
23 August 2007

Some calm has returned — but risk aversion lingers

Base metals: Although copper's (page 2) fundamentals remain robust, the metal's price direction is still being dictated by global financial markets. Also, strike threats continue to rumble in the background. As with copper, aluminium (page 4) has been overshadowed by events in financial markets. Nearby prices remain under pressure, although the far forwards remain well supported. Increased stocks of nickel (page 6) have seen the forward curve shift into contango. Prices remain supported — but direction ultimately comes from the global financial markets. Zinc (page 8) continues to follow the herd. The anticipated increase in supply has outweighed recent production disruptions, while the recent increase in stocks has eroded sentiment further.

Precious metals: Gold (page 12) remains range-bound, with investors preferring the sidelines amidst current market uncertainty. Also, the yellow metal is presently playing second fiddle to US treasury securities as a safe haven. Gold jewellery demand seems to be growing, which should support gold in the current environment. Platinum and palladium (page 14) are finding it difficult to recover after their prices slumped last week. On the supply side, a new strike at Lonmin is threatening to disrupt platinum production at the world's third-largest producer.

Energy: WTI crude (page 16) prices fell sharply after it became apparent that Hurricane Dean was unlikely to create supply disruptions. But although long liquidation has stabilized, it remains high. Despite this, we believe that the fundamentals for crude remain robust.

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Copper

Financial markets turmoil again spilled over into metals last week, leading to dramatic falls in prices. Copper drifted lower during the start of last week before a panicked sell-off across the board on Thursday, which saw prices reach a low of US\$6,730/mt. Friday saw prices recover strongly, to close the week at US\$7,010/mt (down 5.97% on the previous week's close).

Although copper's fundamentals remain robust, particularly during a time of seasonal weakness, the metal continues to look to the stock markets for direction. So far this week, copper has held up reasonably well — but without direction. Prices closed at US\$6,975/mt on Tuesday, only US\$35/mt lower than Friday's close.

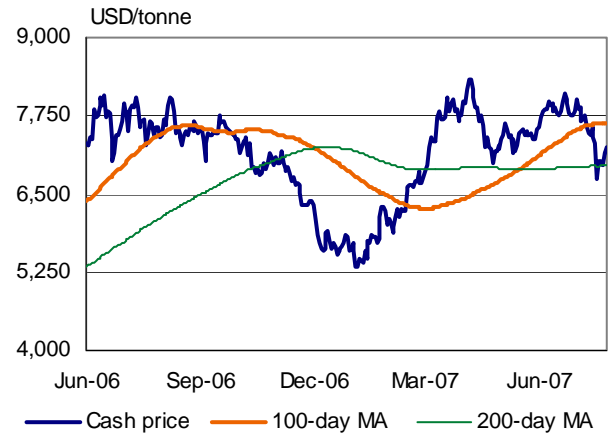
As anticipated, LME stocks have continued to increase, rising 6,250mt last week, to close at 120,550mt on Friday. Inventory has continued to rise this week, with another 1,750mt making its way onto the exchanges by Tuesday. The South Korean locations of Busan and Gwangyang were again the main destination for deliveries, most likely comprising metal originally bound for China. Shanghai copper stocks continue to remain fairly stable, with total deliverable inventory falling by 158mt in the week ending 16th August — to 89,810mt.

Strikes continue to rumble — but any support for copper from strikes has been overwhelmed by the fallout from the US sub-prime sector and the subsequent panic. That said, the strike at Grupo Mexico's Cananea mine has now entered its third week, with workers protesting about safety. Meanwhile in Peru, unions at Southern Copper Corp's Cuajone and Toquepala mines and Ilo smelter and refinery have rejected the company's pay offer and have threatened to stage a new strike. Elsewhere, a stoppage at BHP Billiton's Olympic Dam smelter on Thursday 16th August hit the headlines — but had little impact on prices. The facility is expected to re-start next week.

During a seasonally weak period and in the middle of a financial crisis, copper is still trading around the US\$7,000/mt level. While this bodes well for the end of this year and early 2008, short-term risks linger. The market remains jittery over how pervasive the sub-prime impact will prove to be. The relative liquidity of base metals, compared to some of the CDO's at the heart of the current problems, means base metals remain particularly vulnerable to the wider issues affecting the financial markets. Potential redemptions by fund investors seeking to move to more liquid forms of investments may also impact on prices.

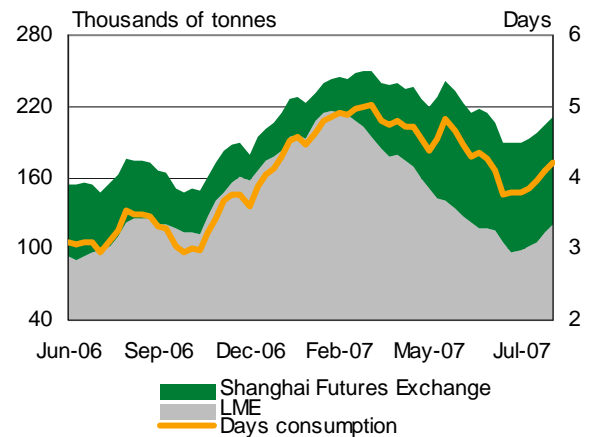
Although copper's fundamentals remain robust, the wider financial markets continue to dictate price direction. Strike threats also continue to rumble in the background.

Price movement



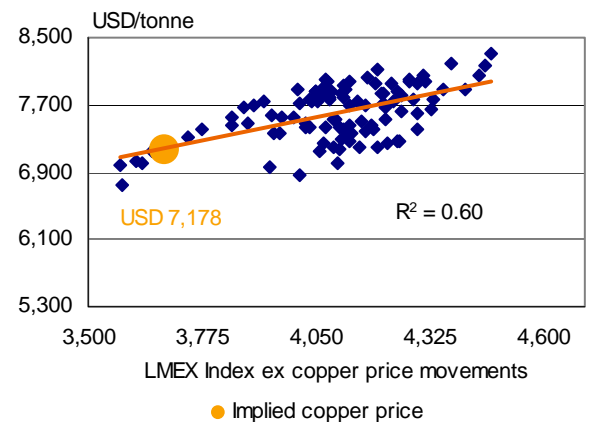
Sources: LME, Standard Bank Group

Copper stock



Sources: LME, SFE, Standard Bank Group

Relative performance to the complex

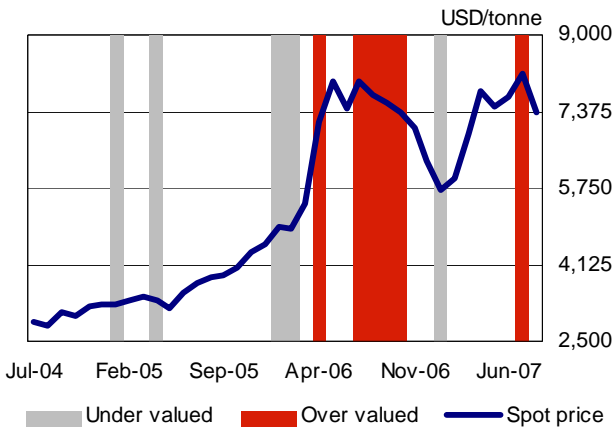


Sources: LME, Standard Bank Group



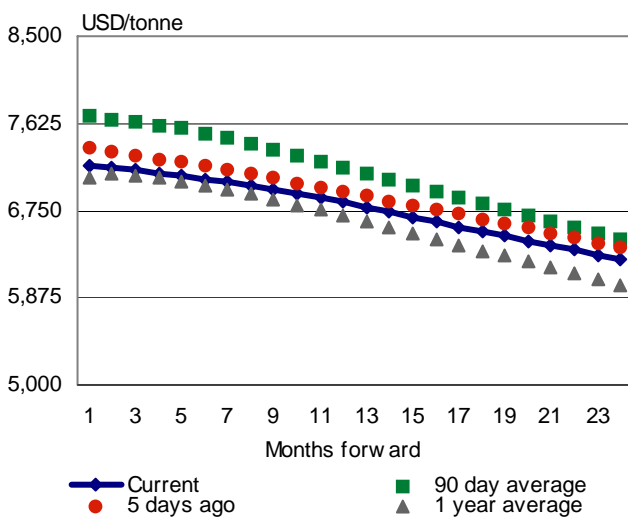
Copper: (continued)

Standard Bank copper market conditions indicator



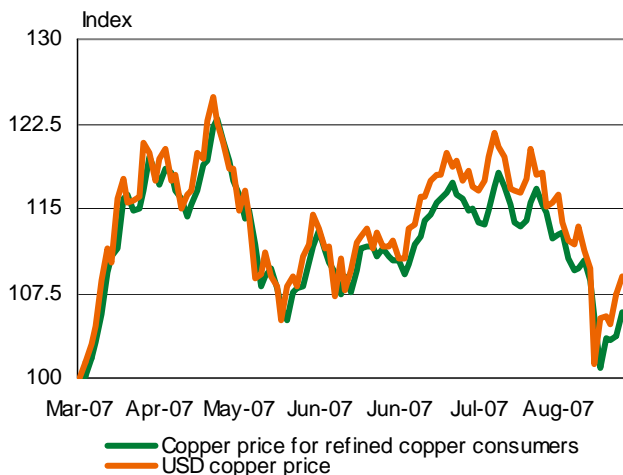
Source: Standard Bank Group

Forward curve



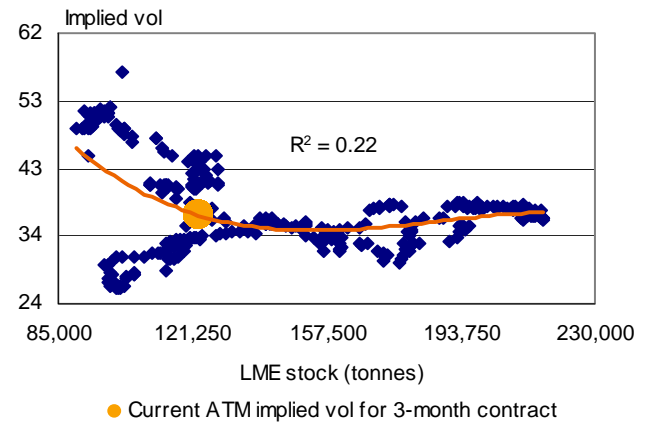
Sources: LME, Bloomberg, Standard Bank Group

Copper consumers' price



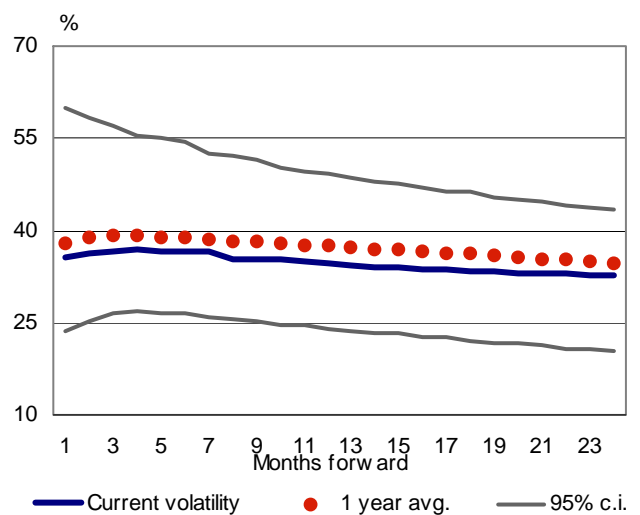
Sources: LME, Standard Bank Group

Volatility vs. stock levels



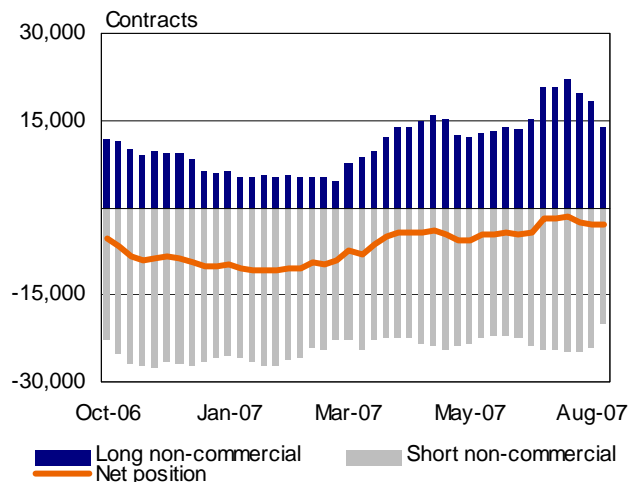
Sources: LME, Standard Bank Group

ATM implied volatility



Sources: LME, Bloomberg, Standard Bank Group

Speculative positions (COMEX)



Sources: COMEX, Standard Bank Group



Aluminium

Aluminium remains under pressure from falling equities markets and the pummeling in the nearby forwards over the past few weeks. Aluminium closed at US\$2,497/mt on Friday, down 3.6% on the previous week's close. In the wake of the flight to liquidity seen last Thursday, three-month prices reached US\$2,455/mt before staging a mild recovery on Friday. Aluminium has since come under renewed pressure, closing at US\$2,478/mt on Tuesday.

In contrast to the three-month price, the far forwards have stayed pretty steady, and remain well supported — 63-month prices actually increased on Thursday while the nearby forwards fell sharply. The increase in 63-month prices since October 2006 is due to a couple of factors: Firstly, a lack of forward selling by producers created a shortage of supply. Secondly, there is confidence regarding the long-term price prospects of the metal underpinned by high energy prices.

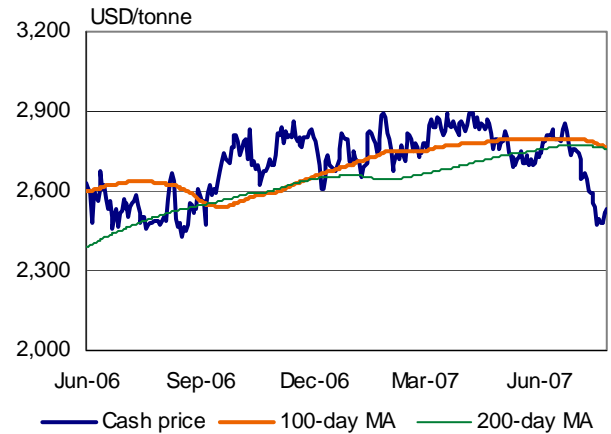
LME inventory continues to drift lower from the high of 839,200mt seen at the beginning of August, but remains way above the low of 661,550mt seen in mid-December. Stocks closed on Friday at 831,325mt down 2,000mt on the previous week. Drawdowns have accelerated so far this week, with stocks falling 2,700mt — to 828,625mt on Tuesday.

Aluminium has had its fair share of supportive news this week. As with copper, however, this has been overshadowed by the happenings in the broader financial markets. However, the high level of stocks insulates the price from near-term disruption. Should significant liquidation occur as a result of the turmoil in the financial markets, the far forwards that have been so well supported, may also come under some pressure.

On the production side, the presence of Hurricane Dean in the Caribbean has seen Alcoa close its 1.4 million tpa capacity Jamaico alumina refinery, while Rusal has also closed its Jamaican facility. Indonesia has ordered the halt of bauxite mining in west-Bintan, with up to 800,000tpm of bauxite production potentially affected. The central government had planned to set aside the land for a water project but the local government has already issued mining licenses for parts of the land, with some mines operating for up to 18 months already. Bintan is a major production base with much of the bauxite heading to China. It is too early to tell how much impact this decision will have, however, with Chinese Aluminium companies moving up the process chain, they remain vulnerable to disruptions in bauxite supply.

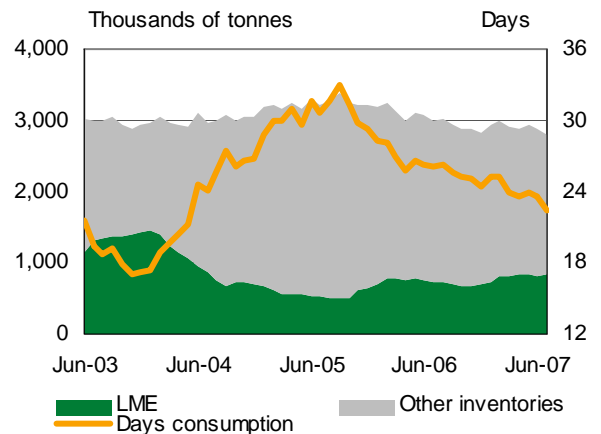
As with copper, aluminium has been overshadowed by events in the broader financial markets. Nearby prices remain under pressure, although the far forwards remain well supported.

Price movement



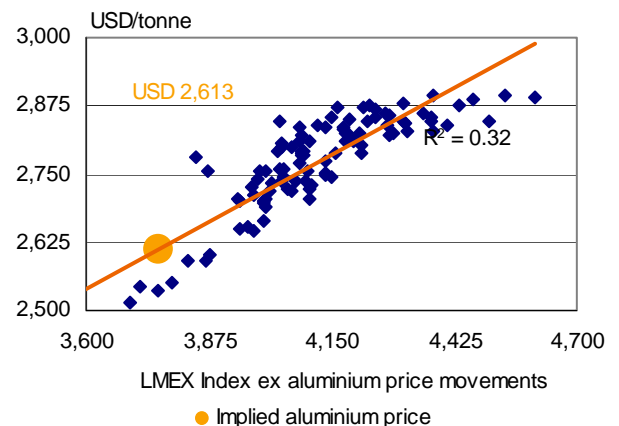
Sources: LME, Standard Bank Group

Reportable aluminium stock



Sources: LME, IAI, Standard Bank Group

Relative performance to the complex

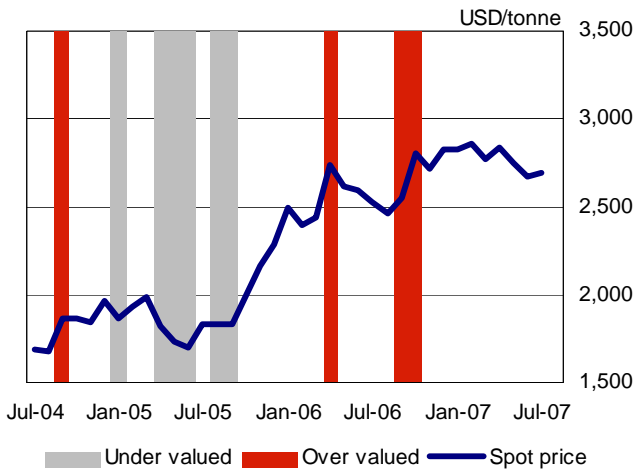


Sources: LME, Standard Bank Group



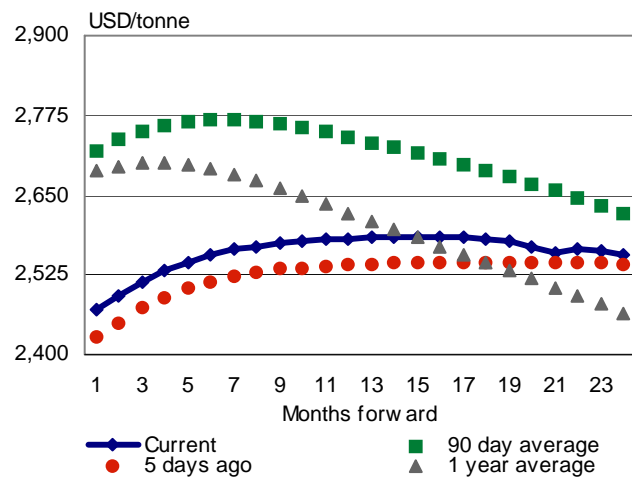
Aluminium: (continued)

Standard Bank aluminium market conditions indicator



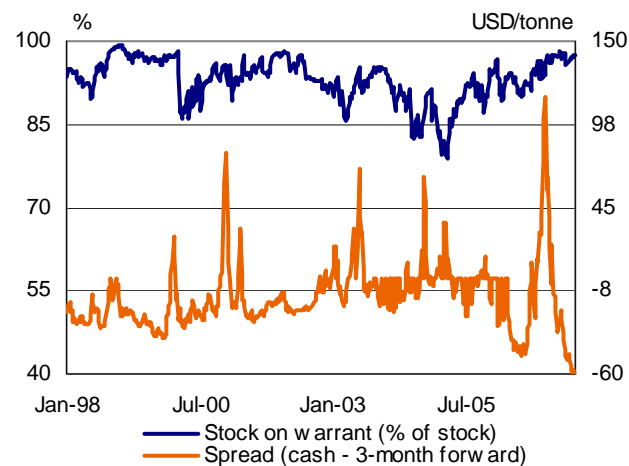
Sources: Standard Bank Group

Forward curve



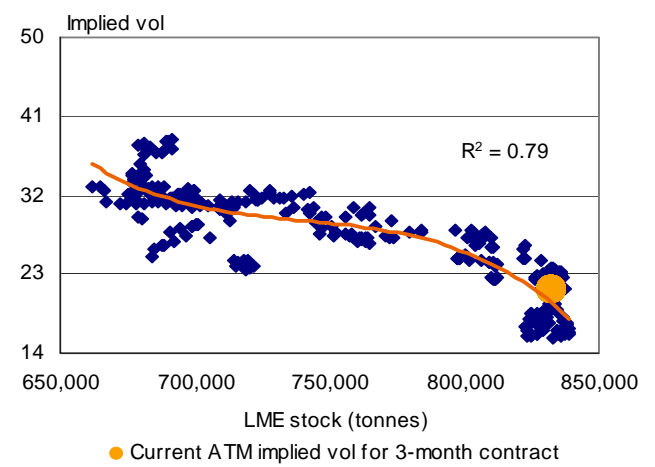
Sources: LME, Bloomberg, Standard Bank Group

LME stock on warrant



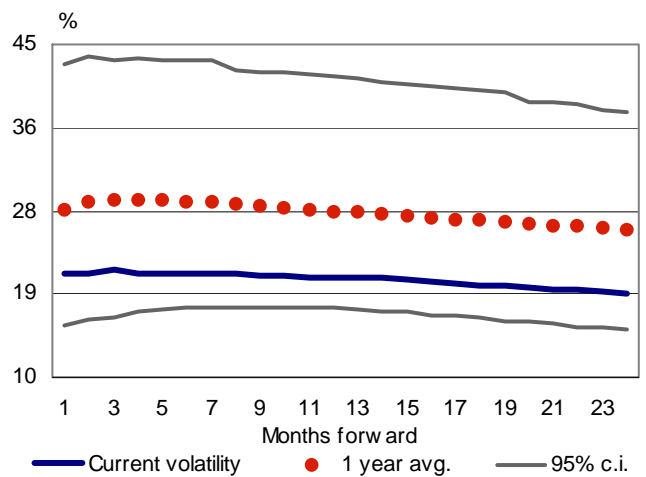
Sources: LME, Bloomberg, Standard Bank Group

Volatility vs. stock levels



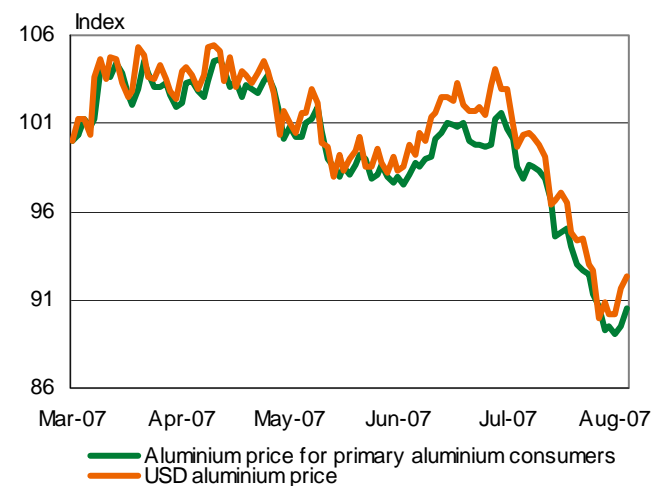
Sources: LME, Standard Bank Group

ATM implied volatility



Sources: LME, Bloomberg, Standard Bank Group

Price for aluminium consumers



Sources: LME, Bloomberg, Standard Bank Group



Nickel

Nickel followed the same pattern as copper last week, drifting lower before being caught in Thursday's sell-off. Nickel managed to regain some of its losses on Friday, closing the week at US\$26,000/mt, down 2% on the previous week's close. So far this week, prices continue to recover, with a short covering rally pushing prices up to close at US\$27,200/mt on Tuesday.

After falling from above US\$51,000/mt so quickly, nickel prices appear better supported than most other base metals. Rising LME stocks, which were one of the main reasons behind the nickel price fall, have now ceased to have any significant impact on prices. The market seems to be fully absorbing the bearish impact of rising stocks.

LME stocks closed on Friday at 20,304mt, up 1,500mt from the previous week. The rate of LME inflows has fallen off so far this week, with stocks increasing 150mt, to 20,454mt on Tuesday. Cancelled warrants account for 3.99% of that total, at 816mt.

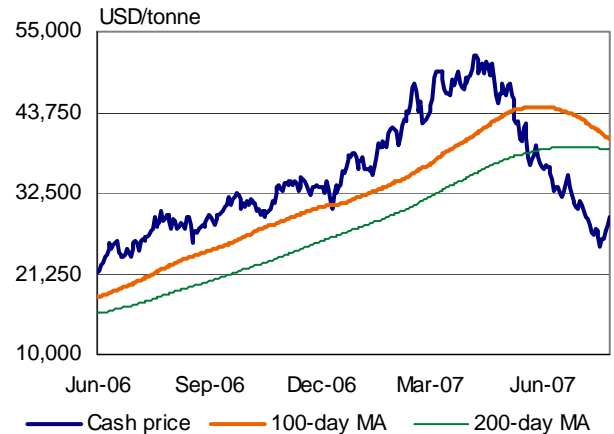
Looking at the forward curve, the spreads have narrowed significantly since the middle of May, while the curve has also switched from backwardation into contango. The switch occurred around August 7th, with a contango now in place for contracts up to May 2008. The move into contango is primarily due to the impact of rising stocks and increased availability offsetting nearby demand for the metal.

The move into nearby contango was expected given the steady increase in stocks. However, with demand expected to increase towards the end of this year and an associated fall in LME stocks, we expect the nearby contracts to return to backwardation. Regarding prices, the metals complex is still taking direction from the global financial markets and remain vulnerable as investors seek less risky assets. While we expect prices to remain volatile over the short term, we do believe prices should remain well supported by trade buying before picking up towards the end of the year.

On the production side, Outotec Oyj has won a contract to supply Talvivaara Mining Co with equipment to leach nickel, copper zinc and cobalt ores bacterially. According to the company, the Talvivaara deposits could be in production by 2010. Meanwhile, Sumitomo Corp is in the process of negotiating the amount it will invest in the Ambatovy Nickel project located in Madagascar. Capital costs have been estimated at around US\$2.5bn, with production pencilled in for 2009.

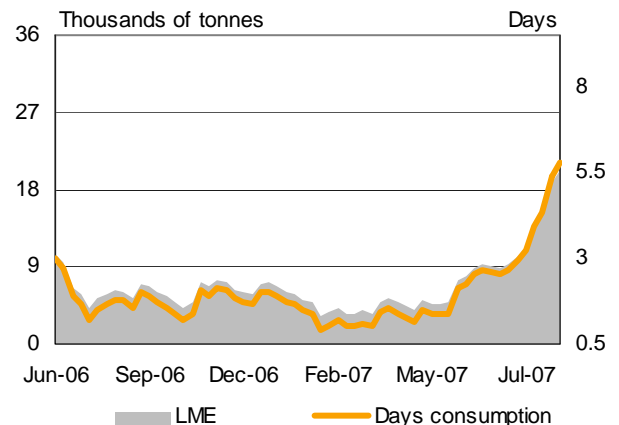
Increased stocks have seen the forward curve shift into contango. Prices remain supported — although direction ultimately comes from the global markets.

Price movement



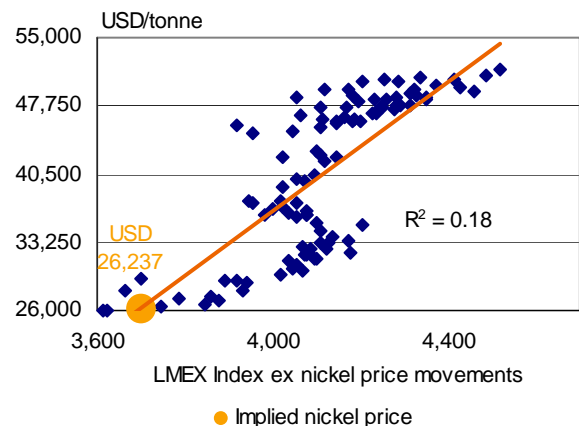
Sources: LME, Standard Bank Group

LME Stock



Sources: LME, Standard Bank Group

Relative performance to the complex

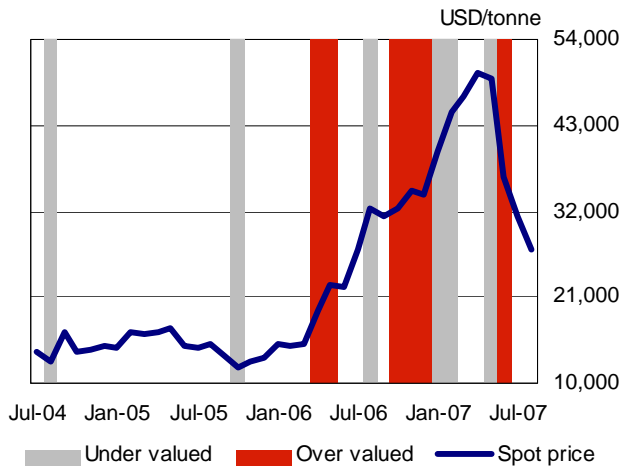


Sources: LME, Standard Bank Group



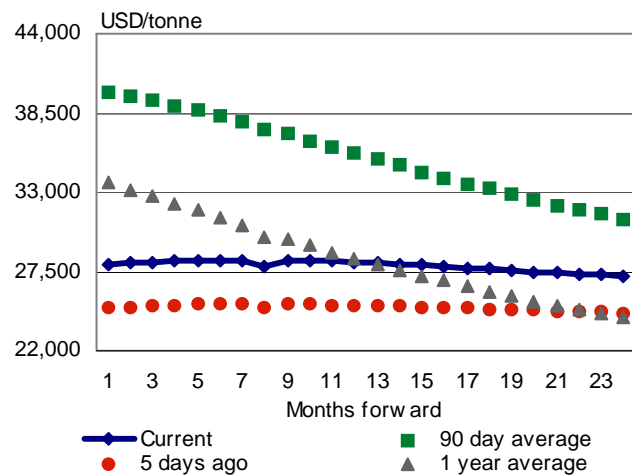
Nickel: (continued)

Standard Bank nickel market conditions indicator



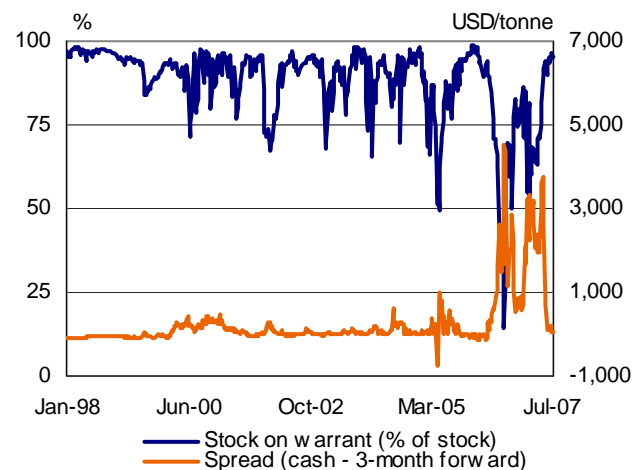
Sources: Standard Bank Group

Forward curve



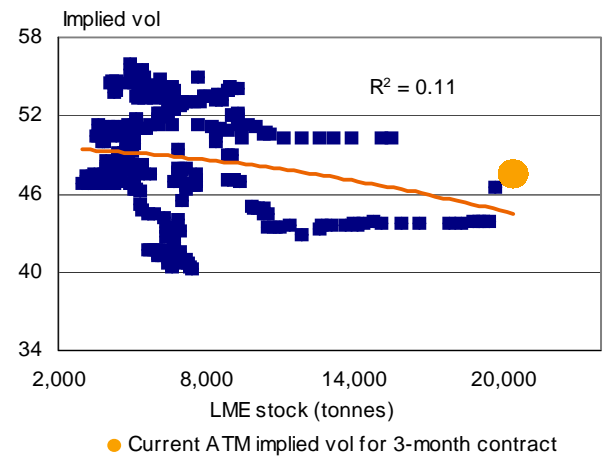
Sources: LME, Bloomberg, Standard Bank Group

LME stock on warrant



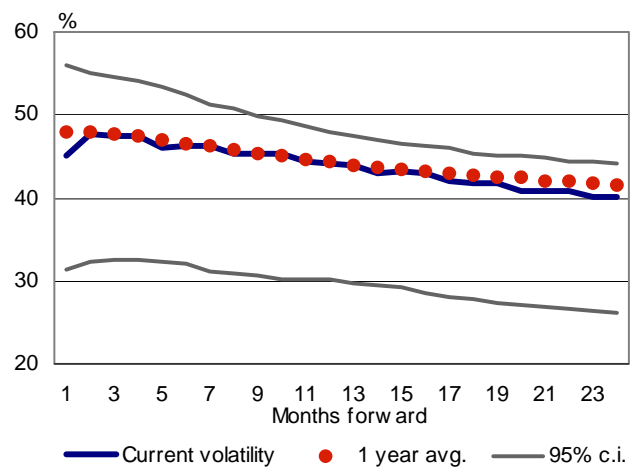
Sources: LME, Bloomberg, Standard Bank Group

Volatility vs. stock levels



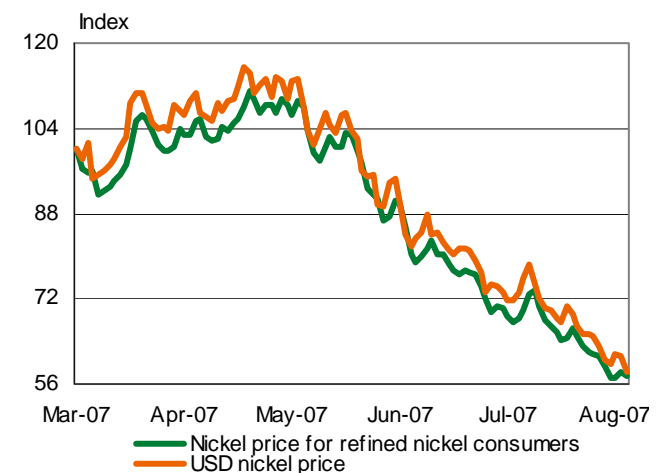
Sources: LME, Standard Bank Group

ATM implied volatility



Sources: LME, Bloomberg, Standard Bank Group

Nickel consumers' price



Sources: LME, Standard Bank Group



Zinc

Zinc also has reverted to tracking copper over the past week — but remains less supported than the red metal. Prices fell sharply last week, closing at US\$3,075/mt on Friday, down 6.8% on the previous week.

The metal has suffered from a lack of interest during the summer period more than anything else. This lack of enthusiasm for the metal and the relative lack of fundamental support have seen prices fall in line with copper and the rest of the complex; however, zinc has failed to recover to the same extent. So far this week, zinc prices have continued to slide, closing on Tuesday at US\$3,000/mt — down 2.44% from Friday's close.

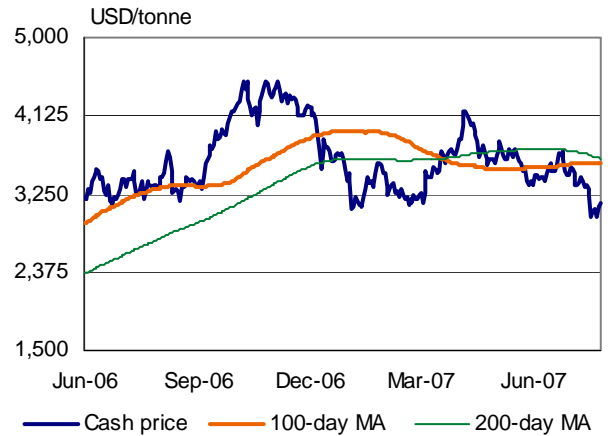
Stocks continued to fall last week, dropping 1,425mt, or 2.26%, to 61,750mt on Friday. The market has continued to ignore falling stocks, with zinc taking direction from copper and financial markets instead. So far, this week has seen stocks increase sharply, with a net 1,100mt inflow on Monday and a further net 1,425mt inflow on Tuesday, bringing stocks to 64,275mt. While falling stocks had zero impact, the rise in stocks this week has eroded sentiment towards the metal further.

There is supportive news out there for zinc, including the strike action at Grupo Mexico's Zacatecas and Taxco mines as well as damage to the Cerro Lindo mine as a result of the recent Peruvian earthquake. Production at the 50,000tpa capacity Cerro Lindo operation, which had only just started, has been stopped by a power outage and damage to its main access road — but the news has been largely ignored.

Part of the reason behind the limited impact that falling stocks and supply disruptions have had on prices is the anticipated surge in mine production due on-stream over the next few months. Along this tack, HudBay Minerals expects its Balmat zinc mine to hit its full 60,000tpa production capacity by the end of this year. The mine entered commercial production at the beginning of this year after being re-started in 2006. Meanwhile, Blue Note Metals' Caribou mine, which was restarted in Q2 2007, delivered its first shipment of concentrate to Xstrata's Belledune smelter.

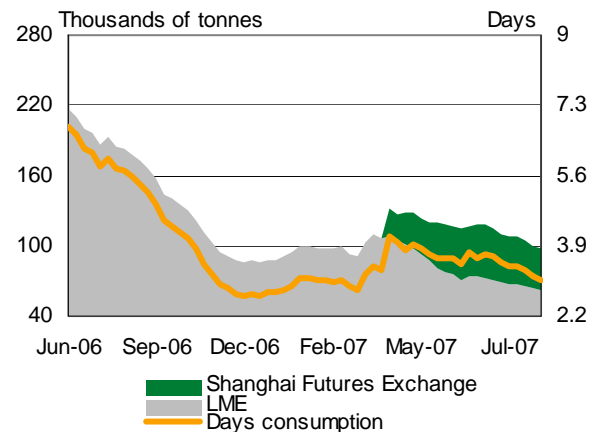
Zinc continues to follow the herd. The anticipated increase in supply has outweighed recent production disruptions, while the recent increase in stocks has eroded sentiment further.

Price movement



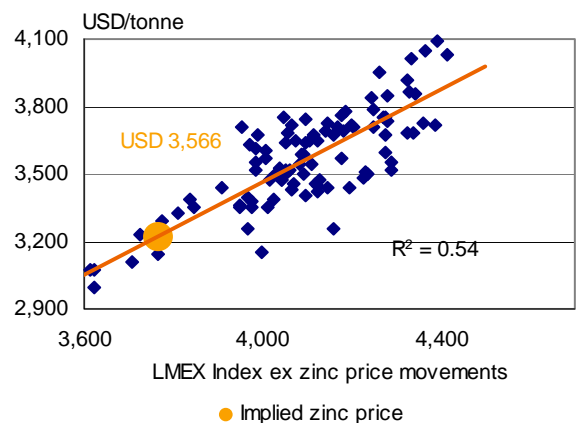
Sources: LME, Standard Bank Group

Zinc stock



Sources: LME, SFE, Standard Bank Group

Relative performance to the complex

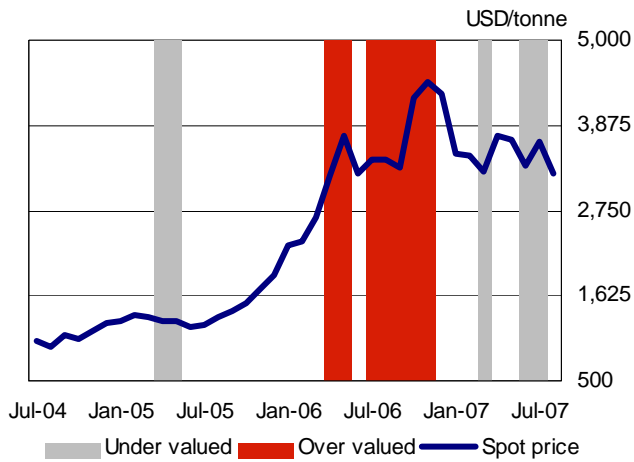


Sources: LME, Standard Bank Group



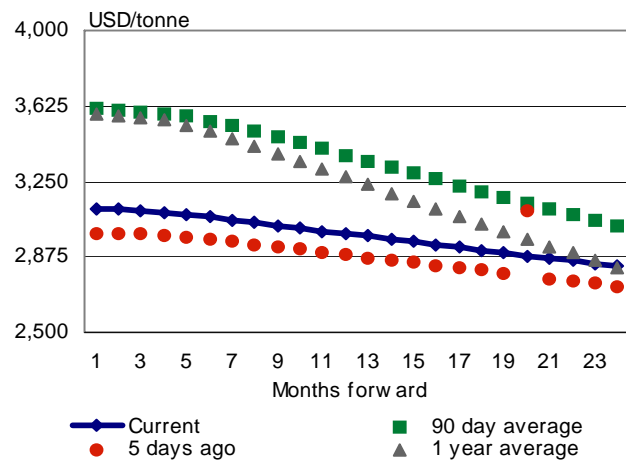
Zinc: (continued)

Standard Bank zinc market conditions indicator



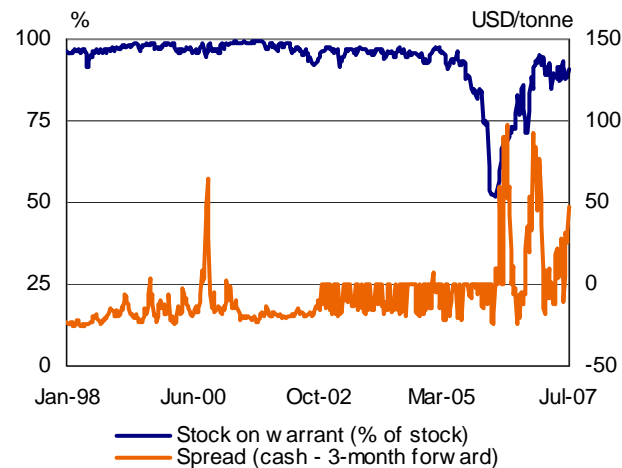
Sources: Standard Bank Group

Forward curve



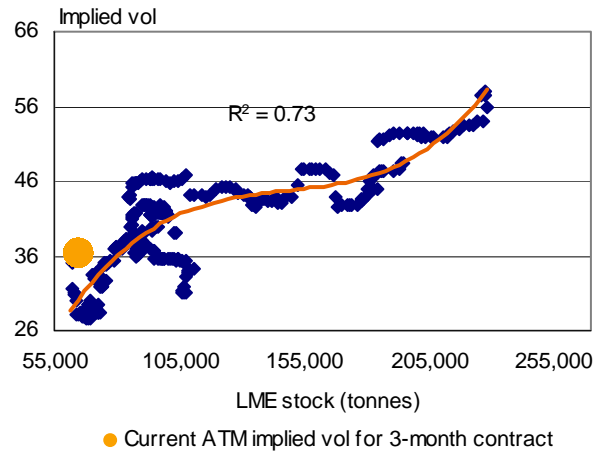
Sources: LME, Bloomberg, Standard Bank Group

LME stock on warrant



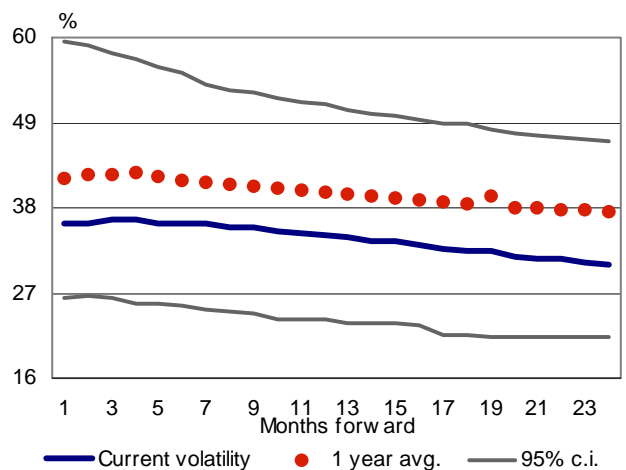
Sources: LME, Bloomberg, Standard Bank Group

Volatility vs. stock levels



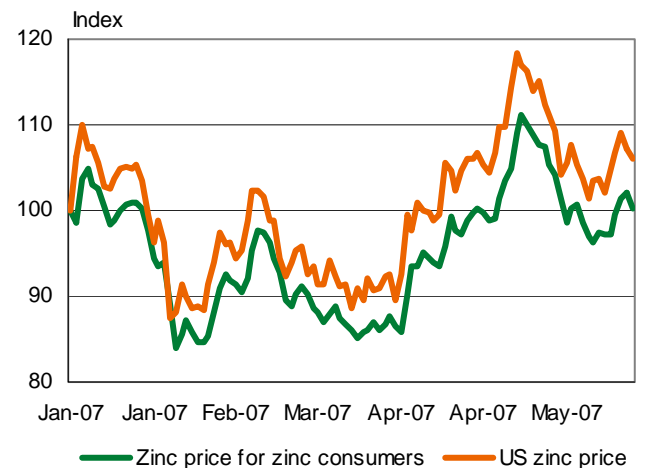
Sources: LME, Standard Bank Group

ATM implied volatility



Sources: LME, Bloomberg, Standard Bank Group

Zinc consumers' price

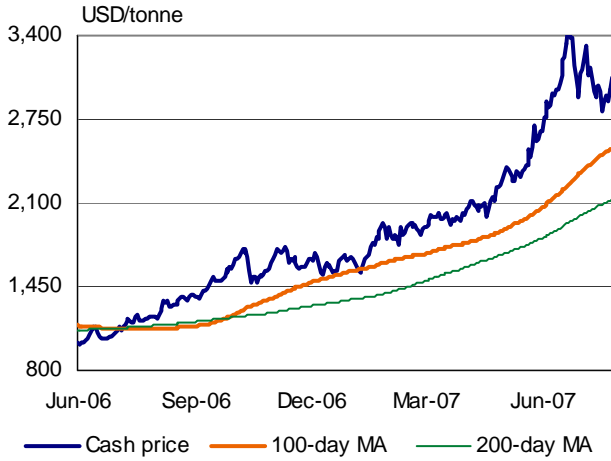


Sources: LME, Standard Bank Group



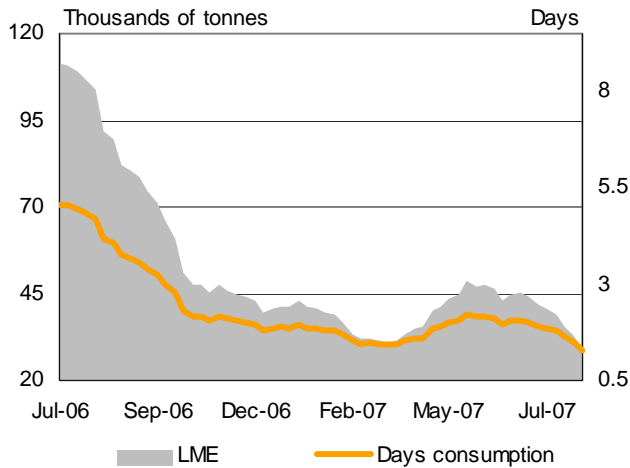
Lead

Price movement



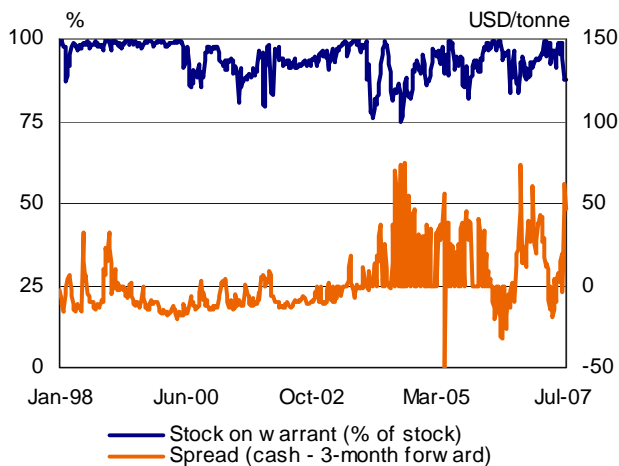
Sources: LME, Standard Bank Group

Lead stock



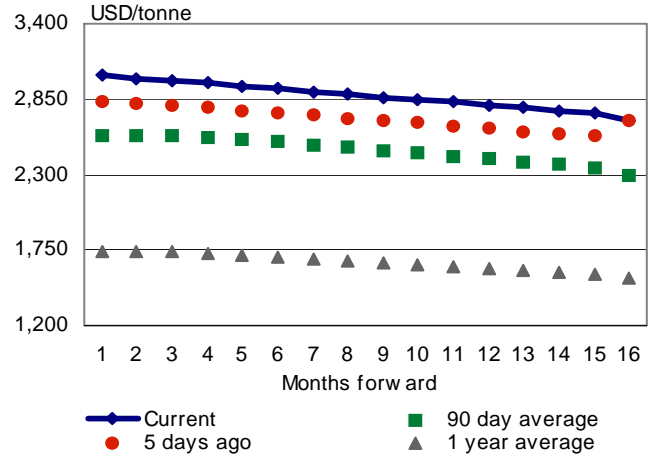
Sources: LME, Standard Bank Group

LME stock on warrant



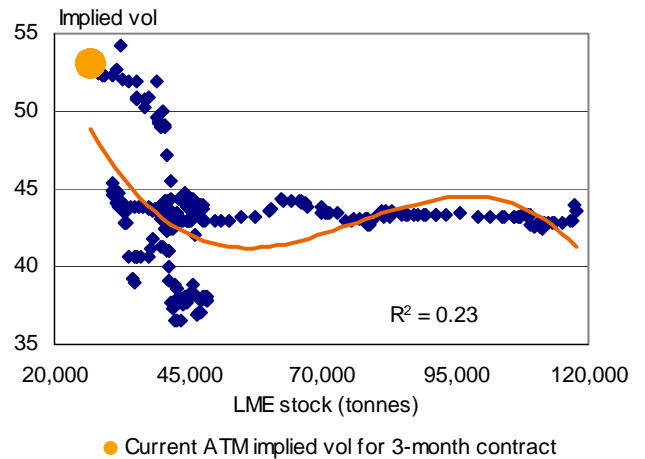
Sources: LME, Bloomberg, Standard Bank Group

Forward curve



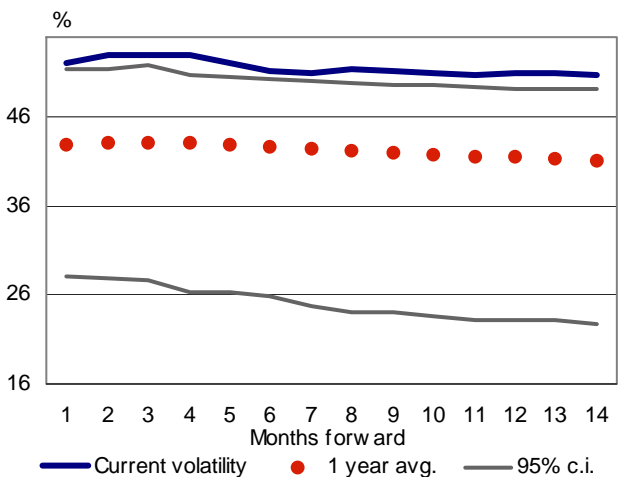
Sources: LME, Bloomberg, Standard Bank Group

Volatility vs. stock levels



Sources: LME, Standard Bank Group

ATM implied volatility

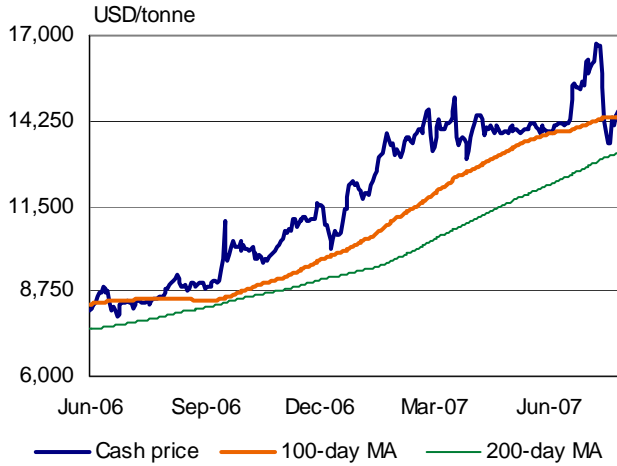


Sources: LME, Bloomberg, Standard Bank Group



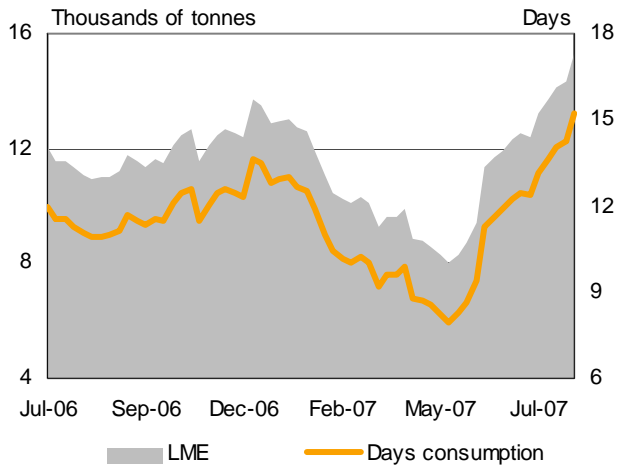
Tin

Price movement



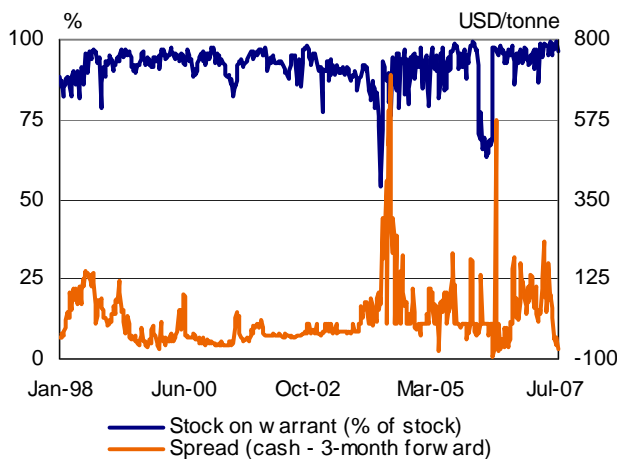
Sources: LME, Standard Bank Group

Tin stock



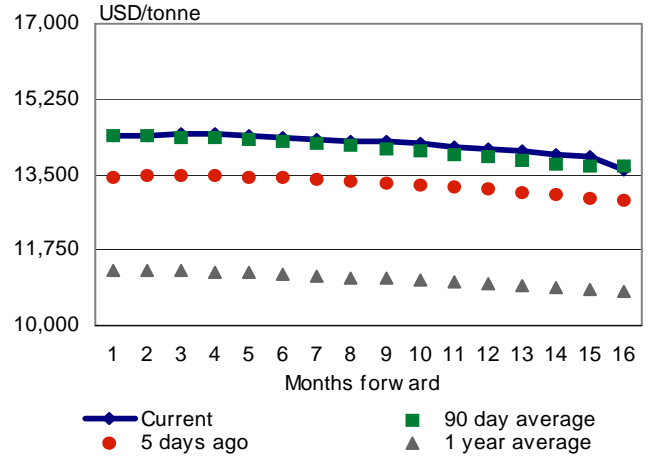
Sources: LME, Standard Bank Group

LME stock on warrant



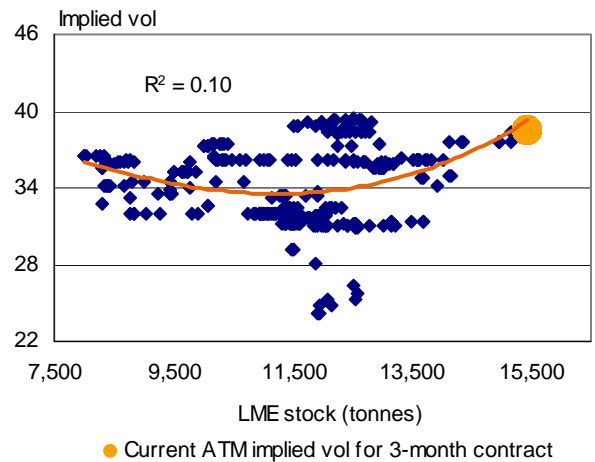
Sources: LME, Bloomberg, Standard Bank Group

Forward curve



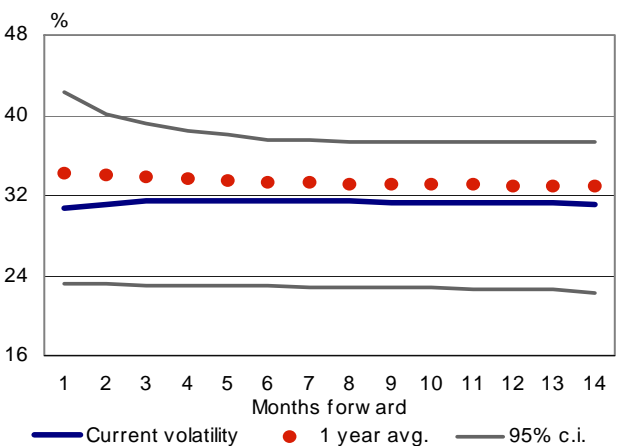
Sources: LME, Bloomberg, Standard Bank Group

Volatility vs. stock levels



Sources: LME, Standard Bank Group

ATM implied volatility



Sources: LME, Bloomberg, Standard Bank Group



Gold

After a tough week, gold closed in New York at US\$648.20 on Friday. It has since recovered some ground, and was bid at US\$656.20 at close on Tuesday. After this recovery, gold has been range-bound, tracking stock market movements.

The degree of risk aversion in global markets became more apparent this week, with market participants struggling to determine the global economy's direction. Money market investment funds — which are traditionally liquid and low-risk — have seen massive liquidations as investors continue to prefer US treasury bills and bonds to traditional safe havens. At one stage on Monday, the yield for the three-month US bill fell by 66bp, the biggest drop in one day since the stock market crash in 1987. Since then, it has recovered again.

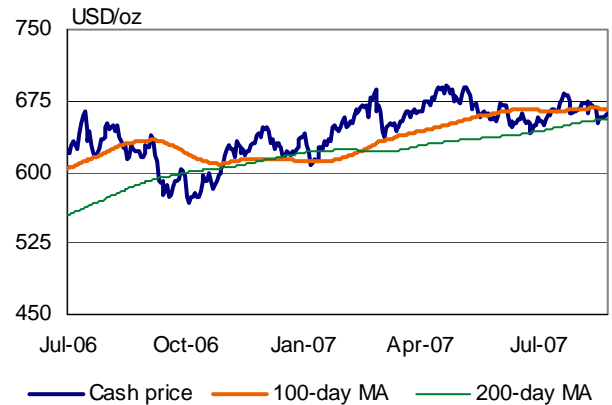
This preference for US government securities resulted in a double blow for gold. Firstly, demand for US government securities comes at the expense of gold as traditional safe haven. Secondly, as a result of the high demand for US government securities, the dollar remains strong, which dims interest in gold even further. We doubt the US dollar will see significant depreciation against major currencies while markets remain so uncertain.

Despite some calm returning to the gold market since Monday, the current credit crunch is unlikely to be over. More credit defaults, portfolio rebalancing and liquidity preferences by investors should conspire to create ongoing volatility in financial markets. With no major US economic data releases scheduled for this week to provide direction — be it up or down — gold should find direction in whatever happens in equity markets. However, Friday and next week Monday see the release of existing and new home sales data in the US, and this might be a market mover if it comes in much lower than expected.

On a more positive note, physical demand for jewellery consumption seems steadily on the increase. According to the World Gold Council, gold jewellery demand in Q2 2007 exceeded the Q2 2006 figure by 29%. Jewellery demand constitutes approximately 58% of total gold demand.

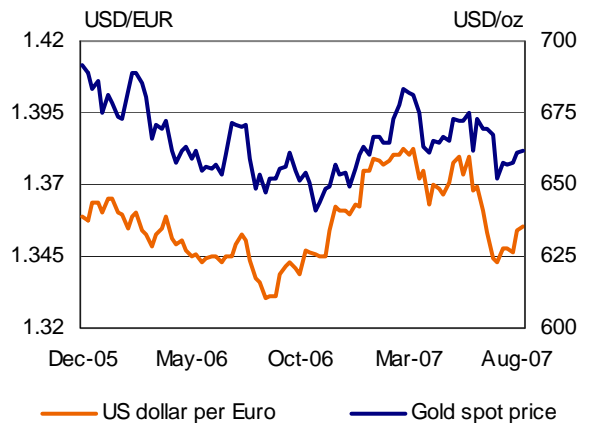
Gold remains range-bound, with investors preferring the sidelines amidst current market uncertainty. Also, the yellow metal is playing second fiddle to US treasury securities as safe haven. However, although investor sentiment might not be buoyant towards gold, gold jewellery demand seems to be growing, which should support gold in the current market environment.

Price movement



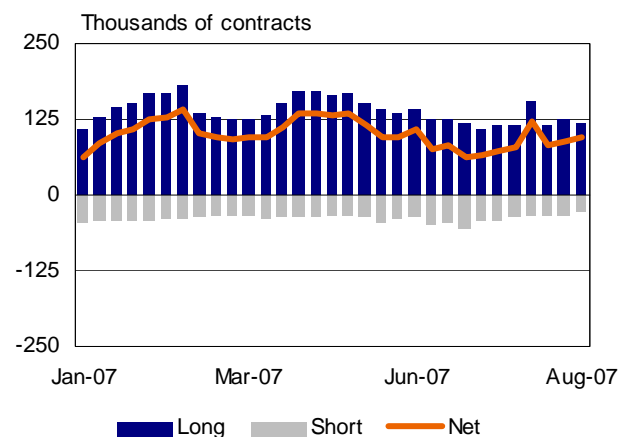
Sources: Bloomberg, Standard Bank Group

Gold price and US dollar movements



Sources: Bloomberg, Standard Bank Group

Speculative positions (COMEX)

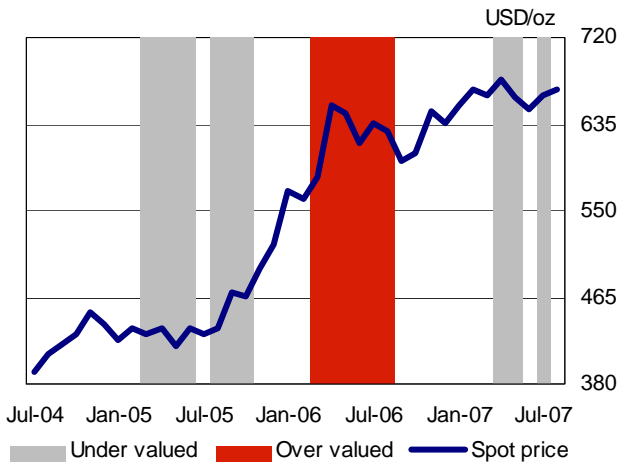


Sources: COMEX, Standard Bank Group



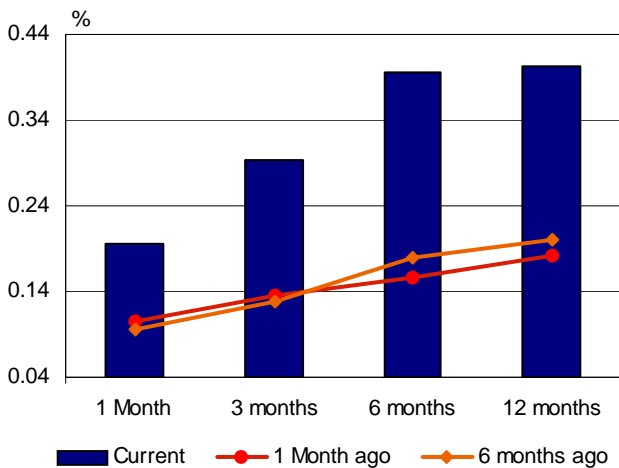
Gold: (continued)

Standard Bank gold market conditions indicator



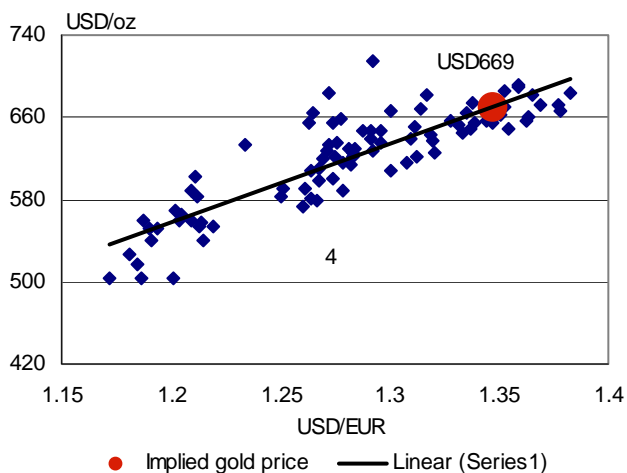
Source: Standard Bank Group

Gold lease rates (spread over LIBOR)



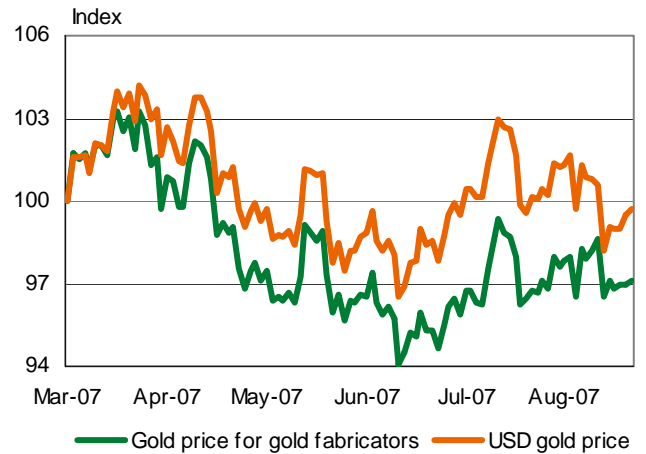
Sources: LBMA, Standard Bank Group

Gold vs. USD



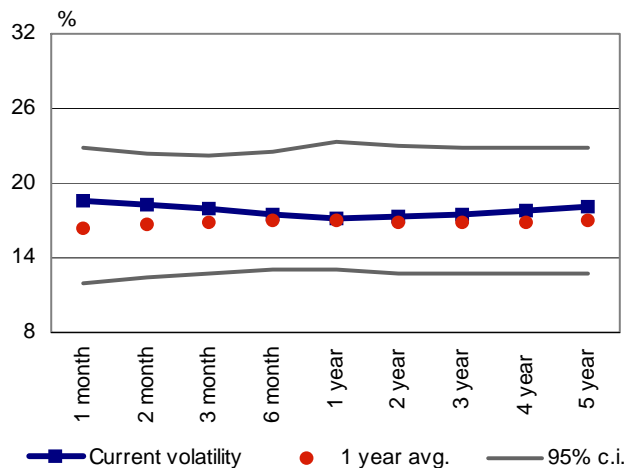
Sources: Bloomberg, Standard Bank Group

Gold price for gold fabricators



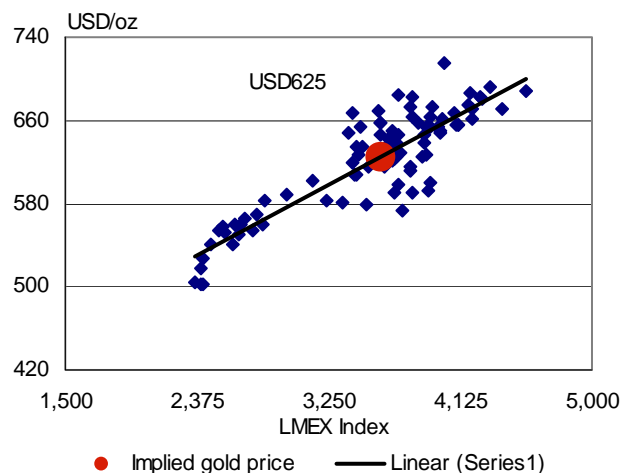
Source: Standard Bank Group

ATM implied volatility



Source: Standard Bank Group

Gold vs. base metals



Sources: LME, Bloomberg, Standard Bank Group



Platinum group metals

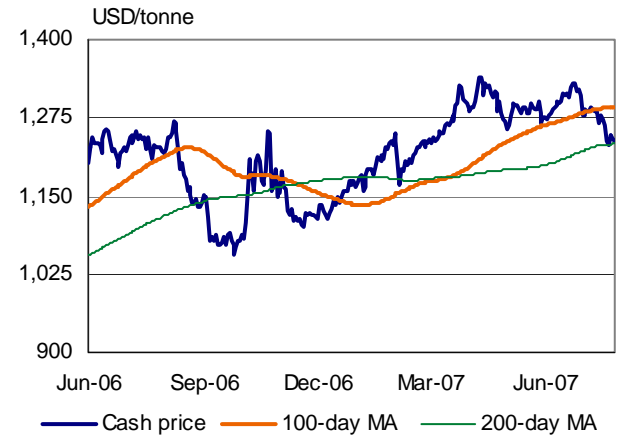
Platinum and palladium experienced a massive sell-off since last week. The platinum price dropped from US\$1,263/oz on Wednesday last week to US\$1,235/oz in early trade on Wednesday this week. Palladium's woes were even greater, shaving more than US\$30 off its price, to trade at US\$316/oz on Wednesday morning.

Platinum and palladium are finding it more difficult to recover after the sell-off of the past two weeks. With both metals having a big industrial demand base, any signs of an economic slowdown are likely to affect PGM's negatively. Currently, not only is an economic slowdown feared, but investors are also preferring US government securities to precious metals as safe haven. The greater decrease in palladium prices, compared to platinum, can be ascribed to the fact that the US is the biggest consumer of palladium (primarily used in the manufacturing of autocatalytic converters).

On the supply side, it was reported on Tuesday that workers are on strike at Lonmin's Marikana mine in South Africa. This comes less than two weeks after the National Union of Mine Workers (NUM), who presents by far the majority of platinum mine workers, reached wage settlements with other major platinum mines. However, the strike at Marikana is not because of a wage dispute, but rather because of a reportedly faulty and inadequate new electronic payment system at the mine. According to NUM, the system has been responsible for many workers not getting paid for months, while others have received incorrect payments. It is estimated that the loss of one day's production at Marikana is around 3,400 oz. Lonmin, the world's third-largest platinum producer, cut production estimates already this year by between 70,000oz and 90,000oz. Given that these problems should be easily rectified, we do not foresee a long and outstretched affair. At best, this news might provide short-term support for platinum in an otherwise very uncertain market.

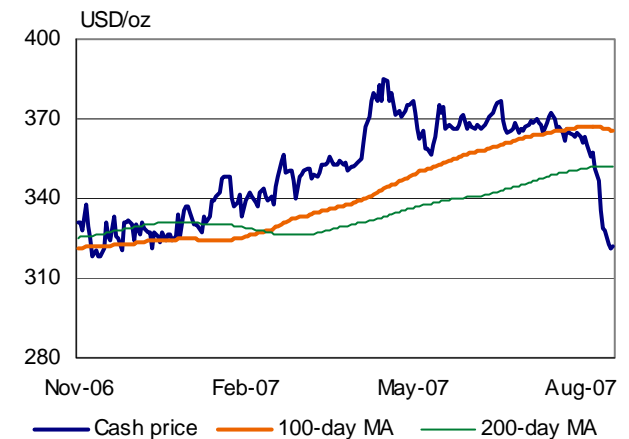
Platinum and palladium are finding it difficult to recover after the prices slump of last week. Global markets uncertainty and the resultant effect on industrial demand in the US has seen palladium come under severe pressure. The US is the biggest consumer of palladium. On the supply side, a new strike at Lonmin is threatening to disrupt platinum production at the world's third-largest producer.

Platinum price movement



Sources: Bloomberg, Standard Bank Group

Palladium price movement



Sources: Bloomberg, Standard Bank Group

Spread (Platinum - Palladium)

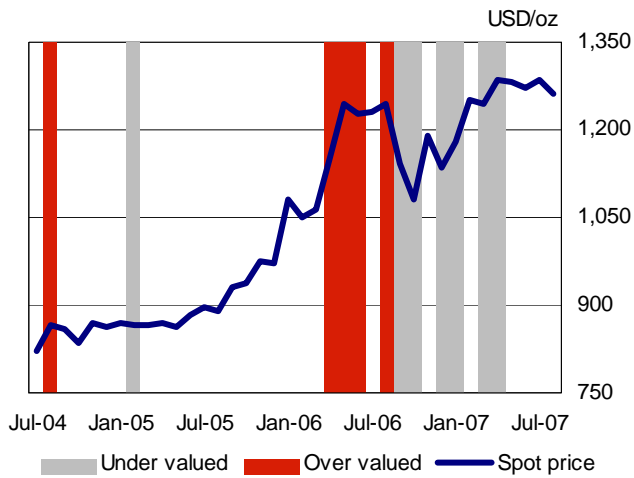


Source: Standard Bank Group



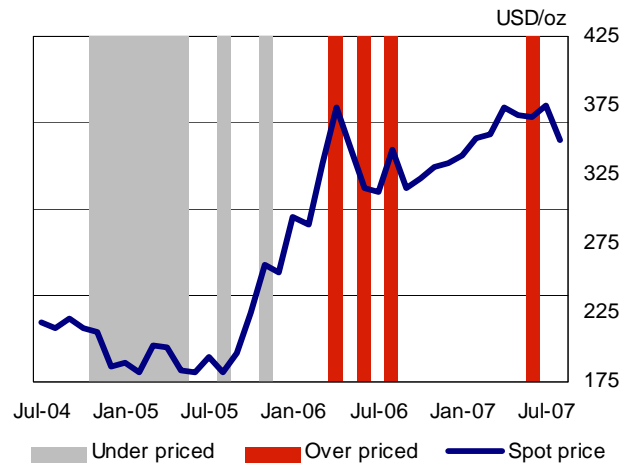
Platinum group metals: (continued)

Standard Bank platinum market conditions indicator



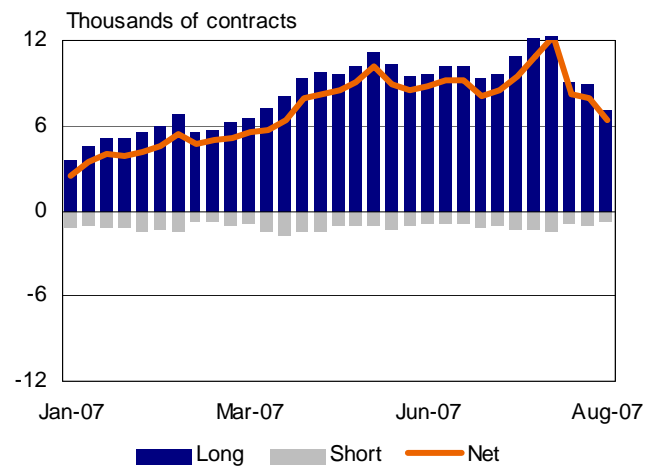
Source: Standard Bank Group

Standard Bank palladium market conditions indicator



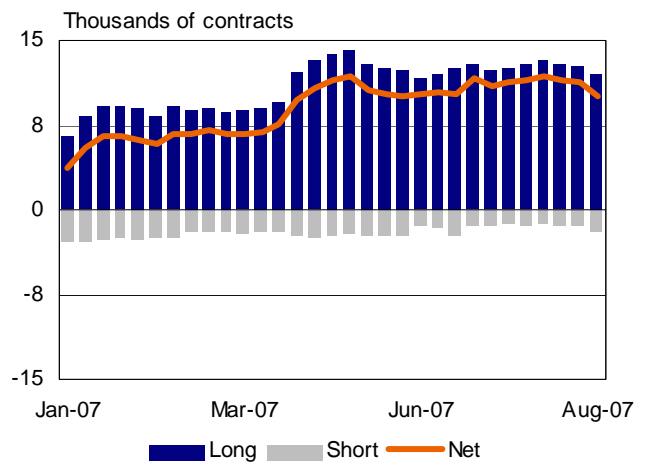
Source: Standard Bank Group

Platinum speculative positions (COMEX)



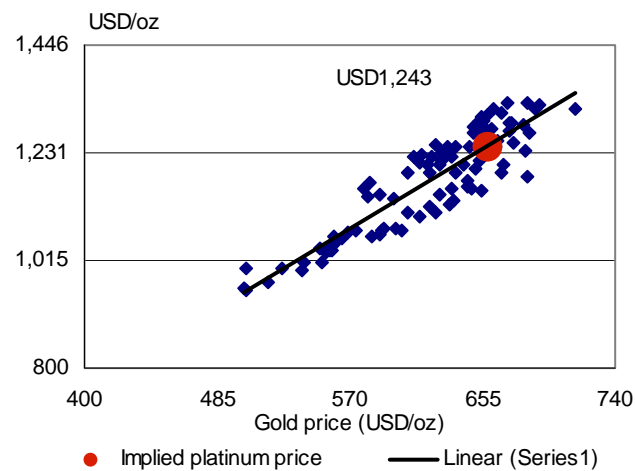
Sources: COMEX, Standard Bank Group

Palladium speculative positions (COMEX)



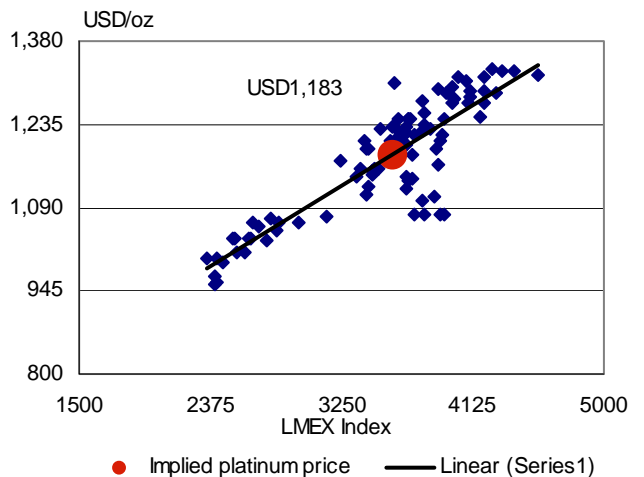
Sources: COMEX, Standard Bank Group

Platinum vs. gold



Source: Standard Bank Group

Platinum vs. base metals



Source: Standard Bank Group



Energy — Crude oil

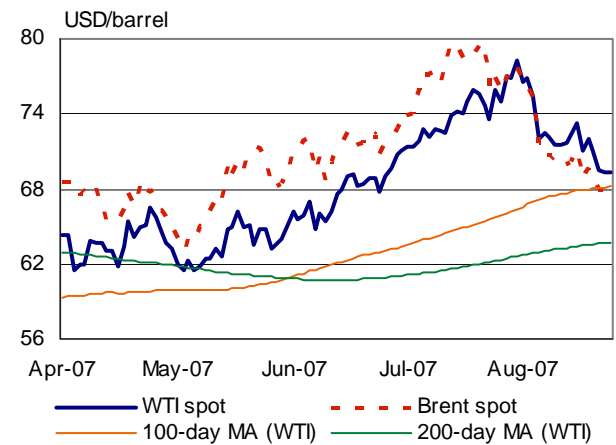
WTI crude oil was well bid during the past week as Hurricane Dean threatened to cause major disruption to oil production in the Gulf of Mexico. But prices fell sharply on Monday after it became apparent that the hurricane was unlikely to create major disruptions. WTI fell from US\$73.33/barrel a week ago, to US\$69.98/barrel on Wednesday afternoon. Brent crude was slightly more stable, with prices largely unaffected by Dean. On Wednesday afternoon, Brent traded at US\$68.34/barrel.

We are in the eye of the hurricane season, traditionally a period with upward pressure on crude prices. But crude is under the same downward pressure as many other commodities. With fears of a global market slowdown (on the back of US housing market woes), investors have been liquidating funds and covering long positions. After speculative long positions for WTI on Nymex reached record high levels at the end of July, major liquidations of this positions have been taking place. Long speculative positions are now 15% less than the end of last month. Because there has been a massive build-up of speculative long positions, the risk of WTI prices falling rapidly has always been a risk. We have seen this happening over the past two weeks. The liquidation of long positions stabilized after the Fed provided additional liquidity to global financial markets. Despite the fall in crude prices, it appears that investors are still not all that bearish on crude. During the past two weeks in which long liquidation took place, short speculative positions have not increased dramatically. In fact, between 31 July and 14 August, short speculative positions increased by only 1.73%. This should not be interpreted as a sign of bearish sentiment towards WTI crude. But although long liquidation has stabilized, it remains high, and further global market woes could trigger another round of selling. Despite this risk, we believe that the fundamentals for crude remain robust.

The latest US refinery capacity utilization rate indicates that capacity utilization is currently at 91.83. The higher refinery runs are drawing down on US crude stock. Last week, US crude stock was 5.3% lower than the all-time high of 354m barrels on 29 June 2007. While US crude stocks have been decreasing, refined distillate and gasoline stocks have been increasing, with resultant crack spreads remaining under pressure. This switch, from a few weeks ago where we saw a build-up in crude stock and a drawdown in refined stock, should ensure that near-term contracts remain well bid and that the market stays in backwardation.

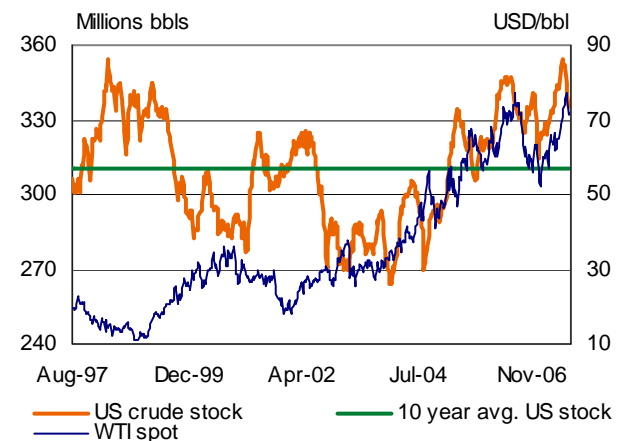
WTI prices fell sharply after it became apparent that Hurricane Dean was unlikely to create supply disruptions. But although long liquidation has stabilized, it remains high. Despite this, we believe that the fundamentals for crude remain robust.

Price movement



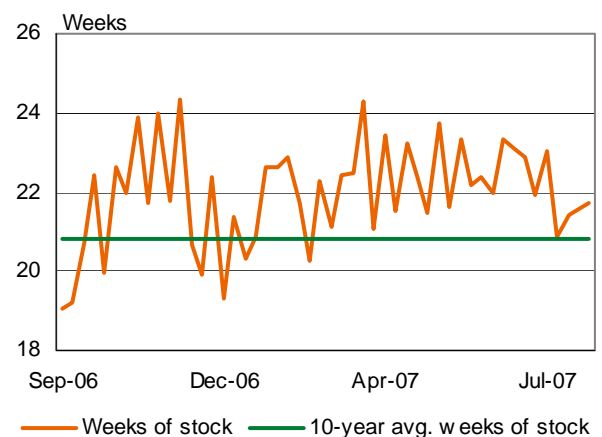
Sources: Bloomberg, Standard Bank Group

US crude oil stock



Sources: Bloomberg, Standard Bank Group

Weeks worth of US crude stock

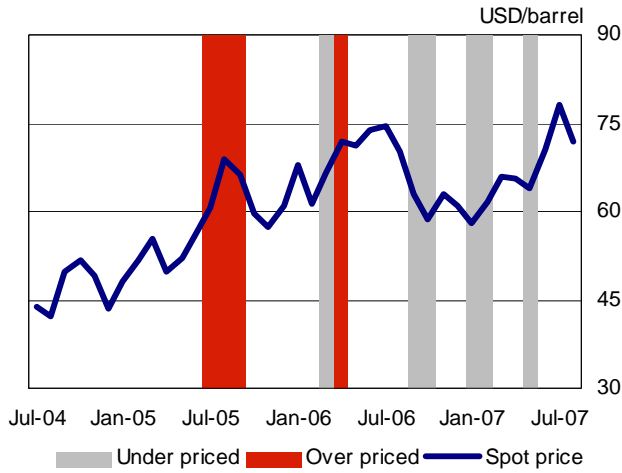


Source: Standard Bank Group



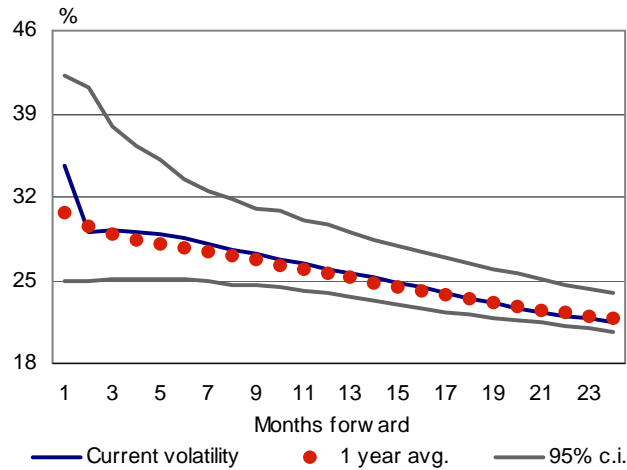
Energy — WTI crude

Standard Bank WTI market conditions indicator



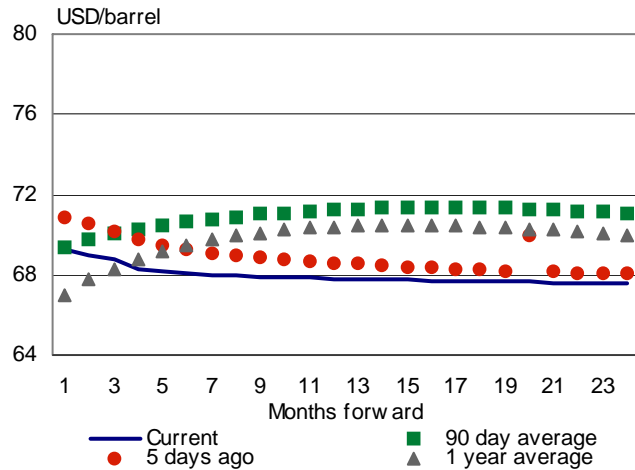
Source: Standard Bank Group

WTI ATM implied volatility



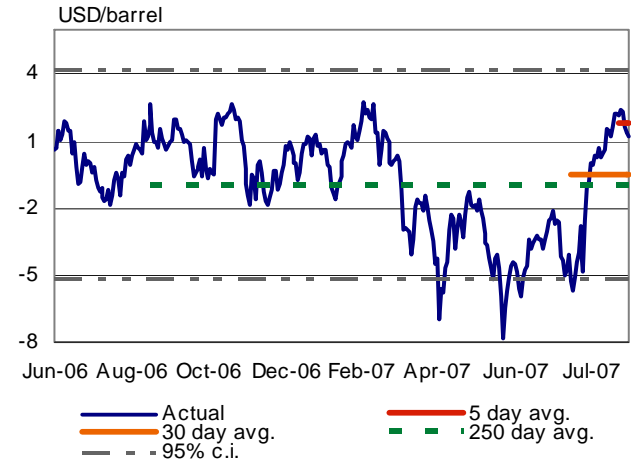
Sources: Bloomberg, Standard Bank Group

WTI Forward curve



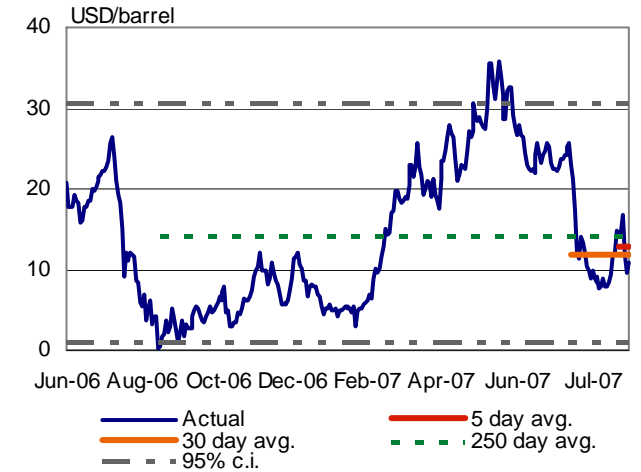
Sources: Bloomberg, Standard Bank Group

Spread (WTI crude — Brent crude)



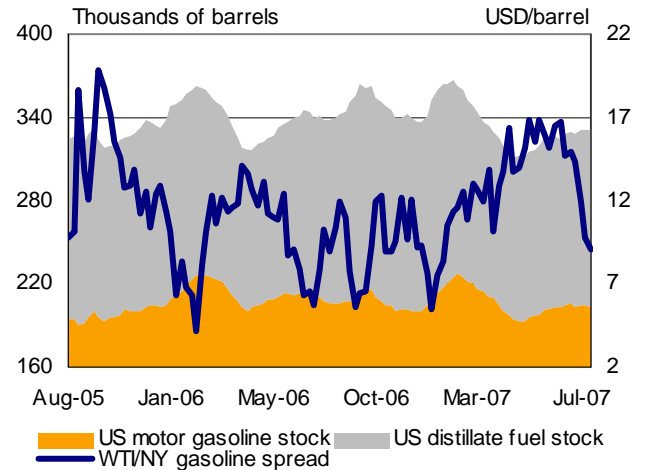
Source: Standard Bank Group

Spread (WTI crude — NY Gasoline)



Source: Standard Bank Group

US refined stock

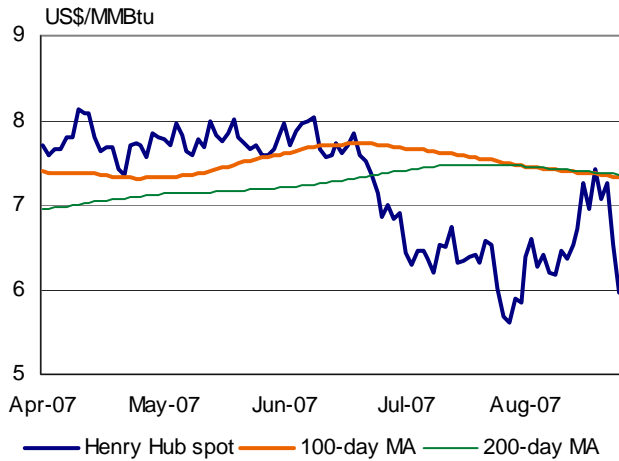


Sources: DOE, API, Standard Bank Group



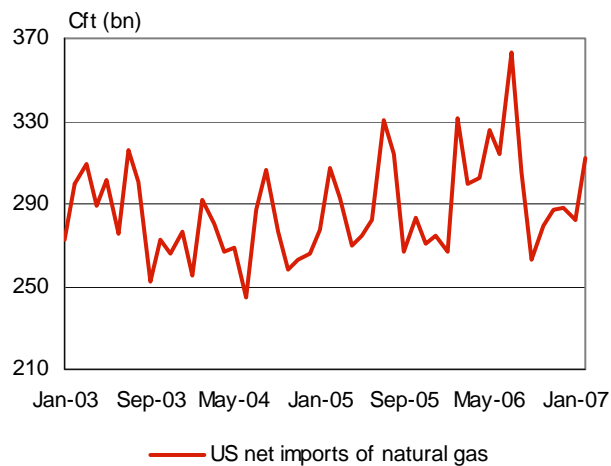
Energy — US natural gas

US natural gas spot price



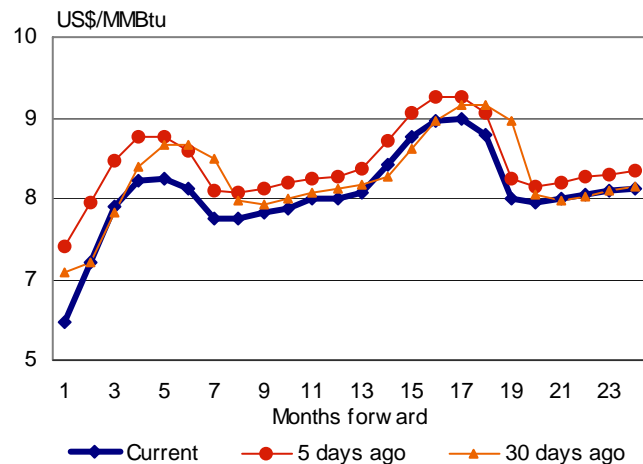
Sources: Bloomberg, Standard Bank Group

US natural gas net imports



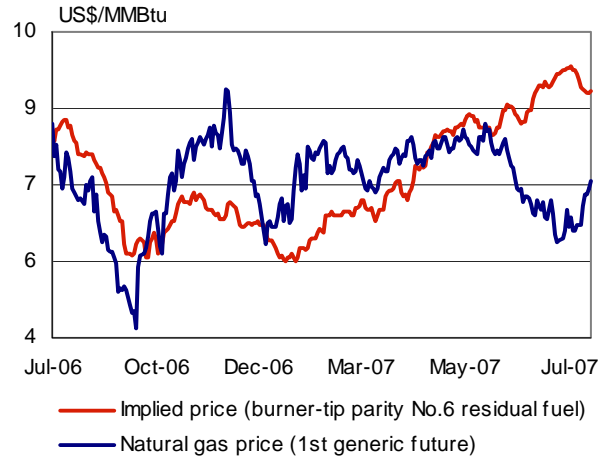
Sources: DOE, Standard Bank Group

Natural gas forward curve



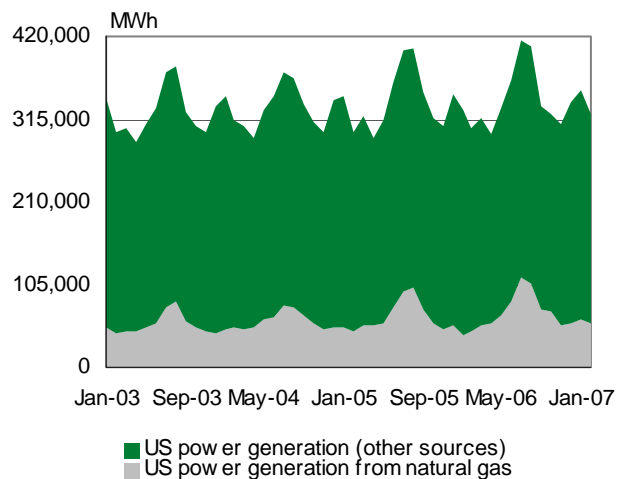
Sources: Bloomberg, Standard Bank Group

Residual fuel equivalent price of natural gas



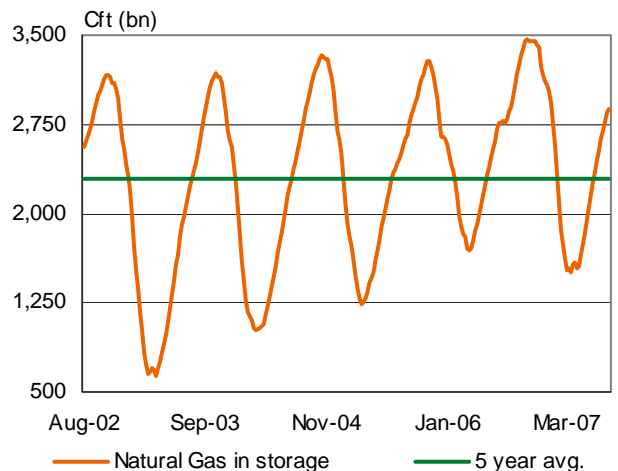
Sources: Bloomberg, Standard Bank Group

US power generation



Sources: DOE, Standard Bank Group

US natural gas storage

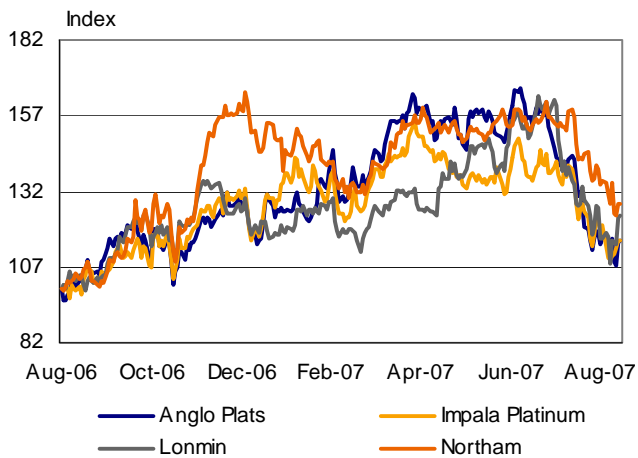


Sources: DOE, Standard Bank Group



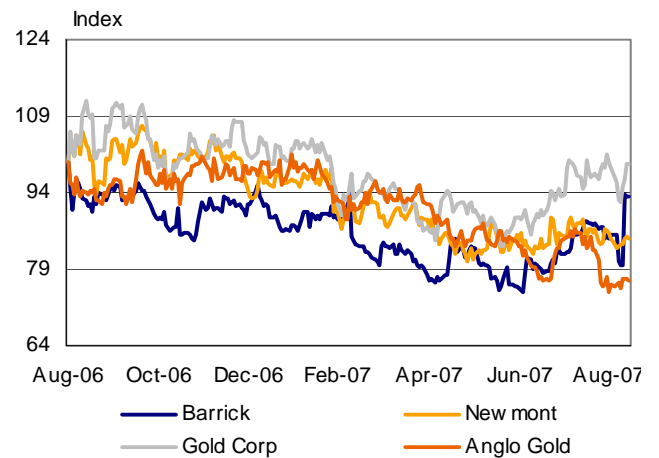
Equity performance

PGM stocks/platinum price



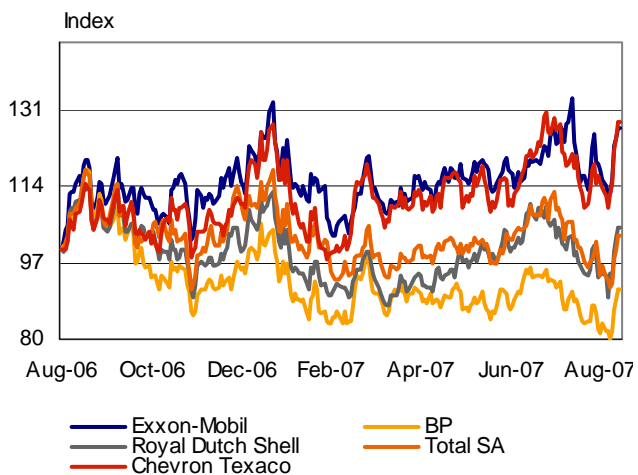
Sources: Bloomberg, Standard Bank Group

Gold stock/gold price



Sources: Bloomberg, Standard Bank Group

Energy stocks/energy BTU equivalent



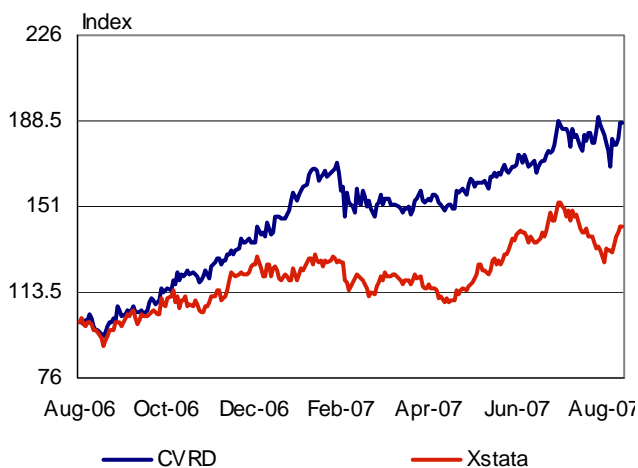
Sources: Bloomberg, Standard Bank Group

Aluminium stocks/aluminium prices



Sources: Bloomberg, Standard Bank Group

Diversified base metals mining stocks/LMEX Index



Sources: Bloomberg, Standard Bank Group



Additional Information/Figure explanations

- **Standard Bank market conditions indicator**

The indicator is based on factors that affects demand for a relevant commodity. Standard multivariate regression analysis is applied to determine a fundamental price for the commodity. The probability of further deviations is determined using historical deviations of the actual price from the estimated fundamental price. When the relevant commodity price falls below the historic 15th percentile of the difference between the actual and fundamental price, the commodity is classified as undervalued. When the commodity price rises above the 85th percentile it is classified as undervalued. The indicators thus show when the spot (cash) price of a commodity is overvalued or undervalued it is due for a correction based on historical probabilities. When the figure shows neither overvalued or undervalued, it implies the commodity is fairly priced based on the estimated fundamental price and prevailing market conditions. The indicator is updated during the first week of each month.

- **Base metal figures**

- **Relative performance to the complex**

The figure measures the performance of a metal relative to the movement of the rest of the complex. The metal's performance is measured relative to the LME index and the index captures the performance of copper, aluminium, nickel, zinc, lead and tin on the LME. The metal's contribution to the LME index is excluded (using standard regression analysis and simulation) from this index to prevent the metal's own movement from explaining itself. Based in this relationship, an implied value for the metal is calculated.

Although each base metal is affected by its own supply and demand factors, in the short run it often happens that the complex moves in unison. Moreover, from a demand perspective most base metals are affected by similar macroeconomic fundamentals and one can expect them to react in a similar fashion to economic news.

- **Volatility vs. stock levels**

The figure plots the ATM implied volatility for the three-month LME contract relative to stock levels in LME warehouses. The figure also provides a polynomial regression line of this relationship, which indicates the historic relationship between volatility and LME stock. The figure therefore is indicative of whether current volatility is high or low compared to the historic relationship. For these figures the last 300 daily observations are used.

- **ATM implied volatility**

The figure provides ATM implied volatility for forward contracts. The figure also provides a 95% confidence interval (c.i.), which is calculated using the historic probability distribution of the volatility based on daily data over the past 600 days.

- **LME stock on warrant**

A warrant allows the carrier of the warrant to take physical delivery of the metal from an LME warehouse. A high percentage of total stock on warrant signals high turnover or metal availability to the market. When the percent of stock on warrant declines (and the percent of cancelled warrants increases), it signals less metal availability in the market. In general, a change in stock on warrant will result in an increase in price volatility.



Additional information on figures: (continued)

• Consumers' price indicator

The consumers' price indicator shows the weighted price of a metal in the currencies of major consumers of the metal and is weighted according to the amount that each country consumed in 2006. For comparison, the US dollar price of each metal is also given. For copper, the price of the metal in Europe, the US, UK, Russia, India, China, Thailand and Japan is used in the calculation. Together these countries consumed 77% of world refined copper in 2006. For aluminium, the price of the metal in Europe, the US, the UK, Switzerland, India, China, Japan, Russia, Thailand, Malaysia, Indonesia, Turkey, Saudi Arabia and Egypt is used in the calculation. Together these countries consumed 83% of world aluminium in 2006. For nickel, the price of the metal in Europe, the US, the UK, India, China and Japan is used in the calculation. Together these countries consumed 80% of world nickel in 2006. For zinc, the price of the metal in Europe, the US, the UK, India, China, Japan, Thailand, Malaysia, Indonesia, and Egypt is used in the calculation. Together these countries consumed 76% of the world's zinc in 2006.

• Precious metals figures

– Gold price for gold fabricators

The gold price for the gold fabricators index shows the weighted price of gold in the currencies of major gold fabricators. The index is weighted according to the amount of gold that each country consumed in 2006. For comparison, the US dollar price of gold is also given. In the calculation the gold price (in local currency) for Europe, Switzerland, the US, UK, Russia, India, Pakistan, China, Japan, Egypt, Saudi Arabia, the UAE, Turkey, Malaysia, Indonesia and Thailand is used. Together these countries constituted 83% of world demand for gold fabrication.

– ATM implied volatility

The figure provides ATM implied volatility for forward contracts. The figure also provides a 95% confidence interval (c.i.), which is calculated using the historic probability distribution of the volatility based on daily data over the past 360 days.

– Gold vs. USD/EUR

The figure plots the gold price relative to USD/EUR exchange rate and it also provides a regression line of this relationship, which indicates the linear relationship between the variables. The figure therefore indicates whether current gold price is high or low compared to the price implied by the historic relationship. For these figures, the last 90 weekly observations are used.

– Gold (platinum) vs. base metals

The figure plots the gold price (platinum price) relative to the performance of base metals (as measured by the LMEX index) and it also provides a regression line of this relationship, which indicates the linear relationship between the variables. The figure therefore indicates whether the current gold price (platinum price) is high or low compared to the price implied by the historic relationship. For these figures, the last 90 weekly observations are used.

– Platinum vs. gold

The figure plots the platinum price relative to the gold price and it also provides a regression line of this relationship, which indicates the linear relationship between the variables. The figure therefore indicates whether the current gold price is high or low compared to the price implied by the historic relationship. For these figures, the last 90 weekly observations are used.

– Platinum/Palladium spread

The figure provides spot price spread between platinum and palladium and it also provides a 95% confidence interval (c.i.) which is calculated using the historic probability distribution of the volatility based on daily data over the past 500 days.



Additional information on figures: (continued)

- **Energy figures**

- ATM implied volatility

The figure provides ATM implied volatility for forward contracts and it also provides a 95% confidence interval (c.i.), which is calculated using the historic probability distribution of the volatility based on daily data over the past 360 days.

- ATM implied volatility

The figure provides the price for forward contracts. It also provides a 95% confidence interval (c.i.), which is calculated using the historic probability distribution of the volatility based on daily data over the past 500 days.

- Spreads: WTI/Brent and WTI/NY Gasoline

The figure provides spot price spread between the applicable variables. It also provides a 95% confidence interval (c.i.), which is calculated using the historic probability distribution of the volatility based on daily data over the past 500 days.

- **Equity performance figures**

The figures provide the performance of equities after accounting for the performance of the underlying commodities that a company mines. A rise in the stock price of a company in the graph shows the company managed to outperform (during the period under display) the underlying commodity. Put differently, after accounting for commodity price movements, the management of the company managed to add additional value to shareholder's wealth. The figures are calculated as follows:

- Energy stock: $\text{Company stock}/(\text{BTU equivalent price of crude} + \text{price of natural gas})$;
- Aluminium, platinum and gold mining stocks: $\text{Company stock}/\text{price of the underlying commodity}$;
- Diversified base metals mining stock: $\text{Company stock}/\text{LMEX Index}$.



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