

Fortis metals monthly

October 2007



Gold, silver, platinum,
palladium, aluminium, copper,
nickel, lead & zinc, tin, plastics.

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Metals and plastics – Strategic view

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Introduction

As anticipated, the cut in US interest rates saw the dollar weaken. We expect it to remain weak against most major currencies until there are clear signs that a US recession has been averted. Gold and silver have already benefited from this and will continue doing so for the time being.

Gold

Challenging its highest level in almost three decades, gold is now well poised to strike \$800/oz before the end of the year, although there will be corrections along the way and dollar strength would disrupt this scenario.

Silver

There was a tremendous surge back into silver futures on Comex in the week prior to 25th September, with large and small speculators adding more than 2,000t to their net long positions. If gold gets to \$800/oz, silver might challenge \$16/oz.

Platinum

Platinum prices surged to a ten month high in September. Production glitches in South Africa spell a physical deficit and will help underpin continued price strength.

Palladium

Despite a fresh wave of investor effervescence on Nymex in the week to 25th September the underlying physical market remains in chronic over-supply. The price moved sharply higher at the start of October.

Aluminium

Aluminium prices slipped again in September, despite a gentle decline in LME stocks. As with palladium, there are no grounds for fearing a physical tightness and that should keep prices soggy.

Copper

The global refined copper market is slowly but surely returning to growing surplus. Strikes will happen, Asian demand remains healthy, but a slowing US economy would be bad news for copper in the mid-term.

Nickel

Nickel prices are holding up relatively well as stainless steel producers continue to drip-feed their relatively low stocks. But the crisis in LME stocks looks over (at least for now) and this alone should cap prices below \$35,000/t in the short-term.

Lead and zinc

A fresh record for lead in early October, as the metal's strong fundamentals encouraged continued investor bullishness. The same cannot be said of zinc today, tomorrow, and especially next year.

Tin

Tin prices stumbled in September as stocks in LME warehouses jumped. Still, given the determination of Indonesian tin miners to curtail exports below what they consider fair value, the price should stay strong.

Plastics

The stronger oil price will support plastic prices in the short term, but a slowing US economy will shrink physical demand.

Forecasts

Price forecasts		End-September	1-month	2-month	3-month	12-month
Gold	\$ per oz	743	720-760 (r)	780 (r)	800 (r)	700 (r)
Silver	\$ per oz	13.65	13-14 (r)	14 (r)	15 (r)	12
Platinum	\$ per oz	1,377	>1,400 (r)	>1,400 (r)	1,350	1,300
Palladium	\$ per oz	343.75	350-380 (r)	375 (r)	350	320
Aluminium (3-month)	\$ per tonne	2491.50	2,300-2,500 (r)	2,300 (r)	2,300 (r)	2,400
Copper (3-month)	\$ per tonne	8,070	7,500-8,200 (r)	7,500	7,500	7,000
Nickel (3-month)	\$ per tonne	31,600	29,000-33,000 (r)	25,000-30,000	25,000-30,000	>30,000
Lead (3-month)	\$ per tonne	3,386	3,400-3,800 (r)	>4,000 (r)	>4,000 (r)	2,500
Zinc (3-month)	\$ per tonne	3,051	2,750-3,000 (r)	2,800 (r)	2,800 (r)	2,500
Tin (3-month)	\$ per tonne	15,400	15,000-16,000 (r)	14,500	14,500	14,500
Plastic: LL (September)	\$ per tonne	1,250	1,300	1,330	1,350	1,300
Plastic: PP (September)	\$ per tonne	1,270	1,330	1,350	1,380	1,350
		2-years	3-years	4-years	5-years	6-years
Gold	\$ per oz	600	575	550	550	500
Silver	\$ per oz	11	10	10	9	9
Platinum	\$ per oz	1,500	1,400	1,300	1,200	1,000
Palladium	\$ per oz	280	280	250	230	230
Aluminium (3-month)	\$ per tonne	2,000	2,000	1,800	1,800	1,800
Copper (3-month)	\$ per tonne	6,000	6,000	5,000	5,000	4,000
Nickel (3-month)	\$ per tonne	25,000	25,000	15,000	14,000	14,000
Lead (3-month)	\$ per tonne	1,500	1,500	1,300	1,200	1,000
Zinc (3-month)	\$ per tonne	2,500	2,500	2,000	2,000	1,900
Tin (3-month)	\$ per tonne	14,000	13,000	13,000	12,000	10,000
Plastic: LL (Global, second month)	\$ per tonne	1,300 (r)	1,200	1,200	1,200	1,200
Plastic: PP (Global, second month)	\$ per tonne	1,250 (r)	1,250	1,250	1,250	1,250

Source: Virtual Metals

(r) = revised from previous month

Analysis

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Gold: what are central banks likely to do in 2008?

The end of September marked the conclusion of the third year of the so-called European Gold Agreement (EGA), under which 16 European central banks (including the European Central Bank) have, since 1999, acted in a concerted fashion to sell parcels of gold from their reserves.¹ The yearly cycle of the EGA matters, because the Agreement puts a ceiling on collective gold sales by the signatory in each "year". This is increasingly of interest because the signatories do not always sell the maximum amount of gold permitted. This was not always the case. The first Agreement, which ran between 1999-2004, limited gold sales to no more than 400t/year, and in each year of that first Agreement the collective sales were within 10t of that amount. The second Agreement, which runs from 2004-2009, lifted the sales limit to 500t/year. It began in the same manner, with sales only 3t short of 500t sold in the 2004/2005 year. The second year, however, produced a shock as sales ended the year at just 394.8t, more than 100t short of the maximum.

EGA year III (Tonnes)

		Estimate for full year 2006/2007
ECB banks		352.0
of which	Spain	149.3
	France (est)	113.7
	ECB	60.0
	Netherlands (est)	14.0
	Austria (est)	10.0
	Germany (est)	5.0
	Others (est)	0.0
Non-ECB banks		123.0
of which	Switzerland	113.0
	Sweden	10.0
Total		475.0

Source: VM Group

The EGA year that has just ended was a bit of a nail-biter. Most of the year it appeared sales would undershoot by as much or more than last year. At the halfway point (26 weeks – 27th March 2007) sales were around 150t, implying just 300t for the full year. However, strong sales by Spain during March to July, and then an unexpected and rapid sales programme by the Swiss National Bank from mid-June, saw the total rise to almost 500t. Almost – we estimate the full year's sales were 475t.

That the total wasn't met for the second year in a row is important. When the maximum amount is sold, it is a reasonable assumption that the signatories actually wanted to sell more than 500t, but could not do so, due to the Agreement. That would be a signal that sales are likely to remain high. But with less than 500t sold, it might seem indicative of a diminished interest on the part of the EGA signatories to sell gold. It might mean it is less likely that 500t will be sold next year and in future years; for if central banks wanted to sell, why did they not sell to the maximum in this year?

What are the likely sales for EGA year four and year five? Will the Agreement be renewed for a third time, in 2009? These are key questions for the gold market over the next year or two, as the influence of central banks over gold, although much reduced, remains a significant factor in how the bullion world sees the gold price moving in the near future. The following table shows the

¹ The original press release, issued by the European Central Bank, is here: <http://www.ecb.int/press/pr/date/1999/html/pr990926.en.html>. The renewal can be found here: <http://www.ecb.int/press/pr/date/2004/html/pr040308.en.html>.

current situation – with the countries that are still thought to be potentially active sellers highlighted in bold.

The 16 European central banks still have plenty of gold – 12,425t between them. This could fill (at the rate of 500t/year) nearly 25 years of EGA sales. Sales so far in the three years of EGA II have been 1,366t – some way short of the 1,500t permitted. However, of the banks whose sales plans we know – Switzerland, the Netherlands, Sweden and, with some degree of certainty, France and Austria, there are less than 500t of sales left. This would fill one more year. However we do not know the plans of a number of countries that have sold recently.

Current EGA gold holdings

	Gold end-Sep (Tonnes)	Value (\$bn)	Forex (\$bn)	Gold as a % of reserves	Sales in EGA II (Tonnes)	Known to go (Tonnes)
Germany	3,414.5	80.1	43.4	65%	15.8	?
France	2,642.6	62.0	46.2	57%	363.1	136.9-236.9
Italy	2,451.9	57.5	29.4	66%	0.0	?
Switzerland	1,178.0	27.6	39.4	41%	241.3	138.7
Netherlands	641.0	15.0	11.0	58%	136.5	28.5
ECB	604.7	14.2	43.9	24%	164.0	?
Portugal	382.6	9.0	1.2	88%	99.7	?
Spain	281.6	6.6	11.2	37%	241.7	?
Austria	278.8	6.5	8.0	45%	38.8	Up to 61.2
Belgium	227.6	5.3	9.3	36%	30.1	?
Sweden	150.5	3.5	25.8	12%	35.0	25.0
Greece	112.1	2.6	0.7	80%	0.0	?
Finland	49.1	1.2	6.6	15%	0.0	?
Ireland	5.5	0.1	0.8	14%	0.0	?
Slovenia	3.2	0.1	0.9	8%	0.0	?
Luxembourg	2.3	0.1	0.2	20%	0.0	?
Total	12,425.9	291.6	277.9	51%	1,366.0	490.3

Source: VM Group

Two conundrums

What would make a big difference, and also make an EGA III very likely, is if Germany and Italy, respectively the largest and third largest holders of gold among the EGA signatories, were to sell. Between them they have nearly 6,000t of gold, and very similar shares of gold as a percentage of foreign reserves, at 65% and 66% respectively. For both there have been suggestions of sales. The German government, and indeed many members of the Bundesbank's Governing board, were keen to sell 500t-600t of gold during the five years of EGA II. Yet an argument about what should be done with the proceeds of the sales, with the government wanting to use the money to fund general government spending and the Bundesbank wanting it to be used specifically for investing in science and technology, has seen the Bundesbank digging in its heels and effectively preventing any sales. The bank's president, Axel Weber, said in March 2007 that only 8t would be sold in EGA year 2006/2007, for the purposes of making gold coins, but added that: "We will decide about gold sales every year anew". So far there has been no indication of any sales taking place in the forthcoming EGA year of 2007-2008.

Italian gold sales proposals are also controversial. In August 2007 the Italian parliament passed a motion requiring the government to look into using gold sales as a way of reducing government debt. The Prime Minister, Romano Prodi, and his Finance Minister, Tommaso Padoa-Schioppa, both welcomed the motion. However, the Bank of Italy is thought to be less keen, and there are question marks over whether the ECB and the European Commission, which due to the Maastricht Treaty have some influence in these matters, would be in favour of reserve assets being sold explicitly for debt reduction.

Despite these complex hurdles, in Europe Germany and Italy are the only major official gold holders that have not sold gold, and in both countries there is support for the idea of sales. They also are “overweight” in gold by any normal measure. The question is not so much whether they will sell, but whether they will sell in the next two years, or if it will be after the current Agreement runs out. At present we think the balance of probabilities is that they will sell after the current Agreement ends in September 2009, although we can not rule out sales before then.

Putting it all together

The table below shows a possible scenario for EGA sales in years four and five.

Possible sales in next two years and any EGA III

	Gold (end-Sep) Tonnes	Sales so far in EGA II, Tonnes	Possible sales in 2007/2008	Possible sales in 2008/2009	Possible gold end- EGA II	Possible sales under EGA III?
Germany	3,415	16			3,415	600
France	2,643	363	114	114	2,416	500
Italy	2,452	-			2,452	600
Switzerland	1,178	241	138		1,040	
Netherlands	641	137	14	14	612	100
ECB	605	164	60	60	485	100
Portugal	383	100	25	25	333	50
Spain	282	242	40	40	202	
Austria	279	39	20	20	239	50
Belgium	228	30	22	25	180	
Sweden	151	35	10	15	126	
Greece	112	-		40	72	
Finland	49	-			49	
Ireland	5	-			5	
Slovenia	3	-			3	
Luxembourg	2	-			2	
Total	12,426	1,366	443	353	11,628	2,000

Source: VM Group

Switzerland and France are likely to be the main sellers in year 2007/2008, and France the only major seller in 2008/2009. In total, we expect sales will fall more than 200t short of the 1,000t maximum for 2007-2009. Obviously this is only an estimate since, as discussed above, many central banks have given no indication of their plans. If Germany and Italy were to join in, then we would expect similar sales by France, so around 120t a year, and then the 500t maximum would be easily achieved.

EGA III

Will the EGA be renewed in 2009? Should it be renewed? The argument in favour is quite straightforward – the Agreement brought stability to a market (in 1999) that was reeling not so much from *actual* central bank sales (although those were quite high), but from the *potential* for enormous flows. The EGA is now considered an integral part of the gold market.

Yet there would be little point in having an Agreement limiting sales if sales did not need limiting – to have a 400t or 500t ceiling when sales were only going to be 100t-200t would be, if anything, destabilising. And part of the original EGA thinking was to introduce greater stability to the gold market by making central bank behaviour regarding gold holdings and sales a little more transparent. However, we do not think the central banks would wish to restrict their options so rigidly as to have a very low limit.

The right-hand columns on the table above show it is quite possible that there would be a large enough amount of gold sales to warrant another Agreement, if Germany and Italy sell. France might also sell some more, and there are a number of other central banks that we believe wish to reduce their gold reserves over the long-term. Furthermore, and not included in the table, the IMF might

join in the sales too, probably selling 500t-600t (the new Managing Director, Dominique Strauss-Kahn, noted on 1st October that many members were in favour of sales). Thus we *could* easily see a limit of 2,500t of sales under an EGA III.

Ultimately, we believe that the Agreement will be renewed in 2009. The Bundesbank has openly said that there will be talks about a new gold agreement, and central banks are conservative institutions that we believe would – if possible – like to not have to think too much about the gold market. The terms of any new Agreement, however, will be crucial to understanding whether the first clause of both EGAs, that “gold will remain an important element of global monetary reserves”, retains any validity.

Focus

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Bargain hunting in Zimbabwe

Zimbabwe is due to hold elections in March 2008, which may be President Robert Mugabe's swansong. Whatever their outcome, the economic collapse of this once relatively prosperous African country is accelerating change. Any improvement in the political landscape could open up considerable mineral deposits in one of the few African countries that do not require massive infrastructure investment as part of the development of any new mine. But this carrot is contingent on how Zimbabwe, post-Mugabe, might look like.

“If we see a dramatic turn around, and the necessary changes are put in place, we could see a fairly dramatic increase in value of the companies operating in Zimbabwe with the removal of political risk. It is not inconceivable that, given the country's geology, it could yield some large mines.” That's the view of Ian Saunders, an executive of Canada's New Dawn Mining and a former head of Zimbabwe's Chamber of Mines. A century of mining in Zimbabwe has delineated world-class deposits, including the world's second biggest platinum and chrome reserves, as well as extending tantalising hints of many others, ranging from nickel and tin to uranium. With the exception of bauxite, the raw material used in aluminium production, the country offers potential for the development of mines for most base metals as well as diamonds, iron ore and coal.

Zimbabwe's mining potential may lag that of the Democratic Republic of Congo, where a tenth of the world's copper deposits lie, but it has significant advantages, not the least of which are a well developed transport infrastructure and an educated, if deteriorating, workforce. Unlike the Congo, where developments are always preceded by bickering over the investment of millions of dollars in often brand new roads or rail lines, Zimbabwe's infrastructure, although neglected since the late 1990s, is in much better shape.

There is no question that Zimbabwe's economy has crumbled. In August this year its annual inflation rate was way over 6,000%. The country is in its ninth consecutive year of recession. A policy of seizing white-owned farms and transferring them to black subsistence farmers, with little expertise and no access to finance, has resulted in much of the land not being farmed and harvests falling. In June this year the government forced retailers and manufacturers to cap the prices of their goods, an attempt to make food and goods affordable to the bulk of the population. This has simply resulted in shopkeepers closing rather than sell their goods at a loss. As many as four million Zimbabweans have fled overseas, many of them crossing the border into South Africa.

This wider collapse has been mirrored in the mining industry, with production volumes slumping. Now only the country's major established metals – nickel, chrome, platinum group metals and gold – are being mined in any significant quantities. Few are today willing to commit substantial amounts to development until the political situation changes. Anglo American has abandoned plans to buy Zimbabwe's biggest chrome operation, and has sold another, Zimbabwe Alloys. It also sold Bindura Nickel, the country's biggest nickel operation, to Mwana Africa. Rio Tinto has also disinvested, by swapping in 2004 its interest in a subsidiary, now known as RioZim, for a bigger stake in the Murowa diamond mine in the country. That exit has hastened the closure of gold mines and the Eiffel Flats nickel smelter near the central town of Kwekwe. Only Impala Platinum, Aquarius Platinum and RioZim have committed any significant fresh investment, but a mere fraction of what might have been, had the situation been more stable. Since the late 1990s there has been little investment in Zimbabwe's mining industry other than in platinum mines on the geological phenomenon known as the Great Dyke, the world's second biggest platinum resource after those of South Africa.

Mining companies in Zimbabwe that produce platinum group metals (pgms), base metals and chrome, have only nominal control over their future. While all the foreign currency earned is held by the companies, they nevertheless are required to convert 40% of those export earnings at the official US dollar/Zimbabwean dollar exchange rate and hand that 40% over to the government. For gold miners the situation is considerably worse. They are compelled to deliver *all* their gold to the Zimbabwean central bank and receive the value of that metal at the official dollar/Zimbabwe dollar exchange rate. They are effectively getting 10% of the real exchange rate value: while the official rate was recently increased to 30,000 Zimbabwe dollars per US dollar, the more commonly used black market rate is currently at about 300,000 Zimbabwe dollars per US dollar. Unsurprisingly, Zimbabwe's gold output has fallen to about 25% of what it was in 1999, and might be as little as 6t this year. Less than a decade ago Zimbabwe was the third biggest gold producer in Africa, behind only South Africa and Ghana. The deposits have not dried up – only the political context has lowered Zimbabwe's output more or less to that of Ethiopia.

Straws and the camel

At the end of September Mugabe's government passed a piece of new legislation that promises an even worse outlook for the country's hard-pressed mining sector. This Act will give a 51% stake in the assets of all foreign owned companies working in the country. Ultimately it will mean control of all foreign-controlled mining operations will cede to non-white Zimbabweans. White Zimbabweans will not benefit from the law, unless they can prove they were disadvantaged by the colonial era. Opponents of the new law regard it as the death knell for the country's economy, arguing that it will drive away the last of the foreign investors. Yet the bulk of those foreign businesses that wanted to leave the country have already gone. And, given that some feel change may not be too far off, more courageous investors are already assessing the lie of the land. To add to the confusion, the resources either already or about to be handed over to the Zimbabwean government are now being touted to other foreign investors, namely Russian and Chinese operators, bringing into question the indigenisation policy. Certainly the Movement for Democratic Change, which provides the only real internal opposition to Mugabe's ruling Zimbabwe African National Union-Patriotic Front (Zanu PF), regards the new indigenisation law as having been engineered to enrich a few individuals and win the populist vote in the 2008 elections.

Impala Platinum, which has rights to the bulk of platinum resources on the Great Dyke, entered an agreement with the Zimbabwean government in 2006 to transfer to the state \$153m worth of concessions it had no immediate plans to exploit, in keeping with a "use it or lose it" clause in the Zimbabwean mining law, which is not dissimilar to legislation in other countries. It is unclear if government will want Impala to cede control of its *existing* mines under the new legislation. Impala's agreement, plus money it has spent on infrastructural developments, may mean it escapes the need to hand over 51% of its ownership to indigenous black Zimbabweans.

Like Impala, Aquarius Platinum, which operates (in a joint venture with Impala) the Mimosa mine in Zimbabwe, is confident that it is in control of the situation. In recent years these two have really been the only mining companies investing significantly in the country. In January this year Aquarius/Impala said they intended investing \$23.2m to expand Mimosa, growing its output from current 160,000 oz/year of pgms to 195,000/oz. We estimate platinum supply from Zimbabwe was 161,600 oz in 2006 (making Zimbabwe the world's fifth biggest primary supplier) and could rise to 174,200 oz this year, although much hangs on the political uncertainties. Certainly operational conditions are hard; Impala now has to import food for its employees and there are serious worries that the Zimbabwean electricity utility, Zesa Holdings, is on the brink of collapse. Impala (along with other heavy energy users) is discussing with Zesa the

possibility of getting its own power supply agreement via the hydroelectric power plant at Cahora Bassa in Mozambique.

A complete collapse of the country's economy could help push the already tight platinum market into deficit. However, Zimbabwe has for the last few years lurched from one crisis to another and still its long-suffering population struggle on. Barring complete nationalisation of the mines and Impala and its employees being evicted from their mines, pgm mining in Zimbabwe will continue. It might not be knocked sideways by power failures, fuel shortages, or simply further degeneration into semi-controlled chaos – but for now it will endure.

What Zimbabwe offers

As well as the second biggest deposits of pgms in the world Zimbabwe offers significant chrome reserves. Most major companies have exited from Zimbabwe, but Zimasco (a closely held company with foreign shareholders) and locally owned Zimbabwe Alloys still operates. The Chinese company Sinosteel has entered an agreement that may result in it buying a stake in Zimasco from Mauritian holding company Zimasco Consolidated Enterprises. Zimasco, once the world's fifth-largest ferrochrome producer, now produces about 180,000t/year.

Zimbabwe offers significant nickel deposits, which in the past because of the low grade were only viable because of the competitive operating costs in the country. But today, even with electricity blackouts, fuel and forex shortages, those deposits may still be seen as good business, because of the surge in nickel prices. RioZim and Mwana Africa are still operating mines in the country. There is also talk of large undeveloped iron ore reserves, although there are some questions about the quality of the ore. Tin has also been mined in Zimbabwe. There is an idled mine at Kamativi, which could be reopened and it is thought that there may be decent enough deposits of other base metals spread around the country which would give any junior mining company something worth investing in.

There is clearly significant gold potential and several juniors are actively pursuing opportunities. If a viable medium-scale oxidisation process, which could extract the gold from the refractory gold bearing rock, was developed, then Zimbabwe's gold production, given the right political and fiscal regime, could grow significantly. Refractory gold ore cannot be released by processes using cyanide and carbon absorption. These refractory ores require pre-treatment in order for cyanidation to be effective in recovery of the gold. As it stands, there are already decent resources of what is known as free-standing gold, which is gold that can economically be extracted from the other ores it is found alongside. Inferred gold resources in the country are put at 50m-100m ounces.

What next?

In defiant mood when addressing the UN at the end of September, 82 year old Mugabe criticised the US and UK for interfering in the internal politics of Zimbabwe, and promised that the March 2008 elections would be free and fair. Recent experience – those in 2000, 2002 and 2005 were marred by violence and electoral irregularities – suggests otherwise. Right now, the political end-game could play out in the following ways:

- A: The least likely prospect is that the 2008 elections take place and the opposition MDC wins, with the country then being led by Morgan Tsvangirai, MDC's leader. This would quickly lead to a flood on foreign investment and probably a large chunk of aid.
- B: The elections happen and Mugabe returns to power, leading to further diplomatic and political isolation and intensified economic collapse. This is much more likely but with the proviso that it would engender serious alarm among Mugabe's deputies, many of who control large business empires, which are suffering.

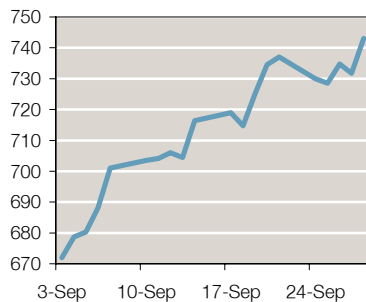
- C: It is conceivable that following an imperfect 2008 election Mugabe soon hands over to a successor approved of by South Africa's President Thabo Mbeki and other members of the Southern African Development Community (SADC). A likely candidate would be Simba Makoni who is respected and appears not to be corrupt. He served as a senior bureaucrat in SADC, was once head of the state's newspaper company and also served as finance minister briefly under Mugabe before resigning. This would be positive for mining and investment, as the west would likely choose to forget the less than perfect election. Current central bank governor Gideon Gono is an alternative to Makoni but his close association with Mugabe would make him less palatable to the West.
- D: It is also possible that after the 2008 polls Mugabe quickly hands over to a successor of his choosing, although he has fallen out with most of the likely candidates. His deputy, Joyce Mujuru, a former combatant who went by the *nomme de guerre* of Comrade Teurai Ropa or Comrade Spill Blood, is the leading contender. Her husband, Solomon Mujuru, is a former commander of Zimbabwe's liberation forces, and is seen as a king maker within Zanu PF. Joyce Mujuru has lobbying others to urge Mugabe to step down; it is widely thought she was selected as a snub to the long-time succession favourite Emmerson Mnangagwa, who had also been pushing for Mugabe to step down.
- E: If the MDC boycotts the elections and Mugabe nevertheless returns to power then it is possible that a military coup will happen, with the army installing a candidate of its own preference, most likely Joyce Mujuru or Mnangagwa. Former army commanders such as Constantine Chiwenga could also come to the fore. The army and police are becoming increasingly restless with Mugabe, as their members feel themselves underpaid and their families, like all Zimbabweans, are suffering. But a coup would be unpalatable to both SADC and the West.

Hold onto your stomach

The most preferable conclusion – a peaceful transition – is also, regrettably, currently the least plausible. Given the right circumstances, the mining sector in Zimbabwe could be back on its feet within two years, and a really important mineral producer – not just in gold and pgms – within five. The resources are there and already alliances are already being contemplated. By now it is clear that no external political pressure, certainly not from the wider international community, and perhaps not even from SADC, will have any bearing on how and when Mugabe leaves the stage. On current prospects we reluctantly conclude that scenarios B and E seem most likely – an increasingly bitter housewife trying to feed her children and married to a middle-ranking junior army officer may be the spark that sees Mugabe off. For the brave mining investor, now is perhaps the time to start planning – but only if you have the stomach for a very bumpy ride.

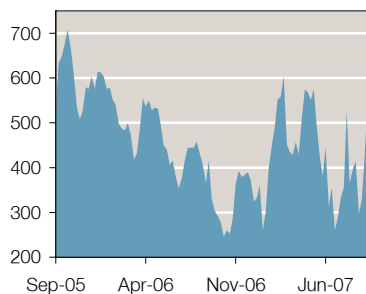
Gold

Gold price (\$/oz)



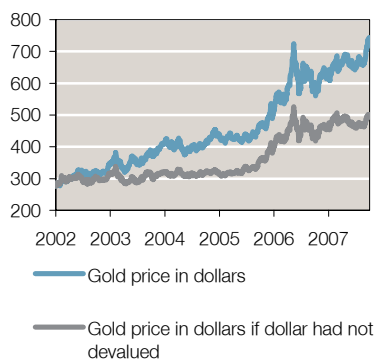
Source: London Bullion Market Association

Comex: Non-commercial net position (tonnes)



Source: VM Group

The impact of dollar devaluation on dollar gold price (\$/oz)



Source: Reuters Ecowin. The blue line is the dollar gold price. The grey line represents the dollar gold price, had the US dollar remained at its Jan 1st 2002 level on the Major Currencies dollar index.

News

- Oct 2nd: Turkey's gold imports in the first nine months of 2007 rose 24.3% year-on-year to 191.8t.
- Oct 1st: Work halted at AngloGold Ashanti's Mponeng mine in South Africa after four miners were killed in an accident. Separately, Anglo American, which holds 41.6 % in AngloGold, said it planned to sell a \$2.89bn stake in the company, in line with its previously stated strategy.
- Sept 28th: Mexican gold production rose 5.9% in July against June to 3,510 kg.
- Sept 28th: Sweden's central bank said it would sell up to 10t of gold in the next 12 months.
- Sept 20th: Russia's gold output fell 2.1% to 99.58t in the first eight months of this year from 101.69t in the same period a year ago, as a result of lower mine output, said the Russian Gold Industrialists' Union.
- Sept 11th: The Shanghai Futures Exchange will start to trade gold futures after getting the go ahead from China's securities regulator.

Analysis

- \$800/oz beckons

Bullion's fortunes truly turned in September, with the gold price climbing to its highest level since 1980, rising to \$743/oz in the London pm fix on the last trading day of the month. The US Federal Reserve's decision to cut interest rates by 50 basis points in light of the sub-prime lending fiasco has rocked the dollar, which fell to new all-time lows against the euro. Investors in gold futures and physical metal have been tempted back by a particular conjunction of circumstances – not only is the dollar looking febrile but with crude oil climbing above \$80/barrel the markets have also begun to be twitchy about the reappearance of inflation and a US recession. Gold has done exceptionally well in the past five years but much of this can be placed at the door of a slumping US currency – the chart on the left shows that around 40% of the dollar gold price's rise since 2001 is thanks to the lower dollar. At this high price some producers might be tempted to put in place fresh hedging – but none will risk the wrath of shareholders by doing so. In fact, although dehedging is slowing, we will see more in coming months. Australia's Newcrest plans to buy back the remaining 1.7 Moz of its gold hedges in the next 12 months, having bought back 2.3 Moz in September.

Outlook

The markets expect another rate cut from the Federal Reserve and will be disappointed if it doesn't materialise. Such a cut could well remove the final obstacle to gold mounting to \$800/oz by the end of the year. With the December futures contract on Comex hitting a 28-year high of \$747.10/oz late September a small correction was inevitable and it happened on 2nd October. There will probably be more fits and starts between now and the end of the year. Short-term London daily pm fix: \$720/oz-\$760/oz.

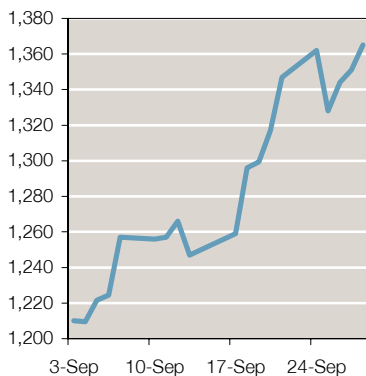
Market data (September unless stated)

Prices	US\$/oz	Euro/oz	Rand/kg	ETF investment	Tonnes holdings	Monthly change	Lease rates	1m	3m	6m	12m	Option volatility (end month, %)	
Average	713	512	162,228	US (2)	628.05	65.34	Average	0.23	0.28	0.33	0.33	1-month	12.40
High	743	523	166,669	UK (2)	106.23	7.80	High	0.36	0.33	0.45	0.44	3-month	13.65
Low	672	493	155,024	Aus	14.30	1.58	Low	0.11	0.23	0.26	0.26	6-month	14.50
				S. Africa	17.72	1.35						12-month	15.05
				Swiss	22.44	1.44						24-month	15.20
				India (2)	3.43	0.10							

Source: Prices: London Bullion Market Association, Others: VM Group. Indian ETF holdings calculated from rupee amounts and thus are approximations only.

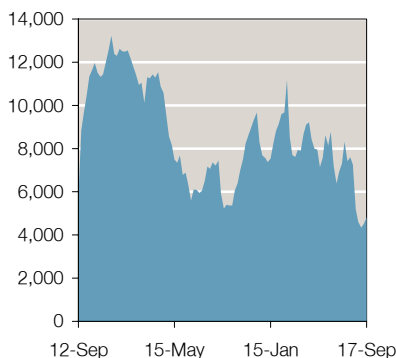
Silver

Silver price (cents/oz)



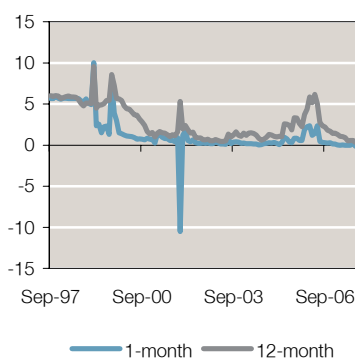
Source: London Bullion Market Association

Comex: Non-commercial net position (tonnes)



Source: Comex

Silver lease rates (%/year)



Source: Reuters Ecowin

News

- Oct 1st: Polymetal, the world's fifth-biggest silver miner, saw its silver production in 1H 2007 slip to 7.9 Moz from 8.5 Moz in the same period last year.
- Sept 28th: Mexican silver output for July dropped 10.6% against June, to 231,314 kg.
- Sept 27th: Phillips Baker Jr., CEO of Hecla Mining, said the company's cash cost of production for silver was an average of \$1.98/oz during Q2 2007.
- Sept 26th: Grupo Mexico, suffering from strikes at some of its Mexican mines, said it would close its Taxco silver and lead operation because of labour problems and dwindling reserves.
- Sept 25th: China's imports of silver in the eight months to end-August rose 63% compared with the same period last year, reaching 3.53m kg, official customs figures showed. Over the same period the country has exported 3.4m kg, up 23.6% year-on-year.
- Sept 18th: Peru's silver production rose 5% in July, compared with the same month last year to 306,835 kg.
- Sept 3rd: New reports put the Indian silver jewellery market at a value of \$3bn-\$4bn annually, with expectations of annual growth of up to 15% this year.

Analysis

- Fizzling along in gold's wake

Silver tried but failed to keep precise step with gold's rise in September, the London daily fix of \$13.65/oz for the final trading of September looking rather weak, given gold's upward drive. Executives at the Denver Gold Forum were nevertheless as bullish as ever. Dennis Wheeler, chief executive of Coeur d'Alene Mines, picked up on an expression much-used in the month and averred that silver and gold prices were heading into a "perfect storm", by which he meant something good for silver – growing demand was running headlong into dwindling supply, at a time when the dollar was weakening and inflationary worries persisted. Maybe. Trading in silver futures has been indifferent to otherwise discouraging fundamentals for some time, however. Some production is coming off line, admittedly – the move by Grupo Mexico to close its Taxco silver and lead operation, after failure to resolve a lengthy industrial dispute, will see almost 1 Moz annually removed from the market; last year Taxco produced 995,000 oz of silver.

Outlook

On the last trading day of September the most active silver futures contract for December delivery on Comex rose to \$14/oz. Given that this followed a veritable tsunami of investor interest on Comex – the net long position jumping by more than 2,000t in the week ending 25th September – this was hardly heart-stopping. By 2nd October the London daily fix had pulled back by 3.6% on the previous day, to \$13.28/oz. As ever with silver, the futures price is one thing and the underlying physical prospects entirely other. Short-term London daily fix: \$13/oz-\$14/oz.

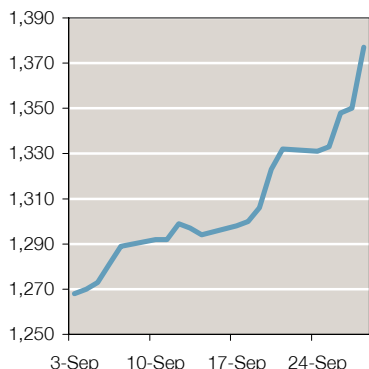
Market data (September unless stated)

Prices	c/oz	E/oz	p/oz	Imports	kg	Lease rates	1m	3m	6m	12m	Option volatility (end month, %)	
Average	1,283.4	921.8	635.5	USA (Jul)	545,543	Average	0.11	0.22	0.36	0.37	1-month	24.00
High	1,365.0	967.1	673.4	Japan (Aug)	323,710	High	0.33	0.35	0.60	0.53	3-month	24.50
Low	1,209.5	888.4	599.7	China (Aug)	585,237	Low	-0.17	0.02	0.12	0.21	6-month	24.75
											12-month	25.00

Source: Prices: London Bullion Market Association, Others: VM Group.

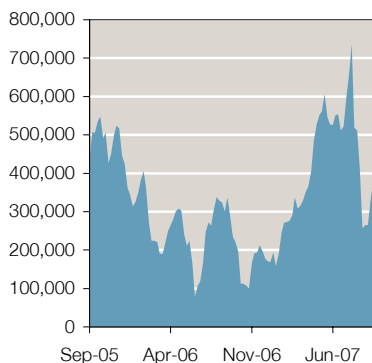
Platinum

Platinum price (\$/oz)



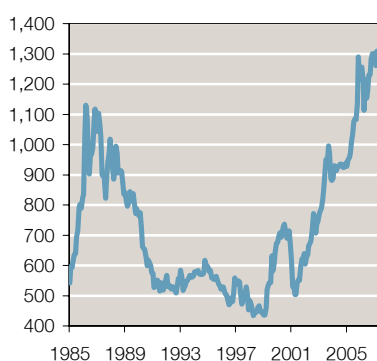
Source: London Platinum & Palladium Market

Nymex: Non-commercial net position (ounces)



Source: Nymex

Real price of platinum since 1985, Sep 2007(\$)



Source: Virtual Metals from Reuters Ecowin

News

- Sept 25th: China’s imports so far this year (to end-August) have risen by 51.3% (compared to the same period of 2006) to more than 774,400 oz.
- Sept 17th: Wesizwe Platinum raised R300m (\$41.71m) to fund development of its Frischgewaagd-Ledig project. Earlier in the month Wesizwe said its attributable resource had grown by 19.31% to 8.954 Moz of pgms in the six months to June.
- Sept 12th: South Africa’s Eland Platinum recommended shareholders accept Xstrata’s \$1bn takeover offer.
- Sept 7th: Platinum Group Metals, which has resources in South Africa, said its mineral resource estimate for its Western Bushveld joint venture had increased by 18% to 7.3 Moz 4E (platinum, palladium, rhodium and gold).

Analysis

Scaling fresh heights

Platinum rose to a ten month high of \$1,377/oz by the end September and, with every expectation that we are shifting into deficit again, the price looks ready to move towards the all-time high seen last November. This is not necessarily good news however – these firm prices are likely to dent jewellery offtake and are inducing autocatalyst producers and users to substitute other cheaper metals like never before. In September the Japanese car company Daihatsu Motor said it has developed a technology to make fuel cells without platinum. Although the fuel cell market has failed to live up to early hopes, and as yet is not a massive demand source for platinum, it will be a major disappointment to platinum producers (and speculators) to see this long-term prospect fade away. Daihatsu said less costly metals such as nickel and cobalt could be used instead of platinum. More immediately worrying for platinum is Mazda Motor’s announcement that it has developed the world’s first catalyst for cars that uses what it calls “single-nanotechnology”, the bottom line of which means almost entirely eliminating platinum (and also palladium) from catalysts. These developments are still a long way from reaching the mass market, but they are straws in the wind; a storm is eventually headed for platinum.

The long awaited Anglo Platinum empowerment deal was announced at the start of September. The company entered a R35bn (\$5.12bn) empowerment deal which will see it selling stakes in mines to Anooraq Resources and Mvelaphanda Resources as well as giving its own employees a stake in the company. Through the deal Mvelaphanda will take control of Northam Platinum.

Outlook

Leaving Mazda aside, the immediate prospects for platinum are more encouraging than for some time. 2007 will see an overall deficit of some 200,000 oz and while these high prices will dent jewellery demand, for the time being platinum-enriched diesel-engine autocatalysts are essential items. London daily pm fix short-term: >\$1,400/oz.

Market data (September unless stated)

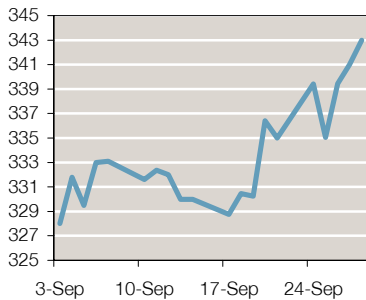
Prices	US\$/oz	Lease rates	1m				3m				Trade (kg)	Imports	Exports	ETF offtake (oz)		Option volatility (end month, %)
			1m	3m	6m	12m	Holdings	Change								
Average	1,308	Average	1.5	2.2	2.3	2.5	USA (Jul)	7,942	6,027	UK*	26,036	1,630	1-month	15.5		
High	1,377	High	2.0	2.9	3.5	3.8	Japan (Aug)	6,701	1,427	Swiss	33,707	1,082	3-month	17.5		
Low	1,268	Low	1.1	1.9	2.0	2.2	Hong Kong (Jul)	1,119	407				6-month	20.5		
							Switzerland (Aug)	3,237	8,037				12-month	23.5		
							China (Aug)	5,293	0							

Source Price: London Platinum and Palladium Market, Others: VM Group.

* Includes 'basket' ETF

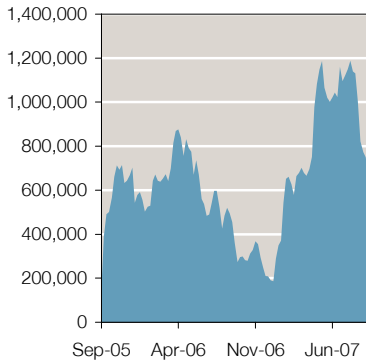
Palladium

Palladium price (\$/oz)



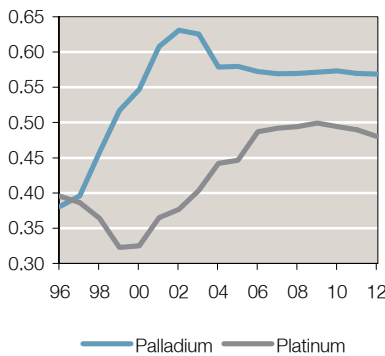
Source: London Platinum & Palladium Market

Nymex: Non-commercial net position (ounces)



Source: Nymex

% share of demand of autocatalysts, 1996 - 2012 (estimated after 2006)



Source: Virtual Metals, "The White Book"

News

- Sept 25th: In the eight months to the end of August China imported more than 337,000 oz of palladium, an increase of 88% year on year, according to official customs figures.
- Sept 24th: Stillwater, the North American based palladium producer, said it is no longer pursuing possible palladium projects in South Africa.
- Sept 18th: Norilsk, the world's largest palladium miner, said global inventories of the metal could total 300t-500t. This compares with annual demand (estimated by Norilsk) of 250t-300t.

Analysis

- Palladium creeps higher

Stillwater's CEO, Frank McAllister, champion of palladium promotion, was in high spirits in September, forecasting that the palladium price could trade in a \$400/oz-\$500/oz range before April next year. Maybe he has seen continued remarkable growth in Chinese demand for palladium jewellery, the marketing of which Stillwater has been spearheading. If so, he has yet to tell the world the good news. If his senior partner, Norilsk, is accurate, then the world is currently sitting on about two years' stocks – and climbing fast, given the amount of platinum mining going on and the inevitable delivery of palladium as a by-product.

Still, September at least saw the metal reverse its recent sharp decline, closing at \$343.75/oz at the London pm fix on the last trading day of the month, much improved from the nine month low of \$313/oz seen in late August. Investment demand for palladium futures picked up marginally in mid-September, but even Norilsk now acknowledges this investor demand is discouraged by the spectre of physical oversupply. Palladium may make some further inroads into the Asian jewellery market as buyers spurn platinum in favour of less expensive palladium. The prospect of renewed palladium buying in the next few months to make memorabilia for next year's Olympic Games may also give the metal a boost in the short term – demand for palladium to make jewellery in China is expected to rise marginally this year to about 24t from 23.6t last year.

Outlook

Palladium prices may inch higher in the short term and the move back above \$340/oz may encourage investors to take out some fresh long positions; but the supply-demand fundamentals are not propitious. As long as the US economy can fight off recession, demand for palladium in autocatalysts may not collapse, which is not much on which to base hopes for substantially higher prices than \$350/oz. The four-year high of \$406/oz recorded in May 2006 is beginning to feel like ancient history, and for good reason. The price had risen 5% in the first four days of October, which may indicate some bullish fundamental news on the horizon. London pm fix short-term: \$350/oz-\$380/oz.

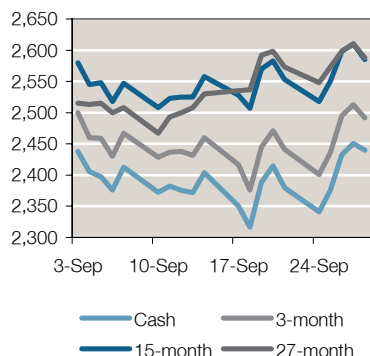
Market data (September unless stated)

Prices	US\$/oz	Lease rates	Trade (kg)				Imports	Exports	ETF offtake (oz)		Option volatility (end month, %)			
			1m	3m	6m	12m			Holdings	Change				
Average	333.5	Average	0.48	0.40	0.40	0.04	USA (Jul)	10,558	7,079	UK	29,899	-	1-month	18.0
High	343.0	High	0.72	0.57	0.59	0.25	Japan (Aug)	246	1,510	Swiss	224,708	7,092	3-month	20.5
Low	328.0	Low	0.05	0.11	0.15	-0.22	Hong Kong (Jul)	2,398	580				6-month	23.0
							Switzerland (Aug)	1,556	3,264				12-month	27.0
							China (Jul)	1,461	0				24-month	29.5

Source: London Platinum and Palladium Market, Others: VM Group.

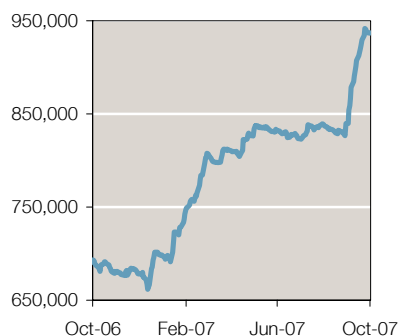
Aluminium

Aluminium price (\$/tonne)



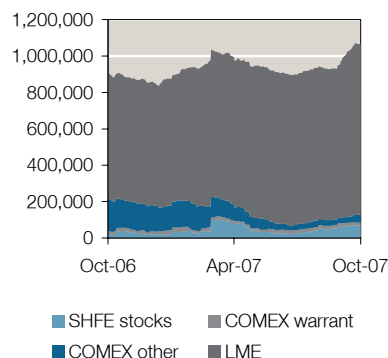
Source: London Metal Exchange

Aluminium stocks (tonnes)



Source: London Metal Exchange

Global exchange stocks (tonnes)



Source: Reuters Ecowin

News

- Sept 29th: BHP Billiton’s new CEO, Marius Kloppers, said Alcoa may have too many downstream businesses for BHP to be interested in making a bid.
- Sept 28th: Norsk Hydro plans to help modernise Tajikistan’s aluminium industry; in return the country will give Norsk Hydro a secure supply of alumina. Norsk plans to invest up to \$90m modernising plants. Earlier in the month Norsk said it will nearly double capital outlays to about \$2bn in 2008 and 2009.
- Sept 28th: Rio Tinto’s shareholders approved its \$38.1bn offer for Canadian aluminium group Alcan.
- Sept 27th: Three bidders for an 88% stake in Bosnia’s sole aluminium smelter, Aluminij Mostar, conditioned their bids on securing a supply of cheap power. The companies are Swiss commodities trader Glencore International in a consortium with a Croatian and local firm, En+ Group, and Greek metals, energy and engineering group Mytilineos.

Analysis

- More weakness ahead

Aluminium prices lost ground in September, with the 3-month LME price closing at \$2,520/t on the last trading day of the month compared to \$2,544/t on 31st of August. LME stock levels continued to rise, up from 826,775t at the end of August to 938,625t on 28th September, although they did slip again in early October. Globally, aluminium output continues to rise. The International Aluminium Institute (IAI) reported that average daily output (including China) was 104,200t in August, against a revised 102,600t in July. Total production including China was 3.231 Mt in August, up from a revised 3.18 Mt in July. As China increasingly moves towards self-sufficiency in the production of the metal there is a nagging concern for Western-world primary metal producers that Chinese mills will once again increase their exports, despite the burden of a 15% export tax on primary metal. China already produces about a third of the world’s primary aluminium and its output is rising fast, up 34% to 6.7 Mt to the end of July this year, compared with the same period of 2006.

Outlook

There is little to encourage the speculative investor in search of higher aluminium prices right now. There may be some upside in the wake of an anticipated crackdown by the Indonesian authorities against illegal bauxite mining, which may impact on bauxite deliveries to China, but otherwise the relentless growth in Chinese smelting capacity (and that of other developing economies) implies to us a growing surplus into 2008. Untoward events might eat into that surplus, but we feel aluminium’s peak price of more than \$3,000/t in May 2006 will not be seen again for a long time. LME 3-month short-term: \$2,300/t-\$2,500/t.

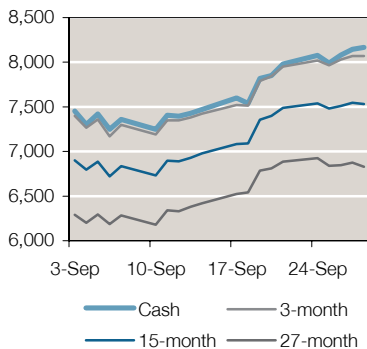
Market data (September unless stated)

Prices (\$/t)	Cash	3-month	15-month	27-month	LME stocks	Tonnes	Prod (kt)	July	August	LME Open Interest (contracts)	
Average	2,390	2,450	2,549	2,540	Aug-07	839,625	Europe	746	752	Aluminium	631,374
High	2,450	2,513	2,610	2,610	Sep-07	937,400	Americas	699	701		
Low	2,316	2,376	2,507	2,467			Asia	315	316		
							China	1,073	1,111		
							Other	337	351		
							Total	3,170	3,231		

Source: London Metal Exchange, except Production: International Aluminium Association.

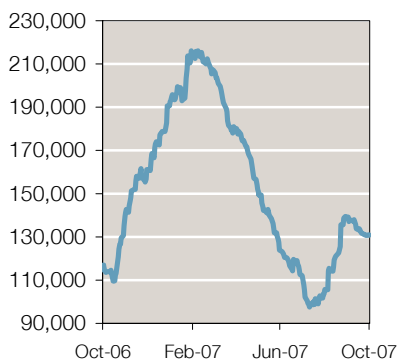
Copper

Copper price (\$/tonne)



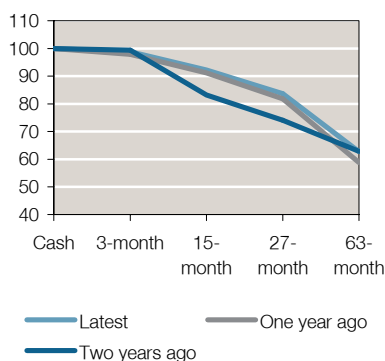
Source: London Metal Exchange

Copper stocks (tonnes)



Source: London Metal Exchange

LME copper yield curve (cash price = 100)



Source: Reuters Ecowin

News

- Oct 2nd: Workers at Southern Copper in Peru began an indefinite strike in support of claims for higher wages. Output for the whole of 2007 could be cut by 10% or 30,000t.
- Sept 28th: Mexican copper output rose 33.1% to 26,083t in July, against the same month a year earlier.
- Sept 18th: China is to lend the Democratic Republic of Congo \$5bn, with some of the repayment to include mining concessions.
- Sept 18th: Peru's copper output rose 14.1% to 99,968t in July from the same month a year ago.
- Sept 13th: China's production of refined copper in August jumped 26.4% from the same month in 2006, to 311,600t, the National Bureau of Statistics said.

Analysis

- Strikes boost investor interest

Copper commanded attention yet again in September, with the 3-month LME contract closing at a ten-month high of \$8,070/t on the final trading day of September. Copper gained renewed momentum in the middle of the month on hopes that the cut in the US interest rates would avert threats of a US recession, although it is far too early to say the American economy is out of the woods – latest housing data from the US still spells trouble ahead in the form of a probable slowdown in consumer spending. The International Copper Study Group (ICSG) said the global copper market was 131,000t in deficit from January to June this year, compared with a surplus of 208,000t for the same period last year. By 2nd October it was forecasting an overall refined copper surplus of 110,000t for 2007, rising to 250,000t in 2008. New mine output this year may add 560,000t to the market and output from brown field expansions 640,000t. There are a lot of new copper projects in the wings – the Philippine mining company, Philex Mining, may spend up to \$1bn with partner Anglo American to develop the Boyongan gold-copper mine. Hong Kong's EPI is considering building a 200,000t/year copper refining plant in Qingyuan, while Sumitomo Metal Mining said it would increase refined copper output by 17.7%, lifting annual capacity to 450,000t from 410,000t by the end of Q1 2008. Against these imminent expansions must be set the possibility that the US economy will experience a remarkable spending boost in 2008, an election year, during which consumer confidence is traditionally higher, and China is still growing rapidly. Its central bank expects economic growth this year to be 11.6%, the fastest rate since 1994, with fixed-asset investment to grow by perhaps 26%.

Outlook

That copper can again climb to \$8,000/t during a period of US economic uncertainty is testimony to strong speculative interest and also to how the copper world has to some extent shifted away from the concerns of mature markets. China's remarkable economic growth is helping strong physical demand, even at these prices, and sporadic strikes in Latin America are playing their part in keeping prices firm. LME 3-month short-term: \$7,500/t-\$8,200/t.

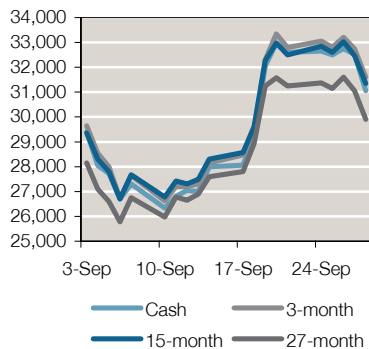
Market data (September unless stated)

Prices (\$/t)	Cash	3-month	15-month	27-month	LME stocks	Tonnes	LME Open Interest (contracts)
Average	7,649	7,594	7,129	6,538	Aug-07	139,100	Copper 245,861
High	8,165	8,070	7,545	6,925	Sep-07	130,675	
Low	7,248	7,165	6,720	6,180			

Source: London Metal Exchange

Nickel

Nickel price (\$/tonne)



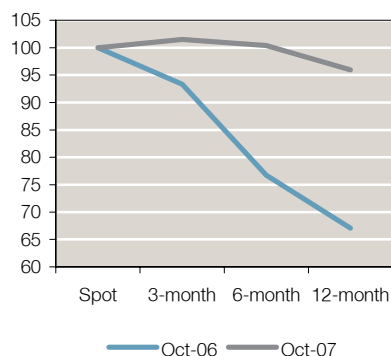
Source: London Metal Exchange

Nickel stocks (tonnes)



Source: London Metal Exchange

Nickel yield curve, LME (cash price = 100)



Source: Reuters Ecowin

News

- Oct 1st: South Korea's Posco, the world's fourth-largest steel maker, will raise prices for its stainless steel products by 300,000 won (\$322.40) per tonne, the first rise since April, as from 15th October. It pinned the price rise to a strong recovery in nickel prices. The move reversed a price cut of 500,000 won (\$533.6) per tonne at the start of September.
- September 7th: MacroAsia Corporation, a Philippine holding company, signed a memorandum of understanding with London-listed Toledo Mining to develop a feasibility study on a joint development and operation of adjoining nickel projects at Brooke's Point, in Palawan province.
- September 5th: Berong Nickel signed a 5-year deal to supply laterite ore to Australia's Queensland Nickel, a unit of BHP Billiton. The parent company, Atlas Consolidated Mining and Development Corporation, of Philippines-based Berong, said the contract involves the shipment of up to 500,000t/year of nickel ore with grades greater than 1.5% per tonne.

Analysis

- Volatility hits nickel

September was an uncertain month for nickel – the price held up very well for much of the month until it collapsed during the mid-afternoon of 28th September, shedding more than \$1,000, finally settling at \$31,600/t. Nevertheless this was an unexpectedly strong finish and compared with \$29,800/t at the end of August. LME stocks continued to rise, up from 24,126t on 31st August to 32,934t on 28th September. Production cutbacks by stainless steel producers and rising inventories, as a result of excessive material being shipped to warehouses, have played their part in skimming much of the speculative froth from nickel prices. Stainless steel buyers have, off-stage, made noises about re-stocking nickel in Q4, but they might start to think better of that, given that even these fairly innocuous remarks have clearly been enough to keep investors keen on the metal. However, at some point stainless mills will have to start buying again and this may either push prices higher or see another rapid decline in LME stocks. Nickel prices in the longer term may suffer as some of the mooted projects approach production. Japan's Sumitomo Metal Mining said its 54%-owned 10,000t/year Coral Bay nickel plant in the Philippines will reach full production in September 2009, while Australia's Allegiance Mining, which is backed by China's largest nickel group, Jinchuan, said it raised A\$30.24m (\$26.5m) to help fund development of a mine. Allegiance is scheduled to start producing nickel concentrate for export to China early in 2008.

Outlook

Nickel has done well to hold its head above \$30,000/t – a sure sign of continued investor support, given that numerous stainless steel producers have held off buying and/or switched to lower grade stainless. We still have our doubts about some of the bigger nickel projects coming to early fruition, and see a stronger-for-longer nickel price into 2008, although with fairly wild gyrations. LME 3-month short-term: \$29,000/t-\$33,000/t.

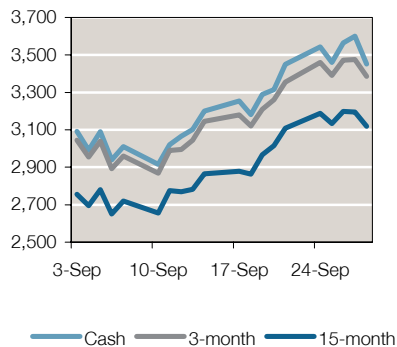
Market data (September unless stated)

Prices (\$/t)	Cash	3-month	15-month	27-month	LME stocks	Tonnes	LME Open Interest (contracts)
Average	29,538	29,812	29,768	28,707	Aug-07	24,126	Nickel 54,069
High	32,975	33,300	33,025	31,600	Sep-07	32,934	
Low	26,330	26,600	26,700	25,775			

Source: London Metal Exchange

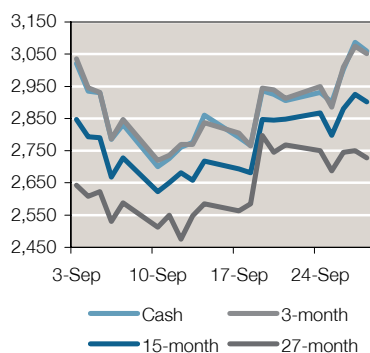
Lead and zinc

Lead price (\$/tonne)



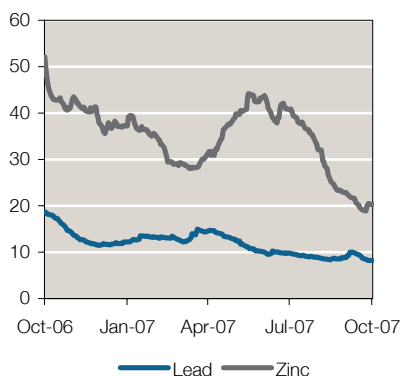
Source: London Metal Exchange

Zinc price (\$/tonne)



Source: London Metal Exchange

Stocks on LME (Jan. 1st 2004 = 100)



Source: VM Group from LME

News

- Sept 28th: Mexican zinc output fell 25% in July while lead production was down 26%, compared with output in the same month of 2006.
- Sept 28th: Japan's exports of refined zinc rose 24% in August from the same month in 2006, to 7,239t.
- Sept 18th: Peru's zinc output rose 33.3% in July compared to the same month last year, to 136,257t, according to government statistics.
- Sept 12th: Kazakhstan's zinc production fell 1.4% in the first eight months of 2007, to 239,673t, compared with the same period last year.
- Sept 6th: Australia's Kagara Zinc plans to double its output of copper and zinc in the next three years, taking its refined zinc output to 100,000t/year.

Analysis

- Lead – ever upwards: zinc – clinging on

Don't mess with lead – that seems to be the market's view right now as the toxic metal ascended fresh heights in September and into early October. Having closed September very strongly, at \$3,386/t (LME 3-month contract), just \$14/t shy of our forecast in last month's edition, it charged on in early October, ending 2nd October at \$3,515/t. LME stocks of lead fell 2,650t during September and at the end of that month were just 22,550t – under one day's global consumption. The supply-side alarms persist – shipments from the Magellan mine in Australia remain suspended and now there is fresh investigation into contamination at the Esperance port, also in Australia, meaning around 3% of global output has been lost more or less since the start of 2007. There may be talk of a "perfect storm" brewing for gold but so far this year lead has lived through a positive hurricane. Fresh fuel was cast onto the flames by Xstrata reporting that it will lose 15,000t-20,000t of lead production after a fire at its Mount Isa zinc and lead plant in Australia. The smelter's operating capacity will be limited until repairs are completed, which could take more than a month.

As for zinc, all eyes are still fixed on China. Its refined zinc imports in August grew by 81.3% to 5,897t while exports fell 39.3% to 22,019t, both against the previous month. August imports of zinc concentrate imports climbed 56.6% to a monthly record of 208,293t. In the year up to the end of August its imports of zinc concentrate leapt by 161.5% to more than 1.262 Mt. The bigger picture, we feel, is that China is growing to a point where it will eventually be self-sufficient in refined zinc consumption – and then watch out for a real price plummet.

Outlook

The surprising star of 2007 has undoubtedly been lead, and all the news has been that of supply falling behind demand. With China's own lead needs growing so fast, even if the rest of the world stands still the price will rise still higher, conceivably to \$4,000/t, boosted by speculative interest. Zinc is a much more discouraging story for investors. LME 3-month short-term, zinc: \$2,750/t-\$3,000/t; lead: \$3,400/t-\$3,800/t.

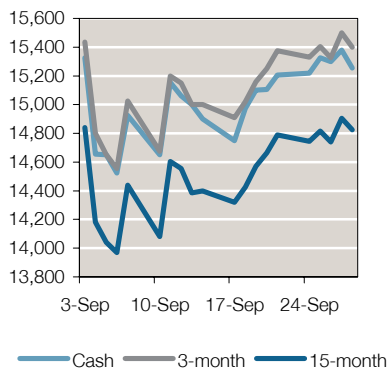
Market data (September unless stated)

Prices (\$/t)	Cash	Cash	3-month	3-month	LME stocks	LME Open Interest (contracts)		
	Lead	Zinc	Lead	Zinc		Lead	Zinc	
Average	3,227	2,881	3,162	2,886	Aug-07	25,200	65,375	
High	3,600	3,086	3,476	3,075	Sep-07	22,550	60,850	
Low	2,915	2,700	2,868	2,720				
							Lead	66,014
							Zinc	155,096

Source: London Metal Exchange

Tin

Tin price (\$/tonne)



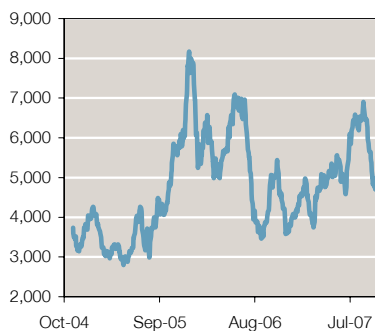
Source: London Metal Exchange

Tin stocks (tonnes)



Source: London Metal Exchange

Tin, LME, contracts volume traded (Daily, 1-month moving average)



Source: LME

News

- Sept 21st: The governor of Indonesia's Bangka Belitung, the country's key tin-producing islands, issued a decree imposing sales quotas that could decrease tin exports.
- Sept 24th: China's tin exports during the eight months to the end of August 2007 rose 45.4% to 19,134t, according to official customs statistics, while over the same period its imports tumbled 60.1% to 6,551t.
- Sept 18th: Tin output in Peru fell 1.2% in July compared to the same month a year earlier, to 3,427t.
- Sept 12th: The Bolivian government accused Glencore, the Swiss commodities trading company, of blocking tin sales from its former Vento smelter. The smelter was renationalised earlier this year.

Analysis

- Talk of export quotas lend support to tin

Tin prices on the LME held over \$15,000/t in September; there's little reason to suspect they will drift much lower, given the clear determination of Indonesia to suspend exports below that price and healthy demand for the metal. However, Indonesian tin miners are taking the market into their own hands, setting their own export targets in an effort to maintain prices around their desired level of \$15,000/t. In September a plan was hatched to include all the country's major tin producers: Pankalpinang, Bangka Island-based Timah and PT Timah. PT Timah, Indonesia's biggest tin producer, is expected to suggest that it limits its exports to 90,000t of tin in 2008, against exports this year expected to be about 80,000t. However, the Indonesian tin company cartel has not yet been authorised by central government, which has complained that the provincial government has no authority to set trade rules. The trade minister is expected to report on this to the Internal Affairs Ministry. As yet it is unclear if the regional government's plan to control tin exports will be accepted.

Government too, may have to intervene at a tin mine in the Democratic Republic of Congo. A senior manager at the DRC's largest tin mine, Bisiye, said the company had asked government to ask an army brigade, which is preventing them from mining, to move on.

US producers of tin products, such as tin plate, used in the food packaging industry are looking to raise tin plate prices at the start of next year. This move is an indication that they expect tin prices to stay high. The price of the metal has jumped 73% in the past 12 months.

Outlook

Until buyers know if Indonesian tin miners are going to get away with what amounts to an informal cartel, worries about supply will support prices. For now, even with rising stocks in LME warehouses, tin prices should hold. LME 3-month short term: \$15,000/t to \$16,000/t.

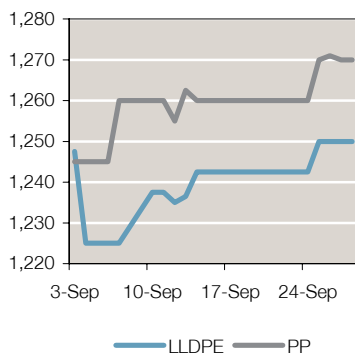
Market data (September unless stated)

Prices (\$/t)	Cash	3-month	15-month	LME stocks	Tonnes	LME Open Interest (contracts)
Average	15,023	15,108	14,515	Aug-07	14,950	Tin 15,138
High	15,380	15,500	14,905	Sep-07	14,155	
Low	14,525	14,555	13,970			

Source: London Metal Exchange

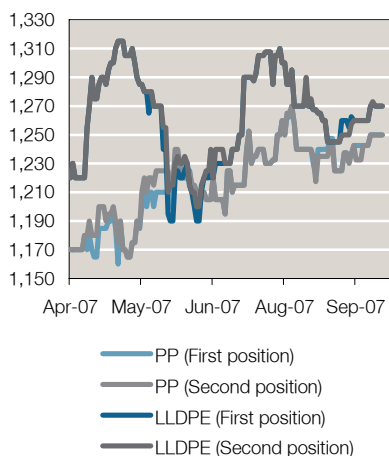
Plastics

Plastics prices, nearest contract, LME (\$/tonne)



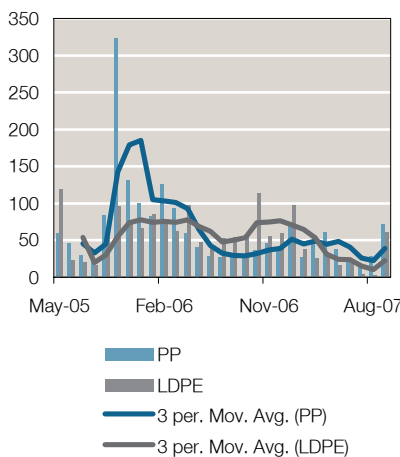
Source Virtual Metals from LME

Plastics prices, various contracts, LME (\$/tonne)



Source: Virtual Metals from LME

Plastics volume traded, nearest contract, LME (\$/tonne)



Source: LME

News

- Sept 27th: Plantic Technologies and DuPont Packaging and Industrial Polymers, plan to set up a partnership to develop new resins and sheet materials made from high-amylose corn starch.
- Sept 25th: Saflex opened a new manufacturing site in Suzhou, China. The world's largest producer of PVB (polyvinyl butyric) glass interlayers' new plant will produce 10m square metres of interlayer annually for the Chinese automotive industry and other Asia-Pacific markets.
- Sept 21st: DuPont's Packaging and Industrial Polymers and China's Sinopec formed a joint venture to produce ethylene vinyl acetate (EVA) resins in Beijing.
- Sept 19th: Lanxess, a German-based manufacturer of chemicals and intermediates, engineering plastics and performance rubber, combined its plastics and rubber divisions into a new unit called Performance Polymers. Lanxess has an ambitious investment programme led by the likelihood of a €400m (\$564m) butyl rubber plant in Asia, as well as an expansion of its Wuxi polyamide compounding plant in China.

Analysis

- Bio plastics not a threat – yet

As the plastics industry faces increasing demands for products made from renewable resources, Total Petrochemicals said in September it had entered a joint venture called Futero, to develop a polylactic acid (PLA) plant. This is a biodegradable polymer made from lactic acid, made from 100% renewable resources such as corn, sugar beets, wheat and other starch-rich products. Polylactic acid might represent the 'green' breakthrough that so many environmentalists have been hoping for – it also could represent a long term threat to conventional plastics, as it has many properties that are equivalent to or better than many petroleum-based plastics. The Futero project is at a very early stage and will involve work on the development of a pilot plant for the production of PLA. Total will work with the Belgian biotechnology company, Galactic. The pilot plant in Belgium is to produce 1,500t/year of PLA using "a clean, innovative and competitive technology", according to Total. The company argues that chemical companies will increasingly have to look at alternatives to hydrocarbon based polymers in the making of plastic products, as customers demand it, and also as they attempt to reduce their so-called "carbon footprint". Although any threat to the oil-based plastics market is some way off, in time, polymers made from renewable resources will make up an increasing amount of the resin used in the manufacturing of various plastic products.

Outlook

Crude oil prices at record levels pushed up all but the two Asian contracts in September. As crude stays strong we could see some more upside. LME Global contracts short-term: PP \$1,330/t, LL \$1,300/t.

Market data (September unless stated)

Contract	Average prices		Volumes		Open Interest (contracts) (End August)		
	LLDPE	PP	LLDPE	PP	LLDPE	PP	
First position	1,239.58	1,258.93	Daily av.	71.9	60.65	3	114

Source: London Metal Exchange

Indices

Precious and base metal prices

(1999 Avg.=base 100) 28 th September 2007	Current	Change from					
		1 M	1 Yr	5 Yr			
Gold (spot)	266	11% ↑	241	24% ↑	215	133% ↑	114
Silver (spot)	261	14% ↑	229	18% ↑	221	200% ↑	87
Platinum (spot)	364	9% ↑	335	21% ↑	301	145% ↑	148
Palladium (spot)	95	4% ↑	91	9% ↑	87	4% ↑	91
Aluminium (cash)	179	-2% ↓	183	-5% ↓	189	87% ↑	96
Aluminium (3m)	180	-2% ↓	184	-4% ↓	186	89% ↑	95
Aluminium (15m)	180	-1% ↓	183	9% ↑	166	88% ↑	96
Aluminium (27m)	177	1% ↑	176	18% ↑	150	85% ↑	96
Copper (cash)	519	8% ↑	482	7% ↑	483	452% ↑	94
Copper (3m)	502	7% ↑	468	6% ↑	472	438% ↑	93
Copper (15m)	448	7% ↑	419	9% ↑	411	382% ↑	93
Copper (27m)	398	7% ↑	373	13% ↑	351	325% ↑	94
Nickel (cash)	516	3% ↑	503	-1% ↓	524	367% ↑	110
Nickel (3m)	520	5% ↑	496	10% ↑	474	376% ↑	109
Nickel (15m)	529	4% ↑	508	38% ↑	384	381% ↑	110
Nickel (27m)	514	3% ↑	499	52% ↑	338	368% ↑	110
Zinc (cash)	284	0%	285	-9% ↓	312	305% ↑	70
Zinc (3m)	279	-1% ↓	282	-9% ↓	306	293% ↑	71
Zinc (15m)	266	0%	264	-1% ↓	267	250% ↑	76
Zinc (27m)	249	1% ↑	246	13% ↑	221	216% ↑	79
Lead (cash)	687	5% ↑	654	142% ↑	284	719% ↑	84
Lead (3m)	665	6% ↑	629	142% ↑	275	687% ↑	84
Lead (15m)	591	7% ↑	551	146% ↑	240	570% ↑	88
Tin (cash)	282	-1% ↓	287	68% ↑	168	285% ↑	73
Tin (3m)	284	-2% ↓	289	71% ↑	166	286% ↑	74
Tin (15m)	274	-2% ↓	280	64% ↑	167	260% ↑	76

LME base metals stocks

(1999 Avg.=base 100) 28 th September 2007	Current	Change from					
		1 M	1 Yr	5 Yr			
Aluminium	120	12% ↑	107	36% ↑	88	-27% ↓	165
Copper	17	-6% ↓	18	12% ↑	15	-85% ↓	115
Lead	17	-11% ↓	19	-62% ↓	44	-88% ↓	136
Nickel	61	35% ↑	45	543% ↑	9	57% ↑	39
Tin	151	-5% ↓	159	18% ↑	128	-51% ↓	310
Zinc	21	-7% ↓	22	-56% ↓	47	-90% ↓	216

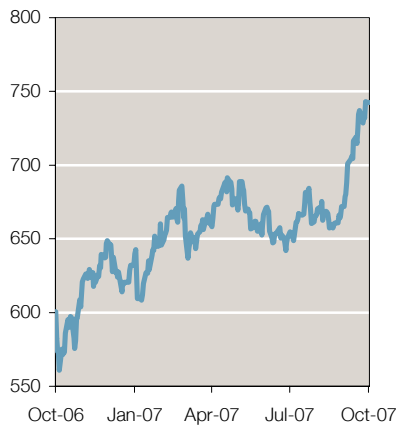
USD exchange rates

(1999 Avg.=base 100) 28 th September 2007	Current	Change from					
		1 M	1 Yr	5 Yr			
European euro	75	-5% ↓	79	-11% ↓	85	-31% ↓	109
Canadian dollar	67	-6% ↓	71	-11% ↓	75	-37% ↓	106
Great British pound	79	-1% ↓	81	-9% ↓	87	-24% ↓	104
Japanese yen	100	-1% ↓	101	-3% ↓	103	-6% ↓	106
South African rand	115	-4% ↓	119	-12% ↓	130	-34% ↓	173
Australian dollar	73	-8% ↓	79	-16% ↓	87	-38% ↓	118

Source: Virtual Metals & London Metal Exchange

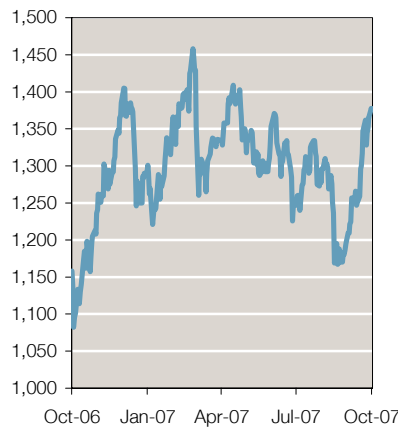
Prices

Gold (\$/oz)



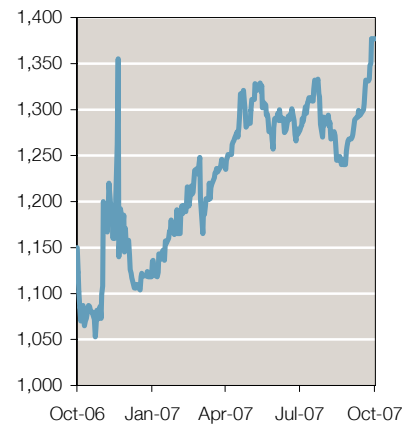
Source: London Bullion Market Association

Silver (cents/oz)



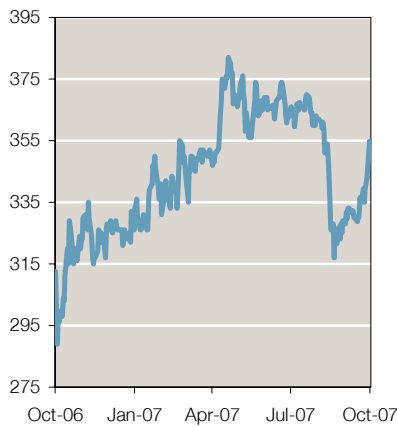
Source: London Bullion Market Association

Platinum (\$/oz)



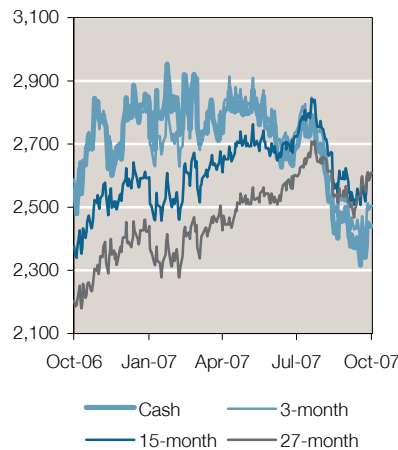
Source: London Platinum & Palladium Market

Palladium (\$/oz)



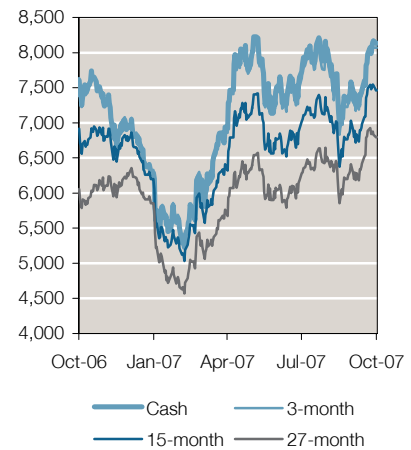
Source: London Platinum & Palladium Market

Aluminium (\$/tonne)



Source: London Metal Exchange

Copper (\$/tonne)



Source: London Metal Exchange

Nickel (\$/tonne)



Source: London Metal Exchange

Lead & zinc (\$/tonne)



Source: London Metal Exchange

Tin (\$/tonne)



Source: London Metal Exchange

Quantitative research

Quantitative Modelling

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Email: peter.cauwels@fortis.com

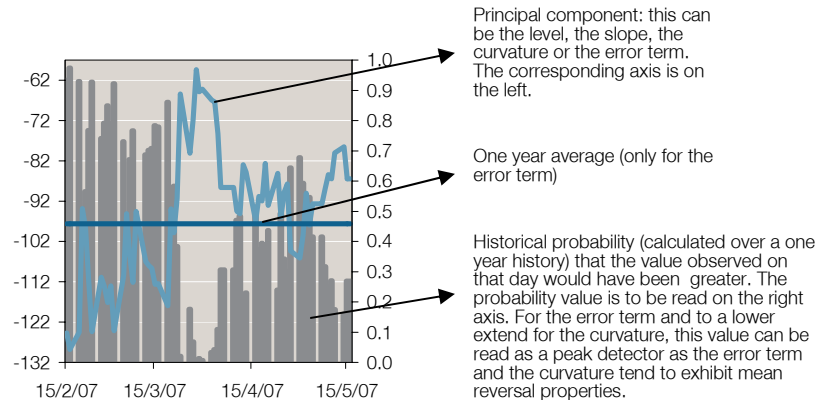
PCA background

PCA stands for Principal Component Analysis. It is a standard technique used for the study of forward curve dynamics. At any point in time, a future curve can be represented by three values known as the level, the slope and the curvature. Each of these values has a physical meaning. A variation of the level represents a parallel shift of the curve, while a variation of the slope represents a rotation. An increasing slope indicates a clock-wise rotation and therefore reveals a backwardation of the curve. By contrast, a decreasing slope indicates a curve that shows a contango. We can therefore expect the slope to respond to market events associated with supply, demand, and stocks. Furthermore, the curvature gives an insight into prices during the particular month. A rising curvature indicates that during the first and the last third of the contract month the price increases, while the second third decreases. This provokes a distortion, or a sharper bend of the curve.

Provided charts

For each metal there are five graphs. The first, at the top of the page, displays the forward curve for a number of dates. These are selected in order to demonstrate specific evolutions of the curve during the last month, and also to illustrate some particular features of the curve. The vertical axis displays the price of each contract (in USD) as provided by Bloomberg. The horizontal axis gives the future's settlement date. The used contracts are known as generic and are constructed by using successive contracts which always expire "in N months", as appropriate.

Demonstration of PCA graph



Source: Fortis Modelling

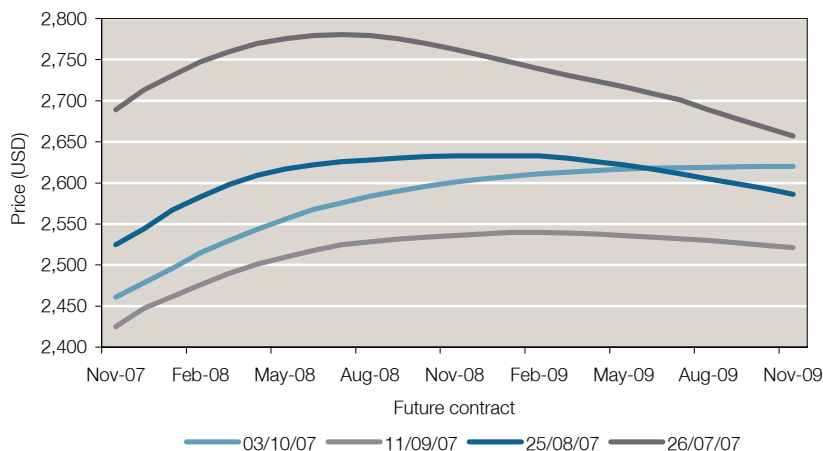
Aluminium Future curve analysis

Fundamental outlook

Relentless growth in smelting capacity implies a growing surplus into 2008. The peak price of more than \$3,000/t in May 2006 is now not expected to be seen for a long time.

LME 3-month short-term: \$2,300/t-\$2,500/t.

Future contract

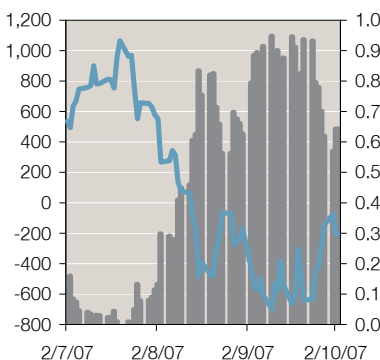


Source: Fortis Modelling, Bloomberg

Principal component analysis

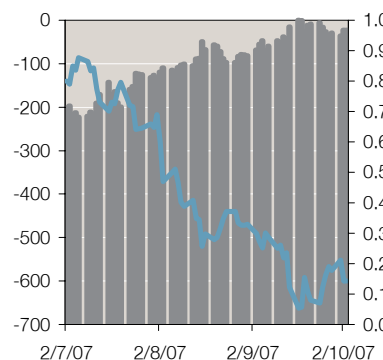
Aluminium is going deeper into contango. The future curve continues its counter-clockwise rotation. This is quantified in the slope principal component, which is showing a vast decrease. Slope and convenience yield are interrelated. The historically low slope, and hence the convenience yield, in the future curve reveals markets participants' expectation of long term supply shortage or a decrease in spot demand. Deep contango may result in an arbitrage opportunity by buying spot, selling a future contract and storing the physical asset. Arbitrage will put a limit to the slope decrease. A long position on the slope should be opened by buying short and selling long maturities.

Level (t)



Source: Fortis Modelling

Slope (t)

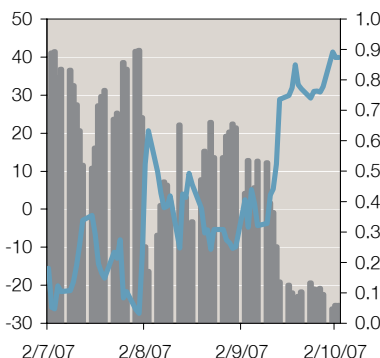


Source: Fortis Modelling

Curvature continues rising. The extremely strong bending (negative curvature) as can be seen in the July curve is dissolving. This is caused by a decreasing demand in 2008 contracts driven by an expected growing surplus for that period.

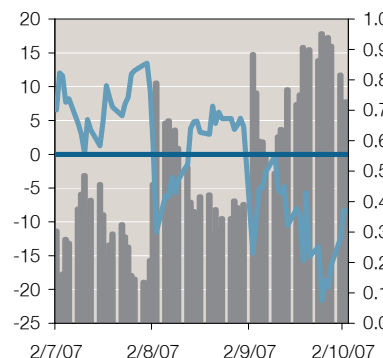
Slope reveals to us an increased demand (or decreased supply) for long term contracts (2009) whereas curvature shows growing surplus expectations in the medium term (2008).

Curvature (t)



Source: Fortis Modelling

Error (t)



Source: Fortis Modelling

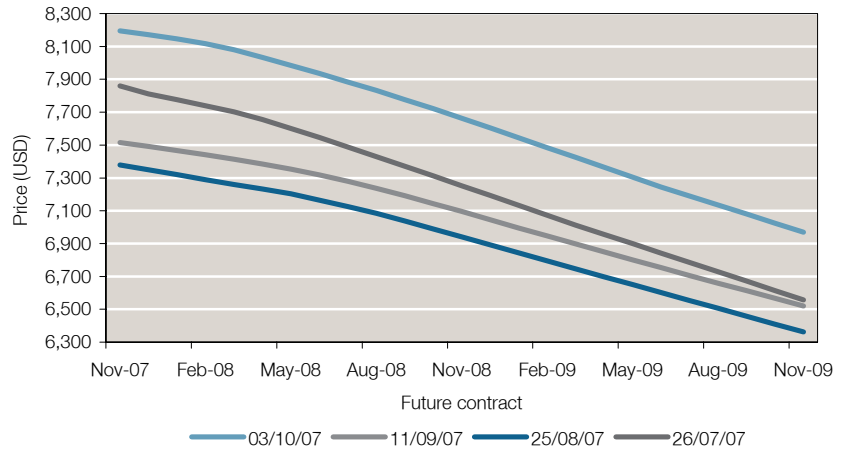
Copper Future curve analysis

Fundamental outlook

China's economic growth is helping strong physical demand. These solid foundations together with a strong speculative interest will keep prices firm.

LME 3-month short-term: \$7,500/t-\$8,200/t.

Future contract

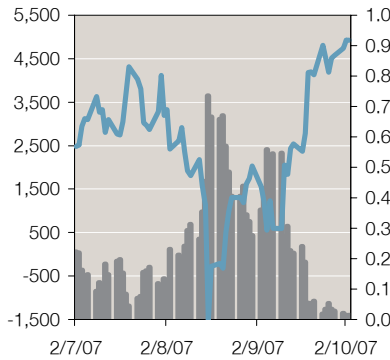


Source: Fortis Modelling, Bloomberg

Principal component analysis

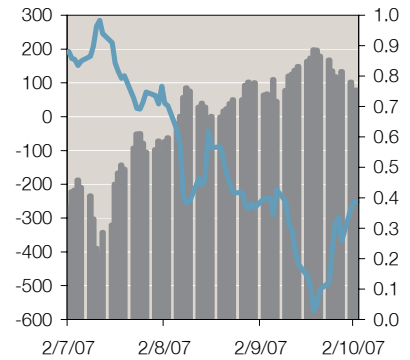
Copper suffered some collateral damage caused by fall-out of the subprime credit crunch. Correlation clustering caused prices to drop until the August 16th cataclysm. It recovered however at a rapid pace, which suggest very strong fundamentals. The level principal component tells the whole story.

Level (t)



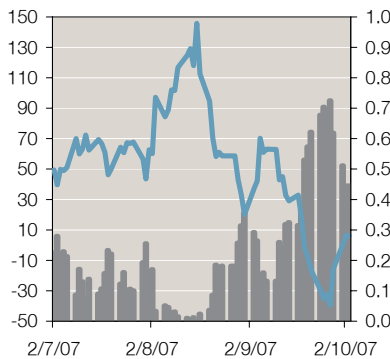
Source: Fortis Modelling

Slope (t)



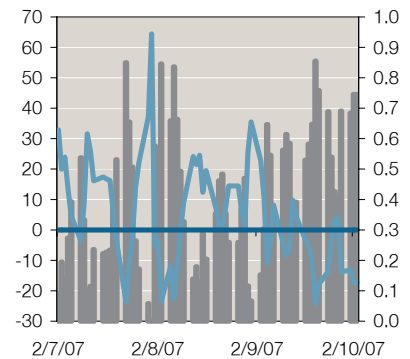
Source: Fortis Modelling

Curvature (t)



Source: Fortis Modelling

Error (t)



Source: Fortis Modelling

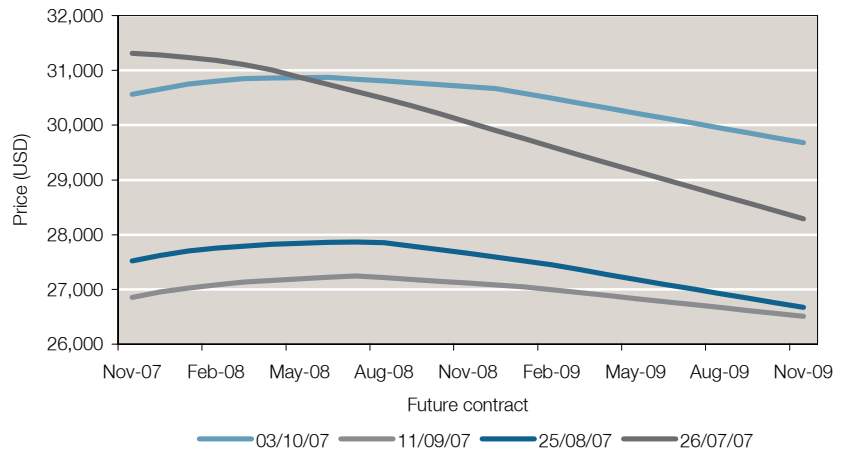
Nickel Future curve analysis

Fundamental outlook

Due to doubts about some bigger nickel projects coming to early fruition, a stronger-for-longer nickel price is to be expected in 2008. This can be clearly seen in the future curve.

LME 3-month short-term: \$29,000/t-\$33,000/t.

Future contract

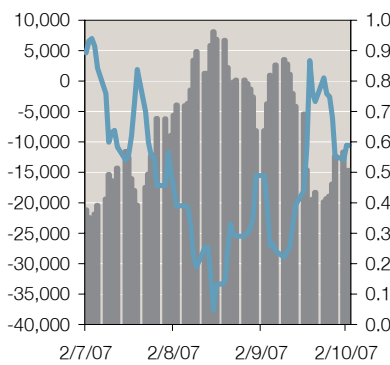


Source: Fortis Modelling, Bloomberg

Principal component analysis

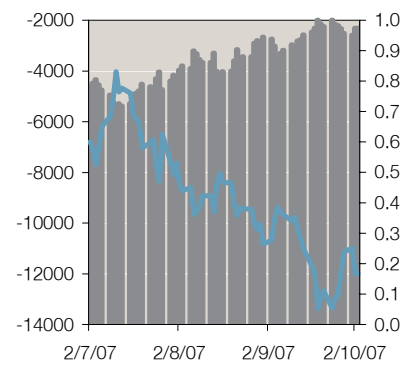
Nickel's future curve movements are following aluminium in its footsteps. The slope is decreasing (showing a continued counter-clockwise rotation of the curve). The curve is flattening. Backwardation is turning into contango. An expectation of future supply shortage is being priced into the curve.

Level (t)



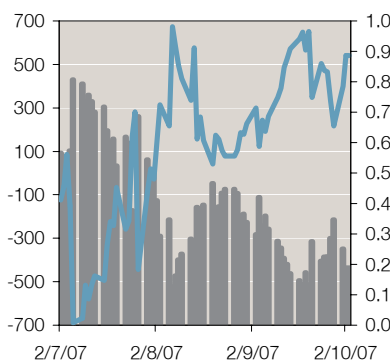
Source: Fortis Modelling

Slope (t)



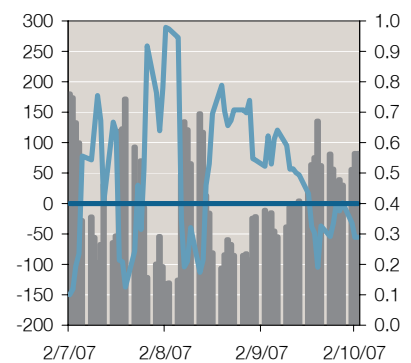
Source: Fortis Modelling

Curvature (t)



Source: Fortis Modelling

Error (t)



Source: Fortis Modelling

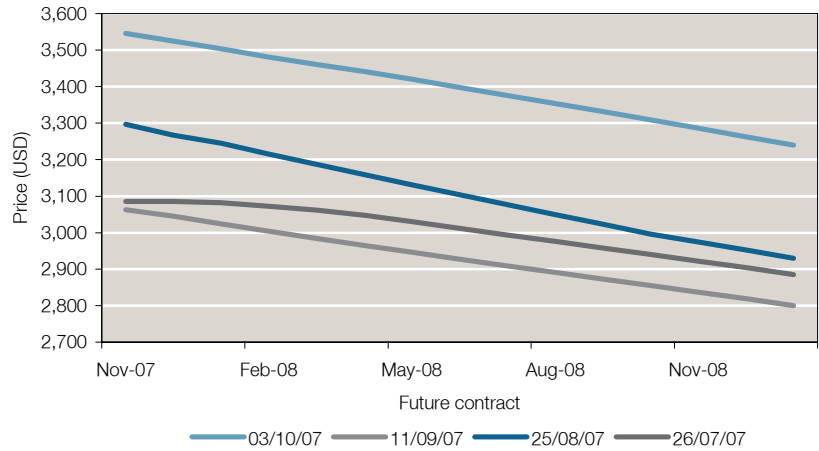
Lead Future curve analysis

Fundamental outlook

The price will rise still higher (conceivably to \$4,000/t) boosted by strong supply demand fundamentals and high speculative interest.

LME 3-month short-term: \$3,400/t-\$3,800/t.

Future contract

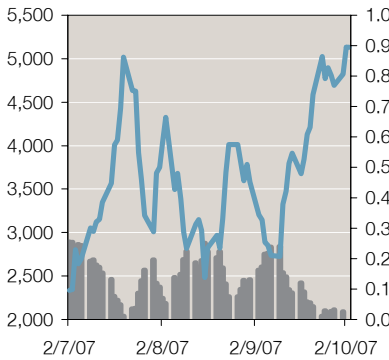


Source: Fortis Modelling, Bloomberg

Principal component analysis

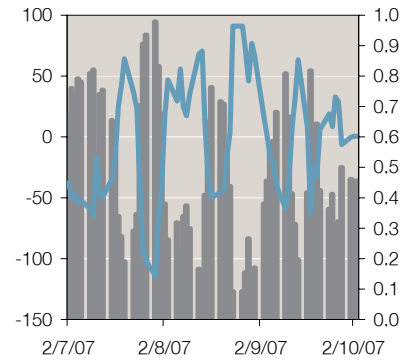
All the variance (99.9%) of the lead curve is explained by the level component. The lead future curve is a straight line. But the straight lines may also offer interesting opportunities. The slope component can be regarded as an error signal. It can be quantified as a sub-diffusive process with a strong mean reverting property. If the slope component is relatively high take a short position on it or vice versa. The slope will revert back towards its historical average position.

Level (t)



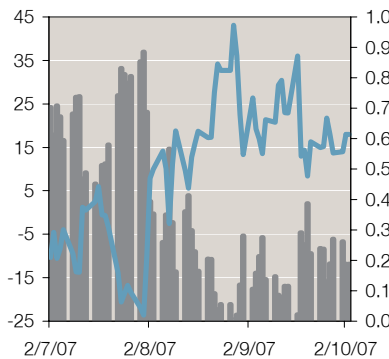
Source: Fortis Modelling

Slope (t)



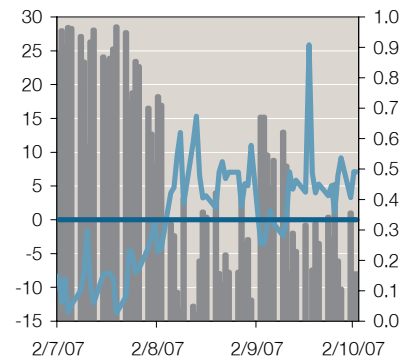
Source: Fortis Modelling

Curvature (t)



Source: Fortis Modelling

Error (t)



Source: Fortis Modelling

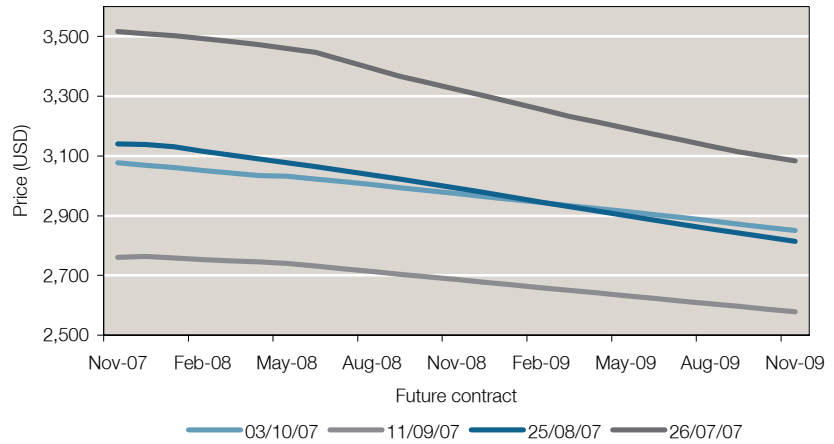
Zinc Forward curve analysis

Fundamental outlook

Zinc is in the longer term a discouraging story for investors as more new mine projects are expected to come on-stream quite rapidly.

LME 3-month short-term: \$2,750/t-\$3,000/t.

Future contract

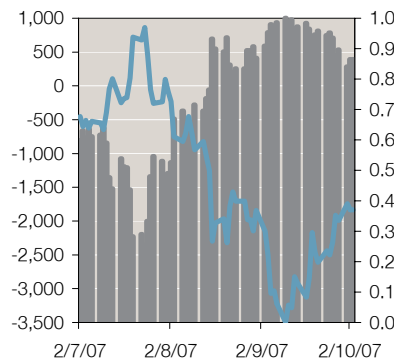


Source: Fortis Modelling, Bloomberg

Principal component analysis

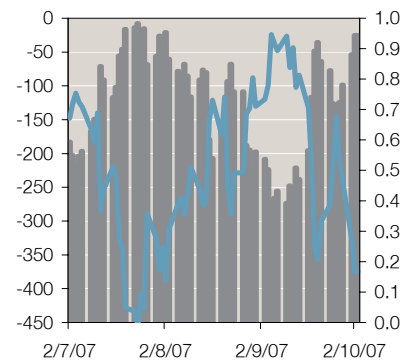
The zinc curve has been flattening strongly. As with aluminium and nickel this is not, however, a strong momentum driven process. For zinc the slope gyrates wildly; it is not driven by any obvious change in supply-demand (convenience yield) expectations.

Level (t)



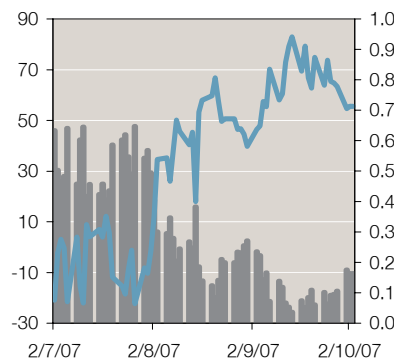
Source: Fortis Modelling

Slope (t)



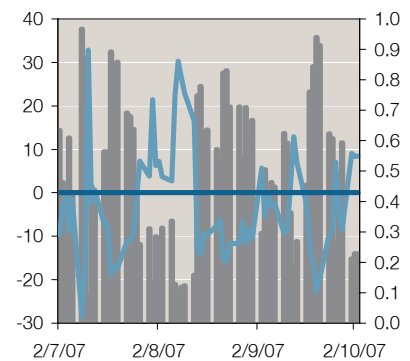
Source: Fortis Modelling

Curvature (t)



Source: Fortis Modelling

Error (t)



Source: Fortis Modelling

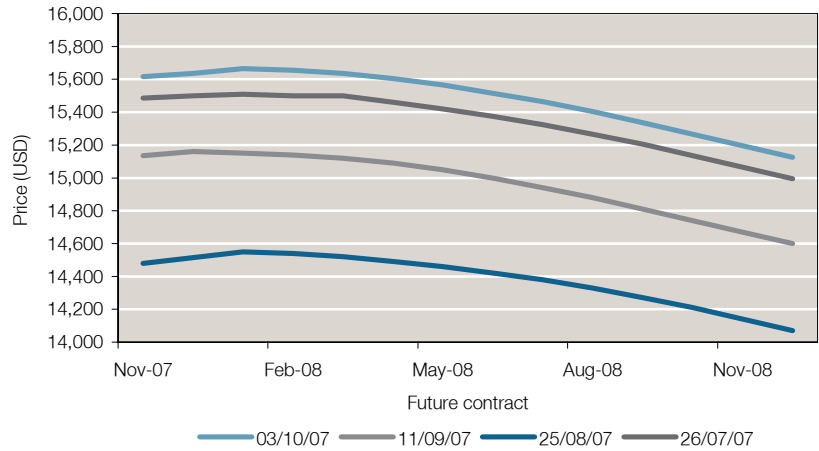
Tin Future curve analysis

Fundamental outlook

Worries about supply will support prices. Even with rising stocks in LME warehouses, tin prices should hold.

LME 3-month short-term: \$15,000/t-\$16,000/t.

Future contract



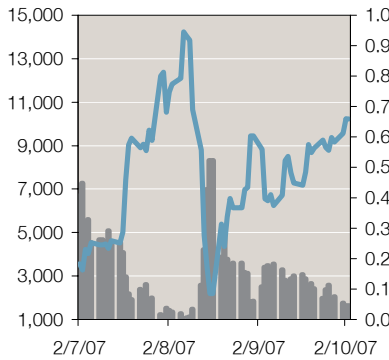
Source: Fortis Modelling, Bloomberg

Principal component analysis

Tin equals copper's behaviour during the subprime crisis. Strong resilience until end of July was followed by a large drop towards mid-August due to extremely high correlation as a result of cross-asset risk re-pricing. When the dust settled down tin started recovering at steady pace, not as remarkably however as copper. The level component tells us the full story.

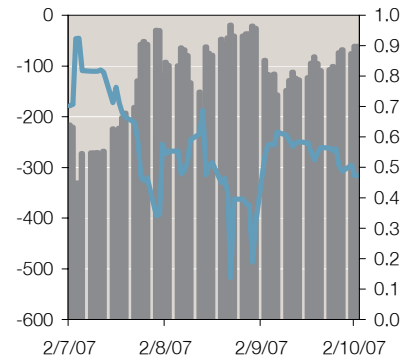
This peculiar behaviour reveals strong underlying fundamentals and continued speculative interest.

Level (t)



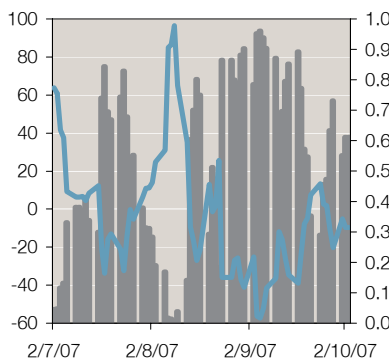
Source: Fortis Modelling

Slope (t)



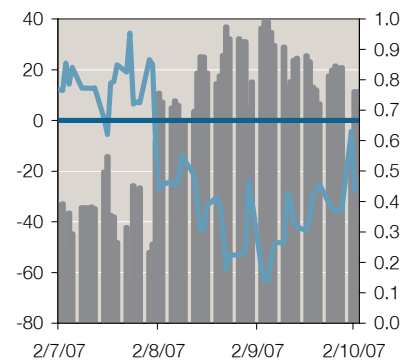
Source: Fortis Modelling

Curvature (t)



Source: Fortis Modelling

Error (t)



Source: Fortis Modelling

Notes

Notes

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