Commodity bulls still in charge

- **Base metals:** Copper (page 2) has lost much of the support it had gained from industrial disruption. However, developments in China, with tightening scrap and concentrates supplies, remain bullish for copper prices. Aluminium (page 4) prices have been holding steady. The impact of new Chinese export taxes will take time to feed through to prices, with technical factors determining price moves in the interim. Nickel (page 6) appears to be bottoming out at around $30,000 – $32,000; however, short-term stock increases are denting sentiment, while zinc (page 8) is being supported by stock drawdowns; however, zinc is still looking for direction from the rest of the complex, in particular copper. Lead (page 10) continues its record run.

- **Precious metals:** Gold (page 12) performed well during the week, continuing its run for the month; the weaker dollar is presently providing good support for the metal. From a technical perspective, Standard Bank believes the euro could soon extend its gains toward the 1.4000 level. Gold has rallied this month, and some consolidation cannot be ruled out. As with gold, platinum (page 14) remained underpinned by a weak US dollar and strong investor interest. As the US dollar is expected to depreciate further, this should continue to provide good support for platinum over the medium term. The other bullish factors in the platinum market also remain in place, with supply out of South Africa remaining uncertain. Platinum has had a good run so far this month, increasing by over US$40/oz. Although we believe bullish factors will continue to dominate the market, some consolidation might take place.

- **Energy:** After the recent highs in both WTI and Brent crude (page 16), prices declined over the past week. OPEC, which has repeatedly stated that it would not increase production of crude oil any time soon despite tightness in the market, has voiced concerns about a possible shortage of crude in the market and the effect that current high crude prices might have on the world economy. However, we believe that tightness in the refined product market, which has been a constant source of upward pressure in the crude market, will continue to ease.
Copper finished last week very strongly, at $8,111/t, compared to the previous week’s close of $7,880/t. However, this week prices have fallen back due to a combination of profit-taking and the resolution of some of the industrial action that had underpinned prices. A sharp increase in LME stocks on Monday has also hurt sentiment. Prices closed on Tuesday at $7,960/t.

The past month’s industrial action continues to peter out. Monday saw the strike at Xstrata’s CCR refinery in Montreal resolved, with striking workers expected to return to work on Wednesday 25th of July. Workers at the 370ktpy facility had been on strike since June 11, and Xstrata had refused deliveries from CCR. Meanwhile Codelco has signed a deal with around half of the 28,000 striking sub-contractor workers. Codelco will meet again, with the union representing the remaining 14,000 or so striking workers.

Chinese imports remain remarkably strong, given the level of imports earlier this year. As expected, June trade data show that imports of copper cathode continued to fall, from 117kt in May to 108kt in June. However, imports of copper concentrates remain strong, up 4% month-on-month, to 107kt. Recent protestations by smelters and threatened cut-backs (discussed in last week’s report), if they materialise, will take time to feed through to concentrates imports. In the meantime, the most interesting aspect of the figures are imports of copper scrap. Scrap imports were 474kt in June compared to 495kt in May and 609kt in April. The Chinese authorities have reportedly been cracking down on scrap dealers and are investigating the reportedly systematic practice of misreporting the scrap grade. As a result, stocks of copper scrap have accumulated at ports, putting pressure on a tightening copper concentrates market.

The Chinese government’s intention to raise the capital requirements of fabricators who import refined copper and then re-export copper-semi products will, in our view, have a negligible impact. Under the new rules, due to be introduced on August 23rd, and taking full effect on October 23, companies will have to pay 50% of the payable duties and VAT upfront and in cash as a deposit. The deposit would then be refunded when the exports are made. Currently, many fabricators use letters of credit to import copper.

LME stocks climbed steadily last week, up 1,125mt to close at 98,675mt on Friday. Stocks have continued to rise this week, up 2,450mt, to 101,125mt by Tuesday.

In summary, copper has lost much of the support it had gained from industrial disruption, but developments in China, with tightening scrap and concentrates supplies, remain bullish for prices.
Copper: (continued)

Standard Bank copper market conditions indicator

Forward curve

Volatility vs. stock levels

ATM implied volatility

Speculative positions (COMEX)

Sources: Standard Bank Group, LME, Bloomberg, COMEX, 1 year average, 95% c.i.

Under valued  Over valued  Spot price

Sources: LME, Standard Bank Group

Sources: LME, Bloomberg, Standard Bank Group

Sources: LME, Bloomberg, Standard Bank Group

Sources: LME, Standard Bank Group

Sources: LME, Standard Bank Group

Sources: COMEX, Standard Bank Group
Aluminium

After drifting lower in the early part of last week, Thursday and Friday saw aluminium surge upward, to close at $2,856/t on Friday. So far this week, prices have drifted lower, with prices closing at $2,828/t on Tuesday.

In an attempt to close a loophole in its tax code, the Chinese Ministry of Finance has said it would impose a 15% export tax on rod and bar, effective August 1st. The move follows the imposition of a similar tax increase on exports of primary aluminium in November 2006, from 5% to 15%.

The tax on primary aluminium, rather than cut exports as had been hoped, instead shifted production and exports towards rather loosely defined aluminium product. Chinese product includes rod and bar plus other forms of aluminium designed specifically to get around the tax on primary aluminium, including first-stage converted metal. As a result, so far this year exports of aluminium product have increased dramatically. It remains to be seen how effective the new tax will be, with any loopholes or poor definitions likely to be exploited.

Looking at Chinese import and export data, the scale of the shift from primary to semis exports is huge. Total semis exports in the first half of this year are 1.022mt, up 94% on the same period last year. Exports of primary aluminium fell 76% y-o-y, to 102kt during the same period. June exports of semis were 220kt, compared to 196kt in May, while exports of primary were steady, at 14kt. The other thing to note about the Chinese trade figures, and something we have noted in earlier reports, is the continued shift from alumina imports, down 20% y-o-y during the first half of this year, to imports of bauxite, up 194% y-o-y over the same period.

The other thing to emerge from the aluminium market is that the project pipeline is starting to coalesce and solidify. The latest project to be announced is a new 7.4mtpy alumina refinery in northern Brazil. The facility is being developed by Hydro and CVRD and will be developed in four 1.85mtpy capacity stages. Production is expected to start in 2011; full capacity is expected to be reached in 2015.

LME stocks have trended lower over the past week, falling 3,500mt, to close at 834,775mt on Friday. However, that trend has since reversed this week, with an inflow of 3,200mt on Tuesday bringing LME stocks to 835,850mt.

In summary, aluminium prices are holding steady. The impact of new Chinese export taxes will take time to feed through to prices, with technical factors determining price moves in the interim.
Aluminium: (continued)

**Standard Bank aluminium market conditions indicator**

![Graph showing aluminium market conditions indicator]

Source: Standard Bank Group

**Forward curve**

![Graph showing aluminium forward curve]

Source: LME, Bloomberg, Standard Bank Group

**LME stock on warrant**

![Graph showing LME stock on warrant]

Source: LME, Bloomberg, Standard Bank Group

**Volatility vs. stock levels**

![Graph showing volatility vs. stock levels]

Source: LME, Standard Bank Group

**ATM implied volatility**

![Graph showing ATM implied volatility]

Source: LME, Bloomberg, Standard Bank Group

**Price for aluminium consumers**

![Graph showing price for aluminium consumers]

Source: LME, Bloomberg, Standard Bank Group
Nickel

Nickel recovered from the beginning of last week, rising strongly on the back of short-covering and renewed speculative interest. Nickel ended the week up $2,450 – at $35,050/t. However, prices have since fallen back this week as rising LME stocks affected sentiment. Nickel closed on Tuesday at $32,250/t.

The reason for nickel’s dramatic turnaround last week was due in part to a news report suggesting that Baosteel, one of the four largest stainless steel producers in China, had suspended purchases of nickel pig iron in July due to fast falling prices for refined nickel. As mentioned in previous weekly reports, nickel pig iron is a source of swing capacity. The scale of substitution to nickel pig iron, predominantly in China, means that while demand stays fairly robust, it serves a dual purpose in capping prices and underpinning prices.

The Baosteel story really served to put the spotlight on the substitution issue, suggesting the temporary floor to nickel prices is actually closer to $30,000 – $32,000 rather than towards the average estimated cash cost for nickel pig iron at around the $25,000 level. The production process for nickel pig iron is energy intensive and will likely be very sensitive to fluctuations in energy and fuel prices. Given the recent surge in oil prices combined with the dramatic fall in nickel prices, it is likely that many of the small Chinese pig iron producers have found the past few weeks tough.

The importance of nickel pig iron to the Chinese stainless steel industry can be demonstrated by the scale of recent imports. June imports of concentrates (including laterite) were 1,531,000mt (gross weight), up 495% y-o-y. Year-to-date imports were up 842% y-o-y. Looking at country specific imports, imports of nickel laterite from the Philippines were 3.26mt during the first half of this year, compared to a mere 640kt during the same period in 2006. Imports from Indonesia showed a similar pattern coming in at 3mt during the first six months of 2007 compared to only 161kt for 2006 as a whole.

Elsewhere, the stainless steel cutbacks by various Asian mills does appear to be having an effect, allowing LME stocks to rise gradually. Nickel stocks rose 1,032mt last week to finish Friday at 11,346mt. As mentioned above, stocks have continued to rise this week, reaching 12,642mt by Tuesday. When steel mills return to normal production over the next month or so, LME stocks will likely be drawn down, putting pressure on prices. In the meantime, technical factors will likely govern prices until direction becomes clear.

In summary, nickel appears to be developing a floor at around $30,000 – $32,000; however, short-term stock increases are hurting sentiment.
Nickel: (continued)

Standard Bank nickel market conditions indicator

![Graph showing USD/tonne prices from Jun-04 to Jun-07](image)

- Under valued
- Over valued
- Spot price

Source: Standard Bank Group

Forward curve

![Graph showing forward curve values from 1 to 23 months](image)

- Current
- 5 days ago
- 90 day average
- 1 year average

Sources: LME, Bloomberg, Standard Bank Group

Volatility vs. stock levels

![Graph showing implied vol vs. LME stock levels](image)

- R² = 0.11

Sources: LME, Standard Bank Group

ATM implied volatility

![Graph showing ATM implied volatility](image)

Sources: LME, Bloomberg, Standard Bank Group

LME stock on warrant

![Graph showing LME stock on warrant values from Feb-07 to Jul-07](image)

Sources: LME, Bloomberg, Standard Bank Group

Nickel consumers’ price

![Graph showing nickel consumers’ price index](image)

Sources: LME, Standard Bank Group

USD gold price
Like the other base metals, zinc recovered towards the end of last week, closing at $3,705/t on Friday, up $114 on the previous week. So far, zinc has managed to hold onto its gains rather well, closing at $3,730/t on Tuesday. However, zinc is still looking for direction and continues to look to copper.

After reaching a low of $3,290/t at the end of June, zinc has strengthened gradually, counter-intuitively perhaps, as the summer has worn on. The reason for the steadily rising prices has been the gradual reduction in LME stocks.

Following a small increase in LME stocks last week, inventories have again been gradually reducing. LME stocks closed on Friday at 68,025mt, down 925mt on the previous week. However, stock drawdowns have accelerated this week, closing on Tuesday at 66,875mt, down 1,150mt so far this week. Excluding this backdrop of falling inventories, zinc has struggled to find its own path, instead opting to follow copper.

After being a net importer of zinc in April and May, China resumed normal service in June. Net refined exports were 7kt in June, following -6kt in May and -7kt in April. June exports were still down around 50% in y-o-y terms, but for the first six months of the year, refined exports remain strong at 190kt, up 77% y-o-y. Year-to-date, net refined exports are 120kt.

Imports of zinc concentrates remain strong. June imports of zinc concentrates were 86kt, compared to 91kt in May and 84kt in April. Imports during the first six months of the year were 443kt of contained metal, up 214% y-o-y. The surge in concentrates imports reflects two things. Firstly, it reflects the increase in refined production output, and secondly, it reflects the inability of domestic production to keep up. Data from the National Bureau of Statistics show that refined production during the first half of 2007 was 1.81mt, up 22.4% y-o-y. Zinc, like copper and aluminium, is yet another metal that has seen China move up the value-added chain.

The increase in zinc (and lead) prices has led to shelved projects being dusted off for re-start. The latest mine to re-open is the Caribou Lead & Zinc mine in Canada; it has been placed on care and maintenance in 1998. Ore processing has recommenced, with the mine expected to be operating at its planned throughput by October this year. Once fully ramped up, production is expected to be around 45ktpy.

In summary, zinc is being supported by stock drawdowns but is still looking for direction from the rest of the complex, in particular copper.
**Zinc: (continued)**

**Standard Bank zinc market conditions indicator**

- **Volatility vs. stock levels**
  - Sources: LME, Bloomberg, Standard Bank Group
  - ATM implied volatility
  - Sources: LME, Bloomberg, Standard Bank Group
  - Zinc consumers’ price
  - Sources: LME, Standard Bank Group

**Forward curve**

- **Current**
- **5 days ago**
- **90 day average**
- **1 year average**

**LME stock on warrant**

- **Stock on warrant (% of stock)**
- **Spread (cash - 3-month forward)**

**Zinc consumers’ price**

- **Zinc price for zinc consumers**
- **US zinc price**

Sources: LME, Bloomberg, Standard Bank Group
Lead

Price movement

USD/tonne

Sources: LME, Standard Bank Group

Lead stock

Thousands of tonnes

Days

Sources: LME, Standard Bank Group

LME stock on warrant

USD/tonne

Sources: LME, Bloomberg, Standard Bank Group

Forward curve

USD/tonne

Sources: LME, Standard Bank Group

Volatility vs. stock levels

Implied vol

Sources: LME, Standard Bank Group

ATM implied volatility

Sources: LME, Bloomberg, Standard Bank Group
Tin

Price movement

USD/tonne

May-06 Aug-06 Nov-06 Feb-07 May-07

Cash price 100-day MA 200-day MA

Forward curve

USD/tonne

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Current
5 days ago
90 day average
1 year average

Tin stock

Thousands of tonnes

Days

Jun-06 Aug-06 Nov-06 Jan-07 Apr-07 Jun-07

LME Days consumption

LME stock on warrant

USD/tonne

Dec-97 May-00 Sep-02 Feb-05 Jun-07

Stock on warrant (% of stock)
Spread (cash - 3-month forward)

ATM implied volatility

%

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16

Current volatility
1 year avg. 95% c.i.

Sources: LME, Bloomberg, Standard Bank Group
Gold performed well during the week, continuing its run of the past month. The weaker dollar is providing good support for the metal. Gold was bid at US$684.50/oz in New York at market close on Tuesday after rising as high as US$687/oz during the day.

The US dollar continued to depreciate over the past week, reaching 1.3852 against the euro on Tuesday this week. From a fundamental perspective, the dollar should continue to come under pressure. Discounting the poor performance of the US housing market and the sub-prime woes of the past two weeks, forecast growth in the US for the remainder of the year remains generally below that of other major countries. Standard Bank believes the euro could soon extend its gains to 1.4000. The gold price implied by a simple regression analysis between the relationship of the US dollar and the gold price, using data over the past 90 weeks, is US$704, indicating that, based purely on this relationship, the gold price still has upside.

Another indication that there is renewed interest in gold is seen in the increase in the net speculative positions in gold. According to the latest commitment of traders that was reported on COMEX, long non-commercial positions increased by 1.1% during the week of the 17th of July, while the short positions decreased by 17%.

All eyes will be on important data releases in the US this week which should provide more clarity on the state of the US economy. On Thursday, new homes sales data will be released, where a decline on a m-o-m basis is expected. GDP figures for Q2 will also be released; although this figure is expected at 3.5%, it is likely to slow down in H2 2007.

Currently we see resistance at US$693.40, with support at US$679.50. Gold has rallied this month, and some consolidation cannot be ruled out.

In summary, gold performed well during the week, continuing its good run of the month. The weaker dollar is providing good support for the metal. From a technical perspective, Standard Bank believes the euro could extend its gains to 1.4000. However, gold has rallied this month, and some consolidation cannot be ruled out.
Gold: (continued)

Standard Bank gold market conditions indicator

![Graph showing Standard Bank gold market conditions indicator]

Source: Standard Bank Group

Gold lease rates (spread over LIBOR)

![Graph showing Gold lease rates]

Sources: LBMA, Standard Bank Group

Gold vs. USD

![Graph showing Gold vs. USD]

Sources: Bloomberg, Standard Bank Group

Gold price for gold fabricators

![Graph showing Gold price for gold fabricators]

Source: Standard Bank Group

ATM implied volatility

![Graph showing ATM implied volatility]

Source: Standard Bank Group

Gold vs. base metals

![Graph showing Gold vs. base metals]

Sources: LME, Bloomberg, Standard Bank Group
Platinum group metals

With bullish factors supporting platinum this month, the metal has seen a good run. However, after breaking above US$1,330/oz on Friday, platinum failed to consolidate. The metal fell back and was bid at US$1,318/oz at close in New York on Tuesday. Thanks to interest in platinum and gold, palladium managed to breach US$370/oz on Friday, but then declined to close in New York at US$366/oz.

As with gold, platinum remained underpinned by the weak US dollar and strong investor interest. Because more depreciation is expected in the US dollar, this should continue to provide good support for platinum over the medium term.

The platinum market remains supported by ongoing supply uncertainty out of South Africa. Wage negotiations at mines continue, with disputes declared at many mines. Combined with Lonmin’s failure to deliver substantial platinum before September, the market should remain well bid.

From an investment perspective, as with gold, important data releases this week in the US will be of interest. On Thursday, new homes sales data will be released, where a decline on a m-o-m basis is still expected. Q2 GDP figures will also be released; although this is expected at 3.5%, it is likely to slow down in H2 2007.

Platinum has had a good run so far this month, increasing by more than US$40/oz. Although we expect that bullish factors will continue to dominate the market, some consolidation might take place. From a technical perspective, we see resistance for platinum at US$1,340/oz and support at US$1,290/oz.

In summary, as with gold, platinum remained underpinned by the weak US dollar and strong investor interest. With the further expected depreciation in the US dollar, this should continue to provide good support for platinum over the medium term. Also, other bullish factors in the platinum market also remain in place, and supply out of South Africa remains uncertain. Platinum has had a good run so far this month, increasing by over US$40/oz. Although bullish factors should continue to dominate the market, expect some consolidation.
Platinum group metals: (continued)

Standard Bank platinum market conditions indicator

![Graph showing platinum market conditions indicator]

Source: Standard Bank Group

Platinum speculative positions (COMEX)

![Graph showing platinum speculative positions]

Source: COMEX, Standard Bank Group

Platinum vs. gold

![Graph showing platinum vs. gold comparison]

Source: Standard Bank Group

Standard Bank palladium market conditions indicator

![Graph showing palladium market conditions indicator]

Source: Standard Bank Group

Palladium speculative positions (COMEX)

![Graph showing palladium speculative positions]

Source: COMEX, Standard Bank Group

Platinum vs. base metals

![Graph showing platinum vs. base metals comparison]

Source: Standard Bank Group
Energy — Crude oil

After the recent highs in both WTI and Brent crude, prices declined over the past week. WTI fell from a level just shy of US$76 per barrel, to US$73.51 on Tuesday. Brent prices experienced a greater fall, declining from more than US$79 per barrel to US$75.77. The net result is once again a sharp decline in the spread between WTI and Brent crude. The decline in crude prices followed: hints that OPEC might increase production; record high crude inventory; higher refinery runs as well as crude and refined markets starting to look past the summer driving season in the US.

OPEC, which has repeatedly stated that it would not increase production of crude oil despite the tightness in the market, has voiced concerns about a possible shortage of crude in the market and the effect that current high crude prices might have on the world economy. However, OPEC’s next meeting is scheduled for September, making any production increase by this group of countries unlikely before then. Indeed, given that the peak demand for gasoline in the US will have passed by September, increased production by OPEC might never become a reality.

The tightness in the refined product market, which has been a constant source of upward pressure in the crude market, should continue to decline; it is expected that refineries have managed to increase production this week. After weeks of poor capacity utilisation by refiners, the expected release of production utilisation is likely to be the highest in 10 months. This expectation of higher utilisation is reflected in current lower prices.

It is also interesting to note that the front end of the forward curve has moved into backwardation again over the past two weeks. This should provide positive yield roll for funds. However, it remains to be seen if the backwardation curve is here to stay.

In summary, after the recent highs in both WTI and Brent crude, prices declined over the past week. OPEC, which has repeatedly stated that it would not increase production of crude oil despite the tightness in the market, has voiced concerns about a possible shortage of crude in the market and the effect that current high crude prices might have on the world economy. We believe tightness in the refined product market, which has been a constant source of upward pressure in the crude market, should continue to ease.
Energy — WTI crude

Standard Bank WTI market conditions indicator

WTI ATM implied volatility

Sources: Bloomberg, Standard Bank Group

Spread (WTI crude — Brent crude)

Sources: Standard Bank Group

Spread (WTI crude — NY Gasoline)

Sources: Standard Bank Group

US refined stock

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

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

Energy stocks/energy BTU equivalent

Sources: Bloomberg, Standard Bank Group

Diversified base metals mining stocks/LMEX Index

Sources: Bloomberg, Standard Bank Group

Gold stock/gold price

Sources: Bloomberg, Standard Bank Group

Aluminium stocks/aluminium prices

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 physical take 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 increase), 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)

- **Energy figures**
  - **WTI crude vs. US crude stock**
  
The figure plots the WTI crude spot price relative to US crude stock levels and it also provides a regression line of this relationship, which indicates the linear relationship between the variables. The figure therefore indicates whether current WTI crude price is high or low compared to the price implied by the historic relationship. For this figure the last 200 weekly observations are used.
  
  - **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 outperformed (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.
Additional information/Figure explanations (continued)

- **Consumer’s price index**

  The consumer price index shows the weighted price of a metal in the currencies of major consumers of the metal and is weighed 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. 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 of whether 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.
# Research Strategy

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## CEEMEA

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