

# Metal Bulletin Research

## Ferro-alloys Market Tracker

A unique source of market intelligence, analysis and forecasts covering the international ferro-alloys industry

April 2013

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- **Bulk alloy prices steady, but vulnerable**
- **Q2 charge chrome contract prices up \$0.145/lb**
- **Signs of recovery in ferro-molybdenum prices**

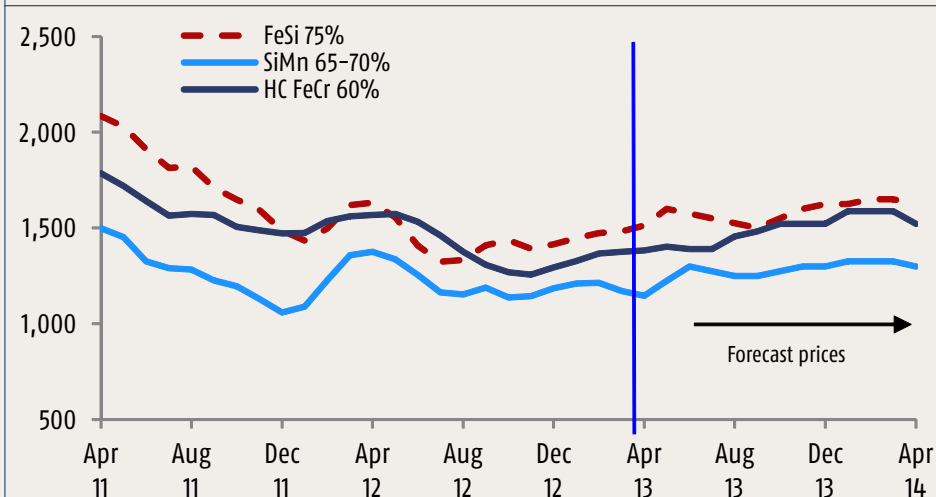
European and US bulk ferro-alloy prices are generally stable in April, holding on to first-quarter gains early in the second quarter. Ferro-silicon prices continue to outperform manganese alloy prices, and we have witnessed some retreating in European manganese alloy prices in recent weeks. Declining manganese alloy prices are surprising given further rises in manganese ore prices this month. Bulk alloy markets in China continue to struggle as steelmakers reduce output as they face excess steel supply and declining finished steel product prices. Steelmakers are slashing their ferro-alloy offers in response. With Chinese ferro-alloy supply poised to rise in the coming weeks, we do not see any imminent reversal in Chinese ferro-alloy pricing trends.

South African charge chrome producers have successfully negotiated an impressive \$0.145/lb increase in second-quarter contract prices with European stainless steel mills. Stainless mills agreed to the significant jump in contract prices given reduced South African chrome output and the impending traditionally busier period for stainless mill business in the second quarter. We suspect, however, that this may be the last contract price increase this year, with contract prices declining in the latter half of the year to move more in line with spot market prices.

We believe ferro-alloy prices are more likely to fall than rise in the near term. Ferro-alloy output is rising, or is poised to rise, in a number of markets, and we do not see demand rising sufficiently to absorb this increased output. Demand from steelmakers remains steady, but unimpressive, and will be insufficient to spur a significant gain in ferro-alloy consumption and prices.

### European ferro-alloy price forecasts (\$/tonne)

Steady, though unimpressive, demand from steelmakers is lending some stability to ferro-alloy prices



Source: Metal Bulletin Research

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**"I regularly use MBR's Ferro-alloys Market Tracker's pricing data and analysis as a reference in our price negotiations and strategy – I highly recommend this report"**

Jose Roberto Ferreira da Silva, Corporate Purchasing, MAHLE Metal Leve S.A

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		2010 Year	2011 Year	2012 Year	Sep	Oct	Nov	2012 Dec	Jan	Feb	Mar	2013 Apr
<b>EUROPEAN FREE MARKET PRICES<sup>(1,3)</sup></b>												
Ferro-silicon, 75% Si	€/t	1,326	1,331	1,131	1,095	1,108	1,083	1,080	1,084	1,108	1,144	1,165
Ferro-manganese, 78% Mn	€/t	1,092	992	908	883	856	855	862	865	850	835	820
Silicon Metal, min. 98% Si, 10-20 tonne lots	€/t	2,290	2,251	2,199	2,050	2,039	2,000	2,000	1,996	1,996	2,000	2,000
Silico-manganese, 65-75% Mn	€/t	956	1,025	948	924	876	891	905	907	913	904	883
Medium-carbon ferro-manganese, 80% Mn	€/t	1,746	1,453	1,261	1,265	1,250	1,240	1,240	1,230	1,200	1,200	1,180
Charge chrome, 52% Cr	\$/lb	1.24	1.26	1.21	1.25	1.14	1.10	1.10	1.13	1.13	1.13	1.27
Ferro-chrome, 6-8% C, 60% Cr	\$/lb	1.23	1.23	1.09	0.99	0.96	0.95	0.98	1.00	1.03	1.04	1.05
Ferro-chrome, 0.1% C, 68-70% Cr	\$/lb	2.00	2.30	2.23	2.30	2.07	1.97	1.98	2.00	2.01	2.01	2.01
Nickel, LME cash <sup>(4)</sup>	\$/lb	9.89	10.36	7.95	7.81	7.82	7.39	7.90	7.92	8.04	7.59	7.30
Nickel, 3-month forward <sup>(4)</sup>	\$/lb	9.92	10.37	7.98	7.84	7.85	7.42	7.93	7.95	8.08	7.62	7.33
Ferro-molybdenum, 65-70% Mo	\$/kg	39.86	38.37	31.44	30.46	27.40	27.19	28.52	29.15	27.97	27.25	27.10
Molybdic oxide, drummed <sup>(4)</sup>	\$/lb	15.84	15.69	12.79	11.81	11.01	11.04	11.44	11.82	10.72	10.97	10.99
Ferro-titanium, 70% Ti	\$/kg	6.25	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.39	7.12	6.45
Ferro-tungsten, 75% W <sup>(4)</sup>	\$/kg	28.61	41.52	48.94	45.00	44.11	42.98	43.33	43.50	41.27	39.34	41.38
Ferro-vanadium, 70-80% V	\$/kg	30.04	28.72	24.96	24.58	24.28	24.23	26.78	30.61	31.60	32.07	30.08
<b>US FREE MARKET PRICES<sup>(1,5)</sup></b>												
Ferro-silicon, 75% Si	\$/lb	0.96	1.03	0.91	0.90	0.90	0.89	0.89	0.91	0.94	0.95	0.93
Silicon metal	\$/t	2,752	3,419	2,904	2,811	2,811	2,811	2,811	2,759	2,764	2,767	2,759
Ferro-manganese, 78% Mn	\$/t	1,393	1,323	1,226	1,214	1,201	1,171	1,140	1,140	1,129	1,129	1,123
Silico-manganese, 65-75% Mn	\$/t	1,378	1,362	1,391	1,337	1,309	1,287	1,209	1,166	1,190	1,207	1,213
Medium-carbon ferro-manganese, 80% Mn	\$/lb	1.34	1.12	0.94	0.92	0.90	0.90	0.89	0.88	0.88	0.89	0.89
Ferro-chrome, 6-8% C, 60-65% Cr	\$/lb	1.26	1.25	1.12	1.06	1.02	1.05	1.04	1.00	1.03	1.03	1.02
Ferro-molybdenum, 65-70% Mo	\$/lb	18.42	17.83	14.91	13.90	13.25	12.85	12.75	12.83	12.84	12.59	12.23
Molybdic oxide, canned	\$/lb	15.39	15.86	12.80	11.66	10.86	10.76	11.03	11.70	11.46	11.14	10.98
Ferro-vanadium, 70-80% V	\$/lb	14.56	14.73	14.18	13.89	13.72	12.61	12.79	13.06	14.46	14.68	15.04
<b>CHINESE EXPORT PRICES<sup>(6)</sup></b>												
Ferro-silicon min. 75%	\$/t	1,429	1,506	1,495	1,355	1,340	1,340	1,340	1,383	1,405	1,405	1,415
Ferro-manganese min. 75% Mn, 7.5% C	\$/t	1,504	1,505	1,505	1,505	1,505	1,505	1,505	1,505	1,505	1,505	1,505
Silico-manganese min. 65% Mn, max 17% Si	\$/t	1,476	1,510	1,510	1,510	1,510	1,510	1,510	1,510	1,510	1,510	1,510
Silicon metal min. 98.5% fob Chinese ports	\$/t	2,142	2,448	2,175	2,011	2,016	2,045	2,127	1,967	1,961	1,903	1,865
Ferro-chrome 8% C, 60% Cr	\$/lb	0.96	0.99	0.98	0.87	0.85	0.84	0.86	0.92	0.94	0.90	0.86
<b>JAPANESE IMPORT PRICES<sup>(7)</sup></b>												
Ferro-silicon, Chinese	\$/t	1,517	1,539	1,396	1,358	1,356	1,360	1,400	1,435	1,448	1,458	1,425
Silicon metal, spot	\$/t	2,334	2,597	2,274	2,100	2,063	2,088	2,200	2,090	2,125	1,970	1,965
Silico-manganese, Chinese	\$/t	1,572	1,561	1,548	1,490	1,450	1,493	1,545	1,590	1,590	1,585	1,560
Charge chrome, producer	\$/lb	1.26	1.27	1.23	1.27	1.12	1.12	1.14	1.15	1.15	1.15	1.29
Molybdic oxide	\$/lb	15.70	15.51	12.72	11.73	10.98	10.96	11.24	11.80	11.28	10.95	10.75
Ferro-vanadium	\$/kg	29.80	28.77	24.93	24.50	24.25	24.20	25.85	30.50	31.95	32.03	31.55
<b>BULK ORE PRICES</b>												
Manganese Ore 48-50%, max 0.1%P fob*	\$/mtu	7.72	6.03	4.90	4.91	4.99	5.08	5.13	5.39	5.50	5.69	5.76
Chrome Ore South Africa lumpy 35-40% <sup>(8)</sup>	\$/t	243	245	188	173	173	173	173	178	180	178	178
<b>EXCHANGE RATES</b>												
Dollar/sterling	\$/£	1.55	1.60	1.59	1.61	1.61	1.60	1.61	1.61	1.55	1.51	1.53
Yen/dollar	¥/\$	87.78	79.73	79.81	78.28	79.00	81.04	83.90	87.94	93.12	94.86	97.08
Dollar/euro	\$/€	1.33	1.39	1.29	1.29	1.30	1.28	1.31	1.33	1.33	1.30	1.30

Source: Metal Bulletin Research

Notes:

Current month's averages are to the 12th

(1) Tonnage prices are bulk basis; lb or kg prices are metal contained

(3) Delivered basis, except (4) in warehouse (5) in warehouse, Pittsburgh (6) fob main Chinese ports

(7) average of Tex report bimonthly quotes, (8) cif main Chinese ports

\* Values from June 2012 represent MB Manganese Ore Index 44% Mn, CIF Tianjin \$/dmtu of metal contained

	Open	High	Low	Prev
	6.90	7.15	6.90	
	5.00	5.35	4.90	
	32.25	33.75	30.75	
	67.25	68.00	67.25	
	192.50	194.00	191.50	
	1.94	2.08	1.90	

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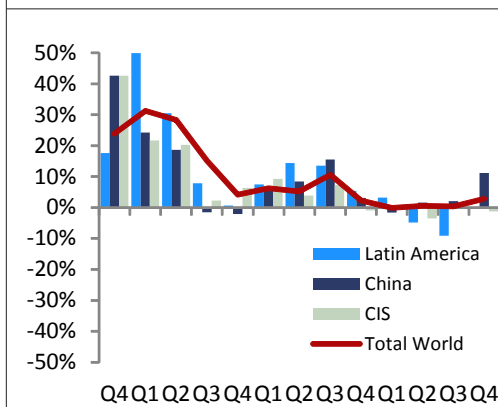
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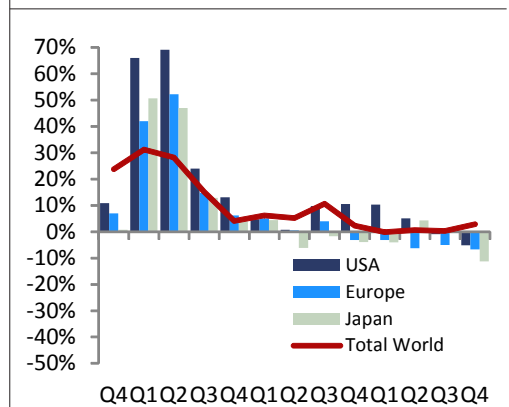
**Global Crude Steel Production**  
 (million tonnes)

	2009	2010	2011	2012	Q4 11	Q1 12	Q2 12	Q3 12	Q4 12	Sep 12	Oct 12	Nov 12	Dec 12	Jan 13	Feb 13
Belgium	5.38	8.08	8.02	7.12	1.75	1.61	2.01	1.77	1.74	0.60	0.55	0.56	0.63	0.55	0.58
France	12.83	15.58	15.51	15.54	3.87	4.14	4.24	3.61	3.55	1.27	1.31	1.27	0.97	1.35	1.29
Germany	32.65	43.82	44.27	42.60	10.17	10.84	11.04	10.52	10.21	3.56	3.70	3.45	3.06	3.55	3.45
Italy	19.56	25.85	28.44	27.10	7.23	7.31	7.40	6.02	6.38	2.37	2.44	2.24	1.70	1.80	2.12
Spain	13.27	16.24	15.91	13.69	3.42	3.67	3.82	3.21	2.98	1.15	1.13	1.05	0.81	1.14	1.19
United Kingdom	9.85	9.79	9.53	9.61	2.21	1.90	2.74	2.43	2.54	0.74	0.90	0.82	0.82	0.83	0.88
Other Europe	44.76	55.86	56.26	52.90	13.59	14.34	13.78	12.76	12.02	4.34	4.10	4.03	3.89	3.89	3.56
<b>Total Europe</b>	<b>138.29</b>	<b>175.21</b>	<b>177.94</b>	<b>168.56</b>	<b>42.22</b>	<b>43.80</b>	<b>45.03</b>	<b>44.27</b>	<b>39.42</b>	<b>14.03</b>	<b>14.12</b>	<b>13.41</b>	<b>11.89</b>	<b>13.11</b>	<b>13.07</b>
% Change Y-o-Y	-30.6%	26.7%	1.6%	-5.3%	-3.1%	-3.1%	-6.3%	4.3%	-19.7%	-6.6%	-7.9%	-6.3%	-5.6%	-6.3%	-7.5%
Canada	8.73	13.10	13.09	13.62	3.23	3.35	3.52	3.30	3.45	1.09	1.13	1.12	1.20	1.20	1.08
USA	58.19	80.94	86.09	87.97	21.81	22.62	22.68	21.98	20.69	7.02	6.92	6.70	7.07	7.26	6.66
<b>Total N America</b>	<b>144.13</b>	<b>94.04</b>	<b>99.18</b>	<b>101.58</b>	<b>25.04</b>	<b>25.97</b>	<b>26.20</b>	<b>25.28</b>	<b>24.13</b>	<b>8.11</b>	<b>8.04</b>	<b>7.82</b>	<b>8.27</b>	<b>8.46</b>	<b>7.74</b>
% Change Y-o-Y	-2.1%	-34.8%	5.5%	2.4%	8.5%	9.5%	5.4%	-1.1%	-10.8%	-1.5%	-3.6%	-5.1%	-2.1%	-2.2%	-7.5%
<b>Latin America</b>	<b>52.34</b>	<b>62.24</b>	<b>68.59</b>	<b>66.65</b>	<b>16.77</b>	<b>16.76</b>	<b>16.95</b>	<b>16.16</b>	<b>16.77</b>	<b>5.09</b>	<b>5.90</b>	<b>5.46</b>	<b>5.42</b>	<b>5.29</b>	<b>4.93</b>
% Change Y-o-Y	-21.1%	18.9%	10.2%	-2.8%	5.4%	3.2%	-4.8%	-9.1%	0.0%	-10.1%	2.4%	-1.3%	-1.1%	-3.6%	-9.0%
Japan	87.52	109.60	107.50	104.90	26.57	26.56	27.50	27.27	23.58	8.80	6.51	8.50	8.57	8.87	8.32
India	55.88	66.20	71.62	75.20	18.30	18.00	18.58	19.11	19.51	6.16	6.51	6.40	6.60	6.60	6.20
South Korea	48.70	58.19	68.27	68.88	17.82	16.59	17.88	17.19	17.23	5.60	5.79	5.63	5.81	5.75	4.98
Taiwan	15.69	22.56	21.13	21.41	5.31	5.73	5.39	5.48	4.81	1.78	1.49	1.55	1.77	1.77	1.60
Other Asia (excl. China)	41.72	48.03	54.16	55.52	14.12	14.01	14.01	13.86	13.63	4.69	4.51	4.64	4.49	4.43	4.47
China	575.30	626.50	677.21	698.43	156.72	163.84	182.02	178.35	174.22	57.95	59.10	57.47	57.66	59.34	61.83
<b>Total Asia</b>	<b>824.81</b>	<b>931.06</b>	<b>999.88</b>	<b>1,024.34</b>	<b>238.84</b>	<b>244.73</b>	<b>265.38</b>	<b>261.25</b>	<b>252.98</b>	<b>84.98</b>	<b>83.90</b>	<b>84.19</b>	<b>84.89</b>	<b>86.76</b>	<b>87.40</b>
% Change Y-o-Y	4.5%	12.9%	7.4%	2.4%	3.6%	-0.4%	2.3%	2.1%	18.1%	1.8%	1.3%	9.9%	6.9%	10.3%	6.8%
<b>Africa</b>	<b>14.48</b>	<b>16.85</b>	<b>14.18</b>	<b>14.64</b>	<b>3.50</b>	<b>3.56</b>	<b>3.78</b>	<b>3.80</b>	<b>3.60</b>	<b>1.16</b>	<b>1.20</b>	<b>1.18</b>	<b>1.22</b>	<b>1.28</b>	<b>1.12</b>
<b>Australasia</b>	<b>6.04</b>	<b>8.15</b>	<b>7.29</b>	<b>6.03</b>	<b>1.49</b>	<b>1.58</b>	<b>1.48</b>	<b>1.43</b>	<b>1.43</b>	<b>0.51</b>	<b>0.50</b>	<b>0.47</b>	<b>0.45</b>	<b>0.49</b>	<b>0.51</b>
Russia	58.65	66.85	69.55	71.38	17.38	17.92	17.78	17.92	17.76	6.23	6.44	5.53	5.79	5.71	5.16
Ukraine	29.91	32.49	34.91	32.61	8.77	8.25	7.99	8.34	8.02	2.71	2.80	2.69	2.53	2.75	2.48
Other CIS	7.46	8.15	8.11	7.18	1.86	1.70	1.75	1.84	1.89	0.63	0.64	0.65	0.61	0.46	0.41
<b>World Total</b>	<b>1,174.39</b>	<b>1,395.04</b>	<b>1,479.62</b>	<b>1,492.96</b>	<b>355.86</b>	<b>364.29</b>	<b>386.33</b>	<b>387.45</b>	<b>366.00</b>	<b>123.44</b>	<b>123.55</b>	<b>121.39</b>	<b>121.06</b>	<b>124.30</b>	<b>122.81</b>
% Change Y-o-Y	-9.7%	18.8%	6.1%	0.9%	2.3%	-0.1%	0.6%	3.3%	8.8%	0.1%	-0.1%	5.3%	3.6%	5.6%	2.1%

Source: World Steel Association, Metal Bulletin Research

**Quarterly crude steel production - emerging markets (% change y-o-y)**


Source: Metal Bulletin Research

**Quarterly crude steel production - mature markets (% change y-o-y)**


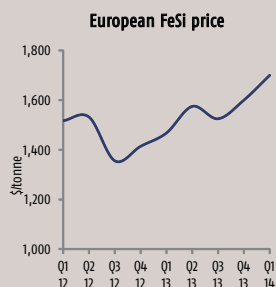
Source: Metal Bulletin Research



## Ferro-silicon highlights

- European ferro-silicon prices exhibit additional rises...
- ...while US prices stabilise
- Chinese prices continue to decline on weak demand from steelmakers

### Market Outlook



The European ferro-silicon spot market has edged up. European prices have improved despite a reported increase in imports from South America as availability looks tight overall through the current quarter. There is a tentative balance between tight domestic supplies and weaker underlying consumption in Europe. Though demand is down from what would be considered fairly decent levels, alloy inventories are also low. Some European ferro-silicon producers are said to be holding back material in the expectation of additional pricing increases, with expectations that the market may reach €1,200/tonne in the

near term. US ferro-silicon prices may hold around current levels in the near term, gaining support from a lack of available metal in the spot market. Further support has come from the burgeoning auto sector, which is heading into a traditionally busier time of year at the end of this quarter and through the third quarter. There will have to be a renewed and sustained demand in the ferro-silicon spot market, however, to push US prices up to \$1.00/lb. The Chinese ferro-silicon market has been dull in April so far, while most monthly tender prices for ferro-silicon from steel mills have dropped RMB100-150/tonne from March.

**European prices rising on tight supply, but prices are vulnerable to impending supply rises**

### Europe edges up, supply supports

Ferro-silicon spot market prices are at €1,150-1,180/tonne (\$1,505-1,545/tonne) delivered, up from €1,120-1,175/tonne last month. Ferro-silicon production cuts in the latter half of last year and in the early months of this year have caused a supply squeeze in Europe.

There have been reports of a jump in ferro-silicon imports from Venezuela, however, where Ferroatlantica (FerroVen) has a plant. The country voted in a new leader on April 14 after the death of Hugo Chavez and there have been market worries that his chosen successor, Nicolas Maduro, might nationalise the plant. The factory's annual production capacity is 96,000 tonnes of ferro-silicon, 22,000 tonnes of silico-manganese and 38,000 tonnes of ferro-manganese.

Second-quarter contracts have been settled at around €1,160-1,180/tonne, up from first-quarter contract prices of €1,080-1,090/tonne. Almost all contracts, however, are for April/May delivery.

The recent ruling at the European Commission on anti-dumping duties against imports from Russia, China, Egypt and Kazakhstan has also supported the market, with duties extended on Chinese and Russia until March 2014.

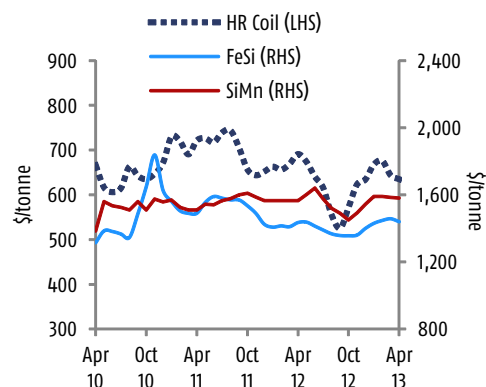
Macedonian ferro-alloys plant Jugohrom Ferroalloys, formerly Metal Invest EFT, has ramped up ferro-silicon production at its plant to maximum capacity, with all eight furnaces in operation. The company, of which 90% was sold to Hong Kong-based metals firm Camelot Group and restarted in 2010, has a total alloy production capacity of around 6,000-7,000 tpm.

### US trading slow, supported

The US spot ferro-silicon market price range has been steady, extending a period of stability from early March as increased production costs have been supportive. Business activity in the US spot market has been slow as most delivery contracts are tied up on a formula basis. Alloy availability has been relatively tight, which is supporting spot prices and suppliers are

### Chinese HR steel prices vs. FeSi and SiMn export prices

Steel prices have come off their early-year peaks, and alloy prices are declining in response



Source: Metal Bulletin Research

uninterested in cutting offer prices to get new business. US spot ferro-silicon prices are holding at around \$0.93–0.96/lb.

#### China drifts on quiet business

Alloy producers in Qinghai province said ferro-silicon tender prices have declined due to weak demand from steel mills. Market sentiment is cautious about the short-term outlook. Producers in Ningxia province have been busy with their long-term contracts, leaving the spot market quiet and vulnerable to cheaper offers. Spot price offers for ferro-silicon 75% grade are in the range of RMB6,250–6,350/tonne (\$1,000–1,018/tonne) ex-works, although deals have been completed at around RMB6,200–6,300/tonne. Spot price offers for ferro-silicon 72% grade are in the range of RMB6,050–6,150/tonne ex-works, although the bulk of business is only about RMB5,950–6,050/tonne.

**Chinese prices remain subdued as demand from steelmakers disappoints against sufficient supply**

The Chinese ferro-silicon export market has also been dull in line with slow demand. Exporters said business to Japan and South Korea has been hit due to black market trade, which is \$100/tonne cheaper. Legitimate export deals are difficult and exporters say current price levels are just about the cheapest they can afford. Export price offers for ferro-silicon 75% grade are in the range of \$1,420–1,440/tonne FOB China via legal trade routes, and about \$1,400–1,420/tonne FOB China via legal trade routes for ferro-silicon 72% grade.

In industry news, the Ministry of Industry and Information Technology of the People's Republic of China (MIIT) has published its new target for elimination of outdated production capacity this year. China will shut 1.725m tonnes a year of ferro-alloys production capacity in 2013, compared with 1.372 m tonnes in 2012. China has been shutting outdated production capacity in recent years as a result of environmental and oversupply worries, and the process is set to persist for the next few years.

#### Indian market improving

In India, 70–75% ferro-silicon market prices have moved up to Rs68,000/tonne (\$1,255/tonne) ex-Bhutan and Rs70,000/tonne (\$1,293/tonne) ex-Meghalaya. Ferro-silicon producers in Bhutan are building stocks to have enough material for prompt delivery of contracts as prices are expected to increase through the current quarter. Despite the new contract prices, end-user demand has yet to improve. Indian producers are not worried about soft demand, however, as they are busy ensuring that their output is timed to deliver alloy to major Indian end users. Moreover, alloy producers want to build up their stocks ahead of expected increased demand later this quarter and so ensure they have enough supplies to meet any prompt demand.

**Indian prices are improving amid power-related production cuts**

Separately, Andhra Pradesh ferro-alloy producers may implement further production cuts in the near term due to the impact of a recent jump in power prices from the start of April. While production cuts seem to be the only option left for most of the units, small units may have to shut production as operations become unviable at current power tariffs.

So far a few units have shut production, with another ten set for similar moves in the coming months, according to the Indian ferro-alloys producers association. There are around 30 ferro-alloy producers in the State of Andhra Pradesh, accounting for about one-third of annual Indian output. We understand most plants in the state, however, are running at only half of their annual rated production capacity.

**Global Ferro-silicon Supply-Demand Balance ('000 tonnes Si content)**

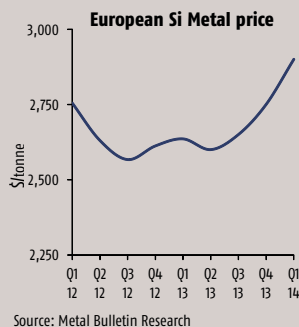
	Q1 11	Q2 11	Q3 11	Q4 11	2011	Q1 12	Q2 12	Q3 12	Q4 12f	2012	Q1 13f	Q2 13f	Q3 13f	Q4 13f	2013f
Global Consumption	1,375	1,450	1,225	1,250	5,300	1,265	1,490	1,275	1,350	5,380	1,297	1,548	1,326	1,379	5,550
Global Production	1,325	1,475	1,300	1,250	5,350	1,290	1,470	1,300	1,340	5,400	1,325	1,525	1,350	1,360	5,560
Market Balance	-50	25	75	0	50	25	-20	25	-10	20	28	-23	24	-19	10
Price Forecast - European Market (\$/t)	2,036	2,008	1,786	1,600	1,858	1,517	1,532	1,352	1,415	1,454	1,475	1,575	1,525	1,600	1,544
Price Forecast - US Market (\$/lb)	1.07	1.04	1.01	1.00	1.03	0.94	0.93	0.89	0.90	0.91	0.93	0.95	0.92	0.92	0.93

Source: Metal Bulletin Research

## Silicon metal highlights

- US prices firming on steady demand
- European prices easing as demand disappoints, but inventories are low
- Chinese prices show further declines on weak demand and rising supply

### Market Outlook



US spot silicon metal prices have been trading sideways against steady demand in recent weeks and consumers have been working off contract deliveries. Trading may get a boost this quarter when volumes traditionally increase, although there are as yet no signs of an upturn in business activity. Still, support has been coming from demand in the aluminium-silicon alloys industry, which has been feeding the strengthening auto sector, as well as from a firmer chemicals sector. The Chinese silicon metal market has been quiet against slow aluminium demand and prices appear vulnerable to the downside in the

next few weeks, although losses should be limited. With the coming of the wet season, more silicon metal producers should resume production in Sichuan and Yunnan provinces, which will weigh on prices. The European silicon metal market has slipped, with spot prices dragged on slow demand and with consumers seemingly satisfied with intake in monthly and quarterly deliveries. Imports have been moderate so far this year, with most material arriving from Russia. European spot market activity has been subdued and there is nothing to suggest much will change over the next few weeks.

**US prices improving in April, but European and Chinese prices are both declining**

### US market finds support

US spot 5-5-3 silicon metal prices are in a range of \$1.25-1.29/lb delivered, up slightly from \$1.24-1.28/lb last month. Aggressive offers from Brazil have slowed, enabling modest pricing gains.

The US silicon metal market may face near-term negative pressure after three US-based polysilicon plants owned by Dow Corning and Hemlock Semiconductor were granted Foreign-Trade Zone (FTZ) Board status. Under the FTZ ruling, the plants will be able to import silicon metal without paying the standard 5.3% import duty, although imports from China will be subject to a 139% anti-dumping duty.

### European market slips on slow demand

European prices for standard secondary aluminium-grade (98.5% grade) (5-5-3) silicon metal are at €1,830-1,870/tonne (\$2,397-2,450/tonne) FCA (free on truck) duty paid, down from €1,840-1,880/tonne last month, while refined grades of low iron content silicon metal (4-4-1) are at €1,910-1,950/tonne, also down €10/tonne from last month.

It appears that consumers may supplement their intake from the spot market through April and May at premiums ranging between €10-15/tonne, depending on delivery. Silicon stocks in Europe remain at a low level, so any strong, sustained buying interest should see prices jump quite quickly.

### Ferroatlantica shuts production

Spanish metals producer Ferroatlantica said it will discontinue silicon metal production in South Africa in April and May due to market conditions and power supply issues. The company announced last December its decision to cut its production in South Africa for up to five months in response to business conditions and power supply issues. The equivalent decrease in production in the first five months of 2013 will be 22,000 tonnes of silicon metal and 8,000 tonnes of ferro-silicon.

### Chinese and Indian markets slow

In Xiamen province, the silicon metal market has been stable despite sluggish demand from end users, as producers have resisted cutting their offer prices. Dealers in Hunan province said demand there has also been depressed recently and is expected to remain subdued in the short term.

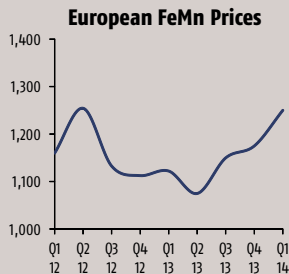
Chinese silicon metal spot price offers for 5-5-3 grade material are in the range of RMB11,100-11,300/tonne (\$1,780-1,810/tonne) delivered, down RMB200/tonne from last month, and about RMB11,900-12,000/tonne delivered for silicon metal 4-4-1 grade. Export price offers for silicon metal 5-5-3 grade \$1,840-1,860/tonne FOB China and about \$1,940-1,960/tonne FOB China for silicon metal 4-4-1 grade.



# Manganese highlights

- Chinese prices continue to retreat, but Indian prices rising
- European prices see further losses in April
- US ferro-manganese prices steady, silico-manganese prices gaining

## Market Outlook



Source: Metal Bulletin Research

The European ferro-manganese market has mostly stabilised heavier losses from March when second-quarter settlements were being agreed. The outlook is for little change through the rest of April. The European spot silico-manganese market slipped again amid weak fundamentals, with prices down January 2012 levels. European manganese alloy producers had been reluctant to cut prices more steeply to try and drum up new business, however, as prices are close to production costs. Alloy production has fallen in recent months, but then so has underlying consumption. Inventories are low given production cuts and there is considerable caution about the outlook for the European

market. The US spot silico-manganese market has been steady, consolidating earlier increases on tight availability after a major deal was settled with domestic steelmaker Nucor. Replacement costs are much higher in the second quarter so far compared with the first quarter. Material is available from South Africa and Vietnam at around \$0.56–0.58/lb. Higher replacement costs may boost US spot market prices, at least at the bottom end of the current range, in the coming weeks. Construction sector consumption may improve this quarter, a traditional time for an increase in heavy industry output, with the construction and auto sectors major metals consumers.

## Chinese market remains sluggish with a soft outlook

The Chinese silico-manganese market has been sluggish, with prices dropping as a result of low tender prices for silico-manganese from steel mills. Dealers in Jiangsu province said tender prices for 65/17 grade from Shagang have softened to RMB7,000/tonne delivered, a drop of RMB250/tonne from March. Manganese alloy producers in Ningxia province said their businesses have been losing money due to strong manganese ore prices and weaker silico-manganese prices. Spot price offers for silico-manganese 65/17 grade have softened to RMB6,800–6,950/tonne (\$1,090–1,115/tonne) ex-works, a fall of around RMB50–100/tonne from March.

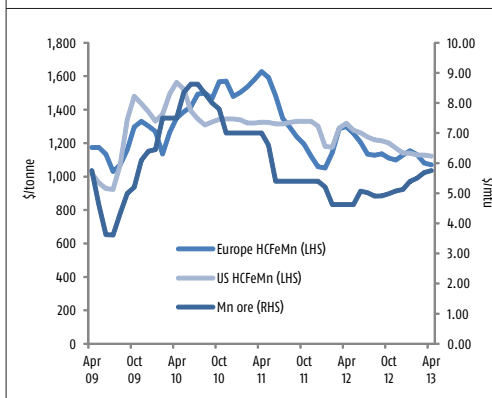
The Indian manganese alloy market has firmed up with revised prices for manganese ore and other material adding to production costs. The Indian high-carbon ferro-manganese (65%–75%) market is around Rs53,000–54,000/tonne, with producers increasing their offer prices in line with manganese ore, electricity prices and railway freight charges.

Indian silico-manganese producers have increased their offer prices after a 10% jump in MOIL's manganese ore prices. Current offers for silico-manganese 60/14 are in the range of Rs53,500–55,000/tonne (\$988–1,016/tonne) ex-works. Export prices for 65/16 are at \$1,080–1,100/tonne FOB Indian ports, with shipments to Asia and Europe.

**Chinese manganese alloy prices declining as steelmakers slash offer prices**

## Manganese ore vs. High-carbon ferro-manganese prices

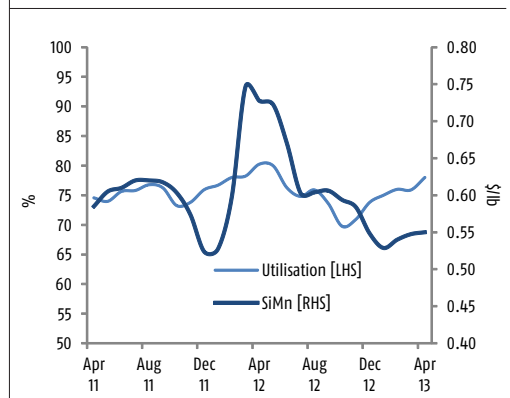
Ore and alloy prices traditionally move in tandem, but are now diverging with alloy prices falling even as ore prices rise



Source: Metal Bulletin Research

## US mill capacity utilisation rates vs. domestic SiMn prices

Silico-manganese prices are improving in line with higher average steel mill utilisation rates



Source: AISI, Metal Bulletin Research

**European prices slip, then stabilise**

Spot European high-carbon ferro-manganese 78% grade material prices are at €820–840/tonne (\$1,075–1,100/tonne) delivered, while medium-carbon ferro-manganese is at €1,160–1,200/tonne (\$1,520–1,572/tonne) delivered. Both alloys are down €20/tonne from last month. There is increased material available for the spot market, particularly from South Africa.

European spot silico-manganese prices are at €870–890/tonne (\$1,140–1,165/tonne) delivered, down from €890–920/tonne in March. The market was last at this level in January 2012 when prices fell to an annual low of €830/tonne delivered.

The price fall seems a bit odd because there is no other cheaper material being imported or offered elsewhere, according to industry sources. The market has been more active than usual lately as there are quarterly settlements yet to be fully agreed. Ferro-alloys suppliers and steelmakers in southern Europe have been negotiating in the past few weeks and agreements are expected by the end of April.

In northern Europe, second-quarter deals have been agreed around €895–920/tonne delivered, although deals in southern Europe may be €50/tonne below that range. Ferro-alloys producers are also struggling with production costs, so there is resistance to going well below existing deals. Moreover, the European market cannot risk ferro-alloys supplies being re-sold to northern areas from southern steel mills or suppliers, which may imbalance the entire trading area.

**US markets looking stable**

The US high-carbon ferro-manganese market has been steady, consolidating in its current price range, with a quiet outlook in the near term. US high-carbon ferro-manganese spot market prices are at \$1,090–1,160/long ton in-warehouse. Dealers reported business at \$1,125/long ton for delivery in April. May looks fairly stable in terms of prices, although things may get softer after that as the metals sectors wind down for the summer slowdown.

Medium-carbon ferro-manganese prices are steady at around \$0.88–0.90/lb in-warehouse. Low-carbon material prices are around \$1.04–1.06/lb.

Ferro-manganese is primarily consumed in the flat-rolled steel sector supplying the auto industry. The US auto sector has been strengthening in recent months. Automakers in the USA reported that March sales of new cars were the strongest monthly total in five years, providing more evidence of a sustained turnaround in the industry.

US spot silico-manganese prices have improved further this month to \$0.54–0.58/lb from \$0.53–0.57/lb in March. Silico-manganese prices may see further gains on improved demand from steel long product producers as construction industry demand increases.

US construction spending levels have bounced back from a fall in January this year, according to the latest industry data. There were increases in residential, private non-residential and public investment construction in February. The increase in public investment construction was likely to be short-lived, however, as federal infrastructure investment has been plunging even as several states have passed funding increases for projects.

<b>Global High-carbon Ferro-manganese Supply-Demand Balance ('000 tonnes)</b>															
	Q1 11	Q2 11	Q3 11	Q4 11	2011	Q1 12	Q2 12	Q3 12	Q4 12	2012	Q1 13f	Q2 13f	Q3 13f	Q4 13f	2013f
<b>Global Consumption, Mn Content</b>	890	925	825	855	<b>3,495</b>	900	950	830	940	<b>3,620</b>	923	987	863	957	<b>3,730</b>
<b>Global Production (Gross Weight)</b>	1,125	1,150	1,070	1,112	<b>4,457</b>	1,050	1,175	1,200	1,294	<b>4,719</b>	1,075	1,275	1,215	1,250	<b>4,815</b>
<b>Global Production, Mn Content</b>	878	897	835	867	<b>3,476</b>	819	917	936	1,009	<b>3,681</b>	839	995	948	975	<b>3,756</b>
<b>Market Balance, Mn Content</b>	-13	-28	10	12	<b>-19</b>	-81	-34	106	69	<b>61</b>	-84	7	85	18	<b>26</b>
<b>Price Forecast – European Market (\$/t)</b>	<b>1,540</b>	<b>1,568</b>	<b>1,293</b>	<b>1,125</b>	<b>1,381</b>	<b>1,160</b>	<b>1,254</b>	<b>1,133</b>	<b>1,100</b>	<b>1,162</b>	<b>1,130</b>	<b>1,150</b>	<b>1,225</b>	<b>1,245</b>	<b>1,188</b>
<b>Price Forecast – US Market (\$/l.ton)</b>	<b>1,327</b>	<b>1,321</b>	<b>1,323</b>	<b>1,321</b>	<b>1,323</b>	<b>1,215</b>	<b>1,286</b>	<b>1,224</b>	<b>1,175</b>	<b>1,225</b>	<b>1,135</b>	<b>1,175</b>	<b>1,275</b>	<b>1,270</b>	<b>1,214</b>
<b>Global Silico-manganese Supply-Demand Balance ('000 tonnes)</b>															
	Q1 11	Q2 11	Q3 11	Q4 11	2011	Q1 12	Q2 12	Q3 12	Q4 12	2012	Q1 13f	Q2 13f	Q3 13f	Q4 13f	2013f
<b>Global Consumption, Mn Content</b>	1,545	1,625	1,425	1,599	<b>6,194</b>	1,585	1,650	1,500	1,615	<b>6,350</b>	1,617	1,708	1,553	1,623	<b>6,500</b>
<b>Global Production (Gross Weight)</b>	2,350	2,500	2,200	2,376	<b>9,426</b>	2,300	2,600	2,400	2,362	<b>9,662</b>	2,350	2,650	2,410	2,440	<b>9,850</b>
<b>Global Production, Mn Content</b>	1,575	1,675	1,474	1,592	<b>6,315</b>	1,541	1,742	1,608	1,583	<b>6,474</b>	1,575	1,776	1,615	1,635	<b>6,600</b>
<b>Market Balance, Mn Content</b>	30	50	49	-7	<b>121</b>	-44	92	108	-32	<b>124</b>	-42	68	62	12	<b>100</b>
<b>Price Forecast – European Market (\$/t)</b>	<b>1,436</b>	<b>1,426</b>	<b>1,267</b>	<b>1,128</b>	<b>1,314</b>	<b>1,224</b>	<b>1,322</b>	<b>1,170</b>	<b>1,155</b>	<b>1,218</b>	<b>1,200</b>	<b>1,225</b>	<b>1,260</b>	<b>1,295</b>	<b>1,245</b>
<b>Price Forecast – US Market (\$/lb)</b>	<b>0.59</b>	<b>0.60</b>	<b>0.62</b>	<b>0.57</b>	<b>0.60</b>	<b>0.62</b>	<b>0.71</b>	<b>0.60</b>	<b>0.58</b>	<b>0.63</b>	<b>0.54</b>	<b>0.58</b>	<b>0.61</b>	<b>0.62</b>	<b>0.59</b>

Source: Metal Bulletin Research

Note: We have revised some of our historical consumption and production figures to reflect improved data

**Global Stainless Steel Production ('000 tonnes)**

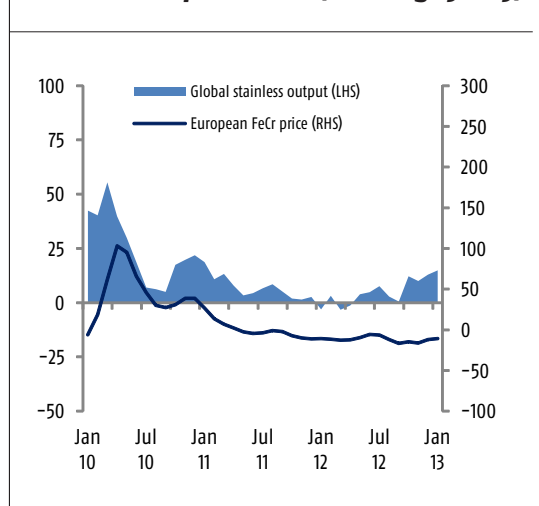
	2011	2012	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13
Belgium	1,241	1,241	349	346	275	271	382	83	81	111	98	120	53	126
France	300	285	84	82	55	64	83	22	9	25	29	21	14	25
Germany	1,502	1,313	398	309	302	303	337	122	99	81	117	112	74	108
Italy	1,602	1,696	438	467	363	429	464	158	61	144	154	142	133	143
Spain	807	844	248	231	184	180	296	74	44	66	68	55	58	86
United Kingdom	330	294	94	79	61	60	85	17	19	25	28	18	15	29
Sweden	586	510	155	133	106	116	157	20	44	41	45	38	32	51
Finland	1,003	1,078	284	278	277	240	289	86	95	96	65	84	91	95
Austria	69	66	17	20	14	15	21	4	5	5	6	6	3	6
<b>Total EU15</b>	<b>7,440</b>	<b>7,326</b>	<b>2,068</b>	<b>1,943</b>	<b>1,636</b>	<b>1,679</b>	<b>2,114</b>	<b>586</b>	<b>457</b>	<b>593</b>	<b>610</b>	<b>596</b>	<b>473</b>	<b>669</b>
Other Europe <sup>2</sup>	387	332	87	98	90	76	79	30	30	30	19	19	20	27
<b>Total Europe</b>	<b>7,827</b>	<b>7,658</b>	<b>2,155</b>	<b>2,041</b>	<b>1,726</b>	<b>1,755</b>	<b>2,193</b>	<b>616</b>	<b>487</b>	<b>623</b>	<b>629</b>	<b>615</b>	<b>493</b>	<b>696</b>
% Change Y-o-Y	1.7%	-2.2%	-0.6%	-1.8%	1.4%	-6.6%	1.8%	9.8%	-3.9%	-1.8%	-6.8%	-12.2%	-2.2%	-0.6%
USA	2,074	1,937	494	513	509	422	520	175	171	163	146	148	128	163
Brazil	413	400	113	100	94	92	106	32	31	31	32	30	30	34
<b>Total Americas</b>	<b>2,487</b>	<b>2,337</b>	<b>607</b>	<b>613</b>	<b>603</b>	<b>514</b>	<b>626</b>	<b>208</b>	<b>202</b>	<b>193</b>	<b>178</b>	<b>178</b>	<b>157</b>	<b>197</b>
% Change Y-o-Y	-4.6%	-6.0%	-22.1%	2.5%	9.0%	-7.7%	3.1%	8.9%	3.1%	16.2%	2.2%	-4.2%	-19.8%	-2.9%
South Africa	444	505	141	122	120	122	165	41	41	37	41	40	41	55
% Change Y-o-Y	-7.2%	13.7%	8.5%	3.9%	29.7%	17.0%	17.0%	34.4%	34.4%	20.4%	18.4%	14.3%	18.4%	17.7%
China <sup>3</sup>	14,191	15,979	3,703	3,929	3,775	4,680	4,793	1,306	1,243	1,227	1,551	1,508	1,513	1,516
India	2,158	2,329	575	623	570	561	587	195	188	187	188	184	188	199
Japan <sup>4</sup>	3,293	3,132	782	811	797	744	857	268	266	263	267	238	239	265
South Korea	2,115	2,151	571	537	497	546	581	150	177	170	177	173	195	195
Taiwan	1,203	1,137	298	265	258	316	226	82	85	90	118	105	94	69
<b>Total Asia</b>	<b>22,960</b>	<b>24,728</b>	<b>5,929</b>	<b>6,165</b>	<b>5,896</b>	<b>6,846</b>	<b>7,043</b>	<b>2,000</b>	<b>1,959</b>	<b>1,937</b>	<b>2,301</b>	<b>2,208</b>	<b>2,230</b>	<b>2,244</b>
% Change Y-o-Y	13.3%	7.7%	3.8%	8.9%	1.8%	18.2%	18.8%	2.9%	0.2%	2.4%	14.0%	19.2%	16.0%	16.5%
<b>Total Stainless<sup>5</sup></b>	<b>33,718</b>	<b>35,228</b>	<b>8,832</b>	<b>8,941</b>	<b>8,344</b>	<b>9,237</b>	<b>10,028</b>	<b>2,865</b>	<b>2,689</b>	<b>2,790</b>	<b>3,149</b>	<b>3,041</b>	<b>2,921</b>	<b>3,193</b>
% Change Y-o-Y	8.6%	4.5%	0.5%	5.7%	2.5%	10.8%	13.5%	5.1%	0.1%	2.5%	8.5%	9.6%	9.9%	11.0%

Sources: Acerinox, AISI, CSSC, Eurofer, ISSF, KOSA, TSIIA, TTG, MBR. <sup>1</sup> Italicised data is estimated. <sup>2</sup> Includes CIS. <sup>3</sup> 2011/2012 data revised by ISSF in December, 2012. <sup>4</sup> Derived from finished production. <sup>5</sup> Monthly data is not reported for Brazil, China, India, and South Africa, and has been estimated.

**Historical and forecast global stainless steel production growth rates (% change y-o-y)**

	Q1 12	Q2 12	Q3 12	Q4 12
('000 tonnes)	8,560	8,657	8,889	8,460
(chg yoy)	2%	8%	2%	5%
<b>Global stainless steel output rose 4.5% year-on-year in 2012 to approximately 35.2m tonnes. China continues to drive growth in stainless steel production, with Chinese output estimated to have gained 12.6% last year to nearly 16m tonnes.</b>				
<b>USA</b>	US stainless demand is stable, but over-supply is a growing concern, and mill lead times are shortening			
<b>Europe</b>	European stainless mills are operating at around 50% of capacity as demand slides.			
<b>Asia</b>	China continues to drive global stainless steel production growth and increasingly looks to exports to disperse excess supply.			

Source: Metal Bulletin Research

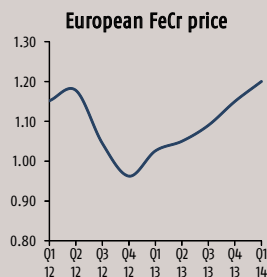
**European HC ferro-chrome price vs global stainless steel production (% change y-o-y)**

Source: IISI, Metal Bulletin Research

## Ferro-chrome highlights

- Second-quarter contracts settled at \$1.27/lb
- Spot prices continue to show weakness, however
- Producer discipline needed to maintain contract increases

### Market Outlook



Second-quarter contracts were settled this month, rising by 13% to \$1.27/lb following discussions between Xstrata and Aperam in late March. The rise is in line with the pattern seen in recent years, with second-quarter prices moving upward on the back of seasonal demand strengthening. Nevertheless, the pattern of recent years also paints a cautionary tale for ferrochrome smelters who are likely to face lower contract prices later in

the year should they fail, once again, to show discipline with regard to production levels. A recent decision in South Africa to stop power buybacks by Eskom may bring about the rationalisation needed. In the absence of receiving money for effectively doing nothing, a number of South African ferrochrome smelters may now be faced with the decision to either produce at a loss or close down.

**Second-quarter charge chrome contract prices up sharply on reduced South African output and improving demand from European stainless mills**

### Second quarter contracts settled, with a 13% increase

Second-quarter contract prices have been agreed, rising by \$0.145/lb from the first quarter to \$1.27/lb following discussions between Xstrata and European stainless steelmaker Aperam in late March. The large increase is somewhat of a surprise, with MBR anticipating a more moderate increase last month although our mood remains one of pessimism for the foreseeable future.

An increase in charge chrome contract prices during the second quarter of the year is no surprise – indeed, contract prices have risen in the second quarter during each of the last three years. It is at this point in the year when ferro-chrome smelters generally hold their strongest hand – stainless steel production, which accounts for about 80% of global ferro-chrome demand, typically increases as the second quarter approaches, due to a seasonal increase in demand from the manufacturing and construction industries in particular.

The supply of ferro-chrome has also tightened slightly in recent months following agreements by a number of South African smelters, including Xstrata, Samancor and Hernic for example, to curtail their production since late last year. The national energy company, Eskom, has been buying back power from these smelters in return for the production cuts so as to make more electricity available for residential purposes. Such an offer was snapped up by almost all of South

### Contract and spot prices of high-carbon ferrochrome (\$/lb)

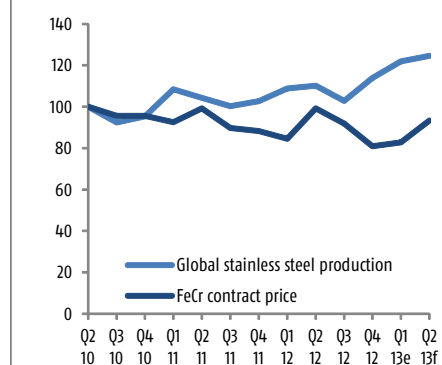
As in the past three years the spread between contract and spot prices has widened in the second quarter



Source: Metal Bulletin Research

### Indexed stainless steel production and ferrochrome prices, Despite stainless steel

production rising strongly over the past three years, ferro-chrome smelters have not been able to sustain price increases



Source: ISSF, Metal Bulletin Research

Africa's ferro-chrome smelters, who would have struggled in any case to sell all of their output at high utilisation levels.

#### Spot market moves point to lower contract settlements later this year

Despite recent contract price gains, we remain pessimistic. A glance at the spot market for ferro-chrome reveals why. Here, prices have been falling of late. Since the end of February, delivered prices of high-carbon material have fallen by 5% to \$0.92/lb in China, by 1% to \$1.02/lb in the USA, and have been flat at \$1.04/lb in Europe. Such weakness reflects the fundamental over-supply that hangs over the ferro-chrome market, even despite the recent production cutbacks at South African smelters as mentioned above. As can be seen in the table below, we expect that the market was in a significant surplus during the first quarter of 2013, a position that has existed since mid-2012.

**Charge chrome contract prices unlikely to see further gains in the latter half of the year, and instead will fall closer to spot market pricing levels**

The upshot of this widening between spot and contract prices is that the difference between the two prices series is now the largest it has been since the third quarter last year. The pattern most of note, however, is that in each of the past three years, the difference between spot and contract prices has widened in the second quarter before narrowing in the third quarter, the contract price falling in each of these instances to narrow the price differential. Should this pattern hold, we would expect contract prices to fall back toward \$1.20/lb in the third quarter of this year.

Although we expect that ferro-chrome consumption may improve somewhat through this month and next as stainless steelmakers replenish their relatively low raw material stocks in anticipation of increased stainless steel demand, we also expect a boost on the ferro-chrome supply side. In the short term, South African ferro-chrome smelters are set to lose their ability to sell power back to Eskom following a decision by the national energy regulator, Nersa, to deny Eskom the opportunity to continue with this policy. The lack of consolidation in the ferro-chrome industry and discipline regarding production levels leads us to expect that a number of producers will now simply ramp up output again to try and take advantage of the relatively high second-quarter contract settlement while they still can, a pattern evident in recent years, adding further to an over-supplied market.

These short-term movements on supply must also be put into the wider context of long-term capacity increases, with ENRC, Outokumpu and Xstrata all planning expansions.

#### Over-supply likely to continue hampering smelter profitability

Over-supply is an issue that the ferro-chrome industry will have to address if it is to generate healthy profits for producers in the long term. Indeed, it is quite remarkable that, with global stainless steel production having increased by 13% between 2010 and 2012, ferro-chrome producers have not been able to benefit through higher prices for their products, which have now been moving sideways since the second quarter of 2010 (see chart).

#### Ferro-chrome Supply-Demand Balance ('000 tonnes)

	Q1 11	Q2 11	Q3 11	Q4 11	2011	Q1 12f	Q2 12	Q3 12	Q4 12	2012f	Q1 13f	Q2 13f	Q3 13f	Q4 13f	2013f
<b>Global Consumption</b>	2,667	2,193	1,947	2,024	<b>8,830</b>	2,236	2,347	2,174	2,454	<b>9,210</b>	2,432	2,481	2,399	2,445	<b>9,757</b>
<b>Global Production</b>	2,302	2,379	2,068	2,147	<b>8,896</b>	2,217	2,244	2,397	2,469	<b>9,327</b>	2,470	2,485	2,495	2,537	<b>9,987</b>
<b>DLA Stock Disposals</b>	0	1	0	0	<b>1</b>	0	0	0	1	<b>1</b>	0	0	0	1	<b>1</b>
<b>Market Balance</b>	-365	187	121	124	<b>67</b>	-19	-103	223	16	<b>118</b>	38	4	96	93	<b>231</b>
<b>Price Forecast - Europe (\$/lb)</b>	<b>1.30</b>	<b>1.30</b>	<b>1.19</b>	<b>1.13</b>	<b>1.23</b>	<b>1.15</b>	<b>1.18</b>	<b>1.04</b>	<b>0.98</b>	<b>1.09</b>	<b>1.02</b>	<b>1.05</b>	<b>1.09</b>	<b>1.15</b>	<b>1.08</b>
<b>Price Forecast - USA (\$/lb)</b>	<b>1.37</b>	<b>1.33</b>	<b>1.20</b>	<b>1.11</b>	<b>1.25</b>	<b>1.15</b>	<b>1.18</b>	<b>1.09</b>	<b>1.02</b>	<b>1.11</b>	<b>1.02</b>	<b>1.05</b>	<b>1.09</b>	<b>1.15</b>	<b>1.08</b>

Source: Metal Bulletin Research

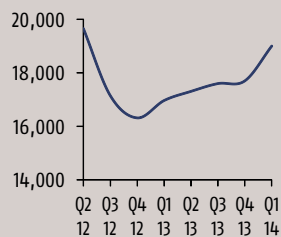


## Nickel highlights

- Another lurch lower for prices...
- ...but, all things considered, nickel is showing resilience
- We are close to a base, though we have cut our price forecasts given recent weakness

### Market Outlook

Nickel price forecast (\$/tonne)



Source: Metal Bulletin Research

We had flagged up the \$16,000/tonne level as an important area of support and, up until last week, it looked like it was holding out. It could have formed a platform for a short-covering rally, just as it did in September last year and again in November. Disappointing US and Chinese macro data, however, together with bearish sentiment spilling over from the copper and gold markets, has seen selling snowball into a broad rout across the commodities. Naturally, some suffered more than others and nickel, in fact, proved to be one of the more resilient, though probably only because it has already suffered big losses since early February, leaving other metals playing catch-up. We would not rule

out further falls for nickel prices in the short term, however, especially with some of the more prominent base metals, such as copper, now plunging beneath last summer's lows. Nickel prices have not fared quite that badly, with the nadir last summer (\$15,236/tonne) still beneath the current trading level. This is encouraging, especially when considering that technical indicators reveal buying pressure is evident at the moment too. We seem to have a battle between bears and bargain hunters, which can be the hallmark of base-building. This base is being built at a lower level than previously expected, however, and we have lowered our price forecasts accordingly.

*Given all the negatives, nickel prices are actually showing resilience*

### Plenty to be bearish about

In a week dominated by bearish forces external to the nickel market itself, we note that nickel-specific news has also been bearish, given stories suggesting falling consumption coinciding with rising production. Chinese stainless steel mills, including Shanghai Krupp Stainless and Jiuquan Iron & Steel, are cutting output on falling prices, weak demand and over-supply. Meanwhile, Xstrata announced first production from its new 60,000 tpy Koniambo complex in New Caledonia. Also in the background, LME stocks continue their relentless rise, cancelled warrants are off their peak and premiums remain soft.

### Price forecasts lowered, but upside risks exist

Given all these negatives, nickel prices are actually quite resilient, which lends support to our view that a base is near. Indeed, this is our assumption when reviewing our price forecasts this week. Previously, we had \$18,000/tonne for cash prices in Q2 2013. Although the underlying fundamentals have not deteriorated further in our view, the broader perception of the fundamentals for all industrial commodities has. So our downgrade to \$17,600/tonne in the second quarter (which is flowed through to subsequent quarters) is more to do with weaker sentiment than anything else. However, there are substantial short positions in the nickel market that will need to be covered at some point. We also believe that NPI production is now being cut quietly in the background, and when this becomes evident sentiment towards nickel will improve. We also expect a further gradual improvement in Chinese nickel usage levels during the second quarter and for imports of refined units to remain solid, all of which is supportive and should drive a price recovery in time.

*Q2 2013 cash price forecast cut to by \$400 to \$17,600/tonne, full-year forecast now \$17,902/tonne from \$18,256/tonne previously*

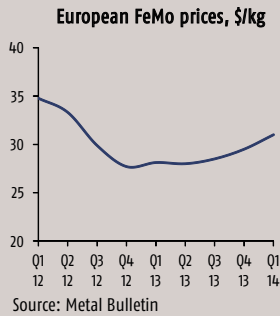
Global refined nickel supply-demand balance ('000 tonnes) and base case price forecasts, 2010-2015

	2012	2013f	2014f	2015f	2010	2011	2012	2013	2014f	2015f
	Year	Year	Year	Year	Q1	Q2	Q3	Q4	Q1	Q2
<b>Production</b>	1,706	1,767	1,850	1,923	338	366	356	365	384	374
% change year-on-year	7.5%	3.6%	4.7%	3.9%	7.5%	15.8%	11.3%	9.0%	13.5%	2.1%
<b>Consumption</b>	1,635	1,710	1,811	1,918	340	357	357	361	405	388
% change year-on-year	3.0%	4.6%	5.9%	5.9%	31.8%	25.3%	13.7%	6.5%	19.1%	8.7%
<b>Balance</b>	71	57	39	5	-2	9	-1	4	-21	-14
% of consumption	4.3%	3.3%	2.1%	0.3%	0.6%	2.5%	0.3%	1.1%	5.3%	3.7%
<b>Reported stocks</b>	370	427	465	470	288	297	296	300	278	264
Weeks consumption	11.8	13.0	13.4	12.8	11.0	10.8	10.8	10.8	8.9	8.8
<b>LME cash price</b>	\$/tonne	17,520	17,902	20,800	23,125	20,077	22,566	21,188	23,598	24,168
	\$/lb	7.95	8.12	9.43	10.49	9.11	10.24	9.61	10.70	10.96

# Molybdenum highlights

- Prices struggle...
- ...although the bottom maybe near...
- ...as supply availability decreases

## Market Outlook



Despite another month of dismal price performances there are signs that tighter supply availability is beginning to underpin the market. This is most evident in Europe where prices appear to have stabilised. In the USA and China, the supply situation has yet to have a major effect on prices. Moreover, the recent release of weaker than expected Chinese GDP data and indications of increasing financial stress in the steel sector are clouding any positive outlook for the market. For the USA, however, steel utilisation rates are generally improving

which suggests the market here could be about to turn a corner. Much of the recent price support is connected to supply concerns stemming from the Chilean port strikes that threatened to disrupt supply chain operations, in addition to RioTinto's unforeseen Kennecott mine closure in the USA. The port strikes which lasted for three weeks have since ended. Nevertheless, the effects on the market seem to have arrested all downward price movements, marking a possible point for prices to firm and in some cases bounce higher by next month.

*European prices moving higher on supply-side disruptions*

## Prices stabilise in Europe

Over the past month, European molybdenum prices stabilised on supply concerns. Participants noted that deliveries may take longer than expected based on disruptions to the Kennecott Utah mine in the USA and backlogs after the end of the port strikes in Chile. Based on census opinion RioTinto's Kennecott operation could be adversely affected by the recent landslide for over a year. The slip destroyed the main access decline into the pit. During 2012 the mine produced around 9,400 tonnes of molybdenum.

For the month, European ferro-molybdenum trades ranged between \$27.20–27.40/kg, up from \$26.90–27.30/kg last month, a slight increase of 0.7% month-on-month. In contrast, molybdic oxide prices were static at \$10.90 – 11.00/lb.

## Molybdenum market likely to tighten in the USA

In the USA, prices largely fell back on the month, as enquires melted away. Ferro-molybdenum prices fell into a lower range of \$11.90–12.35/lb, a 3.2% fall month-on-month. Molybdic oxide prices also decreased, to trade in a range of \$10.90 –11.00/lb, down 1.8% month-on-month. Trading activity has improved more recently in line with stronger steel

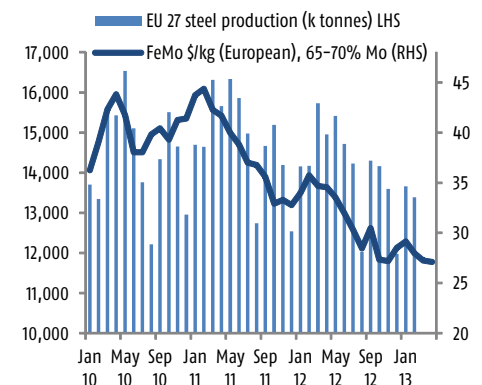
## Chinese GDP growth vs iron ore prices

A pull back-up in economic growth in the first quarter suggests demand is straining although users seem undeterred



## EU 27 crude steel production & FeMo price

European steel producers reach out into the market on perceived tight supply



mill utilisation rates. According to data from the American Iron and Steel Institute (AISI) crude steel output in the country's Great Lakes region increased by 5.2% to around 690,000 tonnes in the first week of April from the previous week, while total production in the country increased by around 1.7% to 1.9m tonnes, achieving a capacity utilisation rate of 77.6%. There is now a view that prices in the USA have hit a floor and may be due an upward correction based on the supply issues swirling around the market.

### The Chinese market takes a hit although confidence is improving

According to the Chinese National Bureau of Statistics, Chinese economic growth slowed to 7.7% in the first quarter of 2013, down from 7.9% a year ago and compares with a figure of 8.0% predicted by analysts. The continued weakness in the manufacturing recovery and tightening in the property sector may continue to weigh on investment and growth in the next few months, which does not bode well for steel and associated molybdenum consumption.

Despite this bearish turn of events Chinese mills aim to keep their steel production lines rolling and are now keen to top-up inventory levels. As a result, buying activity has recently picked-up. Taigang Stainless, the country's largest stainless steel mill, purchased 300 tonnes of ferro-molybdenum at RMB101,000/tonne (\$16,188/tonne), up RMB3,500/tonne from April's level.

In addition, Eastern Special Steel made an all-cash offer of RMB102,600/tonne (\$16,444/tonne) to buy 150 tonnes of ferro-molybdenum, an increase of some RMB1,100/tonne, compared with its last purchase in March. From the beginning of April, major local ferro-molybdenum producers Jinduicheng Molybdenum, China Molybdenum and Jinzhou New China Dragon Moly began to raise their offers in an attempt to push up prices and boost sales.

Nevertheless, overall domestic prices for ferro-molybdenum for the month slipped 4.9% to RMB106,000/tonne (\$16,989/tonne) (ex-plant 60% FeMo) with molybdenum concentrate prices also weaker, trading in a range of RMB1,560 – 1,580/tonne (\$250–253/tonne), a decrease of 7.9% month-on-month.

In South Korea and Japan, buyers have done well to resist higher prices, rejecting offers for molybdic oxide at \$10.90–10.95/lb CIF. Enquiries are now increasing, however, suggesting the power base may switch to the sellers with potentially higher prices to come.

### Molybdenum prices poised for gains in Asian markets

#### Primary Molybdenum Supply-Demand Balance (million lb Mo contained)

	Q1 11	Q2 11	Q3 11	Q4 11	2011	Q1 12	Q2 12	Q3 12f	Q4 12f	2012f	Q1 13f	Q2 13f	Q3 13f	Q4 13f	2013f
Global Consumption	142	137	131	135	545	144	146	140	142	572	144	152	150	151	597
Global Supply															
Global Mined Production	135	159	152	154	599	142	168	160	167	637	154	183	172	180	688
Conversion Losses to Oxide (1.5%)	-2	-2	-2	-2	-9	-2	-3	-2	-3	-10	-2	-3	-3	-3	-10
Recovery from Catalysts	1	1	1	1	4	1	1	1	1	4	1	1	1	1	4
Total Global Supply	134	157	151	153	594	141	166	158	166	631	153	181	170	178	682
Market Balance	-9	20	20	18	49	-3	20	19	23	59	9	29	20	27	84
Price Forecast - European Market															
Ferro-Molybdenum (\$/kg)	43.43	40.26	36.64	33.00	38.33	34.78	33.32	30.08	28.50	31.67	28.22	28.00	28.50	29.50	28.56
Molybdic Oxide (\$/lb)	17.42	16.70	14.62	13.41	15.54	14.26	13.80	11.88	11.50	12.86	11.21	11.10	11.57	12.00	11.47

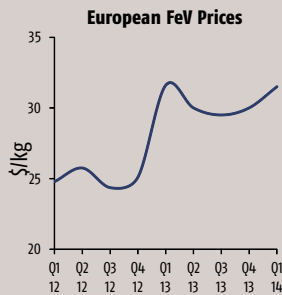
Source: Metal Bulletin Research

Note: We have revised our historical molybdenum consumption and production figures to reflect improved data

## Vanadium highlights

- Chinese mills take a forthright approach with sellers
- The market dives lower on scant demand
- Further falls likely

### Market Outlook



Hard pressed steel mills were mainly victorious over the month in pressing down prices for ferro-vanadium, at a time when trading activity was sparse. The largest declines were seen in China followed by Europe. The market in the USA held up, however, as traders played down the potential impact of more material being delivered into the domestic market. Moreover, following disappointing first-quarter Chinese GDP data, demand for ferro-vanadium is likely to decline. As a

result, surplus supplies are expected to be shipped abroad and weigh on markets elsewhere. When China reduces its exports, vanadium prices rise. When the Chinese flood the market, however, prices decline. Thus during a time of limited demand, hard-nosed buyers, and increasing seaborne supply, prices have little option other than to carry on receding next month.

### Weak demand in Europe dents prices

Confidence among European consumers is low due to the region's economic woes. As a result, mills are being defensive and extending their destocking cycles. Their absence from the market during the month pushed sellers to reduce offers. Despite this sales were still few and far between. Domestic spot prices overall moved lower by 9.2% month-on-month to trade in a range of \$29–30/kg (70–80% V basis), while vanadium pentoxide prices fell by 3% to trade in a range of \$6.40–6.70/lb. Participants are likely to hold back from the market in the coming weeks as they wait for the price to take a clearer direction.

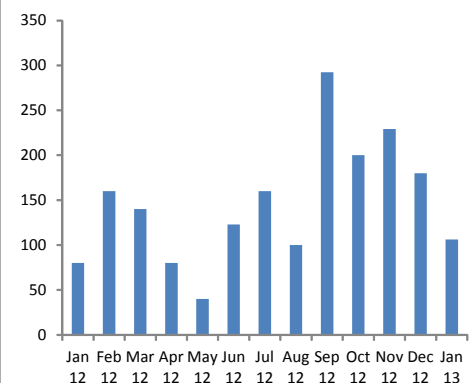
### The market in the USA bucks the bear trend seen elsewhere

In the USA, demand was somewhat brisker with larger volumes being sold. Traders did what they could to blind side customers about potential forthcoming shipments from Atlantic's Windimurra mine in Australia. After achieving first production in January 2012, Atlantic is now working towards full production of 6,300 tonnes per annum of contained vanadium in the first calendar quarter of 2013. The company recently announced this month a package of funding initiatives of Au\$28.5m to help re-establish its footing after doubt was cast on whether the project would ever reach its nameplate capacity following numerous setbacks. Overall, ferro-vanadium prices increased by 1.5% month-on-month to trade in a tighter range of \$15.00–15.15/lb.

### Chinese mills make themselves heard

In China, the ferro-vanadium (V50) ex-works price slipped back, by around 11.1%, to well under RMB80,000/tonne (\$12,822/tonne). Steel mills have dropped purchase prices considerably owing to an increasingly difficult operating environment, while others are waiting on the sidelines to see if prices will fall further. In the wider market negative sentiment is prevailing especially after the release of softer than expected Chinese GDP data, leading some to believe that the Chinese domestic market is over-supplied relative to demand. As such exports could rise and add to supply elsewhere, bringing renewed downward pressure on prices globally.

**Chinese exports of ferro-vanadium to Europe (tonnes)**, Exports rose sharply in H2 2012, before declining in early 2013, but high prices in Q1 2013 may now spur increased exports



Source: Metal Bulletin Research, Customs Statistics

**Rising exports from China are expected to depress prices in global markets in the near term**

Selected demand indicators		Unit	2011	2012	2012 Q2	2012 Q3	2012 Q4	Jan-13	Feb-13	Mar-13
<b>Japan</b>										
Industrial production	y/y %		-2.3	-0.7	5.3	-4.6	-6.7	7.09	-5.08	-
Motor vehicle production	y/y %		-12.3	33.9	84.5	3.0	-12.7	9.92	15.13	-
CPI	y/y %		-0.3	0.0	0.2	-0.4	-0.2	0.30	0.60	-
Construction: new build started	y/y %		4.3	5.3	2.9	2.6	12.9	4.36	9.45	-
<b>China</b>										
Industrial production: MV	y/y %		2.5	8.7	15.6	10.2	4.2	47.74	16.43	13.14
PMI: Mfg	N/A		51.4	50.8	51.3	49.7	50.5	50.4	50.1	50.9
CPI	y/y %		5.4	2.7	2.9	1.9	2.1	2.0	3.2	2.1
FDI: y/y construction	y/y %		41.44	55.21	50.2	30.5	23.0	-39.0	-39.0	-23.9
Industrial production <sup>1</sup>	y/y %		13.7	10.8	9.5	9.1	10.0	-	-	8.90
<b>USA</b>										
Industrial production	y/y %		2.5	3.7	4.6	3.3	2.7	2.19	2.46	-
Automobile production	N/A		51.4	39.0	53.84	41.50	17.24	15.73	5.10	-
Inventories: sales ratio	N/A		5.4	2.6	2.3	2.4	2.3	2.27	2.35	-
Private housing starts	y/y %		5.2	28.8	28.5	25.2	36.7	26.48	25.55	-
CPI	y/y %		13.7	3.7	1.9	1.7	1.9	1.58	1.98	-
ISM: manufacturing PMI	N/A		55.2	51.8	52.5	50.9	50.6	53.1	54.2	51.3
<b>EU</b>										
Industrial production	y/y %		3.2	-2.0	-1.8	-1.9	-2.7	2.46	2.40	-
Construction production	y/y %		0.1	-4.7	-4.7	-5.3	-5.7	7.35	-	-
CPI	y/y %		2.7	2.5	2.4	2.6	2.3	1.99	1.84	-
<b>Brazil</b>										
Industrial production	y/y %		0.4	-2.6	-4.4	-2.1	-0.5	3.16	0.81	-
Mfg: capacity utilisation (SA)	y/y %		82.1	81.3	81.0	81.0	81.2	-	-	-
CPI	y/y %		6.6	5.4	5.0	5.2	5.6	6.2	6.3	6.6
<b>Russia</b>										
Industrial production	y/y %		4.8	2.5	2.2	2.4	1.6	0.80	2.19	-
Fixed capital investment	y/y %		15.8	16.4	18.4	13.2	9.6	8.73	5.87	-
CPI	y/y %		8.5	5.1	3.8	6.0	6.5	7.1	7.3	7.0
<b>India</b>										
Industrial production	y/y %		4.8	0.8	-0.1	0.4	2.3	2.36	0.57	-
Industrial production: mining	y/y %		-1.7	-1.4	-1.7	-0.6	-3.0	2.17	8.15	-
Motor vehicle production	y/y %		16.6	4.6	7.6	-2.4	2.1	8.0	-3.3	-8.7
Foreign inward investment: direct	y/y %		122.6	17.7	-52.7	24.8	-10.1	22.52	3.62	-
WPI	y/y %		9.5	7.5	7.5	7.9	7.3	7.31	6.84	5.96
<b>Germany</b>										
Industrial production	y/y %		8	-1	-1.0	-1.8	-2.8	-1.24	-5.31	-
Motor vehicles	y/y %		14	1	1.8	1.7	-4.6	5.49	10.62	-
Construction: new builds started	unit		2,151	2,048	2,229	2,235	1,972	1,723.00	-	-
<b>France</b>										
Industrial production	y/y %		2	-3	-4.4	-2.1	-2.8	-2.78	-6.27	-
Construction: new building started	sq m '000		2,282	1,989	1,863	1,994	2,079	1,987.41	2,041.97	-
<b>UK</b>										
Industrial production	y/y %		-1.2	-2.5	-2.2	-2.5	-2.3	0.82	5.18	-
Vehicle production: passenger	y/y %		5.5	9.6	16.9	2.5	5.9	1.18	0.74	-
Vehicle production: commercial	y/y %		-1.6	-5.8	-8.0	-1.1	-5.8	20.54	17.09	-
CPI	y/y %		4.5	2.8	2.7	2.4	2.7	2.73	2.79	2.78
<b>Italy</b>										
Industrial production	y/y %		1.4	-6.5	-7.3	-5.1	-7.0	3.37	-	-
IP: motor vehicles, trailers and semi trailers	y/y %		1.5	-16.2	-15.0	-18.3	-15.9	17.45	-	-
<b>Canada</b>										
Industrial production	y/y %		2.6	1.4	2.0	1.7	0.5	-	-	-
PMI	%		59.3	58.4	57.9	64.2	49.3	54.8	51.6	64.4
<b>Turkey</b>										
Industrial production	y/y %		9.2	2.3	3.2	1.8	1.4	2.26	1.59	-
Motor vehicle production	y/y %		9.4	-9.9	-8.4	-15.5	-9.5	-3.0	-3.5	-3.7
CPI	y/y %		6.5	8.9	9.4	9.0	6.8	7.3	7.0	7.3
<b>Mexico</b>										
Industrial production	y/y %		4.0	3.1	3.9	3.9	1.7	0.39	1.20	-
Motor vehicle production	y/y %		13.2	9.2	10.1	8.6	10.7	19.81	1.60	-
Construction output	MXN mn		15,987.1	17,129.6	16,727	17,304	18,323	15,077.66	-	-
<b>South Korea</b>										
Industrial production	y/y %		7.0	1.1	1.2	-1.0	-0.1	7.56	9.26	-
Motor vehicle production	y/y %		9.3	-1.6	-1.2	-14.4	-2.0	23.3	-19.9	-13.1
Buildings commenced	y/y %		5.7	-2.7	-2.5	-5.8	-13.8	12.98	22.59	-

Sources: CEC. Notes: SA: seasonally adjusted, CPI: Consumer Price Index, PMI: Purchasing Managers Index, FDI: Fixed Capital Investment. e denotes a quarter-to-date value. 1 For chart purposes, the January data point for Chinese Industrial Production is calculated as an average of the December and February value.

## Historical and forecast global steel production growth rates (% change y-o-y)

	Q1 13	Q2 13	Q3 13	Q4 13
('m tonnes)	378	395	384	368
(chg yoy)	4.8%	3.2%	2.1%	4.6%

**Global crude steel production rose 1.2% year-on-year in 2012 to 1.55bn tonnes. Growth was primarily attributed to higher output in Asia and the USA last year, despite sharply slower growth in Chinese and other Asian output. We are forecasting global crude steel output to rise 4.2% year-on-year in 2013.**

**USA** US crude steel output rose 2.5% year-on-year in 2012 to 88.6m tonnes, in part due to new capacity in the country. Output has slowed in early 2013, however, as supply is outpacing demand and prices are slipping.

**Europe** EU27 crude steel output fell sharply last year, down 4.7% year-on-year to 169.4m tonnes, reflecting dire economic conditions.

**Asia** Chinese crude steel output rose 3.1% year-on-year in 2012 to 716.5m tonnes. Growth slowed sharply last year, and is expected to maintain slower than recent historical rates again in 2013.

Source: Metal Bulletin Research

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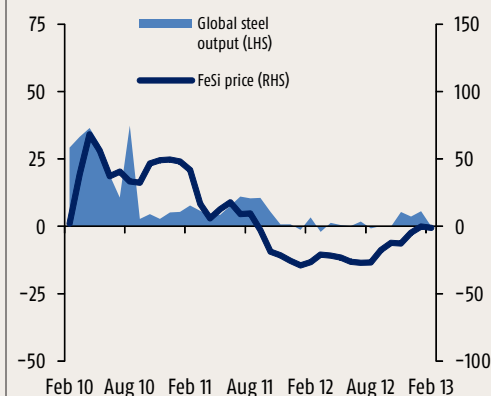
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## European ferro-silicon price vs global steel production (% change y-o-y)



Source: IISI, Metal Bulletin Research



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