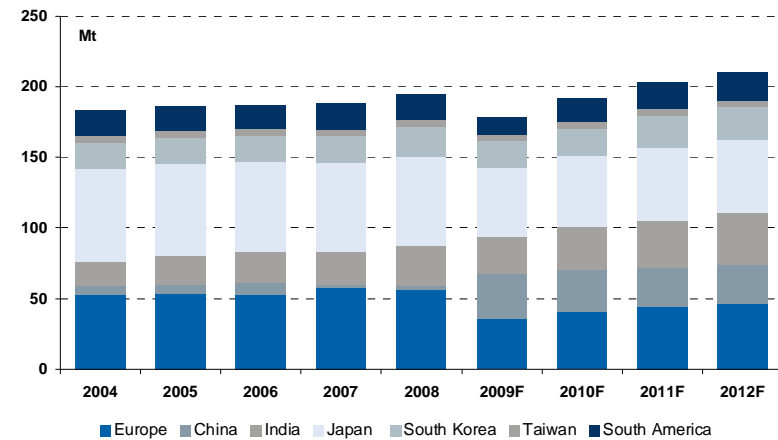
Source: RBC Capital Markets estimates

Metallurgical Coal Market Outlook

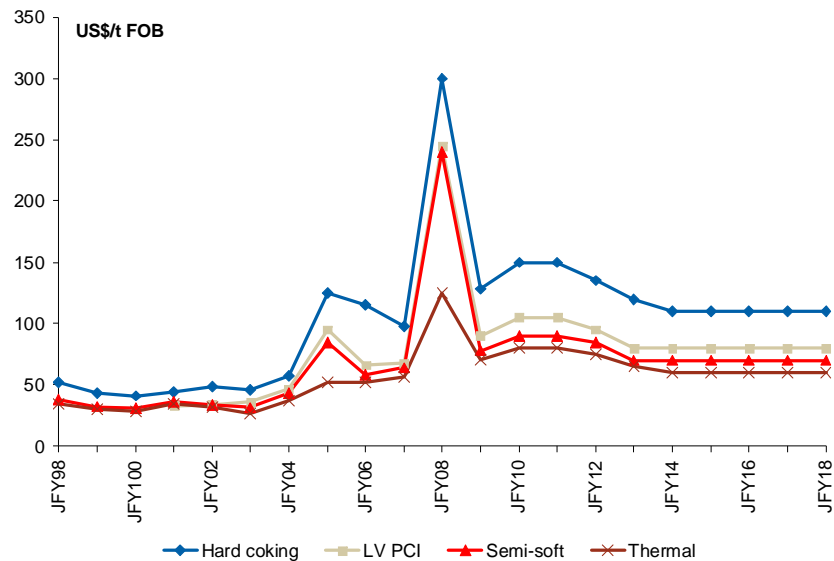
Seaborne Metallurgical Coal Supply/Demand

Seaborne Coking Coal Supply/Demand (M	2006	2007	2008	2009e	2010e	2011e	2012e
World Crude Steel Production	1250	1344	1330	1171	1295	1402	1482
Seaborne Coking Coal Demand	196	202	209	189	201	213	221
Seaborne Supply							
Australia	124	138	135	127	132	138	142
Canada	23	25	25	19	23	25	26
USA	21	26	35	28	30	30	28
Russia	8	7	7	7	6	6	7
China	4	3	3	1	1	2	2
Other	9	9	10	5	7	13	18
Total Seaborne Coking Coal Supply	189	207	216	187	199	214	223
Total Traded Coking Coal Supply	189	207	216	187	199	214	223
Implied Market Balance	-6.8	5.1	6.5	-1.4	-1.5	1.8	2.6

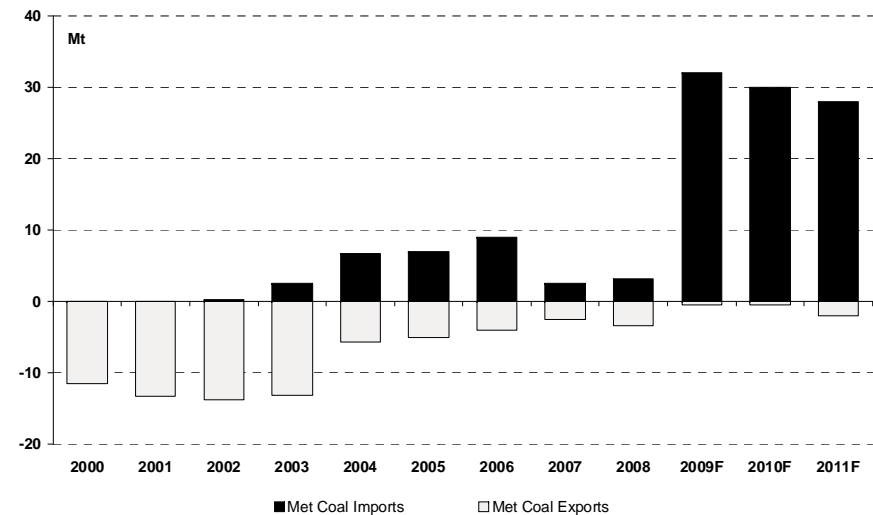
Metallurgical Coal Demand



Contract Coal Prices



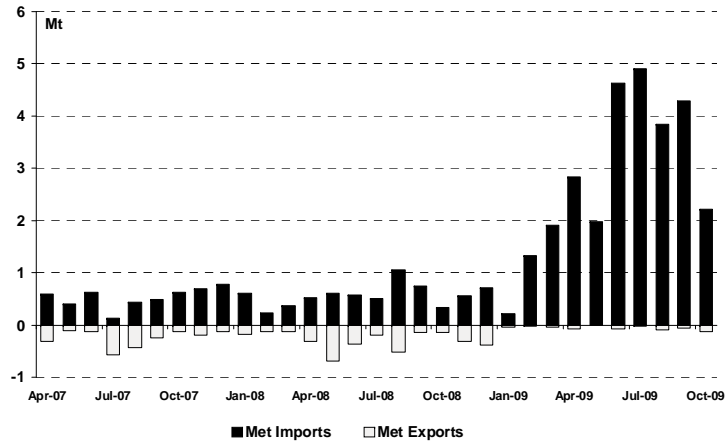
Chinese Met Coal Import/Export



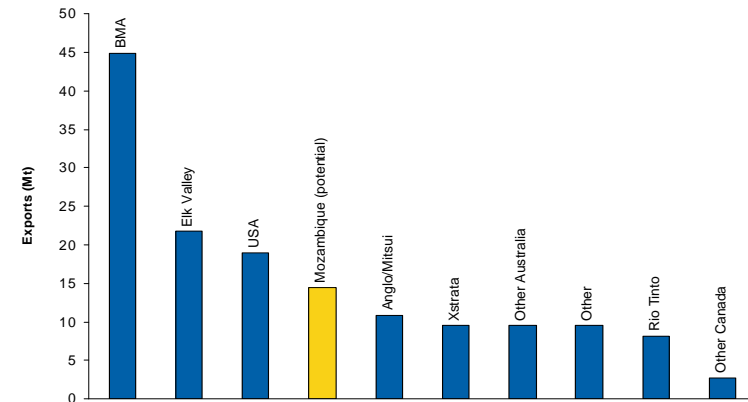
Source: RBC Capital Markets estimates, CRU, Tex Report

Metallurgical Coal Market Outlook

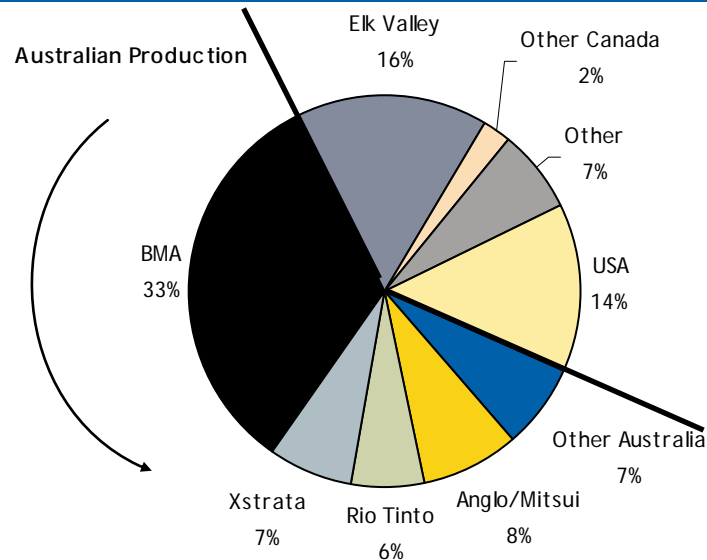
Chinese Met Coal Import/Export



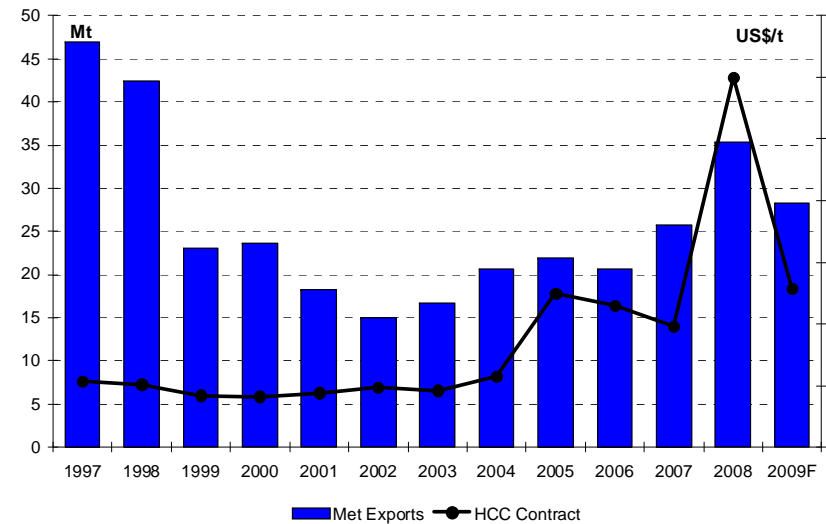
Targeted Production of Mozambique vs. Current Seaborne Hard Coking Supply



Composition of Seaborne Hard Coking Coal Market



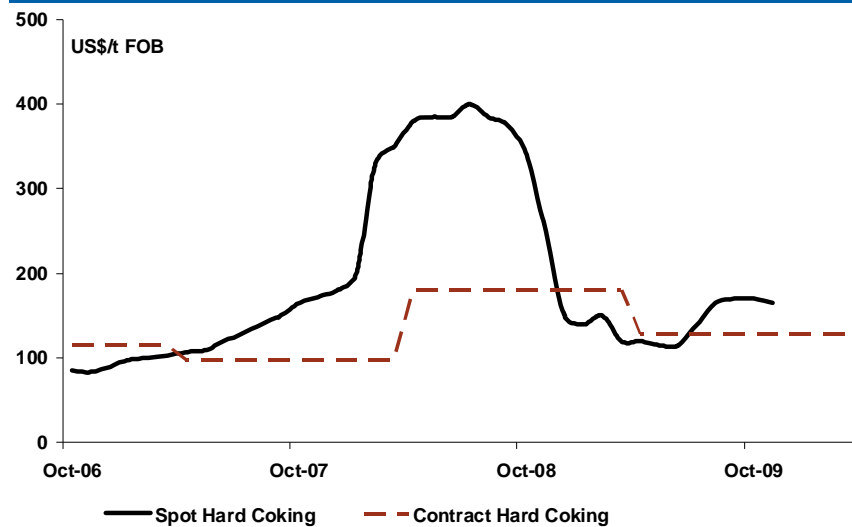
US Met Coal Exports vs. Price



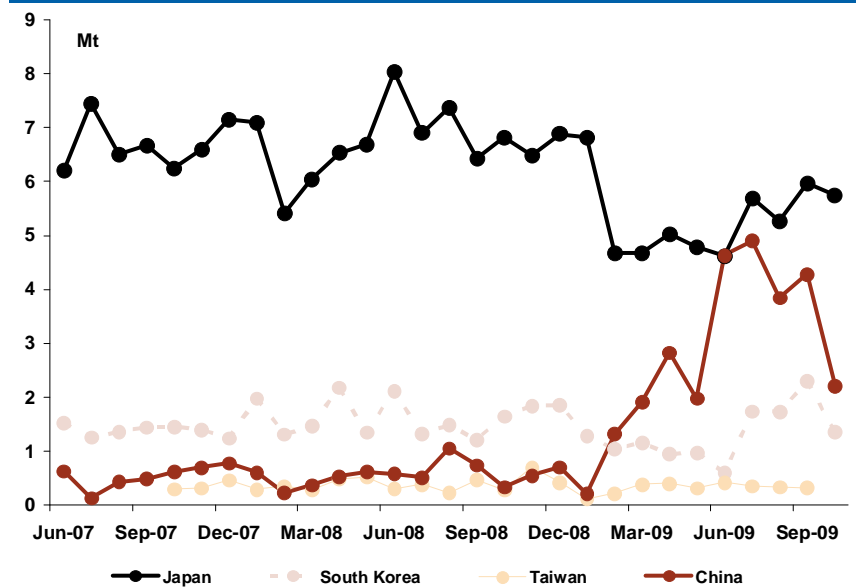
Source: RBC Capital Markets estimates, CRU, Tex Report

Metallurgical Coal Market Outlook

Hard Coking Coal Spot vs. Contract Prices



Met Coal Imports by Major Market



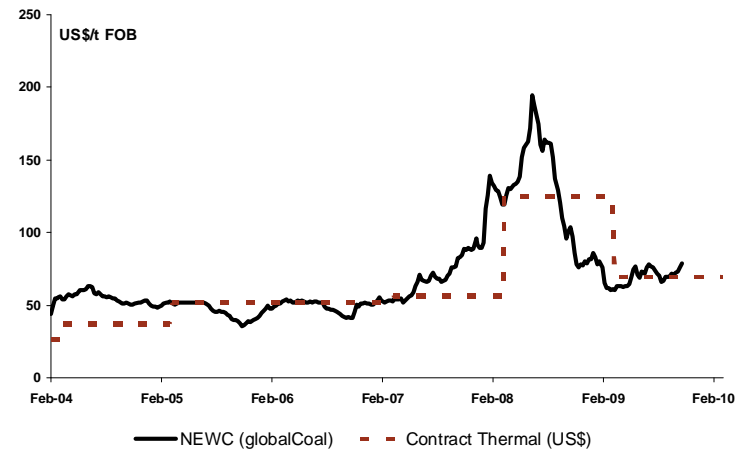
Source: RBC Capital Markets estimates, CRU, Tex Report

Thermal Coal Market Outlook

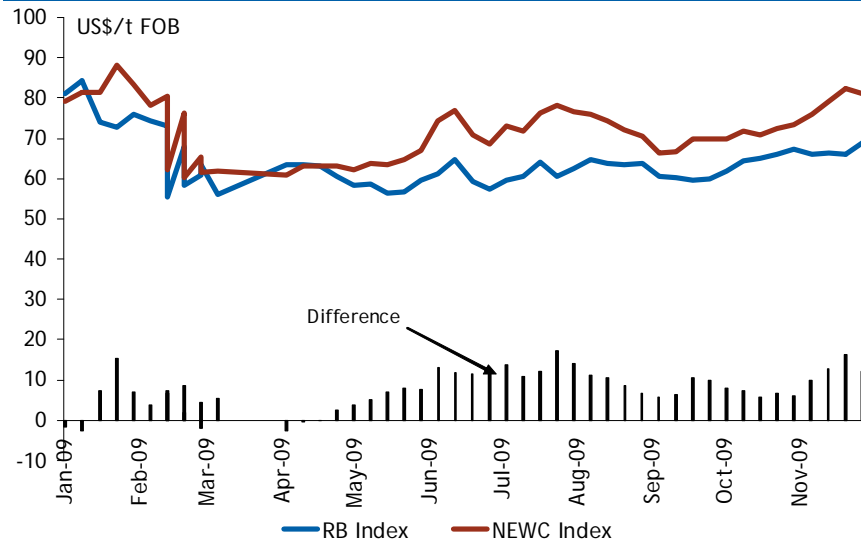
Seaborne Thermal Coal Supply/Demand

Seaborne Steam Coal Supply/Demand (M)	2006	2007	2008	2009e	2010e	2011e	2012e
Key Exporters							
Australia	114	115	119	138	141	144	145
China	54	46	43	22	25	28	28
Colombia	59	67	60	61	61	63	65
Indonesia	159	185	192	194	200	208	212
South Africa	68	65	62	58	59	60	63
USA	6	6	17	15	18	18	19
Other	97	126	127	122	125	127	128
Supply of Seaborne Coal	557	609	619	610	629	648	661
Demand for Seaborne Coal	557	610	612	606	627	643	656
<i>Demand Growth (%)</i>	<i>4.8%</i>	<i>9.5%</i>	<i>0.3%</i>	<i>0.1%</i>	<i>3.1%</i>	<i>2.2%</i>	<i>2.3%</i>
Implied Seaborne Market Balance	0.7	-0.6	6.9	4.6	2.5	5.0	5.1
Price - Japanese Bench Mark (JFY)							
Thermal Coal (US\$/t)	52.00	56.50	125.00	71.00	70.00	75.00	75.00

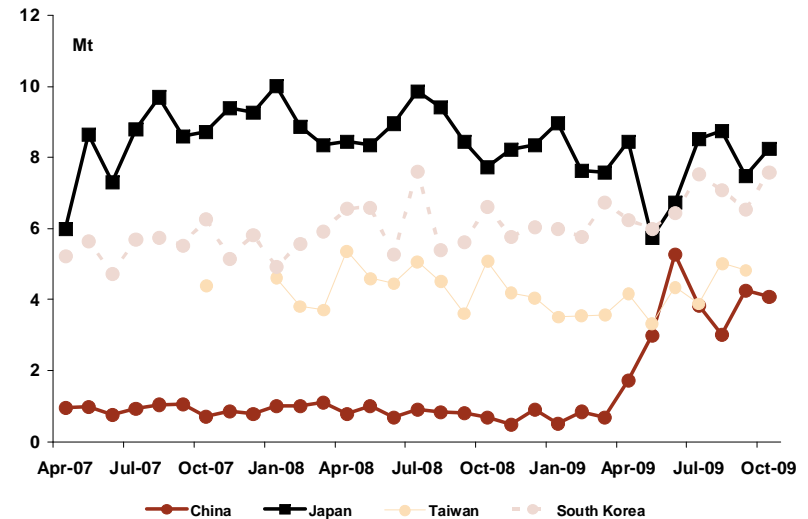
Thermal Coal Spot vs. Contract Prices



South African and Australian Thermal Coal Spot Prices



Thermal Coal Imports



Source: RBC Capital Markets estimates, CRU, McCloskey, Platts, Tex Report

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