Base metals still strong, with precious metals looking slightly weaker

**Base metals:** Again, industrial unrest and disruption saw copper prices (page 2) push through the $8,000 level. A week-long holiday in China and a subsequent fall in Chinese activity had some impact — but volumes were surprisingly resilient. The strikes, short-covering and falling exchange stocks should continue to underpin copper prices. Nearby aluminium (page 4) contracts have staged a mini-recovery. The divergent relationship between nearby prices and the far forwards continues to dominate the market, with nearby weakness bowing to longer-term strength. As expected, nickel (page 6) prices are picking up in anticipation of a stronger Q4:07, while high stocks levels are being ignored. Prices closed last week at $30,500 and have since pushed higher, to close on Wednesday at $31,525. Zinc (page 8) continues to potter along with the rest of the complex. It remains weak, with the availability of other grades of zinc detracting from fairly significant falls in LME exchange stocks.

**Precious metals:** The gold price (page 12) has rallied by more than US$70 since the beginning of September mainly because of the rapidly depreciating US dollar (but note that over this past week, the dollar clawed back some ground). But both the dollar and the gold price have run ahead of themselves this past month — therefore some correction is likely. On a relative basis to the dollar as well as on a fair-value basis, we see the gold price closer to US$700. Although the PGM (page 14) rally since the beginning of September has fizzled out, platinum prices remain robust — but note that the longer-term sustainability of PGM demand remains in question. Platinum looks cheap relative to gold, and palladium still can’t quite touch its highs of earlier this year.

**Energy:** In the wake of relative US dollar strength this week, crude prices (page 16) have fallen since Monday, resulting in some profit-taking. Despite this drop in crude prices, speculative net long positions remain very high. Although crude inventories rose last week, this won’t be sustained. Weather forecasters expect at least one more hurricane in the Gulf of Mexico before end-November.
Copper

Again, industrial unrest and disruption saw copper prices push through the $8,000 level — to close last week at $8,030. Prices continued to surge higher this week, helped by a strike in Peru and a bout of short-covering that saw prices close at $8,300 on Wednesday. A week-long holiday in China and a subsequent fall in Chinese activity had some impact, but volumes have been surprisingly resilient. Meanwhile, the Chinese are expected to return to the market next week, coinciding with the start of LME week in London.

Unionised workers at Southern Copper’s Peruvian operations began an indefinite strike on October 2nd after talks on a new labour contract broke down. The company’s Toquepala and Cuajone mines are both affected, as is its Ilo smelting and refining complex. Production from Ilo last year totaled 273,000 tonnes of refined copper. Southern Copper has said it would meet with workers in a bid to end the strike, with regional government officials stepping in to broker the talks. In the meantime, the company has said it is maintaining some sort of production by using non-unionised workers.

A federation of Peruvian mining unions has said that it would take national strike action on November 5th in order to reform labour laws and obtain better rights for sub-contracted workers. Unions at the Cerro Verde and Tintaya mines are supporting the strike. So far, however, the 24hr strike is expected to have little impact. Elsewhere, the long-running strike at some of Grupo Mexico’s operations is also lending support to copper. Workers at its Cananea mine have been on strike for over two months. The company has reportedly renegotiated shipments to customers but has so far not declared force majeure.

On a more positive note, Weatherly International, which now runs Namibia’s Ongopolo copper operations, has achieved full production at its Tschudi underground mine on schedule and within budget. Production for 2008 is expected at 2,500 mt of copper, however, a feasibility study is currently underway, looking into a significant expansion of the project via an open-pit operation.

LME stocks have continued to ease from the recent highs at the beginning of September. Stocks fell 8,650 mt during September, to close last week at 130,775 mt. So far this week, stocks have edged higher, closing on Wednesday at 130,925 mt. The fall in LME stocks has been mirrored by an even larger fall in Shanghai stocks which declined 19,002 mt during September to close on the 27th at 47,791 mt.

* Strikes, short-covering and falling exchange stocks should continue to underpin copper prices. *
Copper: (continued)

Standard Bank copper market conditions indicator

Forward curve

Sources: LME, Bloomberg, Standard Bank Group

Copper consumers’ price

Sources: LME, Standard Bank Group

Volatility vs. stock levels

ATM implied volatility

Speculative positions (COMEX)

Sources: COMEX, Standard Bank Group
Aluminium

Nearby contracts prices have staged a mini-recovery. Aluminium finished last week at $2,520 after a soft patch throughout the middle of September on the back of financial markets turmoil. Aluminium has fallen back this week as the nearby prices came under renewed selling pressure, with prices closing at $2,482 on Wednesday.

The aluminium forward curve, in terms of the relationship between nearby prices and the far forwards, remains somewhat schizophrenic. Nearby prices continue to come under pressure, while the December 2011 contract, for example, has increased from around $2,340 at the end of August to around $2,510 currently.

The buoyant far forward prices have helped to encourage further investment in the sector. The latest example is UC Rusal which is looking to invest $5 billion in the development of its alumina facilities, and is aiming to boost its alumina production capacity by 6.2 million tpy by 2013. The increase will be through two new projects, the 2.8 million tpy Dian Dian and 1.4 million tpy Komi facilities, with a further 2 million tpy of capacity coming from expansion projects at its existing operations.

Elsewhere, China’s appetite for bauxite remains insatiable, with total bauxite imports for August coming in at 3.02 million tonnes, up 88% in y-o-y terms. Year-to-date imports of bauxite now stand at 15.51 million tonnes. Of note is the emergence of India as a source of bauxite as Chinese alumina refineries look to diversify their sources. India didn’t feature at all in the reported 2006 import figures, but so far this year it has imported 3.43 million tonnes of bauxite, of which 832,073 mt was imported in August. As a result, Indonesia, which accounted for 91% of bauxite imports in 2006, has lost market share to India, with imports from Indonesia for the first 8 months of the year now accounting for around 69% of Chinese imports. The increase in bauxite imports comes at the expense of alumina imports because China has added significant amounts of its own alumina production capacity. Alumina imports for August fell by 40.4% y-o-y while year-to-date imports are down by 24.3%, at 3.50 million tonnes.

Stocks have continued to increase, with LME stocks gaining 101,545 mt over September alone. At the end of last week LME stocks were 938,625 mt compared to 826,725 at the end of August. Stocks have since declined a little, but as of October 3rd, warehouse stocks still stand at 937,425.

In summary, the divergent behaviour between the nearby prices and the far forwards continues to dominate the market, with nearby weakness giving way to longer-term strength.
Aluminium: (continued)

Standard Bank aluminium market conditions indicator

Volatility vs. stock levels

Sources: LME, Bloomberg, Standard Bank Group

Forward curve

ATM implied volatility

Sources: LME, Bloomberg, Standard Bank Group

LME stock on warrant

Price for aluminium consumers

Sources: LME, Bloomberg, Standard Bank Group
Nickel

After floundering in the doldrums at the beginning of September, nickel prices have rallied, now consolidating above the $30,000 level. Prices closed last week at $30,500 and pushed higher this week to close at $31,525 on Wednesday.

The dramatic rise, then fall, in the nickel price this year has not deterred investment in nickel projects. Norilsk Nickel and African Rainbow Minerals are looking to invest R3.2 billion ($445 million) to boost output at their jointly owned Nkomati mine in South Africa. The investment is aimed at boosting production from 5,500 tpy to 20,500 tpy. The mine life is also expected to be extended by 18 years — to 2027. Construction is expected to start in 2008, with full production due to be reached in 2011. Underground mining will continue, while two new open-pit mines will produce an additional 578,000 tpm of ore. A new concentrator will also be constructed, giving the plant a total processing capacity of 625,000 tpm of ore.

In Canada, Norilsk will provide financing for Canadian Royalties Inc’s Nunavik project in Canada. Norilsk will also take nickel concentrates from the mine processing the feed at its Harjavalta smelter in Finland. The mine is due on-stream in 2010 and is expected to produce 12,000 tpy of nickel in concentrates.

PT Inco has approved the resumption of work on the Karebbe hydroelectric project in Indonesia, after receiving the forestry permit it needed. The project is key to allowing the company to boost its nickel in matte production to 200 million pounds from the current rate of 165 million pounds. In Brazil, Mirabela Nickel has received approval of its environmental plan and is now moving to the construction phase at its Santa Rita project. The company now expects the mine to be commissioned in mid-2009. Full production is expected to be around 16,000 tpy of nickel in concentrates.

Much of the weakness seen during the summer was due to stainless steel production cuts in China, as producers tried to run down excess inventory. As expected, that trend appears to be coming to an end as we head into Q4:07. Of note, Taiyuan Iron and Steel, China’s largest stainless steel producer, will raise its list price for its benchmark stainless products by $200 in October. The move comes after a difficult summer for the stainless steel industry in China signifies that the stainless market may now have turned, tentatively at least.

Nickel stocks have continued to increase, though the impact on prices has diminished. LME stocks rising 8,316 mt during September to end last week at 32,442 mt. Stocks have continued to increase this week, closing at 32,964 mt on Wednesday.

*In summary, as expected, prices are picking up in anticipation of a stronger Q4:07, while high stocks levels are being ignored.*
Nickel: (continued)

Standard Bank nickel market conditions indicator

Volatility vs. stock levels

ATM implied volatility

Nickel consumers’ price

Sources: LME, Bloomberg, Standard Bank Group

Sources: LME, Standard Bank Group
Zinc

Zinc struggled again, losing more ground to lead. As of October 3rd, three-month lead prices are trading at a premium of $525/mt to the zinc price. Zinc prices closed last week at $3,050, picking up slightly to close on Wednesday at $3,110 helped by an accident at the large Mount Isa mine.

Prices have gained since early September where they reached a low of $2,704 as sub-prime effects and the credit crunch hit metals. However, overall prices have remained pretty static, ending September only around $50 lower than prices at the end of August.

Zinc continues to track the rest of the complex but failed to hang onto its gains and, from a fundamental perspective, still looks weak. LME stocks gained during early September, reaching 74,250 mt on September 11th. Stocks have since sunk to 60,275 mt as of Wednesday, with very little impact on the price. The market is still anticipating the expected supply response, due on-stream shortly, while physical zinc, albeit not LME grade, is also reportedly readily available regardless of the fall in LME exchange stocks.

The main news was a fire at Xstrata’s Mount Isa mine in Queensland, Australia, which has meant that the mine will have to operate at reduced capacity. The company expects 25,000-30,000 mt of contained zinc production and 15,000-20,000 mt of contained lead to be affected. The accident occurred on September 28th but was reported on October 2nd. Zinc prices initially gained on the news, however, it didn’t last long — with prices retracing again. The impact on lead was more marked, with the metal surging to new record highs.

Although the front end of the curve has been moving quite substantially over the past month, the market seems satisfied that future projects will deliver enough zinc to the market. This has seen the back end of the curve barely moving. On the volatility side, it appears as if zinc volatility is trading slightly higher than what stock levels would indicate. Given that global financial markets have stabilised, this volatility may come down.

In summary, zinc continues to potter along with the rest of the complex. It remains weak, with the availability of other grades of zinc detracting from fairly significant falls in LME exchange stocks. The market seems satisfied with the prospect of more zinc coming to the market in the coming months, as indicated by the stable back end of the forward curve.
Zinc: (continued)

Standard Bank zinc market conditions indicator

Volatility vs. stock levels

Sources: LME, Standard Bank Group

Forward curve

ATM implied volatility

Sources: LME, Bloomberg, Standard Bank Group

LME stock on warrant

Zinc consumers’ price

Sources: LME, Bloomberg, Standard Bank Group

Sources: LME, Standard Bank Group
Lead

Price movement

Sources: LME, Standard Bank Group

Forward curve

Sources: LME, Bloomberg, Standard Bank Group

Lead stock

Sources: LME, 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
Tin

Price movement

![Graph showing Tin price movement](image)

Sources: LME, Standard Bank Group

Tin stock

![Graph showing Tin stock levels](image)

Sources: LME, Standard Bank Group

LME stock on warrant

![Graph showing LME stock on warrant](image)

Sources: LME, Bloomberg, Standard Bank Group

Forward curve

![Graph showing forward curve](image)

Sources: LME, Bloomberg, Standard Bank Group

Volatility vs. stock levels

![Graph showing volatility vs. stock levels](image)

Sources: LME, Standard Bank Group

ATM implied volatility

![Graph showing ATM implied volatility](image)

Sources: LME, Bloomberg, Standard Bank Group
Gold

Gold has rallied more than US$70 since the beginning of September, to reach a 27-year high of US$747 on Monday this week. Pressure has been building for some time for gold to scale the US$700 level. However, gold has retreated after the dollar strengthened more than a cent against the euro (since Monday).

In early September, demand forces united to provide gold with the momentum it needed to gain new highs, with good seasonal jewellery demand from India and the Middle East supporting the metal. But gold’s good run is mainly attributable to movements in the US dollar. This week, the dollar reached its lowest level against the euro, at US$1.4281, while the trade-weighted dollar index reached its lowest level since the dollar became a floating currency in 1973.

The current gold bull run raises the question: given that gold is a hedge against dollar depreciation, how low can the dollar still go?

The Bloomberg median consensus forecast put the dollar on average at US$1.40 against the dollar for this quarter, indicating that the current depreciation might be an overreaction and that some strengthening is in the pipeline. Furthermore, indications are that policy-makers are getting concerned about US dollar weakness generally. The rapidly falling dollar has forced Eurozone officials to state that they will urge other G7 members to take a strong stand against exchange rate volatility and US dollar weakness. US Treasurer, Henry Paulson also stated that he believes a strong dollar is in the US’ best interest. Therefore, extreme dollar weakness is likely to be countered through policy action.

Based purely on the linear relationship between gold and the US dollar since beginning of 2006, a dollar of 1.40 would imply a gold spot price of US$705. However, should the dollar depreciate to 1.45, the relationship implies a gold price of US$737 — an indication that the gold price has perhaps stretched itself too far. Our fair value model indicates, based on current fundamentals, that fair value for gold is closer to US$700 on average for Q4.

The gold price has rallied by more than US$70 since the beginning of September mainly because of the rapidly deprecating US dollar. However, it seems the dollar and the gold price have run ahead of themselves, and correction is likely. On balance, the dollar will remain sensitive to key economic data releases in the US, while jewellery demand should support the downside for gold.
Gold: (continued)

Standard Bank gold market conditions indicator

Gold lease rates (spread over LIBOR)

Gold vs. USD

Gold price for gold fabricators

ATM implied volatility

Gold vs. base metals

Sources: LBMA, Standard Bank Group

Sources: Bloomberg, Standard Bank Group

Sources: LME, Bloomberg, Standard Bank Group

Source: Standard Bank Group
Platinum group metals

Platinum has been tracking gold higher over the past few weeks, reaching a high of US$1,388.50 on Monday. But platinum has seen a major sell-off since then, losing over US$30 this week as the dollar gained back some ground against the euro. Palladium had similar fortunes, recovering from the lows it had reached in August. However, it has lost US$10 since Monday, to trade at US$350 on Wednesday afternoon.

Although both platinum and palladium has been receiving good investor support, there hangs a growing question mark over the demand for PGM’s in the manufacturing of catalytic converters. In the past two months, three motor manufacturers have announced technology that will cut the use of PGM completely (or at least drastically). Approximately 53% of platinum demand comes from catalytic converter manufacturing.

Nissan, Daihatsu, and most recently Mazda, made similar announcements. Furthermore, Nissan also has close ties with Fiat, while Daihatsu is partly owned by Toyota, indicating that in the longer run, this technology might spread to other major motor manufacturers. However, there is little information about the commercial feasibility and implementation schedule of this new technology, which is probably why the market has not responded.

Further support in the face of this possible fall in demand comes from ongoing tight supply conditions. There is also good support from high seasonal jewellery demand. These two factors should, for now, support platinum on the downside.

Major demand for palladium is in the US. (Demand for platinum is mainly in Europe and Japan.) Therefore, palladium should find it difficult to touch its highs of earlier this year as the US consumer is likely to enter difficult times in the month ahead.

In the short term, platinum remains vulnerable to movements in the US dollar, and for now appears content to track gold. That said, looking at the gold/platinum relationship since beginning 2006, platinum appears cheap relative to gold. With a gold price of US$735, the platinum price implied by this relationship is closer to US$1,390.

Although the PGM rally since the beginning of September has fizzled out, platinum prices remain robust. But the sustainability of PGM demand remains in question. On a relative basis, platinum looks cheap relative to gold, and palladium should continue to find it difficult to touch its highs of earlier this year.
Platinum group metals: (continued)

Standard Bank platinum market conditions indicator

![Graph showing platinum market conditions](image)

Source: Standard Bank Group

Platinum speculative positions (COMEX)

![Graph showing platinum speculative positions](image)

Sources: COMEX, Standard Bank Group

Platinum vs. gold

![Graph showing platinum vs. gold price](image)

Source: Standard Bank Group

Standard Bank palladium market conditions indicator

![Graph showing palladium market conditions](image)

Source: Standard Bank Group

Palladium speculative positions (COMEX)

![Graph showing palladium speculative positions](image)

Sources: COMEX, Standard Bank Group

Platinum vs. base metals

![Graph showing platinum vs. base metals](image)

Source: Standard Bank Group
Crude oil

Both WTI and Brent prices fell this week, with WTI closing at US$80.05 per barrel on Tuesday — US$3.50 below the high of two weeks ago. Brent followed suit, and was trading just below US$78 on Tuesday.

Crude oil prices dropped from their recent highs as the US dollar strengthened by more than a cent against the euro. This appreciation comes after a month of sustained dollar weakness that saw the greenback reaching all-time lows against the euro this past week. This, and renewed fears that the global economy might be slowing, has prompted investors to take profit. Still, there remains a large net speculative long position, indicating that most investors remain bullish on crude.

Last week saw crude inventories rise in the US after a period of sustained draw-downs since June. However, initial estimates are that this build-up will be only temporary. These expectations have supported crude prices on the downside.

Crack spreads remain at relatively low levels even after refinery capacity utilisation in the US dropped well below 90%. Fortunately, refined inventory levels have increased over the past few months, which should serve to keep spreads relatively narrow.

On the supply side, there remains a great deal of uncertainty over the possible impact that hurricanes might have on crude and refined products. Forecasts of hurricanes vary, but it appears that most forecasters agree that the chances are good for at least one more hurricane in the Gulf of Mexico before the end of November.

Political tensions are boiling over again, which might see crude prices rise over the coming weeks. On Tuesday, tension over Iran’s nuclear programme was highlighted again after the United Nations nuclear watchdog warned that Iran must explain some critical elements in its uranium enrichment programme or face renewed sanctions. Further south, in Nigeria a main insurgent group ended a ceasefire a week ago, but promised renewed attacks on oil infrastructure in the Niger Delta.

Crude oil has fallen since Monday on US dollar strength, resulting in some profit-taking by investors. Despite this drop in prices, speculative net long positions remain very high. Although crude inventories rose last week, it probably won’t last. Weather forecasters expect one more hurricane in the Gulf of Mexico before the end of November.
Energy — WTI crude

Standard Bank WTI market conditions indicator

WTI ATM implied volatility

Spread (WTI crude — Brent crude)

US refined stock

Sources: Bloomberg, Standard Bank Group

Spread (WTI crude — NY Gasoline)

Sources: DOE, API, Standard Bank Group
Energy — US natural gas

US natural gas spot price

US$/MMBtu

May-07 Jun-07 Jul-07 Aug-07 Sep-07

Henry Hub spot 100-day MA 200-day MA

Sources: Bloomberg, Standard Bank Group

US natural gas net imports

Cft (bn)

Aug-02 May-03 Feb-04 Nov-04 Aug-05 May-06 Feb-07

US net imports of natural gas

Sources: DOE, Standard Bank Group

Natural gas forward curve

US$/MMBtu

1 3 5 7 9 11 13 15 17 19 21 23

Months forward

Current 5 days ago 30 days ago

Sources: Bloomberg, Standard Bank Group

Residual fuel equivalent price of natural gas

US$/MMBtu

Sep-06 Nov-06 Feb-07 Apr-07 Jul-07 Sep-07

Implied price (burner-tip parity No.6 residual fuel)

Natural gas price (1st generic future)

Sources: Bloomberg, Standard Bank Group

US power generation

MWh

Jan-03 Sep-03 May-04 Jan-05 Sep-05 May-06 Jan-07

US power generation (other sources)

US power generation from natural gas

Sources: DOE, Standard Bank Group

US natural gas storage

Cft (bn)

Sep-02 Nov-03 Jan-05 Mar-06 Apr-07

Natural Gas in storage 5 year avg.

Sources: DOE, Standard Bank Group
Equity performance

PGM stocks/platinum 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 affect 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 LMEX index and the index captures the performance of copper, aluminium, nickel, zinc, lead and tin on the LME. The metal’s contribution to the LMEX 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**: Company stock/(BTU equivalent price of crude + price of natural gas);
  - **Aluminium, platinum and gold mining stocks**: Company stock/price of the underlying commodity;
  - **Diversified base metals mining stock**: Company stock/LMEX Index.
## Research Strategy

### Robert J Van Eyden — Global Head
robert.vaneyden@standardbank.co.za

<table>
<thead>
<tr>
<th>Area</th>
<th>Position</th>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Africa &amp; Middle East (AME)</strong></td>
<td>Head — Africa</td>
<td>Stephen Bailey-Smith</td>
<td><a href="mailto:stephen.bailey-smith@standardbank.com">stephen.bailey-smith@standardbank.com</a></td>
<td>+44-20-7815-3671</td>
</tr>
<tr>
<td></td>
<td>Local and Sovereign Strategist</td>
<td>Henry Flint</td>
<td><a href="mailto:henry.flint@standardbank.com">henry.flint@standardbank.com</a></td>
<td>+44-20-7815-5514</td>
</tr>
<tr>
<td></td>
<td>Local and Sovereign Strategist</td>
<td>Michael Hugman</td>
<td><a href="mailto:michael.hugman@standardbank.com">michael.hugman@standardbank.com</a></td>
<td>+44-20-7815-3671</td>
</tr>
<tr>
<td></td>
<td>Local and Sovereign Strategist</td>
<td>James Lord</td>
<td><a href="mailto:james.lord@standardbank.com">james.lord@standardbank.com</a></td>
<td>+44-20-7815-8736</td>
</tr>
<tr>
<td></td>
<td>Local and Sovereign Strategist</td>
<td>Phumelele Mbiyo (CFA)</td>
<td><a href="mailto:phumelele.mbiyo@standardbank.co.za">phumelele.mbiyo@standardbank.co.za</a></td>
<td>+27-11-378-7236</td>
</tr>
<tr>
<td></td>
<td>Relative Value Strategist</td>
<td>Dmitry Shishkin (CFA)</td>
<td><a href="mailto:dmitry.shishkin@standardbank.com">dmitry.shishkin@standardbank.com</a></td>
<td>+44-20-7815-3181</td>
</tr>
<tr>
<td><strong>CIS</strong></td>
<td>Head — CIS</td>
<td>Omega Hatfield (CFA)</td>
<td><a href="mailto:omega.hatfield@standardbank.com">omega.hatfield@standardbank.com</a></td>
<td>+7-495-783-3833</td>
</tr>
<tr>
<td></td>
<td>Credit and Securitisation Analyst</td>
<td>Roman Luchkovsky</td>
<td><a href="mailto:roman.luchkovsky@standardbank.com">roman.luchkovsky@standardbank.com</a></td>
<td>+7-495-783-3861</td>
</tr>
<tr>
<td></td>
<td>Relative Value Strategist</td>
<td>Dmitry Shishkin (CFA)</td>
<td><a href="mailto:dmitry.shishkin@standardbank.com">dmitry.shishkin@standardbank.com</a></td>
<td>+44-20-7815-3181</td>
</tr>
<tr>
<td><strong>LatAm</strong></td>
<td>Head — Credit and Securitisation</td>
<td>Ruth Mazzoni</td>
<td><a href="mailto:ruth.mazzoni@standardny.com">ruth.mazzoni@standardny.com</a></td>
<td>+1-212-407-5033</td>
</tr>
<tr>
<td></td>
<td>Credit and Securitisation Analyst</td>
<td>Jose Bernal</td>
<td><a href="mailto:jose.bernal@standardny.com">jose.bernal@standardny.com</a></td>
<td>+1-212-407-5056</td>
</tr>
<tr>
<td></td>
<td>Head — Latin American Economic Strategy</td>
<td>Larry Krohn</td>
<td><a href="mailto:larry.krohn@standardny.com">larry.krohn@standardny.com</a></td>
<td>+1-212-407-5042</td>
</tr>
<tr>
<td><strong>South Africa</strong></td>
<td>Deputy Head</td>
<td>Henry Flint</td>
<td><a href="mailto:henry.flint@standardbank.com">henry.flint@standardbank.com</a></td>
<td>+44-20-7815-5514</td>
</tr>
<tr>
<td></td>
<td>Rates Strategist</td>
<td>Adriaan du Toit</td>
<td><a href="mailto:adriaan.dutoit@standardbank.co.za">adriaan.dutoit@standardbank.co.za</a></td>
<td>+27-11-378-7215</td>
</tr>
<tr>
<td></td>
<td>FX Strategist</td>
<td>Michael Keenan</td>
<td><a href="mailto:michael.keenan@standardbank.co.za">michael.keenan@standardbank.co.za</a></td>
<td>+27-11-378-7246</td>
</tr>
<tr>
<td></td>
<td>FX Strategist</td>
<td>Ayanda Olifant</td>
<td><a href="mailto:ayanda.olifant@standardbank.co.za">ayanda.olifant@standardbank.co.za</a></td>
<td>+27-11-378-7223</td>
</tr>
<tr>
<td></td>
<td>Fixed Income Strategist</td>
<td>Seamus Vasey</td>
<td><a href="mailto:seamus.vasey@standardbank.co.za">seamus.vasey@standardbank.co.za</a></td>
<td>+27-11-378-8151</td>
</tr>
<tr>
<td></td>
<td>Head — Credit and Securitisation</td>
<td>Raven Moodley</td>
<td><a href="mailto:raven.moodley@standardbank.co.za">raven.moodley@standardbank.co.za</a></td>
<td>+27-11-378-7222</td>
</tr>
<tr>
<td></td>
<td>Credit and Securitisation Analyst</td>
<td>Janine Pein</td>
<td><a href="mailto:janine.pein@standardbank.co.za">janine.pein@standardbank.co.za</a></td>
<td>+27-11-378-8154</td>
</tr>
<tr>
<td></td>
<td>Head — Technical Analysis</td>
<td>Darran Grabham</td>
<td><a href="mailto:darran.grabham@standardbank.co.za">darran.grabham@standardbank.co.za</a></td>
<td>+27-11-378-7228</td>
</tr>
<tr>
<td></td>
<td>Technical Analyst (Equities)</td>
<td>Maxima Gama</td>
<td><a href="mailto:maxima.gama@standardbank.co.za">maxima.gama@standardbank.co.za</a></td>
<td>+27-11-378-7235</td>
</tr>
<tr>
<td></td>
<td>Head — Quantitative Strategy</td>
<td>Nicolette Roussos</td>
<td><a href="mailto:nicolette.roussos@standardbank.co.za">nicolette.roussos@standardbank.co.za</a></td>
<td>+27-11-378-7217</td>
</tr>
<tr>
<td></td>
<td>Credit and Securitisation Quantitative Analyst</td>
<td>Asher Lipson</td>
<td><a href="mailto:asher.lipson@standardbank.co.za">asher.lipson@standardbank.co.za</a></td>
<td>+27-11-378-8153</td>
</tr>
<tr>
<td></td>
<td>Quantitative Analyst</td>
<td>Nhlanhla Ntuli</td>
<td><a href="mailto:nhlanhla.ntuli@standardbank.co.za">nhlanhla.ntuli@standardbank.co.za</a></td>
<td>+27-11-378-7229</td>
</tr>
<tr>
<td></td>
<td>Head — High Yield Credit Research (SA)</td>
<td>Ruth Mazzoni</td>
<td><a href="mailto:ruth.mazzoni@standardny.com">ruth.mazzoni@standardny.com</a></td>
<td>+1-212-407-5033</td>
</tr>
</tbody>
</table>

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Francis Beddington – Head of research: strategic initiatives
francis.beddington@standardbank.com +44-20-7815-2706
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