Deutsche Bank

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Commodities Outlook

- **Commodities as an Asset Class**: Investor appetite for commodities has never been stronger, in our view. We expect renewed inflows into the sector during 2010. However, we believe threats to the complex start to appear as the authorities remove monetary and fiscal stimulus later this year.
- **Crude Oil**: We expect that 2010 will mark the transition back to the traditional fundamentals relating to oil supply, demand and inventories in contrast to financial, currency and equity market drivers that we believe dominated oil price trends last year. In our view, this would mean that rallies in the oil price above USD80/barrel will only become sustainable in 2011.
- **US Natural Gas:** We expect natural gas prices to average USD6.00/mmBtu in 2009 and believe prices should average close to this in 2011 and 2012 as well. With ample supplies available from the shale plays and imported LNG, we no longer expect a return to a long-term 8-10 to 1 oil/gas price ratio.
- **Precious Metals**: We believe the US dollar and investor inflows into gold will become less constructive for the gold price in the first half of this year. Indeed the US dollar tends to do well in anticipation of Fed rate hikes. We prefer to express bullish views in the sector via PGMs and silver as global growth recovers and new PGM investment vehicles come to the market.
- **Industrial Metals**: The industrial metals complex was the best performing of the four broad commodity sectors in 2009. From a valuation perspective, we believe investors need to recognize that asset classes that have been past winners have a habit of becoming future losers. From a fundamental perspective, we believe Chinese restocking, which was such a powerful force in 2009 on pushing copper prices higher, may move into reverse this year.
- **Agriculture**: 2009 proved that even small supply disruptions can have a powerful impact on agricultural prices such as sugar, cocoa and coffee. We believe parts of the complex are still trading cheap and we view new mandates to boost ethanol use in the US as bullish for corn.
- **Carbon Emissions**: Following the disappointing outcome of December's COP-15 climate summit in Copenhagen, we do not now see any prospect of the EU's raising its 2020 emission reduction target beyond the current 20%. Nonetheless, we would expect the Dec-10 EUA contract to firm from Q2 in response to German generators' hedging of their 2013 carbon exposure.

Navigating The Recovery

Market Update

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Commodity Views

Energy							
USD	**Level**	**Δ wk**	**Δ ytd**	**12M Low**	**12M High**	**5Y Avg**	**6M View**
WTI	82.75	1.52%	4.27%	33.98	83.18	71.52	
Brent	81.37	1.56%	4.41%	39.55	81.89	71.20	
Heating oil	2.20	0.45%	3.85%	1.13	2.20	2.01	
Gasoline (RBOB/gallon)	2.16	2.42%	5.01%	1.04	2.16	1.96	
US natural gas (/mmBtu)	5.75	-2.29%	3.18%	2.51	6.01	7.25	
Coal (API#2/tonne)	94.75	10.17%	13.81%	54.00	96.25	84.24	
Uranium (/lb)	44.50	0.00%	0.00%	40.50	55.00	57.14	
EUR Emissions Cal'10	12.87	-0.39%	3.78%	8.45	16.16	19.82	

Precious Metals							
Spot (USD/oz)	**Level**	**Δ wk**	**Δ ytd**	**12M Low**	**12M High**	**5Y Avg**	**6M View**
Gold	1132.78	1.35%	3.11%	806.07	1214.24	719.86	
Silver	18.12	5.53%	6.65%	10.51	19.18	12.42	
Platinum	1564.13	3.23%	6.57%	920.00	1564.13	1227.93	
Palladium	424.75	1.01%	4.49%	179.25	424.88	299.97	

Industrial Metals							
3M Fwd (USD/tonne)	**Level**	**Δ wk**	**Δ ytd**	**12M Low**	**12M High**	**5Y Avg**	**6M View**
Aluminium	2284	0.75%	2.42%	1288	2377	2300	
Copper	7461	-0.52%	1.17%	3090	7660	5894	
Lead	2532	0.68%	4.11%	995	2680	1730	
Nickel	17900	-5.76%	-3.37%	9455	20605	21986	
Tin	17340	-0.63%	2.30%	9875	17825	12529	
Zinc	2521	-2.06%	-1.52%	1097	2718	2300	

Agriculture							
1st nearby (USc)	**Level**	**Δ wk**	**Δ ytd**	**12M Low**	**12M High**	**5Y Avg**	**6M View**
Cocoa (USD)	3296	1.23%	0.21%	2242	3498	2046	
Coffee	145.35	2.47%	6.91%	103.55	148.20	118.47	
Corn	423.00	1.08%	2.05%	300.50	449.50	350.23	
Cotton	72.44	-4.68%	-4.18%	40.01	76.25	56.29	
Soybeans	1013.00	-3.48%	-2.57%	848.50	1267.00	867.18	
Sugar	27.53	-0.33%	2.15%	11.43	28.41	12.90	
Wheat	568.50	1.93%	4.99%	429.00	674.50	538.01	

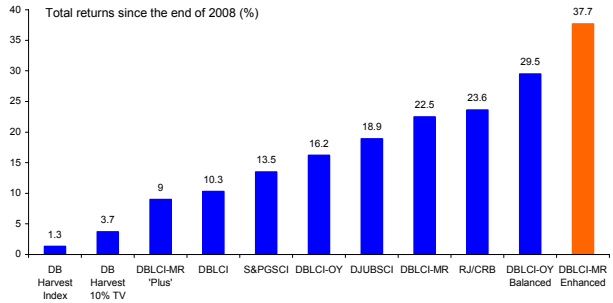
Source: Deutsche Bank, Bloomberg (Prices as of close of business January 8, 2010) Price forecast are in the back of this report

#1 Executive Summary

Navigating The Recovery

- Governments and central banks have engineered a strong rebound in global growth, which was almost unimaginable 12 months ago. We expect global growth will continue to surprise to the upside and consequently see commodity prices remaining at elevated levels.
- However, we believe the difficulty in 2010 will be how authorities remove this stimulus without undermining risky assets such as equities and commodities. While financial, currency and equity market trends were the principle drivers of the oil price last year, we expect these factors will become less supportive this year.
- We expect China's impact on commodity markets will be less uniform this year. On the one hand as the country's growth moves away from fixed asset investment and towards stronger export growth, we believe this will encourage further advances in dry freight rates. We also expect the country will continue to run agricultural trade deficits, most notably in soybeans, cotton and palm oil.
- China's move to become a net importer of thermal coal is likely to continue, in our view. Indeed cold weather, strong power consumption growth and the potential for infrastructure bottlenecks most notably in the rail network will, in our view, result in rising thermal coal imports into China, which we expect will push seaborne coal prices even higher in 2010.
- On the other hand, we believe the powerful restocking cycle in China that took place in 2009 and which led to a surge in copper imports will move into reverse this year. Although long-term structural factors remain bullish for copper, such as declining ore grades, ageing mines and rising costs, we believe prices are vulnerable on a cyclical basis.
- We believe one of the most powerful forces driving many commodity prices higher last year was the collapse in the US dollar. We believe as the Fed prepares to tighten monetary policy the US dollar will discover modest strength. As a result, we expect investor activity in gold will become less euphoric in the first half of this year. However, the history of US dollar cycles would suggest that a renewed slump in the US dollar cannot be ruled out. Consequently we are still positioning for gold to set new all time highs in 2011 to highlight these risks and the appeal of gold as an inflation hedge.
- In the near term we believe other parts of the precious metals complex such as the PGMs will outperform gold not least given the improvement in the global auto sector, but also as a result of new investment vehicles in the PGM sector which we expect will increase the role of investor activity in this part of the complex.
- Aside from modest US dollar strength during 2010, we also believe a programme of Fed rate hikes will threaten to damage the appeal of dollar carry trades. In the commodity space super low US interest rates have encouraged many investors to take physical delivery of certain commodities and sell forward to extract carry. We believe this has been a feature of the aluminium market where we estimate around 70% of LME inventories are locked away in such financing deals. As a result, we believe a more aggressive turn in US interest rates at the end of this year would threaten to undermine such strategies in the commodity space.
- In agriculture we believe last year highlighted that even with a small disruption in supply agricultural prices can react violently to the upside. We believe the structural factors such as the fight to feed people, cattle and cars in an environment of land and water constraints will sustain upside price risks in the complex. In the US, we expect the ethanol blend in gasoline will be increased by five percentage points from the middle of the year and as a result increasing further the industrial use of corn.
- Investor appetite for commodities has never been stronger, in our view. We expect renewed inflows into the sector during 2010. However, we believe threats to the complex start to appear as the authorities remove monetary and fiscal stimulus later this year.

Figure 1: 2009 Commodity index scorecard



Source: Deutsche Bank

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#2 Trade Recommendations

#1 Long dry freight

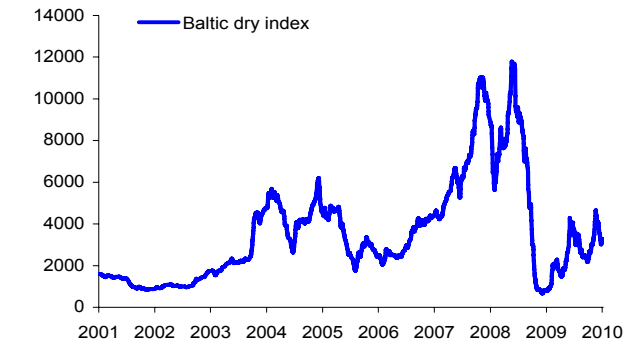
We believe one of the most interesting features of China's economic outlook is the transition of growth away from fixed asset investment towards export growth. We expect Chinese export growth will improve from -15% yoy in 2009 to over 20% yoy in 2010. A large part of this recovery reflects the improvement in US and EU GDP growth. Our China Economics team estimates that a 1 percentage point rise in G3 GDP growth tends to boost Chinese exports by approximately 7 percentage points.

Since freight rates have historically been a good proxy for global growth cycles we believe a macro environment that will be characterised by positive growth shocks at least in the first half of this year provides fundamental justification for freight rates to move higher.

We believe the main risk to this bullish outlook comes from the possibility of strong bulk fleet growth. However, we find that the proportion of scheduled deliveries has not happened. As a result, the slippage rate has risen steadily since 2004 and by the second half of last year had reached its highest level for more than a decade. Part of this may reflect financing issues for owners and yards may be struggling to complete ships on time. We believe this will prove temporary and that additional capacity will eventually limit advances in dry freight rates.

We believe another appeal of a long position in dry freight stems from the extreme backwardation in the freight forward curve. We believe part of the explanation for the extreme backwardation in the dry freight forward curve has been the rise in port congestion in both the Atlantic and Pacific regions.

Figure 1: Dry freight rates



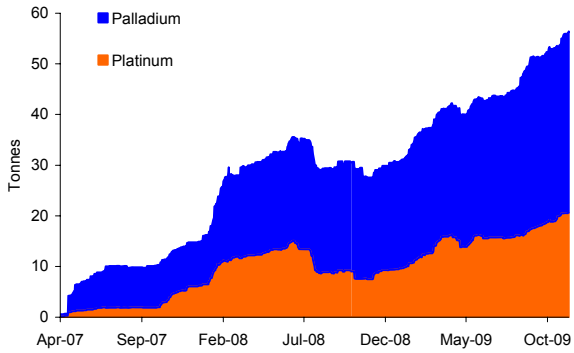
Source: Deutsche Bank, Bloomberg

#2 Long platinum

We find that the precious metals sector continues to constitute the lion's share not only of listed ETFs, but also in the growth of AUM in commodity ETFs. We believe this holds bullish implications for the PGM sector. Over the past month the approval and launch in the US of new ETFs in platinum and palladium will provide a new route to position for a recovery in world GDP growth, an improvement in the global auto sector and the recurring threat of power constraints in the South African mining sector. Indeed as auto demand picks up globally we would expect that demand for auto-catalysts will follow suit. There is also the potential for some measure of re-stocking by auto producers. We expect this will sustain a market deficit in the platinum market heading into 2011.

In terms of gold, we expect prices could remain moribund in first half of this year. This reflects the fact that the US dollar tends to rally in anticipation of Fed rate hikes, which we expect to commence from August 2010. Monetary action could also lead investors to re-evaluate inflation risks. As a result, we would look for the PGM sector to outperform gold and consequently long platinum versus short gold could also be an attractive trade to position for US dollar strength and global reflation occurring at the same time. We believe the main risk to this trade would be renewed slump in the global auto sector.

Figure 2: Total holdings in platinum & palladium ETFs



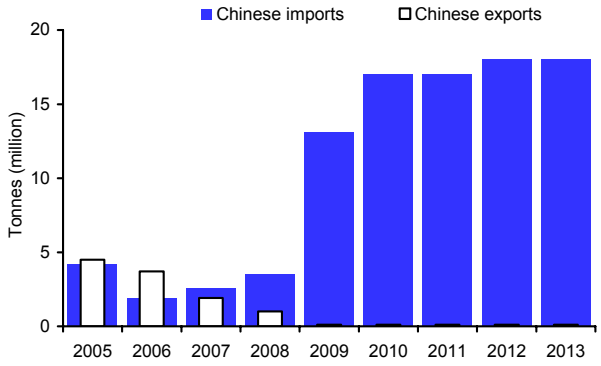
Source: ETF Securities, ZKB, Metals Securities Australia

#3 Long thermal coal

Last year China moved from a net exporter of thermal coal to becoming a net importer. We expect fundamentals for thermal coal will tighten further during 2010. We believe strong Chinese demand has been driven by both an increase in demand as economic growth and stimulus propel coal requirements higher and by a curtailment of production primarily in the Shanxi province as small operations have been closed for safety and environmental reasons.

Near-term, the cold weather in the northern hemisphere is providing support. Moreover we believe that strong power consumption growth in China combined with recent closures of coal mines in the country and the potential for infrastructure bottlenecks most notably in the rail network could result in growing imports of thermal coal into China, pulling seaborne prices higher. Furthermore, consumption growth in other nations, such as India, Japan and Korea, are likely to be increasingly important in our view. On the supply side, we envisage little growth from some key exporters such as South Africa, Indonesia and Russia. We believe the main risk to this trade would be a sudden recovery ni Chinese thermal coal mine supply.

Figure 3: China moves to become a net importer of thermal coal



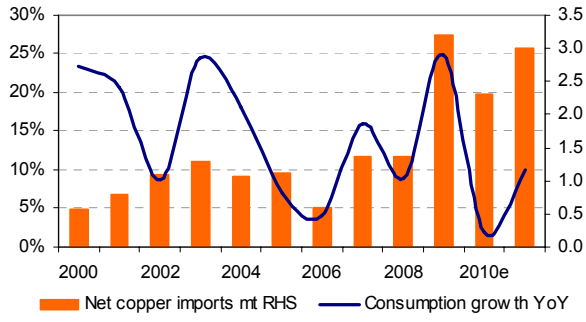
Source: AME, Deutsche Bank

#4 Long aluminium vs. short copper

We expect that the industrial metals complex may experience weakness over the next several months; catalysts for this inflection in performance could include a lack of follow-through from OECD demand (re-stocking) or it could result from investor anticipation of higher US interest rates if in fact economic data is sufficiently strong to warrant more decisive, inflation targeted, action. In this context we believe that aluminium could outperform other metals such as copper or zinc. Aluminium fundamentals are supported by financial capital in a more meaningful way than for other metals, participation which we believe will be sustainable for much of 2010. Furthermore cost inflation is re-emerging in the sector and could provide a floor for prices at near the USD2,000/tonne level, in our view. We see aluminium as trading closer to its 'fair value' than the other metals.

In contrast, we believe that copper is vulnerable to a correction. The market consensus view for copper is overwhelmingly positive and while we acknowledge the strong long-term fundamentals for the metal, we believe that the catalysts which have pushed prices higher over the past several quarters have run their course. From the China perspective, while we expect demand to remain strong we do not expect a continuation of the re-stocking event that dominated the copper market in 2009. Indeed we expect that new copper imports could fall by as much as 30% this year. While this would still be much higher than the 'normal' level of imports witnessed before 2009, we expect such a large drop in copper imports would be taken negatively by the market. We believe the main risk to this trade would be if Chinese copper imports failed to decline.

Figure 4: Chinese copper imports & consumption growth



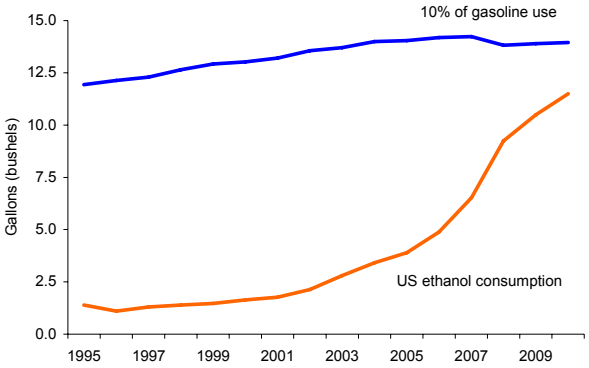
Source: Bloomberg, Deutsche Bank

#5 Long corn

We believe many parts of the agricultural sector have significant price upside going forward. We believe the mix of rising population levels, urbanisation, improving living standards alongside land and water constraints will lead to increasing agricultural shortages, particularly across Asia. This is already visible in China's trade position which has seen a surge in agricultural imports during this decade. This has been partly responsible for the decline in the global corn inventory-to-use ratio close to a 30 years low.

We believe US energy policy will also trigger increased demand for corn as a feedstock for ethanol production. Indeed we expect the US Environment Protection Agency to approve a five percentage point increase in ethanol blend in US gasoline from the middle of this year. We estimate that this will increase US ethanol demand by an additional seven billion gallons and sustain strong demand side fundamentals for corn. Indeed on our estimates the proportion of US corn production employed in the US ethanol industry will rise to almost 40% by 2012. We believe the main risk to this trade would be an increase in US corn acreage. The USDA will publish the annual prospective plantings survey on March 31.

Figure 5: US ethanol consumption approaches the blend wall

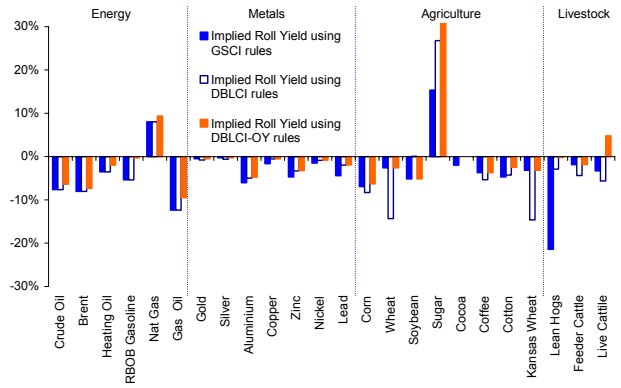


Source: Deutsche Bank, Bloomberg (data as of January 8, 2010)

#6 Long sugar

Sugar prices have hit their highest levels since the beginning of the 1980s. Unlike the majority of commodities where their forward curves are in contango, the sugar forward curve is in backwardation. Figure 1 examines the implied roll return across a variety of commodities using various rolling schedules as employed by the S&PGSCI (monthly), DBLCI (annual) and the BLCI-OY (optimized). It examines commodity forward curves as of January 8, 2010 and finds that sugar enjoys the largest positive roll return of any commodity.

Figure 6: Implied roll return across the commodities complex



Source: Deutsche Bank, Bloomberg (data as of January 8, 2010)

We believe this is reflective of extremely tight fundamentals and the shortages in the sugar market that have appeared over the past year. This has been driven by adverse weather conditions in India and Brazil. Although we expect to see a recovery in India sugar production from 16mt to 21.5mt, projected demand is expected to be approximately 23mt. We believe this will sustain shortages and lead to a doubling in the country's import requirements. Strong demand is also likely to be sustained in Indonesia and Iran.

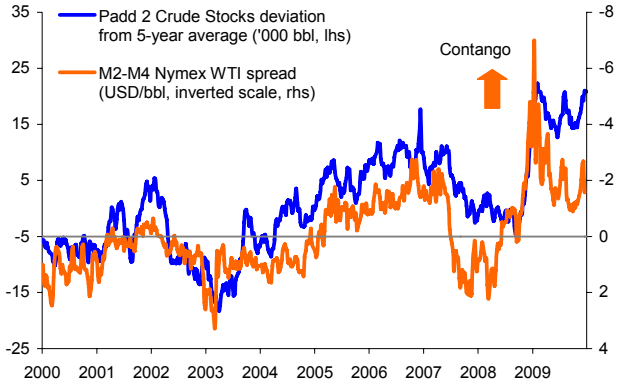
We believe the main event risk would be a strong supply response. This was part of the reason driving sugar prices significantly lower during 2006. However, with production problems in India set to continue, we would look to either higher Brazilian production or the possibility of increased European sugar exports as the main event risks for this trade.

#7 Short crude oil & long crude oil contango

Oil prices have hit their highest levels since October 2008. We believe rising equity markets, a falling US dollar and more recently extreme weather have contributed to rise in energy prices over the past year. However, we believe some of these forces will become less price supportive going forward. Although equity markets can still rally during periods of Fed tightening, we expect the US dollar will strengthen in anticipation of Fed rate hikes.

Moreover in terms of physical fundamentals, we believe the high levels of oil inventories in the US and across the OECD will be the Achilles heel for oil prices during 2010. Indeed we find that the high level of Padd2 inventories menas the flattening in the crude oil forward curve may be difficult to sustain. We believe oil prices are therefore in danger of moving into overbought territory. We believe the main risk to this trade would be a renewed slump in the US dollar.

Figure 7: PADD2 inventories & the WTI forward curve



Source: Deutsche Bank, Bloomberg

#8 Carbon and CERs

On our calculations, forward-hedging of power sales by generators into 2013 and beyond could create a need for 139Mt of Phase-3 EUAs by year-end 2010, 341Mt by year-end 2011, and 629Mt by year-end 2012 for the German generators alone. However, in our view there will not be any Phase-3 EUAs available to purchase on the market until the third quarter of 2011 at the earliest.

Even allowing for the fact that generators in other western European countries do not sell such a high proportion of their output as far forward as do the Germans, we think it reasonable to assume that the total EU-wide demand for Phase-3 allowances over 2010-12 (i.e. including Germany) could be at least 2x the level of Germany on its own. This would imply EU demand for Phase-3 EUAs of at least 278Mt by year-end 2010, 682Mt by year-end 2011, and 1,258Mt by 2012.

As a result, from the second quarter of 2010 onwards we think that EU generators (and particularly German generators) will start to buy increasingly meaningful amounts of Dec-12 EUAs as a hedge against their 2013 forward electricity sales.

Other things being equal we would expect this:

(i) to bid up the Dec-12 contact relative to the Dec-10 contract and hence steepen the contango in the forward EUA curve.

(ii) to bid up EUAs relative to CERs (and hence to widen the EUA/CER spread). If the spread were gradually to widen to the levels seen in the first half of 2008 (€6-8/t), then this would imply a progressive upward trend in the Dec-10 EUA price towards and into the €16-18/t range over the next 12 months.

At the same time, however, we would expect the volatility seen in the EUA price over the last 12 months to continue in the near term, and so do not expect EUAs to move up to EUR16-18/tonne in a straight line over the next year. In particular, in the short term we would expect to see EUA prices continue to be sensitive to macro conditions in the EU and oil-price movements.

Nonetheless, our conclusion is that the Dec-10 EUA price is likely gradually to trend up into the EUR16-18/t range over the next 12 months, and the EUA/CER spread to widen over that period while also becoming more volatile. This is because a widening spread should attract other (i.e. non-power) ETS sectors to swap out their CER quotas against EUAs. With the more sophisticated installations swapping out first and thus prompting periodic contractions in the spread, the spread would probably

need gradually to widen further in order to tempt increasingly less sophisticated installations into the trade. In short, we could see a widening concertina effect in the EUA/CER spread over the next 12-18 months.

We believe the main risk to these trades would be any deterioration in EU economic activity. Moreover the outcome of the COP-15 conference in Copenhagen in December 2009 has in our view heightened the uncertainty over the continuation of the CDM and JI mechanisms beyond 2012. As a result, this could lead to increasing volatility in CER and EUA pricing during 2010.

Figure 8: Cal'11 EUA-CER spread

Source: Deutsche Bank, Bloomberg

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#3 Commodity Indices

Introducing the DBLCI Allocator Index

- **Since 2003, Deutsche Bank has launched more than ten commodity indices and an array of commodity sub-indices to cater for the growing investor appetite for commodity exposure.**
- **One can consider the evolution of the commodity index universe as moving from simple long only beta strategies towards enhanced beta and alpha strategies, with the choice of a commodity index a function of the investment objective of the investor.**
- **In this article we introduce the DBLCI Allocator Index. This is a rule-based strategy that combines existing DB commodity indices, with the aim of delivering market beta during commodity price rallies and extracting alpha at other times.**
- **We believe this index benefits from a number of factors: first, exploiting the mean reverting properties of commodity prices; second, optimizing roll returns; and third by extracting positive returns when commodity prices come under pressure.**

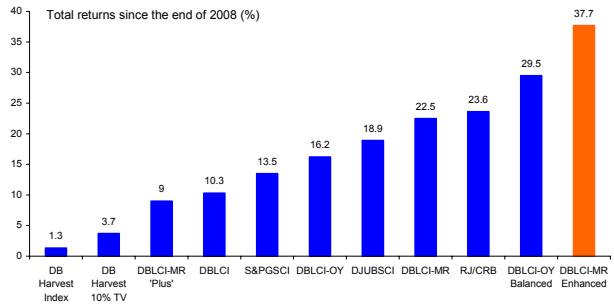
Before 2003 there were only three investible commodity indices, the S&PGSCI, the DJUBSCI and the Rogers International Commodity index. However, in February 2003 Deutsche Bank launched two commodity indices to challenge these incumbent indices. Over the subsequent six year period there has been a wave of new commodity indices launched onto the marketplace by the major investment banks.

In our view, the traditional long only commodity index, where commodity allocations are fixed and futures contracts are rolled on a monthly basis are inferior to gain exposure to commodity markets and can be improved upon. In this article we introduce the DBLCI Allocator index, which exploits the mean reverting properties of commodity prices, takes into account the dynamic nature of commodity forward curves and attempts to extract returns when commodity prices are falling.

The building blocks of the DBLCI Allocator Index are the DBLCI-MR Enhanced and the DB Commodity Harvest indices. The DBLCI-MR Enhanced can be considered a beta-generating strategy such that the index generates directional returns by exploiting the mean reversion properties of commodities. It dynamically allocates in 12 commodities across the four broad commodity sectors according to whether a commodity is trading 'cheap' or 'expensive'.

A commodity is assessed as to whether it is trading cheap or expensive according to how far the one-year average price is trading above/below its five-year average price. The DBLCI-MRE also employs the optimal yield technology to optimize roll returns. Moreover single commodity allocations within the DBLCI-MRE are subject to certain caps in order to avoid concentration risk and to ensure adequate diversification. In 2008, total returns on the DBLCI-MR Enhanced rose by 37.7%. This compares with total returns of 13.5% and 18.9% for the S&PGSCI and DJUBSCI respectively, Figure 1.

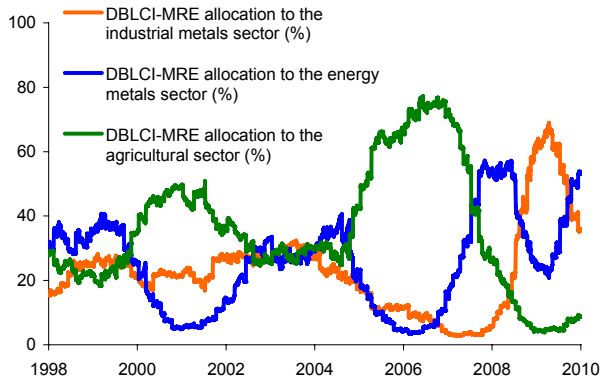
Figure 1: 2009 commodity index scorecard



Source: Deutsche Bank, Bloomberg

We believe the outperformance of the DBLCI-MR Enhanced during last year reflected the index's ability to overweight 'cheap' commodities. Indeed by April 2009 the DBLCI-MRE had increased its exposure to the industrial metals complex to just under 70%, a record high, Figure 2.

Figure 2: Historical sector weights of the DBLCI-MRE

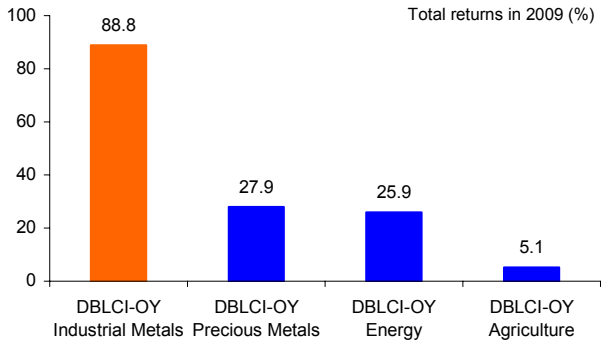


Source: Deutsche Bank

This proved a successful strategy as industrial metals were the best-performing of the four broad commodity sectors last year on a total returns basis, Figure 3. However, over the past few months the sector allocation of the DBLCI-MRE has been changing in response to what is believed to be an overvaluation in industrial metal

prices. Heading into the first half of this year, we expect the DBLCI-MRE will continue to cut its allocation to industrial metals and increase its exposure to the energy and agricultural sectors. If this trend continues then this strategy would imply that the index is positioning for the strong recovery in industrial metal returns to stall and energy and agriculture to become the engine rooms of performance during the course of 2010.

Figure 3: Sector returns in 2009

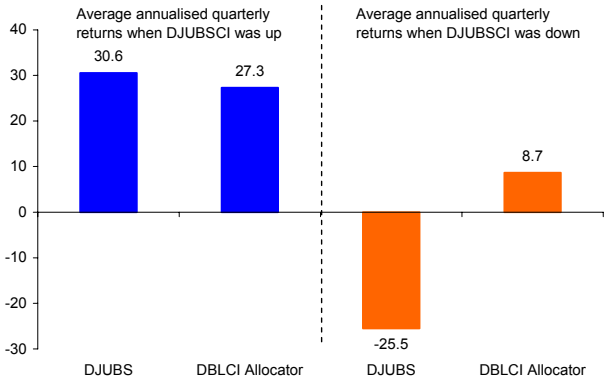


Source: Deutsche Bank

The other leg of the DBLCI Allocator strategy is the DB Commodity Harvest index. This leg can be considered the alpha-generating strategy of the DBLCI Allocator such that it generates "carry" by capturing the relative value between different commodity futures through DB's Optimum Yield futures rolling mechanism. The DB Commodity Harvest index is not only also a market-neutral commodity index, but, returns are negatively correlated with the DBLCI-MRE. As a result, the DBLCI Allocator can be considered a way of participating during a commodity bull run as well as aiming to extract positive returns when commodity prices turn lower.

The allocation mechanism between the DBLCI-MRE and the DB Commodity Harvest index is determined on a monthly basis. At each rebalance date, the allocation between the DBLCI-MRE and the DB Commodity Harvest is determined from the relative performance of the two indices over the previous 12 months. Twelve performance indicators for each of the two indices are constructed and each indicator reflects the performance of the DBLCI-MRE and the DB Commodity Harvest index over the 12th, 11th, … up to the most recent month. The allocation to commodities is proportional to the number of times the DBLCI-MRE indicators are positive. For example, if the DBLCI-MRE posts positive returns in three out of the last 12 monthly indicators then the allocation to the DBLCI-MRE will be 25% and the remainder in the DB Commodity Harvest index. Finally, a 12% volatility target is applied to the resulting portfolio. The leverage to the portfolio as a whole is adjusted within a 50% to 150% range on a monthly basis in order to meet this volatility target. We also find that the DBLCI Allocator performs well in both rising and falling markets. We examined the performance of the DBLCI Allocator in different returns environments for the DJUBSCI, Figure 4. We find that in periods when DJUBSCI returns were positive so too were the DBLCI Allocator, but, more importantly when DJUBSCI returns were negative, the DBLCI Allocator was able to extract positive returns.

Figure 4: The performance of the DBLCI Allocator in positive and negative return environments



Source: Deutsche Bank, Bloomberg (Data from January 2001-December 2009)

Conclusion

We believe the DBLCI Allocator is a superior strategy versus a pure long only index exposure. We believe for those investors concerned towards the sustainability of the upturn in global growth, the DBLCI Allocator provides some protection in the event of another relapse in global growth. Where global growth continues to perform strongly we expect the DBLCI Allocator will also prosper as it starts to reduce its overweight exposure in industrial metals and rebuilds its exposure to the energy and agricultural sectors.

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Figure 5: Comparative performance analysis

Jan 2001 - Jan 2010	DBLCI Allocator	DJUBSCI	DBLCI MR Enhanced
Annualised return	20.30%	2.30%	13.00%
Volatility	12.69%	18.85%	18.77%
Sharpe ratio	1.59	0.12	0.69
Max monthly draw dow n	-11%	-30%	-29%
Max/min returns			
Rolling 12 months	58.0%/-4.7%	39.8%/-52.6%	71.2%/46.5%
Rolling 3 months	21.5%/-14.54%	27.7%/40.7%	36.4%/38.9%
Average monthly returns	1.58%	0.29%	1.18%
% months w ith gains	69.20%	55.14%	60.74%

Source: Deutsche Bank, Bloomberg (data up to January 5, 2010)

#4 Global Macro

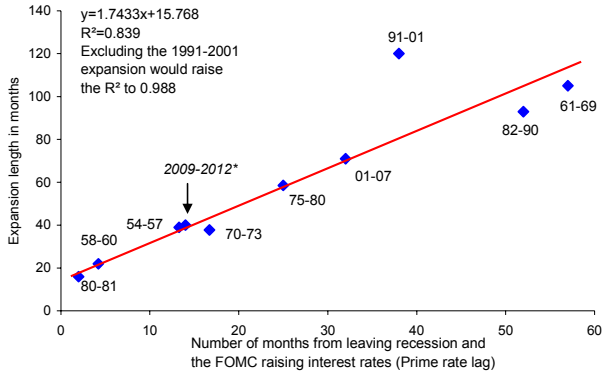
Full Steam Ahead

- **We expect world GDP to grow by 4.0% in 2010. We are consequently above consensus forecasts for this year. We believe this is a comfortable view to hold not least since in the past four recoveries analysts have consistently under-predicted growth during the first year of recovery. As a result, we believe the risk of a double dip recession is a very low probability event this year.**
- **In January 2005 we presented analysis that attempted to time the duration of US economic expansions and hence the date at which US GDP turned negative. We believe this analysis will prove useful to dispel fears of a double dip recession during 2010.**
- **We found that the duration of every US expansion since 1954 was directly proportional to the amount of time it takes the Federal Reserve to start tightening monetary policy after a recession. Consequently the longer the Fed waits before raising interest rates the more durable will be the economic expansion.**
- **Although it has not been officially declared yet, the latest recession appears to have ended in June 2009. According to our US Economics Team, the Fed will embark on a new monetary tightening cycle in August 2010. Based on our calculations, this would imply the next US recession will begin in November 2012, which would represent one of the shortest economic expansions in the last 55 years.**
- **We therefore expect global growth trends will remain supportive for most commodity prices heading into 2010. In fact Fed tightening has historically been beneficial to industrial metal prices since rising nominal interest rates in the US have typically coincided with an acceleration in GDP growth.**
- **However, we would view US dollar strength as a key risk for the commodities complex given the tendency of the greenback to strengthen in anticipation of a turn in the US interest rate cycle.**
- **In terms of equities, history would suggest that the S&P500 can rally in the early stages of a Fed tightening cycle. Indeed the beginning of six of the last eight Fed tightening cycles had no discernible impact on the upward path of equity market recoveries.**
- **While a stronger S&P500 might provide comforting to the outlook for commodities and specifically industrial metal prices we remain concerned that Fed tightening might eventually lead to a more violent bond market sell-off which could spill onto equities and hence global commodity markets.**

Timing US recessions

Historically, the beginning of the end for US GDP growth comes as soon as the Fed starts to embark on a new monetary tightening cycle. As shown in Figure 1, over the past 55 years the duration of every US expansion has been directly proportional to the amount of time the Fed provides monetary stimulus to the economy in the period immediately after the economy has moved out of recession.

Figure 1: Prime rate lags & the length of US economic expansions (1954-2012)



** This assumes the US Federal Reserves starts a new monetary tightening cycle in August 2010*
Source: Deutsche Bank

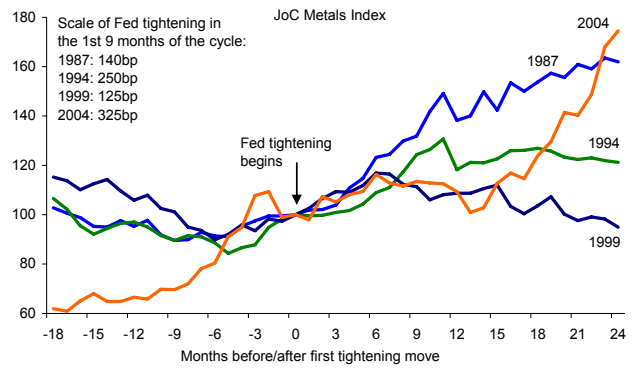
For example, when we first presented this analysis in January 2005 we stated the next US recession would begin in December 2007. This reflected the fact that the US left recession in November 2001, but, it was not until June 2004, 32 months later, that the Fed started to raise interest rates. Based on the historical correlation, a prime rate lag of 32 months would imply an economic expansion of 72 months (1.743 x 32 plus 15.8). Since our US Economics team expect the Fed to embark on a new monetary tightening cycle in August 2010, and if we assume the US recession ended in June 2009, then it would imply a prime rate lag of 14 months.

Based on the historical correlation this would imply an economic expansion of just 40 months. Put another way, this would mean the next US recession will start in November 2012, representing one of the shortest

economic expansions in the last 55 years. As a result, we would view a double dip recession as a low probability event during 2010.

If we are correct and the Fed begins a new monetary tightening cycle in August 2010 then historically the industrial metals complex has been the main beneficiary of rising US nominal interest rates. We examined the performance of the Journal of Commerce Metals Index in the last four tightening cycles, Figure 2. We find that before 2004, the time to buy industrial metals was in the 3-6 months before the first tightening in US monetary policy. In the subsequent 12-month period, nickel was the best performing of the six LME industrial metal, rallying by an average of 60%. However, the lessons of 2004 reveal that industrial metals were rallying 12 months before the Fed tightened monetary policy. Since the industrial metals complex was the best performing of the four broad commodity sectors last year we believe a large part of the acceleration in global growth has already been priced into the complex.

Figure 2: Fed tightening & industrial metal prices



Source: Deutsche Bank, Bloomberg

As we outline in the industrial metals section of this report, on a relative basis we are most constructive to aluminium and, by the middle of the year, towards nickel. Although both markets can be considered over-supplied given the significant rise in inventories over the past two years, in an environment of low US interest rates, we believe there is increasing financial demand for these commodities. For as along as US interest rates remain low we expect this financial interest to be sustained. A more violent tightening in US dollar rates would in our view hold risks for long aluminium carry trade strategies.

In our view, another potential hazard for the commodities complex from a turn in the US interest rate cycle will be the effect on the US dollar and the S&P500. In the past industrial metal prices and more recently crude oil prices have had the strongest positive correlation with the S&P500. According to our US Equity Research team, the beginning of six of the last eight Fed tightening cycles had no discernible impact on the upward trajectory of equity market recoveries.

In terms of when these risks unfold we find that the Fed typically waits around 15 months from leaving recession before raising interest rates. On average the S&P500 tends to rally by just under 10% in the months following the first rate hike, Figure 3. To keep in line with historical averages this would imply the Fed raising interest rates in September 2010 or 15 months after the end of the recession.

Figure 3: Fed rate hikes & the performance of the S&P500 around US recessions

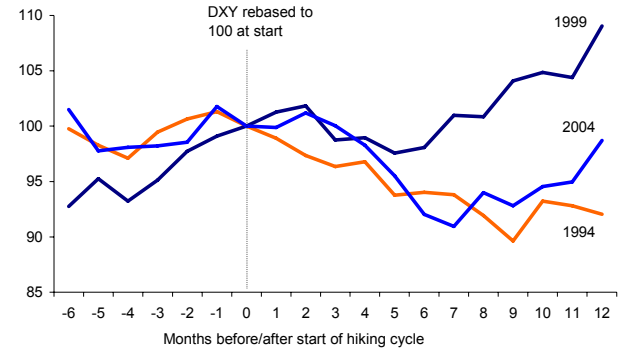
Fed hikes rates in	Recession end to first Fed rate hike (# months)	% change 6M after hike from 3M prior
Jul-58	3	26.2%
Jul-61	5	9.8%
Mar-72	16	8.3%
Dec-76	21	-7.0%
Aug-80	1	13.6%
Mar-83	4	15.7%
Feb-94	35	-1.7%
Jun-04	31	9.6%
Average	**15**	**9.3%**

Source: Deutsche Bank, Bloomberg

This may provide comforting reading to the outlook for commodity prices and specifically industrial metal prices, which have tended to be positively correlated with the S&P500. However, on two occasions in 1976 and 1994 equity markets have declined during the early phases of a new Fed rate hiking cycle. In 1976, equity market weakness was related to stubbornly high inflation while in 1994 it was triggered by a bond market sell-off.

Since our US Equity Research team views US equities as cheap, in a scenario that does not see interest rate hikes jeopardizing the economic recovery we would view any negative impact on equities as temporary. Rather we believe the main hazard of Fed rate hikes on commodity markets this year is the potential that this triggers a rebound in the US dollar. In our view, not only is the US dollar cycle trading at undervalued levels versus the euro, but, interest rate hikes have historically provided cyclical support for the greenback. We examined the last three Fed tightening cycles and find that the US dollar tended to rally in anticipation of interest rate hikes although these gains were surrendered in the following six month period, Figure 4.

Figure 4: The DXY US dollar index tends to rally in advance of Fed rate hikes



Source: Deutsche Bank, Bloomberg

Conclusion

We believe the global macro environment is becoming less constructive to the gold price. We expect Fed rate hikes to lead to a modest strengthening in the US dollar. In addition, we believe an acceleration in global growth would encourage a reduction in risk aversion levels and stem the pace of inflows into gold ETFs. As a result, we expect the PGMs and silver offer greater upside relative to gold in an environment where global growth is recovering and where the industrial use of these commodities is significantly higher than compared to gold.

In terms of the industrial metals complex, we believe in an environment of stronger growth and further gains in the S&P500 the sector will remain well supported. However, we remain concerned that the significant rally in industrial metal prices over the past year holds risks for the sector and specifically for copper if, as we expect, Chinese restocking moves into reverse during 2010.

We believe the outlook for oil prices will also be challenged where the US dollar is strengthening. In addition the still high level of inventories in the US and across the OECD indicate an oversupplied market and consequently any price rallies will be based on shaky foundations, in our view.

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#5 Crude Oil

2010: From Financial to Physical Drivers

- **Although crude oil prices grew strongly across most of 2009, we expect that the recovery in underlying demand and inventory fundamentals is really more of a story for 2010 and 2011.**
- **After falling by 1.3mmb/d in 2009, we forecast that global oil demand will rise by 1.3mmb/d in 2010. Most of that growth should be in the non-OECD nations. Oil demand growth of 1.3-mmb/d is consistent with global GDP growth of 3.5%.**
- **Non-OPEC supply grew by circa 0.6mmb/d in 2009 and we expect a gain of 0.2mmb/d in 2010. Increases in Azerbaijan, Australia, Brazil, China, Russia, and the US should more than offset declines in Norway, Mexico and the UK.**
- **Most forecasts for OPEC NGL production growth for 2010 remain centered on 0.7mmb/d. We expect more growth in 2011 as LNG facilities are streamed.**
- **We believe that the total "call on OPEC crude" is unlikely to improve much in 2010, but as the economy normalizes and non-OPEC output fades, the need for OPEC oil growth in 2011-15 should be rising.**
- **OPEC spare capacity was over 6mmb/d in 2009 and is likely to be higher in 2010, but should then begin to decline.**
- **On-land OECD oil stocks are falling but overall levels remain ample. Crude inventories are back to normal levels, but middle distillate stocks are exceptionally full. Floating inventories of both crude and distillates remain abundant.**
- **We expect that 2010 will mark the transition back to the "traditional fundamentals" relating to supply, demand and inventories in contrast to financial, currency, and equity market drivers that we believe dominated 2009.**

Figure 1: Global oil supply and demand comparisons

2010 vs. 2009 (mmb/d)	Demand Growth	Non-OPEC Supply Growth	OPEC NGLs	Call on OPEC Crude	World GDP
US DOE/ EIA	1.10	0.20	0.59	0.49	2.6%
Int'l Energy Agency	1.47	0.38	0.86	0.50	3.1%
OPEC Secretariat	0.98	0.31	0.49	0.03	2.9%
Deutsche Bank	1.27	0.15	0.78	0.02	4.0%
Average	**1.20**	**0.26**	**0.68**	**0.26**	**3.2%**

Source: US DOE/EIA, IEA, OPEC, Deutsche Bank

Figure 1 compares key statistics from the leading agencies against our own estimates. On average, demand is forecast to rise in 2010 by about 1.4%, or 1.2mmb/d. The fact that the OPEC growth estimate for demand is the lowest is not surprising since the Secretariat has a history of being conservative on demand. We note that the DB forecast for GDP is very high in comparison to the others shown and this supports the idea of an oil demand recovery. Non-OPEC supply estimates for 2010 appear to be converging on an expectation for growth of about 0.3mmb/d, with OPEC NGL increases averaging near 0.7mmb/d. Taken together, the rise in the consensus call on OPEC crude oil is positive, but relatively modest.

Global economic outlook

The economy has entered into a moderate recovery phase, and we expect will grow noticeably more rapidly than the recent consensus view has projected, but noticeably more slowly than it has following deep recessions in the past.

The DB global economics team now expects world GDP growth of 4.0% in 2010, a bullish forecast compared to EIA and OPEC forecasts for a rise of less than 3%. The key drivers of growth will be fiscal stimulus and inventory swing initially, followed by consumer durables and business equipment spending, followed by residential investment as each of these areas of spending recover from unusually depressed levels.

Key drags on growth will be ongoing household deleveraging, a delayed return to more normal credit conditions, a rebound in imports, and policy uncertainty. In the US, Euro Area, and Japan financial conditions indices have returned to about neutral (neither restraining nor stimulating growth) by the latter stages of 2009 after plunging during the past two years.

According to the economics team, the return to neutral, and possibly even modestly positive, levels of financial conditions in recent months reflects the narrowing of spreads and rebound in stock markets while monetary

policy remains easy. This development bodes well for economic prospects over the year ahead.

Inflation remains a low risk for the next several years, but becomes a substantial risk in the longer term thanks to fiscal debt instability and Congressional willingness to tinker with Fed independence. With growth noticeably above trend and the unemployment rate beginning to decline on a sustained basis in the months ahead, we see the Fed beginning to raise rates by late next summer.

DB's economists believe that risks around their growth view are balanced but that risks around their Fed view are skewed toward a move that comes later rather than sooner. The Fed view is important because we expect that the anticipation of rising interest rates could strengthen the US dollar and possibly weaken oil prices.

Figure 2: DB's global economic growth forecast

y-o-y % change	2008	2009E	2010E	2011E
US	0.4	-2.5	3.5	3.3
Euro Area	0.6	-3.9	1.5	1.2
Japan	-0.7	-5.5	1.0	0.5
Other OECD	0.5	-2.5	3.0	3.5
OECD	**0.4%**	**-3.4%**	**2.4%**	**2.2%**
China	9.0	8.5	9.0	9.0
Other Asia (1)	4.4	2.0	6.2	5.8
EMEA (2)	4.3	-5.5	3.7	4.4
Latin America	4.3	-2.7	3.9	3.5
FSU (3)	4.2	-2.0	3.0	3.5
Non-OECD	**5.7%**	**1.5%**	**5.9%**	**6.0%**
World	**2.8%**	**-1.2%**	**4.0%**	**3.9%**

Source: IMF, Deutsche Bank

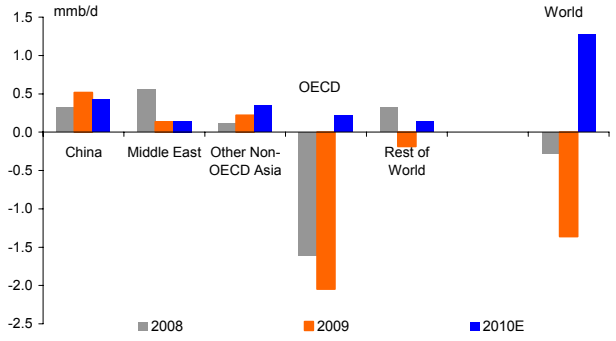
Oil demand

If expectations for a synchronized global economic upturn are fulfilled, world oil demand should grow in 2010 after declines in both 2008 and 2009. Although we have a higher demand forecast than OPEC, we share the Secretariat's unease about the breadth and depth of the near-term demand outlook. In the US, the largest part of the recovery has already occurred from an abysmally low Q2 2009 to an improved Q4 2009, with only modest improvements anticipated into 2010. China, India and the Middle East account for the bulk of the growth in the non-OECD, and non-OECD nations account for nearly all of the global growth.

We are also concerned about the ability of analysts to track oil information in the developing world. Although the statistics outside the OECD are getting better, there are numerous data holes and lags. Non-OECD inventory data is remarkably bad and without that, demand estimates are poor, in our view. With oil demand growth in 2010 almost entirely concentrated in nations outside the OECD, we believe the potential for forecasting errors (both up and down) is exacerbated.

A final concern we have about the demand forecast is one highlighted by the International Energy Agency. The IEA's comfort level with its own forecast would be higher if growth came from "conventional industrial production" uses rather than more transitory consumption such as "other products" use in China and direct crude burning in Saudi Arabia. The IEA notes that gasoil demand, which underpins global industrial activity, remains subdued. DB's economics team worries about the economic downside associated with a "jobless recovery" and we worry about oil demand downside if the recovery is not particularly oil intensive.

Figure 3: Oil demand by region 2008-2010



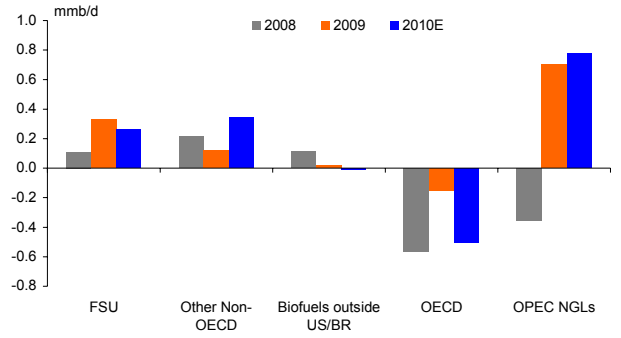
Source: IEA, Deutsche Bank

Non-OPEC oil supply

Output from non-OPEC countries fell by 0.2mmb/d in 2008, rose by 0.5mmb/d in 2009 and should rise by 0.2mmb/d in 2010. The IEA continues to have the most robust view on the outlook for non-OPEC supply despite a recent reduction in its growth estimate for 2010. In the November OMR, the IEA estimated that non-OPEC supply would rise by 770kb/d but this was revised down by 265kb/d in December with lower US output accounting for the drop. Azerbaijan, Brazil, China, Russia and Australia are among the gainers, while substantial declines occur in Norway, Mexico and the UK.

We note in Figure 3 that biofuels are unlikely to be contributing much to growth in 2010, and that losses in the OECD nations are substantial. OPEC NGLs, on the other hand, grew significantly in 2009 and we believe this trend will continue in 2010 with consensus expectations for a gain of some 0.7mmb/d. In general, project delays associated with the 2003-2008 run-up in costs and engineering/construction shortages that characterized this period may not be as prevalent in 2010.

Figure 4: IEA non-OPEC oil supply forecast trends

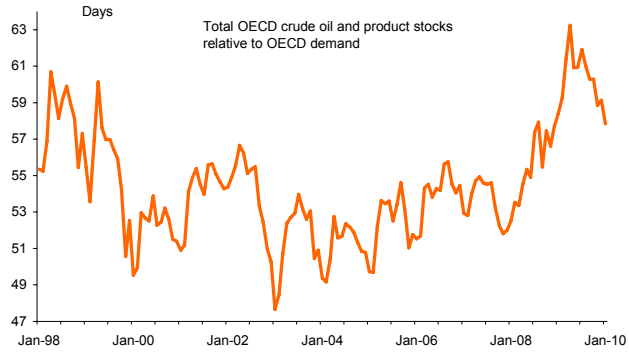


Source: IEA, Deutsche Bank

Inventories

The IEA reported that OECD industry stocks fell in October to 2735mmb. Preliminary estimates from the IEA suggest a slight increase in November and we believe that December and January stocks likely drew due to cold weather across the northern hemisphere. Although absolute inventory levels are still high, demand has picked up enough to bring the forward cover ratios down toward 58 days now from the peak near 63 days in April 2009, Figure 5. Floating storage, not included in these estimates, has continued to rise and may account for as much as three additional days cover.

Figure 5: Total OECD stocks dropping but still high



Source: IEA, Deutsche Bank

Call on OPEC

Even with demand set to rise by substantially more than 1mmb/d, the combination of a small amount of non-OPEC oil growth with significant gains in OPEC NGLs is sufficient to limit OPEC's crude oil market share gains. In our view, there is little room for OPEC production increases despite the apparent ability of Nigeria, Iraq and Angola to lift output. The IEA estimates that there is circa 6mmb/d of OPEC spare capacity and that this potential supply will be higher in 2010.

Figure 6: Deutsche Bank oil and gas price deck

	WTI (USD/bbl)	Brent (USD/bbl)	US Gas (USD/mmBtu)
2008	**99.65**	**98.52**	**8.87**
Q1 2009	43.31	45.72	4.47
Q2 2009	59.79	59.90	3.81
Q3 2009	68.24	68.87	3.44
Q4 2009	76.13	75.54	4.93
2009	**62.09**	**62.67**	**4.16**
Q1 2010E	75.00	75.00	5.50
Q2 2010E	65.00	65.00	6.00
Q3 2010E	60.00	60.00	6.00
Q4 2010E	60.00	60.00	6.50
2010E	**65.00**	**65.00**	**6.00**
2011E	80.00	80.00	6.00
2012E	85.00	85.00	6.25
2013E	90.00	90.00	6.50
2014E	95.00	95.00	6.75
2015E	100.00	100.00	7.00

Source: IEA, Deutsche Bank

Conclusion

Despite the potential for strong GDP growth, we remain cautious about the oil price outlook for 2010. Rising fixed investment and a strong manufacturing recovery around the world reduces the risk of a deep double dip in 2010 in our view. However, once the short-term positive effects of the global manufacturing inventory recovery have transpired, the oil markets may encounter a period of slower demand and weaker prices in mid-2010. Furthermore, we believe the US dollar remains a powerful force in the oil markets and the potential for a strengthening in the dollar against the euro could remove a force that we believe acted to support oil prices in the second half of 2009. We believe the traditional oil fundamentals could reassert, and given our assessment that the markets remain delicately balanced, we expect some weakness in oil prices in the second half of 2010.

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Figure 7: World Oil Supply and Demand Growth Comparisons for 2010 (mmb/d)

	Deutsche Bank				Change 2010 over 2009			
	2007	2008	2009E	2010E	OPEC	IEA	DOE	DB
CONSUMPTION								
United States	20.67	19.50	18.70	18.89	0.19	0.14	0.27	0.19
OECD Europe	15.34	15.33	14.59	14.59	-0.20	0.04	-0.03	0.00
Japan	5.04	4.79	4.35	4.26	-0.20	-0.19	-0.23	-0.09
Other OECD	8.14	7.96	7.89	8.01	0.08	0.03	0.08	0.12
Total OECD	**49.18**	**47.57**	**45.52**	**45.74**	**-0.13**	**0.02**	**0.09**	**0.22**
USSR (former)	**4.15**	**4.16**	**3.92**	**3.96**	**0.03**	**0.20**	**-0.03**	**0.04**
Non-OECD Europe	0.77	0.74	0.72	0.73	0.00	0.01	0.01	0.01
China	7.57	7.89	8.41	8.83	0.37	0.31	0.40	0.42
Other Asia	9.55	9.66	9.89	10.23	0.18	0.29	0.21	0.35
Latin America	5.69	5.91	5.96	6.02	0.08	0.19	0.21	0.06
Middle East	6.53	7.09	7.23	7.37	0.24	0.33	0.10	0.14
Africa	3.07	3.18	3.21	3.24	0.05	0.10	0.10	0.03
Other Non-OECD	**33.17**	**34.49**	**35.42**	**36.43**	**0.92**	**1.23**	**1.03**	**1.01**
TOTAL CONSUMPTION	**86.50**	**86.22**	**84.86**	**86.12**	**0.98**	**1.47**	**1.10**	**1.27**
SUPPLY								
United States	7.48	7.52	7.97	8.11	0.07	-0.12	0.11	0.14
OECD Europe	4.99	4.77	4.46	4.00	-0.23	-0.46	-0.37	-0.46
Other OECD	7.42	7.04	6.75	6.56	-0.10	-0.02	-0.17	-0.19
Total OECD	**19.89**	**19.32**	**19.17**	**18.67**	**-0.26**	**-0.60**	**-0.43**	**-0.50**
USSR (former)	**12.80**	**12.81**	**13.24**	**13.60**	**0.27**	**0.50**	**0.28**	**0.36**
Non-OECD Europe	0.13	0.12	0.11	0.11	0.00	0.00	nf	-0.01
China	3.74	3.85	3.83	3.90	0.04	0.20	0.02	0.07
Other Asia	3.71	3.68	3.63	3.70	0.06	0.12	0.07	0.07
Latin America	3.95	4.13	4.33	4.58	0.23	0.24	0.23	0.25
Middle East	1.64	1.60	1.68	1.63	-0.01	-0.01	0.00	-0.05
Africa	2.57	2.57	2.50	2.50	-0.01	-0.06	0.06	0.00
Other Non-OECD	**15.73**	**15.95**	**16.06**	**16.41**	**0.30**	**0.49**	**0.35**	**0.34**
Processing Gains	2.17	2.24	2.29	2.25	0.00	-0.09	nf	-0.04
Other Biofuels	0.28	0.39	0.41	0.40	nf	0.08	nf	-0.01
Total Non-OPEC	**50.87**	**50.72**	**51.17**	**51.33**	**0.31**	**0.38**	**0.20**	**0.15**
OECD Stock Withdraw	0.23	-0.40	-0.18	0.48	nf	nf	0.00	0.65
OPEC NGLs	4.83	4.48	5.18	5.95	0.49	0.86	0.59	0.78
Other and Balance	0.35	0.13	-0.05	-0.30	nf	nf	nf	-0.25
OPEC CRUDE OIL	**30.22**	**31.30**	**28.66**	**28.67**	**0.03**	**0.50**	**0.49**	**0.02**
Memo Items:								
FSU exports	8.65	8.65	9.32	9.64	0.24	0.30	0.31	0.32
US gross imports	12.99	11.77	10.53	10.57	0.12	0.26	0.16	0.04
Europe imports	10.35	10.56	10.13	10.59	0.00	0.01	0.01	0.46
China imports	3.83	4.05	4.58	4.93	0.33	0.11	0.38	0.35
Demand Outside FSU	82.36	82.06	80.94	82.17	0.95	1.27	1.13	1.23
Non-OPEC Sup. ex-FSU	38.07	37.91	37.94	37.73	0.04	-0.12	-0.08	-0.21
WTI Oil Price	**$72.36**	**$99.65**	**$62.09**	**$65.00**	**nf**	**nf**	**$16.13**	**$2.91**

Reflects improving economic conditions

OECD demand still struggling in 2010 as economic recovery in Europe is more U than V

DB expects 9% GDP growth in China in 2010 despite tightening bank credit and slowing fixed asset investment

OPEC's conservative estimate reflects concern that an anemic economic recovery could adversely impact demand

IEA sees US growth in 2010 suffering from delays in the US Gulf of Mexico

IEA sees more improvement in Russia than OPEC or the DOE

Mostly Brazil with some growth in Colombia

Without Angola (now in OPEC) production in non-OPEC Africa is lagging

Our non-OPEC supply forecast is weak reflecting our expectations for a lethargic investment climate

Call on OPEC essentially flat, but IEA and DOE see gains

DB's $65/bbl forecast for 2010 is below the $75 consensus due to our expectations for lower H2 2010 prices as the global economy faces some headwinds

Note: *Numbers do not always add due to rounding; nf = not furnished*

Source: OPEC Secretariat (OPEC), International Energy Agency (IEA), US DOE/EIA (DOE), Deutsche Bank (DB)

Figure 8: World Oil Supply and Demand 2008-2010 (mmb/d)

	2008	Q1 2009	Q2 2009	Q3 2009	Q4 2009	2009	Q1 2010E	Q2 2010E	Q3 2010E	Q4 2010E	2010E
CONSUMPTION											
United States	**19.5**	18.8	18.5	18.6	18.9	**18.7**	19.0	18.6	18.8	19.1	**18.9**
OECD Europe	**15.3**	14.9	14.2	14.5	14.7	**14.6**	14.9	14.2	14.5	14.7	**14.6**
Japan	**4.8**	4.7	4.0	4.1	4.5	**4.3**	4.6	4.0	4.0	4.4	**4.3**
Other OECD	**8.0**	8.1	7.7	7.9	7.9	**7.9**	8.2	7.8	8.0	8.0	**8.0**
Total OECD	**47.6**	**46.6**	**44.4**	**45.1**	**46.0**	**45.5**	**46.7**	**44.6**	**45.3**	**46.3**	**45.7**
USSR (former)	**4.2**	**3.9**	**3.8**	**4.0**	**4.0**	**3.9**	**3.9**	**3.8**	**4.1**	**4.0**	**4.0**
Non-OECD Europe	**0.7**	0.7	0.7	0.7	0.7	**0.7**	0.7	0.7	0.7	0.7	**0.7**
China	**7.9**	7.7	8.6	8.8	8.6	**8.4**	8.0	9.0	9.3	9.0	**8.8**
Other Asia	**9.7**	9.9	10.1	9.7	9.8	**9.9**	10.3	10.4	10.1	10.2	**10.2**
Latin America	**5.9**	5.8	6.0	6.1	6.0	**6.0**	5.8	6.0	6.1	6.1	**6.0**
Middle East	**7.1**	6.7	7.3	7.8	7.1	**7.2**	6.8	7.5	7.9	7.3	**7.4**
Africa	**3.2**	3.2	3.2	3.2	3.2	**3.2**	3.3	3.2	3.2	3.3	**3.2**
Other Non-OECD	**34.5**	**34.0**	**35.9**	**36.2**	**35.5**	**35.4**	**35.0**	**36.9**	**37.3**	**36.5**	**36.4**
TOTAL CONSUMPTION	**86.2**	**84.5**	**84.1**	**85.3**	**85.5**	**84.9**	**85.6**	**85.4**	**86.6**	**86.9**	**86.1**
SUPPLY											
United States	**7.5**	7.8	8.0	8.1	8.2	**8.0**	8.1	8.2	8.2	8.1	**8.1**
OECD Europe	**4.8**	4.9	4.5	4.2	4.3	**4.5**	4.3	3.9	3.8	4.0	**4.0**
Other OECD	**7.0**	7.0	6.5	6.7	6.7	**6.7**	6.7	6.6	6.5	6.4	**6.6**
Total OECD	**19.3**	**19.7**	**19.0**	**19.0**	**19.2**	**19.3**	**19.0**	**18.7**	**18.5**	**18.5**	**18.7**
USSR (former)	**12.8**	**13.0**	**13.2**	**13.2**	**13.5**	**13.2**	**13.5**	**13.7**	**13.5**	**13.7**	**13.6**
Non-OECD Europe	**0.1**	0.1	0.1	0.1	0.1	**0.1**	0.1	0.1	0.1	0.1	**0.1**
China	**3.8**	3.7	3.8	3.9	3.9	**3.8**	3.9	3.9	3.9	3.9	**3.9**
Other Asia	**3.7**	3.6	3.6	3.6	3.7	**3.6**	3.7	3.7	3.7	3.7	**3.7**
Latin America	**4.1**	4.3	4.3	4.3	4.4	**4.3**	4.5	4.6	4.6	4.6	**4.6**
Middle East	**1.6**	1.7	1.7	1.7	1.6	**1.7**	1.6	1.7	1.7	1.6	**1.6**
Africa	**2.6**	2.5	2.5	2.5	2.5	**2.5**	2.5	2.5	2.5	2.5	**2.5**
Other Non-OECD	**15.9**	**15.9**	**16.0**	**16.1**	**16.2**	**16.1**	**16.3**	**16.5**	**16.5**	**16.4**	**16.4**
Processing Gains	**2.2**	2.3	2.3	2.3	2.3	**2.3**	2.3	2.3	2.3	2.3	**2.3**
Other Biofuels	**0.4**	0.4	0.4	0.5	0.4	**0.4**	0.4	0.4	0.4	0.4	**0.4**
Total Non-OPEC	**50.7**	**51.3**	**50.9**	**51.2**	**51.6**	**51.3**	**51.5**	**51.5**	**51.1**	**51.2**	**51.3**
OECD Company Stockdraw	**-0.4**	-0.5	-0.1	-0.1	0.0	**-0.2**	0.8	0.3	0.3	0.5	**0.5**
OPEC NGLs	**4.5**	4.6	5.1	5.4	5.6	**5.2**	5.6	5.9	6.1	6.2	**6.0**
Other and Balance	**0.1**	0.6	-0.3	0.0	-0.5	**-0.1**	-0.3	-0.3	-0.3	-0.3	**-0.3**
OPEC CRUDE OIL	**31.3**	**28.5**	**28.5**	**28.8**	**28.8**	**28.7**	**28.0**	**27.9**	**29.5**	**29.2**	**28.7**
Memo Items:											
Company OECD stocks (mmb)		2701	2747	2760	2771		2771	2698	2670	2643	
OECD days forward consumption		58	62	61	60		59	60	59	57	
FSU exports	**8.7**	9.1	9.4	9.2	9.5	**9.3**	9.6	9.9	9.4	9.7	**9.7**
US gross imports	**11.5**	10.6	10.5	9.5	10.0	**11.5**	10.5	10.5	9.7	10.4	**10.3**
China imports	**4.0**	4.0	4.8	4.9	4.7	**4.6**	4.1	5.1	5.4	5.1	**4.9**
Demand Outside FSU	**82.1**	80.6	80.3	81.3	81.6	**80.9**	81.7	81.6	82.6	82.8	**82.2**
Non-OPEC Sup. Ex-FSU	**37.9**	38.3	37.7	37.9	38.1	**38.0**	38.0	37.8	37.6	37.5	**37.7**
Brent (1st Month) $/bbl	**98.52**	45.72	59.90	68.87	75.54	62.67	75.00	65.00	60.00	60.00	**65.00**
WTI (1st Month) $/bbl	**99.65**	43.31	59.79	68.24	76.13	62.09	75.00	65.00	60.00	60.00	**65.00**
WTI-Brent Differential	**1.23**	-2.41	-0.11	-0.63	0.59	-0.58	0.00	0.00	0.00	0.00	**0.00**

Very weak growth from sluggish GDP and impact of high oil prices in 2007-2008

European consumption stabilises 2010; Japan still falling

China oil consumption up 0.4mmb/d

Growth in "Other Asia" responds to more favorable world GDP

Down 1.4mmb/d in 2009, up 1.3mmb/d in 2010

Azerbaijan, Kazakhstan, and Russia all growing

Non-OPECsupply forecast up by circa 0.3mmb/d in 2009 and up another 0.3mmb/d in 2010

Estimated 'Call on OPEC Crude' in 2010 is nearly flat but allows for an inventory draw of circa 0.5mmb/d

Inventories still relatively high at start of Q2, but falling into H2 2010

Source: International Energy Agency, Deutsche Bank

#6 Oil Production Costs

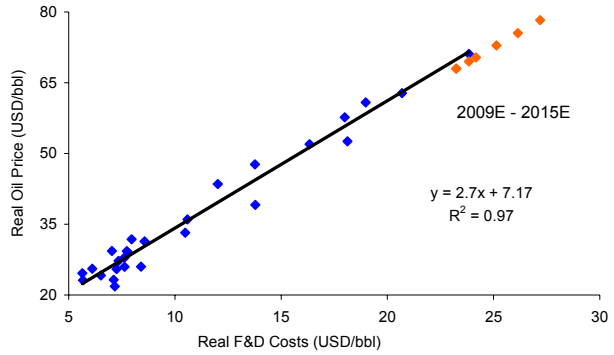
What Price Is Justified?

- **Cost trends in the bull cycle (data through 2008) rose persistently for a number of reasons including the decreasing availability of economical reserves, currency fluctuations, GDP changes, technological change, geopolitics, taxation, environmental rule, and efficiency changes.**
- **At this point in the cycle, causality appears to be running from prices to costs. As such, recession-impacted commodity prices could influence production costs lower over the next few years.**
- **Projected cost structures over the 2010-15 period, however, suggest that oil prices are likely to remain in a USD50-100/bbl range, compared to an average of USD20/bbl in the 1990s.**

Oil supply costs

Finding and development (F&D) costs have historically been closely connected to the price of oil, Figure 1. The data on F&D costs have shortcomings and economists have raised issues regarding the direction of causality between cost and prices, but in our opinion, long-term oil prices cannot stray too far away from long-term supply costs.

Figure 1: Oil prices and F&D costs are related

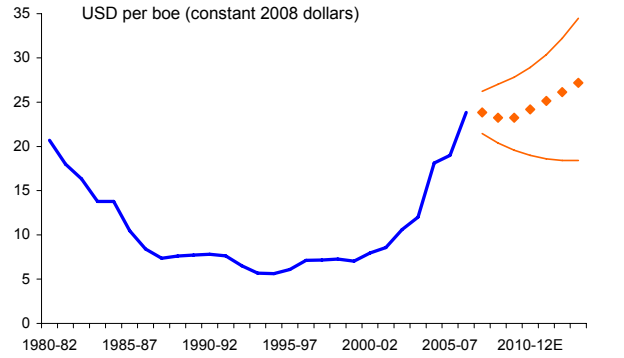


Source: US DOE/EIA, Bloomberg, DB Global Markets Research

A key gauge of global oil and gas supply costs is the index (published annually in December by the US Department of Energy) based on detailed financial and operating data and information submitted each year to the US DOE/EIA by the major US-based energy-producing companies. This data is compiled by the EIA under the Financial Reporting System (FRS). http://www.eia.doe.gov/emeu/perfpro/

According to the EIA data, worldwide F&D costs averaged over the three-year period 2006-2008 rose 26% from the previous period to USD23.84/boe (barrel of oil equivalent). A large decline in reserve additions combined with higher expenditures were largely responsible. According to the US DOE, the significant downward revisions to reported 2008 reserves were largely driven by the SEC's reserve reporting requirement that used year-end 2008 prices, which reflected a low point of circa USD45/bbl. Under new SEC guidelines, future reserve reporting will be based on prices that are more representative of annual average prices (USD100 in 2008 and USD62 in 2009).

Figure 2: Global F&D costs range



Source: US DOE/EIA, DB Global Markets Research

Prior down-cycles in oil prices were generated by a combination of lower oil products demand in reaction to recessions, as well as improvements in seismic and drilling technology, and greater access to reserves. At this time, oil F&D technology is obviously improving, but does not appear to be on the verge of the enormous breakthroughs (3-D seismic, horizontal drilling, and subsea completions) of the prior two decades although the situation for natural gas may be different.

Access to the areas of the highest geologic potential for oil seems to be decreasing as "resource nationalism" moves steadily into the mainstream of geopolitical discourse in many producing nations. Other supply issues, including rising depletion rates in conventional oil production, suggest that oil costs are likely to rise again after 2010.

Our base case projections for real 2009-2015 F&D costs assume that costs will fall for a few years and then resume an upward trend, Figure 2. With costs in the USD25-30/boe range, oil prices would likely be supported at USD65/bbl in 2010 and rising towards triple digits by 2015.

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#7 Markets vs. Analysts

A Decade of Mud Wrestling

- **We find that the analyst community has consistently underestimated crude oil prices by approximately +30% since 1999.**
- **However, last year proved to the best year for the analyst community as its forecasting error dropped to +10%. This represented the community's best performance since 2001, which was also the last time the global economy slipped into recession.**
- **In comparison, the futures market has under-estimated crude oil prices in eight out of the last 11 years. Moreover the forecasting error has been a more respectable +15% over the 1999 to 2009 period. Indeed in the past two years the forecasting error has fallen to single digits.**
- **If the average analysts forecasting error between 1999 and 2009 persists into this year, then it implies Brent crude oil prices averaging just over USD98/barrel.**
- **If the average forecasting error of the futures market between 1999 and 2009 persists into 2010, then it implies the Brent crude oil price will average approximately USD89/barrel.**

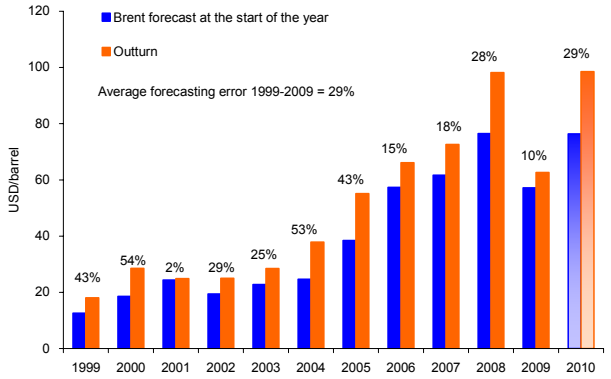
Since January 2004 we have examined the accuracy of analysts in predicting the crude oil price for the coming year. In that initial review, we found that the analyst community had consistently under-estimated the strength and sustainability of the rally in oil prices since 1999, a trend that has persisted to this day.

To examine the track record of the analyst community we compare Reuters consensus oil price forecasts for Brent crude at the start of the year to the final outturn. We find that since 1999 the analysts community has under-estimated the crude oil price by an average of +29%, Figure 1. However, in 2009 the analyst forecasting error fell to just 10%, the community's best performance since 2001.

Twelve months ago we hypothesised that, in a rapidly falling economic and oil price environment, analysts might overshoot rather than undershoot, but this did not occur – perhaps because signs of a economic stabilisation and recovery began to appear in March – much sooner than consensus expectations at the start of 2009.

To assess the likely outcome of oil prices in 2010, we assume that the average forecasting error since 1999 persists into this year. This would imply Brent crude oil prices averaging USD98.6/barrel, or USD76.4 x 1.29.

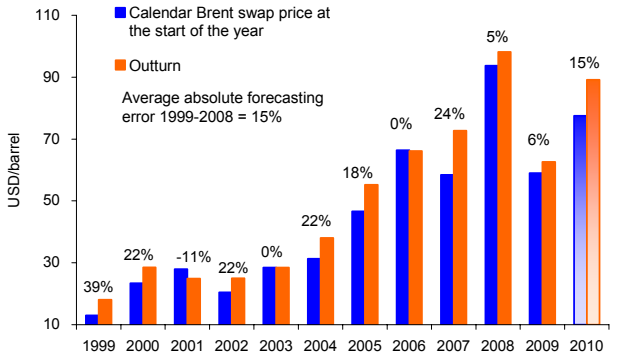
Figure 1: Analyst oil price forecasts vs. outturns



Source: Deutsche Bank, Reuters (2010 Reuters poll as of 18 December 2009)

In view of the historical record, it might be safer to assume the futures market will be a more reliable predictor of oil prices in 2010. Figure 2 examines the Calendar Brent swap price at the start of the year with the final outturn. We find that since 1999 the forecasting error is halved compared to the analyst community. As a result, if we assume the average forecasting error between 1999 and 2009 persists into this year then it would imply the Brent oil price averaging USD89.1/barrel, or USD77.5 x 1.15.

Figure 2: The Brent futures market has tended to be a more reliable predictor of oil prices



Source: Deutsche Bank, Reuters

Conclusion

We find that forecasting errors tended to rise in tandem with the volatility of the particular commodity. Predicting gold and aluminium prices is 'easier' than crude oil and nickel prices, where implied and actual volatility is significantly higher. If the trend of the past eleven years is sustained into 2010 then it would imply crude oil prices averaging at least USD89/bbl. We believe that the economy must remain very strong and the dollar relatively weak to achieve such an outturn.

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#8 Asian Oil Demand Still Leading the Way

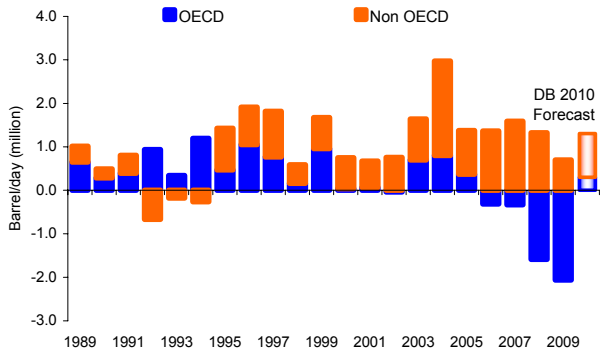
Demand Rising, as Is Self Sufficiency

- **We expect oil demand growth in developing Asia to outperform yet again in 2010. We believe Chinese oil demand will grow by 5% or 420 kbd this year. Our forecast for the rest of non-OECD Asia calls for demand growth of 350 kbd or 3.5%.**
- **Oil demand growth in non-OECD Asia should account for 60% of global oil demand growth this year and 77% of total non-OECD demand growth. Chinese oil demand growth alone will account for 32% of global oil demand growth, based on our forecast.**
- **According to our demand forecasts, 2010 will be the first year that non-OECD Asia's share of global oil demand will be greater than that of the US. US demand should account for 22% of global oil demand in 2010, down 3.4% from 10 years ago. Non-OECD Asian oil demand should account for 22.1%, up 6.1% from 2001. While it is not a significant lead yet, we expect that given the slower pace of US oil demand recovery relative to Asia, this trend will persist going forward.**
- **Despite our forecast for strong Chinese oil demand growth in 2010, we do not believe it will translate into net product import growth as in previous years. Given the scale of refinery capacity expansions in 2009 and 2010, we believe China's status as a net exporter of diesel and gasoline will remain in place for 2010 and beyond.**
- **The refinery capacity build out in China has effectively made the country self sufficient in terms of key refined products. As a region, Asia's refined products self sufficiency has also increased by 11% over the past decade as a result of an unprecedented build out in refinery capacity and we expect will hit 95% in 2010, up from 87% in 2000.**
- **China's crude import volume is also likely to continue ramping up to meet demand for new refinery capacity feedstock, and also for operational purposes associated with new capacity, in our view. China's crude buying pattern this year will also be influenced by how it implements a plan to build out Phase II of its crude SPR. Exactly when these tanks will be completed and more importantly the rate at which they will be filled is unclear, but we expect the level of the crude oil price will be a key determinant as it was last year.**

Much has been said already about China's growing appetite for oil in recent years. While China's demand growth has understandably grabbed headlines as it raced past Japan to rank as the second largest oil consumer in the world after the US, it's worth noting that its neighbours in non-OECD Asia world have also played an important role in boosting oil consumption and should continue to do so in 2010.

Following on 2009's economic recovery, which occurred in Asia earlier and faster than in the West, we expect oil demand growth in developing Asia to outperform yet again in 2010. We believe Chinese oil demand will grow by 5% or 420 kbd this year. Our 2010 growth forecast is nearly 120 kbd higher than the International Energy Agency's most recent forecast (as of its Dec 2009 report) and 15 kbd higher than the US Department of Energy's most recent forecast. Our forecast for the rest of developing Asia, or what we will refer to as non-OECD Asia, calls for demand growth of 350 kbd or 3.5%. Our forecast is 50 kbd higher than the IEA's and 140 kbd higher than the US DOE's projection for the block of countries.

Figure 1: Non OECD versus OECD oil demand growth



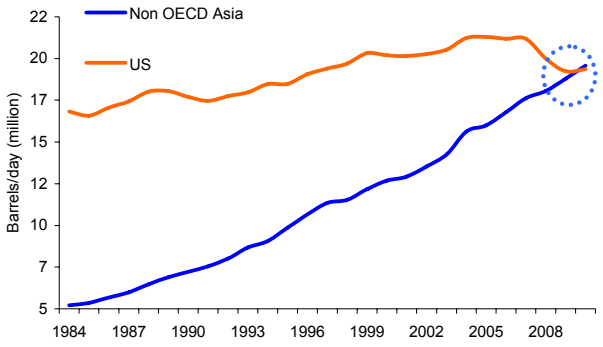
Source: Deutsche Bank, IEA

In aggregate, oil demand growth for non-OECD Asia as a whole including China should grow by 4.2% or 766 kbd in 2010. Oil demand growth in non-OECD Asia should account for 60% of global oil demand growth this year and 77% of total non-OECD demand growth. Chinese oil demand growth alone will account for 42% of total non-OECD demand growth and 33% of global oil demand growth, based on our forecast. This is in stark comparison to forecasts for US and OECD European demand, which we see rising by 200 kbd or 1% and flat, respectively.

In terms of an OECD versus a non-OECD split, while we see global demand growth recovering in 2010 in both categories of the world, the non-OECD, and in particular Asia, remains firmly in the lead as illustrated in Figure 1. According to our demand forecasts, 2010 will be the first

year that the block of countries that belong in the non-OECD Asia category (which excludes Japan, South Korea, Australia and New Zealand) will account for a greater share of global oil demand compared with the US as illustrated in Figure 2. US demand should account for 22% of global oil demand in 2010, down 3.4% from 10 years ago; Non-OECD Asian oil demand should account for 22.1%, up 6.1% from 2001. While it is not a significant lead yet, we believe that it is worth noting as the start of a sustained trend given the slower pace of US oil demand recovery relative to Asia.

Figure 2: Non-OECD Asia's oil appetite to exceed US



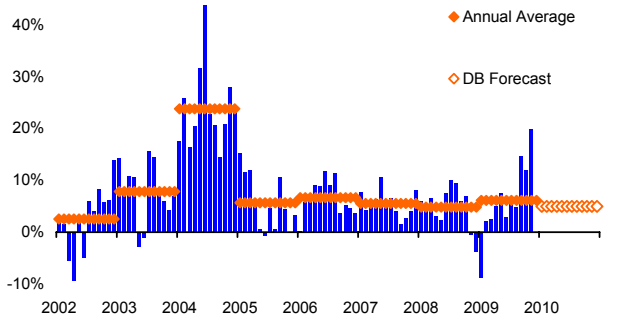
Source: Deutsche Bank, IEA

Within the non-OECD Asia grouping, Indian and Indonesian oil consumption rates have been notable. Unlike the rest of the world, Indian oil demand in 2009 never recorded a year-on-year decline and YTD averaged up 6%, from up 5% recorded for 2008. In 2010, India's oil demand growth trend should remain intact given that our economists are forecasting GDP growth of 7.5% up from 6% in 2009. Data on Indonesia's oil demand is limited, but indications are that demand growth has been strong and will improve next year. Deutsche Bank's economists forecast Indonesia's GDP to rise to 5.5% from 4.3% in 2009.

Tracking non-OECD demand growth has always been challenging given lack of scrubbed, high-frequency data similar to those released by the federal energy departments of the US and Europe. Lack of inventory data for the Non-OECD world also provides an additional challenge.

A decade ago, it was less imperative to have a complete oil fundamental understanding for non-OECD Asia because it accounted for only 15% of the world's oil demand. As 70% of total oil demand growth this year should come from Non-OECD Asia, it clearly illustrates how critical it will be to have an accurate and real-time understanding of consumption patterns in the region. This can be done using a mix of qualitative and quantitative inputs that will inform our view as the year progresses.

Figure 3: China total oil demand growth: history & projection



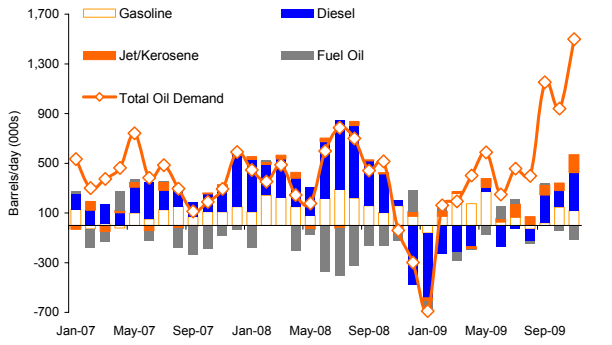
Source: Deutsche Bank, IEA

China: No signs of slowing demand or supply

China's oil profile last year was notable for many reasons. Demand growth, spurred by the central government's stimulus program, rose by 520 kbd or 6% year-on-year as illustrated in Figure 3. While some part of this demand was disappearance of product into inventories, much of it was actual consumption by end-users notably in the agricultural and construction sectors, the key beneficiaries of the stimulus programs.

Also notable in 2009 was the top driver of oil demand growth was from the "other" fuels category, not the major refined products categories – gasoline, diesel, jet/kerosene and fuel oil, which are more easily tracked, Figure 4. Chinese demand for gasoline, diesel, jet/kerosene and fuel oil in aggregate rose by about 1.2% in 2009 as negative growth in the first four months of the year weighed on the annual average.

Figure 4: Chinese oil demand growth by product

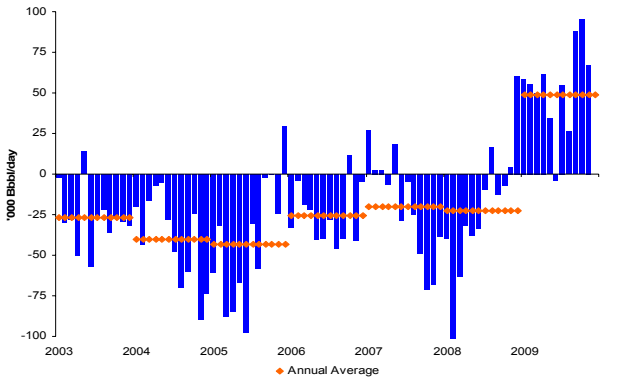


Source: Deutsche Bank, China government data

In the "other" category belong naphtha (a petrochemical feedstock that is a building block for the plastics industry), asphalt (for road construction) and petroleum coke (used for the production of cement, aluminium and for power generation). Naphtha imports in 2009 averaged 200 kbd, up from imports of 50 kbd in 2008. In 2009, China switched from a net exporter of naphtha to a net importer, as illustrated in Figure 5. Anecdotally we have heard that

asphalt use was up as much as 30% in 2009. The scale of China's petcoke demand is unclear given little is reported on it but one datapoint from the supply side does illustrate the rate of demand pull for the product. China catapulted to become the second largest US petcoke importer in 2009, after Japan. China's petcoke imports jumped from 3 kbd in 2008 to 40 kbd in 2009.

Figure 5: China's net naphtha imports/exports



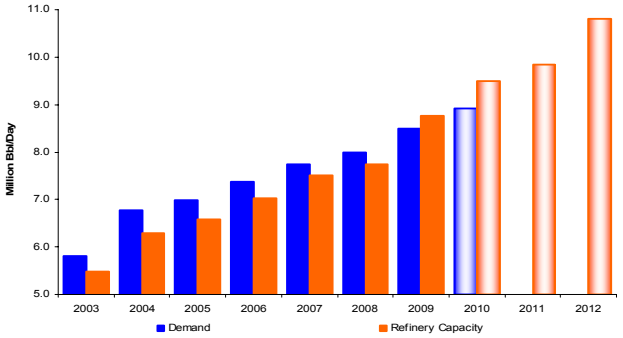
Source: Deutsche Bank, China government data

We believe Chinese oil demand in 2010 will grow by 420 kbd or 5%, in line with the GDP growth rates. Deutsche Bank economists call for China's GDP to rise to 9% in 2010 from 8.5% in 2009. While demand for the "other" fuels category should remain robust into 2010, we also expect demand for the major fuels – gasoline, diesel and jet – will record higher year-on-year growth rates. Diesel in particular in 1H 2010 is likely to show strong growth given the lower base in 1H 2009. Diesel demand in 1H 2009 averaged down 8% yoy.

Fuel oil demand contracted by 3% in 2009 as negative margins prompted small, independent refiners to cut runs reducing the need for feedstock. This trend is likely to continue into 2010 as independent refiners are likely to remain under pressure over the next several years as the government pursues a policy of closure or consolidation.

While our forecast for China's oil demand growth in 2010 is at the high end of the range of estimates especially in comparison to the IEA, we do not believe it will translate into growth in net product imports as in previous years. Given the scale of refinery capacity expansions in 2009 and 2010, China's status as a net exporter of diesel and gasoline should remain in place for 2010 and likely for 2011 and beyond. From 2009, China has exceeded its refinery self sufficiency as illustrated in Figure 6.

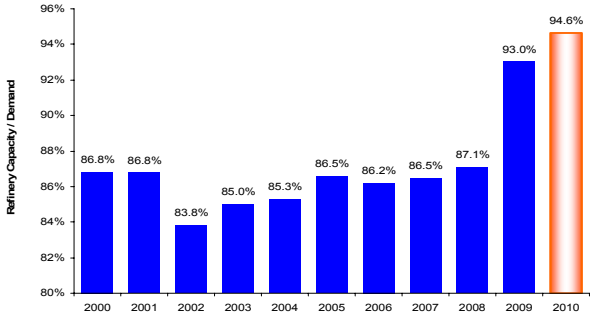
Figure 6: China refinery capacity versus demand



Source: Deutsche Bank, China government data

In fact, Asia's refined products self sufficiency has increased substantially by 11% over the past decade as a result of an unprecedented build out in refinery capacity and is expected to hit 95% in 2010 up from 87% in 2000, illustrated in Figure 7. Please see our discussion on the Asian refinery capacity build out in this report for more details.

Figure 7: Asia refined products self sufficiency



Source: Deutsche Bank, BP Statistical Review, IEA, EIA government data

In 2008, China's net diesel imports averaged 115 kbd for the year, a yoy gain of 350%. This was attributable to actual enduser demand and Olympics-related stockpiling. In 2009, China's role in the market reversed and the country's net exports averaged 60 kbd as illustrated in Figure 8. The comparison to gasoline, while less dramatic as China has a prior history of being a net exporter, illustrates the same trend. In 2008 China's net gasoline imports were flat and in 2009 its net exports averaged 100 kbd.

We estimate that the refinery capacity build out in China planned for 2010 will add 200 kbd of incremental gain in gasoline productive capacity and 300 kbd gain in diesel productive capacity. This is following productive capacity gains of 260 kbd for gasoline and 400 kbd for diesel in 2009 that could not be fully absorbed by the domestic market so it was exported. To balance 2010 alone without considering the existing overhang of productive capacity from 2009, China's domestic apparent demand would

have to grow at rates on par with Olympics-driven 1H 2008 in order to absorb the additional productive capacity. We view this as unlikely, and refiners will likely again turn to exports to cope with excess product this year.

Another potential outlet for China's productive capacity growth besides the export market is domestic strategic stockpiling. In early 2009, China announced plans to construct an SPR for refined products to hold gasoline, kerosene and diesel. The government's target for the products SPR grows from 24 million bbl by 2009 to 50 million bbl by 2010 and 80 million bbl by 2011. We estimate that this could translate into an incremental "demand" pull of about 70 kbd in 2010 and 80 kbd in 2011. The mechanics of this policy are unclear, but we view these targets as highly discretionary.

China's oil profile in 2009 was also marked by sharp rise in crude imports largely observed in the 2H 2009 as illustrated in Figure 9. For the first time, China's crude imports accounted for more than 50% of its crude needs, up from 27% in 2001. In 2H 2009, crude imports were up 860 kbd yoy.

While China's incremental product exports should trend higher, its incremental crude imports are also likely to continue ramping up to meet demand for new refinery feedstock, but also for operational purposes associated with new capacity. China's refineries typically hold roughly 20 days of crude cover in inventory. Given the expected build out in capacity next year, it will translate into an incremental crude inventory requirement of about 15 million bbl in 2010.

China's crude buying pattern this year will also be influenced by how it implements a plan to build out Phase II of its crude SPR. Phase I tanks with a capacity of 100 million bbl were completed in 2008 and filled in 2009 as China took advantage sharply lower oil prices to fill up at a commercial and strategic level. Some portion of Phase II tanks currently under construction may come online this year, which potentially could mean an additional 45 million bbl of crude SPR capacity ready to be filled. Exactly when these tanks will be completed and more importantly the rate at which they will be filled is unclear, but we expect that crude price will be a key determinant as it was last year. Ultimately by 2020, China aims to have between 440 and 470 million bbl of crude SPR capacity.

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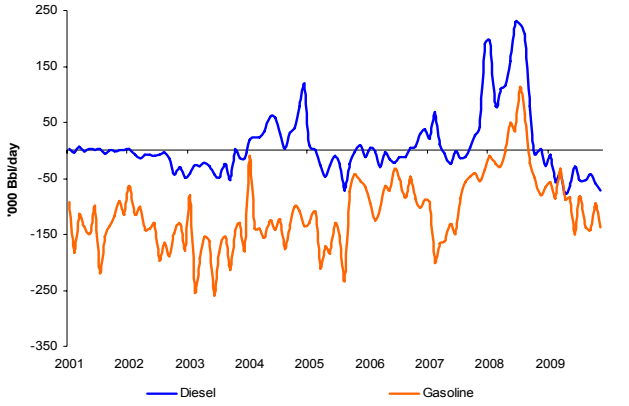
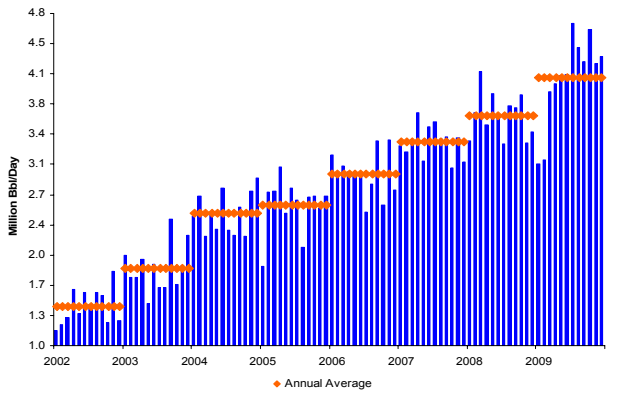
Figure 8: China net imports/exports of diesel & gasoline



Source: Deutsche Bank, China government data

Figure 9: China crude oil imports



Source: Deutsche Bank, China government data

#9 Refinery Margins: Battling Through Surpluses

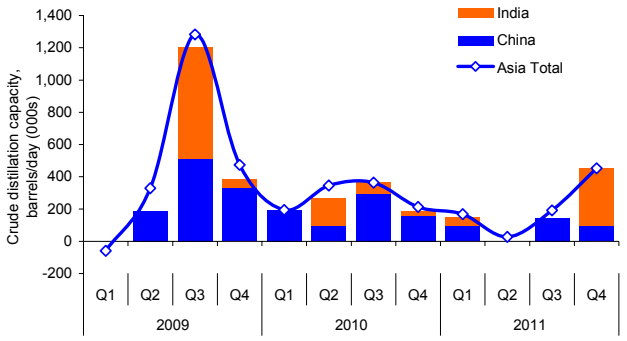
More Cuts Necessary to Balance Asia Capacity Growth

- **Forecasts for 2010 global oil demand call for a recovery, continuing a trend seen in 2009 with the non-OECD taking the lead. While this should be a bullish flag for refinery margins, we believe that margin improvement in 2010 will be muted due to the scale of the build out in capacity.**
- **Asia began an unprecedented build out in refinery capacity that will boost the region's capacity by 34% by 2013. In 2009 alone, 2 million b/d of new refinery capacity was brought online in Asia, half of which was built in China and a third in India.**
- **We believe a surplus in refinery capacity will persist into 2010, which will weigh on refinery margins. Based on our analysis of global surplus refinery capacity relative to a Nymex 3-2-1 crack, it signals the surplus will ease slightly from 2009 but not enough to signal a sharp margin rebound. However, it does indicate that a dramatic freefall in margins that we observed in 2009 is not likely to be repeated, in our view.**
- **We believe for margins to go back to the "golden era" of the 2005-2008 average, we will have to see global oil demand growth double from current forecasts. Or, we would have to see further idling of capacity in the order of 1.5-2 million b/d, which we view as more probable than a significant upside surprise in 2010 demand.**

2009 marked a turning point for the energy sector as the focus on demand and the focus on refining supply firmly shifted east. Refinery projects that were conceived half a decade ago in Asia were born at the worst possible time for the industry - when the world in a recessionary tailspin sharply reduced its consumption of oil.

With a global recovery underway, forecasts for 2010 global oil demand confidently call for a recovery, continuing a trend seen this year with the non-OECD taking the lead. We forecast global oil demand in 2010 will grow by 1.3 million b/d or 1.5%, recovering from 2009 when demand declined by 1.4 million b/d or 1.6%. While this should be a bullish flag for refinery margins, we believe that margin improvement will be muted due to the scale of the build out in capacity.

Figure 1: Refinery capacity growth in Asia



Source: Deutsche Bank, industry & media reports

The good news is that margins aren't likely to get much worse, but the bad news is that until we work through the growing surplus of capacity in refining, margins are unlikely to rebound to the heights observed in 2004-2008 in a baseline scenario for demand.

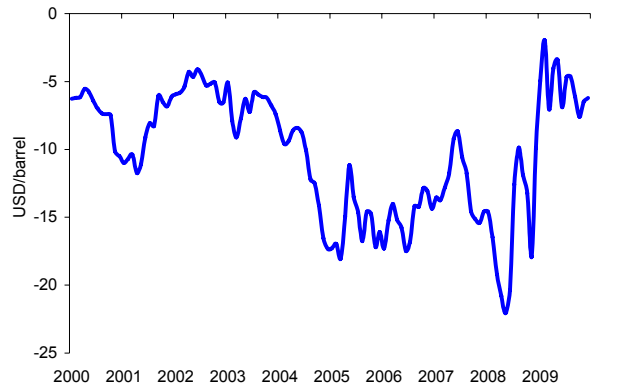
The Big Build Out

Over the past five years, Asia began an unprecedented build out in refinery capacity that will boost the region's capacity by 34% by 2013. In 2009 alone, 2 million b/d of new refinery capacity came online in Asia, half of which was built in China and a third in India, as illustrated in Figure 1. The refinery build out in Asia, facilitated by lower cost of capital, labour, government support and unhampered by regulatory hurdles, happened at a pace that would be impossible in the US or Europe.

The build out in China was spurred by concerns over energy security and hence about meeting domestic needs on a long-term time frame from a government policy level; at a corporate level, Sinopec and PetroChina expanded capacity with the goal of squeezing out rivals - smaller, less efficient, locally-supported independent refiners that by some estimates account for 15% of China's refinery capacity. The build out in India, the bulk of which was undertaken by Reliance, was done with the export market in mind. Reliance built a modern mega 600 kbd refinery at its existing refinery site in Jamnagar in West India that could produce light products clean enough to meet the stringent fuel standards of the US and European markets.

Another notable feature of the build out is that these new refineries were of high complexity – able to maximize production of high value light products such as gasoline and diesel process from lower-priced, high-sulphur, crude oil grades as feedstock. For example, Reliance's new refinery has a nearly zero fuel oil yield and a 90% light products yield. Its rivals in OECD Asia have a fuel oil yield of 14% and a light ends yield that of about 82%.

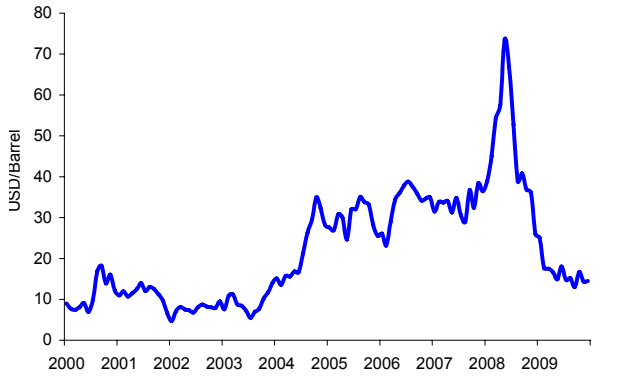
Figure 2: Maya crude discount to WTI



Source: Deutsche Bank, Bloomberg

At existing refineries, secondary units – such as crackers and cokers - were added to increase the yield of light products at the expense of heavy products, such as fuel oil. This shift was observed in Asia, the US and Europe as wide light-heavy differentials in both crude (heavy, sour Maya crude discount to light, sweet WTI as illustrated in Figure 2) and products (gasoil premium to fuel oil as illustrated in Figure 3) incentivized such structural refining adjustments.

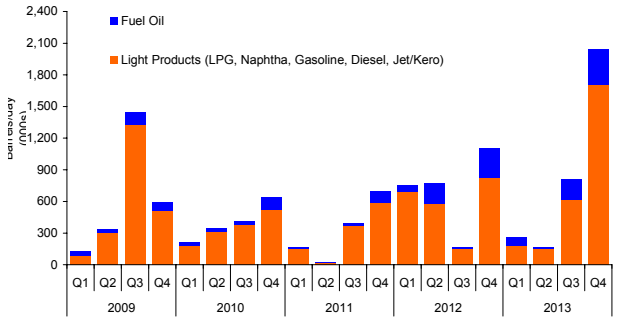
Figure 3: European Gasoil Premium to Fuel Oil 1% Sulfur



Source: Deutsche Bank, ICE, Bloomberg

Light-heavy premiums for both crude and products narrowed this year relative to previous years. While this trend was foreseen given the shift in refining yields, it was exaggerated this year due to: (i) the recessionary impact on oil demand, which was more acute for gasoil; (ii) and as OPEC production cuts in 2009 resulted in a deep reduction in the lower quality, lower priced heavy, sour crude. The average Maya discount to WTI narrowed by USD10/bbl (or 70%) in 2009 from 2008, while the gasoil premium to fuel oil has fallen by USD30/bbl or 65%.

Figure 4: Asia & Middle East capacity growth – light versus heavy products



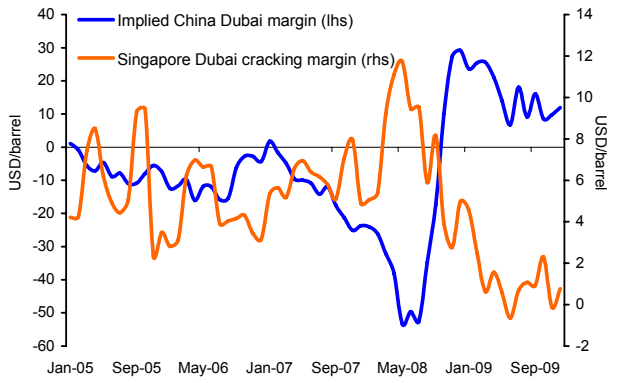
Source: Deutsche Bank, industry & media reports

Less sensitive to margins

Yet another unique feature of the build out in Asia is the limited sensitivity to international refinery margins, which will and has already translated into a significant divergence of refinery utilization rates in the OECD and non-OECD this year.

Product prices are regulated in China by the central government, which this year pursued a policy of protecting domestic margins. While the central government has many tools in its arsenal to protect China's refining sector, one that has been much talked about is a mechanism introduced this year that adjusts product prices to ensure a 5% margin for refiners when crude prices are at USD80/bbl or below. Details on this policy are not fully transparent and implementation is ultimately discretionary, but this year China hiked product prices five times and propped up domestic refinery profitability as illustrated in Figure 5.

Figure 5: China versus Singapore refinery margins



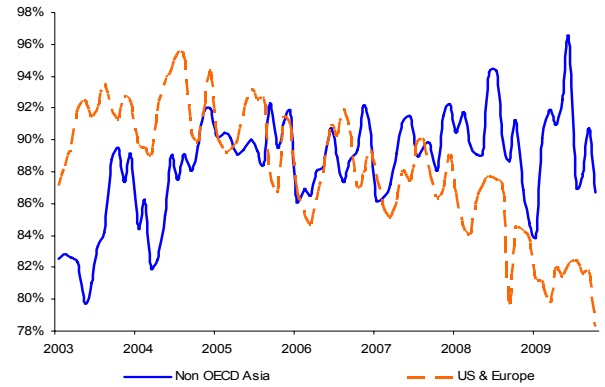
Source: Deutsche Bank, Bloomberg

Singapore margins have fallen on average 83% in 2009; implied Chinese margins after holding at negative levels for 19 straight months flipped to positive in Q4 and have held at very strong levels for all of 2009. As for India, Reliance's export-oriented Jamnagar refinery, advantaged

by very cheap feedstock costs and export tax breaks, began operations this year and is running at above nameplate capacity.

While international refinery margins were crushed this year, prompting 5% of US refinery capacity to close permanently, 10% of European capacity to be shut for a full quarter or permanently and 8% of Japanese refinery capacity to be idled, both capacity and utilization rates in Non-OECD Asia – especially in China – trended consistently higher, Figure 6. The latest data point for China shows November refinery runs set a new record of 8.2 million b/d, a 22% gain year-on-year and a 70% gain in five years. Chinese refinery runs in 2009 YTD were up 600 kbd, while runs in Europe and the US were down 1.3 million b/d in aggregate.

Figure 6: Asia versus US & Europe refinery utilization



Source: Deutsche Bank, BP Statistical Review, IEA, EIA & govt data

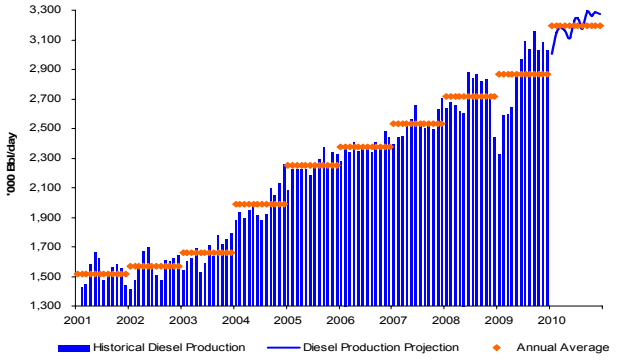
Clearly, Non-OECD refiners have pressured competition in the OECD as production from new capacity in Asia has not only supplied markets such as the Middle East that has traditionally been supplied by Europe but is also flowing directly into Western markets. This trend should continue in 2010, effectively blocking outlets for US and European surplus refinery production.

From net imports to net exports

While India's Reliance refinery by design targets the export market, China's status as a net exporter this year was not by design. In fact, China's product export margins are negative. China switched from being a net importer of key products – gasoline and diesel - to a net exporter in 2009 as capacity growth outpaced domestic demand growth prompting refiners to seek an outlet for their products. Domestic margins more than made up for the losses on exports.

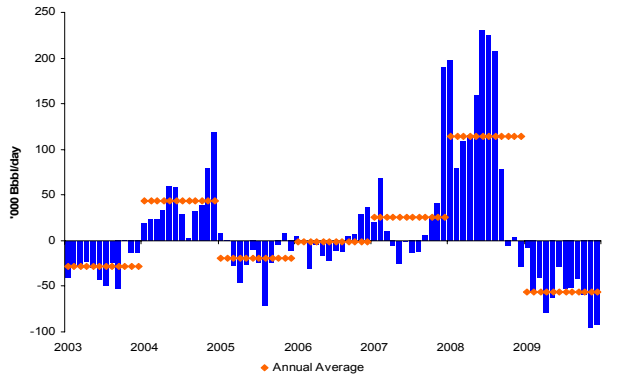
Given that an additional 750 kbd of new refinery capacity is slated to come online this year, we're likely to see diesel productive capacity grow by an additional 300kbd, Figure 7 which is more than double the IEA's forecast for China diesel demand growth for 2010. With runs expected to stay on the high end in China as the central government is likely to maintain a policy of supporting domestic margins, China's diesel exports should continue to trend higher. Net diesel exports out of China may more than double in 2010 from the annual average of 60 kbd in 2009, Figure 8. Confirming the higher export trend, China's Ministry of Commerce recently announced the first batch of Sinopec and PetroChina 2010 product export quotas for gasoline, diesel, kero and naphtha which were in aggregate 80% higher than last year's levels.

Figure 7: Chinese diesel production – history & projection



Source: Deutsche Bank, China government data

Figure 8: China net diesel imports/exports



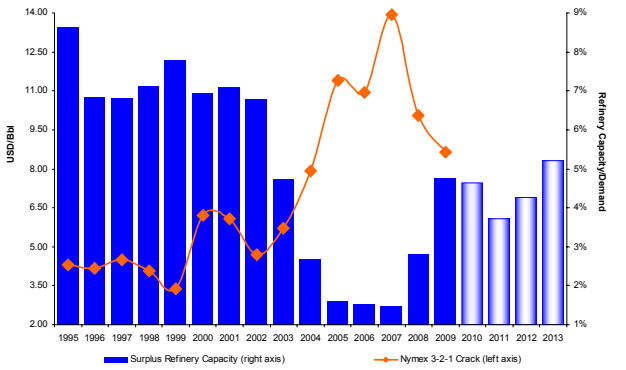
Source: Deutsche Bank, China government data

Surplus to persist

With another 1 million b/d of new capacity in Asia slated for completion and start up in 2010, the build out is clearly not over. Our survey also shows that the build out in the Middle East is expected to ramp up post 2011. For Asia and the Middle East in aggregate, we show refinery capacity growth expanding by 9 million b/d over the next four years.

As for 2010, we believe a surplus in refinery capacity will persist, which will continue to weigh on refinery margins. Based on our analysis of global surplus refinery capacity relative to a Nymex 3-2-1 crack, which we use as a broad measure of refinery margins, it signals the surplus in 2010 will ease slightly from 2009 but not enough to signal a sharp margin rebound. However, it does indicate that a dramatic freefall in margins that we observed in 2009 isn't likely to be repeated, Figure 9. The analysis also indicates that the surplus, at least until 2013, will not balloon out beyond 5%, which beyond that level would signal deeper falls for margins.

Figure 9: Surplus refinery capacity & margins



Source: Deutsche Bank, IEA, EIA, BP & government data

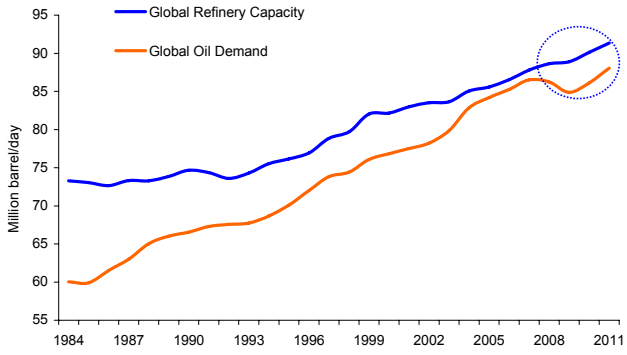
In our measure of surplus refinery capacity in Figure 9, we are assuming the following:

- Global oil demand growth of 1.3 million b/d or 1.5% in 2010; 2% growth in subsequent years.
- 2010 global refinery capacity growth of 1.2 million b/d, which incorporates confirmed closures in the US, Europe and Japan as well as capacity growth in Asia and the Middle East.
- Net global refinery capacity growth and demand are more in balance in 2010, but the imbalance of 2009 means demand will have to play catch up with up with refinery capacity, Figure 10.

In Figure 9, the relationship between global surplus refinery capacity and the Nymex 3-2-1 crack implies that for margins to go back to a 2005-2008 type average, the surplus must drop down to around 2-3%. For this to happen in 2010, we would have to see global oil demand growth at double current forecasts. Or, we would have to see further idling of refinery capacity – likely in the US, Europe and Japan, where it is already happening - on the order of 1.5-2 million b/d, which we view as more probable than a significant upside surprise in 2010 demand growth. Therefore, an important factor to watch next year will be further refinery capacity closures or lengthy shutdowns that last a quarter or beyond. The other risk is that the capacity planned for this year doesn't come online as scheduled, which would mean a deferral to the following year.

While it's too early to say definitively that 2011 and 2012 will be periods of better margins for refiners, the balance at present does look tighter than 2009 and 2010.

Figure 10: Global refinery capacity versus global oil demand



Source: Deutsche Bank, IEA, EIA, BP & government data

We believe by in large the factors that provided upside demand surprises in recent years have largely been resolved.

- In 2008, severe power shortages prompted mining companies in South Africa and South America to import record diesel volumes. While power constraints remain a feature of the mining sector, productive diesel capacity is more than sufficient to meet demand this year. Also, Chile, a notable source of diesel demand in 2007-2008, completed an LNG import facility this year, which will help mitigate the need for high cost diesel-fired power generation.

- Strong Chinese oil demand and pre-Olympic stockpiling were key features of the market in 2008; stimulus programs geared toward the construction and agricultural sectors drove demand in 2009. They will not feature in the 2010 outlook for China's oil profile. While we believe Chinese demand growth will remain strong and continue to lead global growth rates, China's refinery capacity growth should continue to outpace domestic demand which should result in higher net exports of diesel and gasoline.

One potential surprise for 2010 could be the pace at which China builds its refined products SPR, which was announced earlier this year. While details are limited, what is clear is that there is overwhelming support for the plan and construction of storage capacity – both strategic and commercial - is underway.

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#10 US Natural Gas

Shale Tale

- **With US GDP expected to increase by 3.5% in 2010, natural gas use should increase, but we expect that higher natural gas prices will cause more coal to be burned in the electric power sector during 2009.**
- **US natural gas production was constrained in 2009 by lack of demand and limited storage capacity. Since late 2008, total output flattened, but shale gas production has continued to climb.**
- **Global LNG markets have loosened considerably as a number of major new LNG export facilities were streamed in Asia and the Middle East.**
- **Storage growth remains above normal but extremely cold weather in January has resulted in a significant reduction in the overhang of gas.**
- **We expect natural gas prices to average USD6.00/mmBtu in 2009 and believe prices should average close to this in 2011 and 2012 as well. With ample supplies available from the shale plays and imported LNG, we no longer expect a return to a long-term 8-10 to 1 oil/gas price ratio.**

Consumption

We expect US natural gas consumption to be essentially flat in 2010 after declining by circa 2% in 2009. Figure 1 shows our demand forecasts by major sectors: industrial consumption is forecast to be the hardest hit in 2009 as a result of the economic downturn, falling by circa 8%. At the start of 2009, electric utility consumption of natural gas was also expected to decline as a function of less gas required for peaking units, however, according to the DOE, low natural gas prices relative to coal caused substantial switching to natural gas for baseload electric power generation throughout most of 2009.

The economic recovery and consequent gains in industrial sector gas consumption in 2010 may be largely offset by erosion in power generation demand for gas, given meaningful new wind and coal plant capacity starting up in 2010. Residential and commercial gas use in 2010 may be helped by consensus expectations that Q1 2010 temperatures across much of the US may be below normal.

From a more general perspective, consumption of natural gas in the US is driven by five key factors:

- economic growth
- heating degree days (HDD)
- natural gas prices
- oil prices
- cooling degree days (CDD)

Of these variables, we believe the most important is GDP. The US economics team at Deutsche Bank projects the economy to grow at a 3.5% y-o-y rate in 2010. While this should be sufficient to meaningfully improve the employment situation and ultimately push the Fed into tightening monetary policy, it is actually on the soft side compared to the early stages of previous economic recoveries, which typically average about 6%.

Figure 1: Key US gas statistics

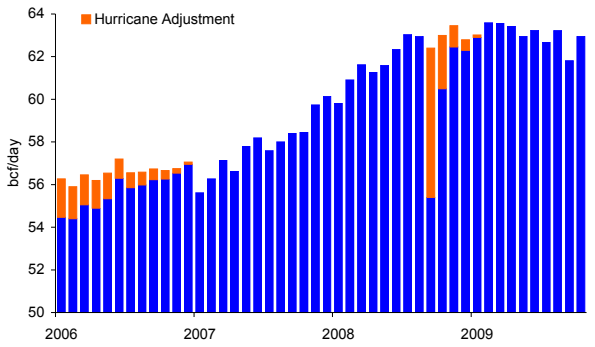
(bcf/d)	2008	2009	2010E	Yr% Chg 2005-2009
Consumption				
Residential	13.0	13.0	13.3	-0.5
Commercial	8.5	8.4	8.5	0.4
Industrial	18.1	16.6	16.9	-1.7
Electric Power	18.2	18.9	18.4	3.3
Other	5.3	5.4	5.3	2.7
Total Demand	**63.4**	**62.2**	**62.4**	**0.6**
y-o-y % change	0.3	-1.9	0.3	
Dry Gas Production	**55.7**	**57.6**	**55.8**	**3.1**
y-o-y % change	6.5	3.5	-3.2	
Net Change in Storage	**0.1**	**-1.2**	**0.3**	
Pipeline Imports	**9.9**	**8.8**	**7.7**	-2.9
LNG Imports	**1.0**	**1.3**	**2.2**	-6.0

Source: US DOE/EIA, Deutsche Bank

Production

The rising rig count and updated data from producers point to declining threshold economics for US shale plays, which continue to generate greater production per rig and per drilling dollar. These efficiency gains are due to more effective well completions (longer lateral legs, extended stage fracturing, denser fracturing clusters, optimized fluid "recipes") and pad-based drilling, along with a drop in industry-wide oil field service costs. We believe the 17% gain in the US gas rig count from its mid-July trough serves as direct evidence of this dynamic, and anecdotally note that many US E&P companies have raised, or at least upheld, their capital budget guidance, with most indicating higher planned 2010 well counts.

Figure 2: US gas production gains slow as demand falters during economic crisis

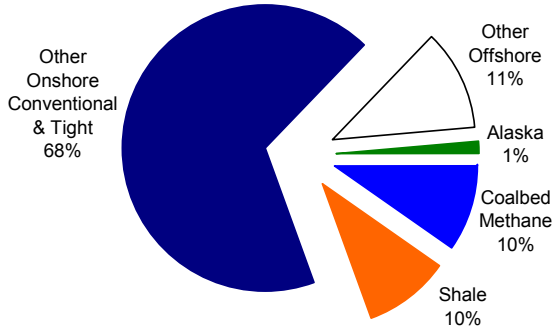


Source: US DOE/EIA, Deutsche Bank

Shale gas

Across the US and Canada, geologists have identified seven high-quality, relatively new, deep gas shale plays that are under development. Vello Kuuskraa, a noted resource analyst has recently referred to these plays as the "Magnificent Seven" – the Barnett play in Texas, the Haynesville on the Texas-Louisiana border, the Woodford-Fayetteville trend that extends from Oklahoma into Arkansas, the Marcellus in the Applachain region of the US, the Antrim play in Michigan, and the massive Horn River and Montney formations in NW Canada.

Figure 3: US gas production by type



Source: US DOE/EIA, Deutsche Bank

According to the most recent breakdown (2008), US shale gas production grew from circa 3.2bcf/d in 2007 to 5.5bcf/d in 2008 to account for 10% of US gas production of 56bcf/d. We believe that production is likely to have reached 7bcf/d in 2009 and could be 9bcf/d in 2010 and represent circa 16% of domestic output.

Global LNG

The wave of new and ramped-up LNG projects around the globe is still building. Facilities streamed in 2009 include Tangguh, Qatargas 2, Sakhalin 2, Yemen, Ras Laffan 3, Snohvit, NW Shelf- 5, and Atlantic LNG 4. Over the course of 2010-11, we expect significant increases from these projects, as well as Pluto, Algeria, Peru LNG, and NLNG come on line. Wood Mackenzie estimates that in 2009, total global LNG capacity was about 26bcf/d, and that an additional 10bcf/d is likely to stream over the 2010-2011 period.

In 2009, LNG producers responded to the soft market by accelerating maintenance programs, extending repairs, and ramping up at a measured pace. In Europe, piped suppliers (mainly Gazprom) gave up market share in 2009 as flows fell below contract take-or-pay quantities. In 2010 we doe not see the same scope for flexibility in pipeline sales. LNG not sold in Asia may find its way to the US, and volumes much in excess of contract minimums (1bcf/d) coming to the US will likely end up either replacing declines in conventional gas production or Canadian imports, or will be absorbed into storage.

US gas price outlook

We are maintaining our 2010 calendar year forecast at USD6/mmBtu, which incorporates a USD5.50 entry price in the current quarter and a modest recovery throughout the year. For 2011 and 2012, we are forecasting USD6 and USD6.25/mmBtu. With ample supplies available from the shale plays and imported LNG, we are no longer expect a return to a long-term 8-10 to 1 oil/gas price ratio. We believe that USD6-7/mmBtu prices are sufficient to generate supply under normal market conditions over the next few years.

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#11 Precious Metals

Gold Euphoria to Wane & PGMs on the Rise

- **We believe one of the most powerful forces driving gold prices higher over the past eight years has been the weakening in the US dollar.**
- **We expect the US dollar will become less of a constructive force for the precious metals complex as the Fed starts a programme of rate hikes during the second half of this year.**
- **Even so we still expect the US dollar to remain structurally weak. Indeed history would suggest that another fall in the greenback during 2011 can not be dismissed out of hand.**
- **For the time being we expect gold prices can benefit from central bank diversification and investor flows. However, given less constructive exchange rate trends we prefer to express a bullish view on the sector via silver and the PGMs.**
- **This optimism is based on an ongoing improvement in global growth which we believe will benefit disproportionately those metals with greater industrial use. Moreover we expect investor flows may play an increasingly important role in driving PGM prices given the launch of ETF products linked to platinum and palladium.**

The rally in the gold price has been underway since April 2001. As a result, this represents the most durable rally in the gold price since gold become freely floating at the beginning of the 1970s. In fact the current rally is almost three times as long as the last four rallies in the gold price. However, in terms of magnitude the gold price would need to rise to approximately USD1,325/oz in order to surpass in percentage terms to surpass the performance of the 1971 to 1975 gold price rally in percentage terms, Figure 1.

Figure 1: Gold rallies in comparison

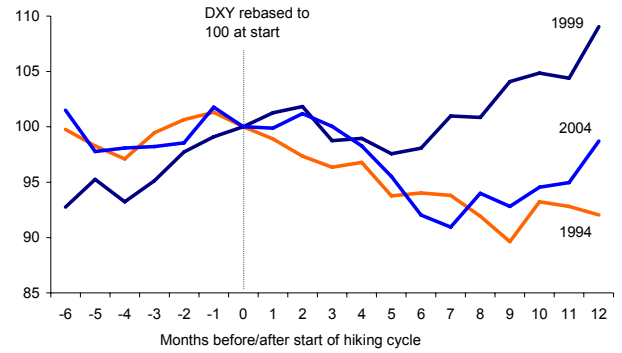
	Low USD/oz	High USD/oz	USD change	Magnitude	Duration (months)
Aug-71 to Feb-75	35.4	183.9	148.5	419%	42
Aug-76 to Jan-80	103.5	850.0	746.5	721%	41
Jun-82 to Feb-83	296.8	509.25	212.5	71.6%	8
Feb-85 to Dec-87	284.3	499.8	215.5	75.8%	34
Apr-01 to Dec-09	255.6	1215.7	960.1	375%	105

Although the gold price had been rising before August 1971, we take this as the start point for this rally since it marks the date the US government informed the IMF that the US dollar would no longer be convertible into gold. This consequently leads to the collapse of one of the main pillars of the 1944 Bretton Woods system.

Highs and lows in the gold price relate to closing prices
Source: Deutsche Bank, Bloomberg

We believe a significant part of the rally in the gold price over the past few years has been driven by the depreciation in the US dollar. In our view, the US dollar may prove to be a less constructive force for the gold price during 2010 given our expectation that the US Fed will start tightening monetary policy sometime in the third quarter of the year. In the last three Fed tightening cycles the US dollar tended to strengthen in the six months before the rate hike and then surrender these gains in the six months following the first Fed rate hike, Figure 2.

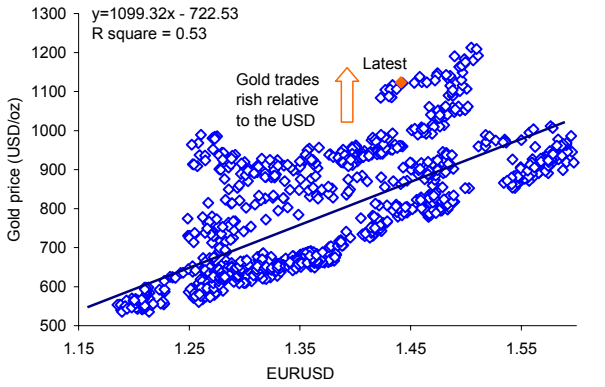
Figure 2: The DXY US dollar index tends to rally in advance of Fed rate hikes



Source: Deutsche Bank FX Research, Bloomberg

However, over the past year the gold price has started to trade increasingly rich relative to the US dollar, Figure 3. We believe this is in response to other factors rather than the US dollar helping to push gold prices higher.

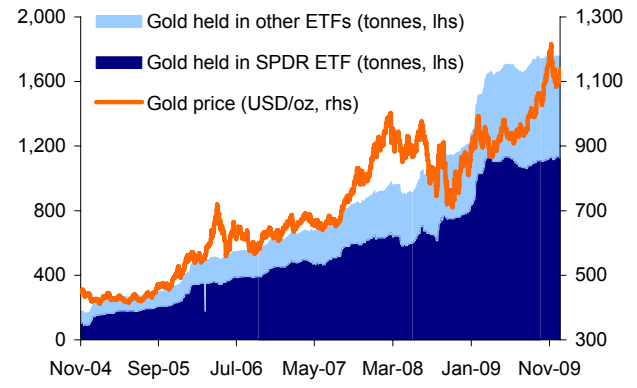
Figure 3: Gold & EURUSD relationship since 2006



Source: Deutsche Bank, Bloomberg Data runs from 2006-2010

We believe the increase in holdings of physically backed gold ETFs has been one of the major factors enabling the gold price to trade at rich levels of valuation compared to the US dollar. Total gold ETF holdings in volume terms is now in excess of 1,700 tonnes, with the SPRD gold ETF constituting approximately two-thirds of the gold ETF market, Figure 4. However, we would expect an improvement in financial sector confidence, a recovery in global growth and a rebound in risk appetites to slow or possibly even stall inflows into gold ETFs. However, we would put a low probability of significant gold outflows given the diversification properties of gold and the possibility that CFTC regulation pushes investors towards owning physical commodities, such as gold

Figure 4: Total gold holdings of physically backed ETF

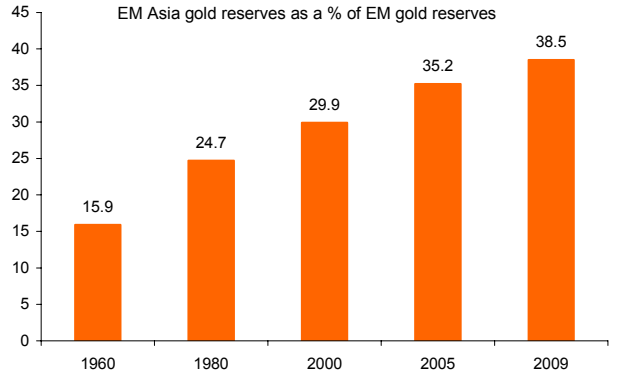


Source: Deutsche Bank, Reuters

According to the CFTC, legislation to curb speculative activity in commodity markets is likely to be introduced sometime in the first half of this year. Action to curb speculative activity in commodity markets has been a regular feature in US financial markets for the past 100 years. We find that the most reliable effect of US action has been to reduce commodity futures turnover. We would also expect any measures that restrict the trading in commodity futures markets will simply enhance the appeal of gaining physical commodity exposure, for example in physically backed commodity ETFs. As a result, we would expect the precious metals complex may prove a natural beneficiary in a tougher regulator environment, if it were to occur.

We believe another source of gold demand will stem from central bank diversification particularly across Asia. Indeed the emerging market countries in Asia have become the most important region in the developing world in terms of increasing their gold holdings. However, gold holdings in Asia remain trivial compared to the G10 countries, at approximately 10% of total G10 holdings. While the recent sales by the IMF to India are relatively small we believe it is the implicit statement being made about the US dollar that explains why the gold price reacted so positively to the news of central bank diversification. For the first since 1988 we expect central banks in aggregate will be net buyers of gold in 2010 as emerging market purchases surpass selling by European central banks.

Figure 5: EM Asia gold reserves relative to EM

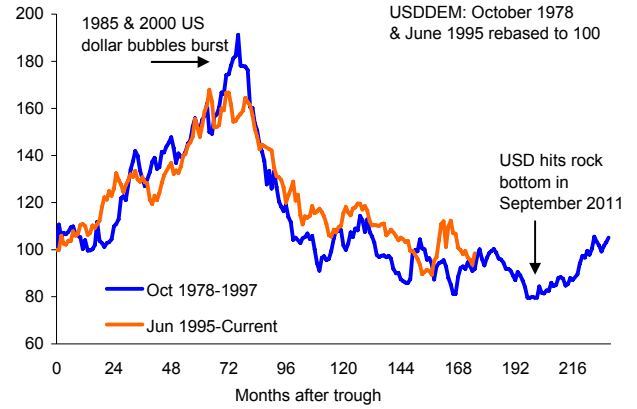


Source: Deutsche Bank, IMF, Haver

Although not the official view of our FX Research team, history would suggest that another collapse in the US dollar cannot be ruled out. Indeed the decline in the US dollar since 2000 bears a striking resemblance to the decline in the US dollar between 1985 and 1995, Figure 6. If this similarity continues then it would imply temporary strength in the US dollar during 2010 will unravel next year

and a new long term uptrend in the US dollar will not commence until September 2011. We would therefore not abandon fresh highs in the gold price although we do not expect these to occur in the first half of 2010.

Figure 6: The 1985 and 2000 US dollar bubbles compared



Source: Deutsche Bank, Bloomberg

Conclusion

We believe exchange rate trends will become less constructive for the gold price during 2010. However, for a new long term downtrend in the gold price to emerge we believe would require among other things a substantial strengthening in the US dollar, a significant rise in US real interest rates and a dramatic decline in the equity risk premium. We attach a low probability to such a scenario and consequently believe gold prices are well supported. Given our upbeat assessment towards global growth particularly in the first half of this year, we believe silver and PGMs offer more attractive upside price potential.

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#12 Platinum Group Metals

The Best of Both Worlds

- **In our view both platinum and palladium offer investors a unique combination of leverage to the global economic recovery through the rebound in global auto output, as well as the supportive attributes of a "precious" metal.**
- **Whilst gold's performance is unlikely to be a driver of the PGM complex over the next year, a structurally weak US dollar and the advent of a new platinum and palladium US listed ETF are supportive for investment demand in our view.**

Platinum: A deficit for the next two years

Since our last review, we have revised down our 2009 expected surplus by 180 koz to a mere 75 koz, as the market tightened more significantly during the second half of the year. Whilst the usual end-of year adjustments still have to be made, on the demand side of the equation the key surprises were:

- A stronger than expected resurgence in Chinese jewellery demand to a record level of 1.7Moz.
- A stronger than expected draw from investment demand, up to c.610koz from an already strong level of 555koz in 2008.
- Offsetting the above two factors was a much weaker than expected autocat consumption, especially in the key European market, down c.40% Y/Y. Our expectation of vehicle manufacturer re-stocking during 2009 did not materialize and we believe this may be postponed to 2010.

Whilst final production numbers for the major producers in 2009 still have to be confirmed, we expect most of them to meet their guidance, albeit conservative. On the supply side of the equation, the surprise in 2009 was the low level of recycled material. We now forecast recycled platinum down 22% from 2008 levels at c.875koz – the delay in the industry response to the improving price has been longer than our anticipation.

The outlook for the supply - demand equation over the next two years looks increasingly favourable, with a sharp rebound in global vehicle production, auto-maker restocking and continued investment demand driving demand. We are forecasting mined supply to recover only modestly in 2010, up 4.4% from 2009, as the South African miners, struggle with lagging ore face development, safety stoppages and potential power disruptions as the South African economy recovers from recession. The two key risks over the next two years, and indeed over the longer-term are i) recycled supply being much stronger than forecast as material from the various scrappage schemes makes its way into the system, and ii) Chinese apparent demand in jewellery which could tail off much more than we currently forecast in 2010 and 2011, as fabricators de-stock. We look at each of these drivers in more detail:

Chinese jewellery demand unlikely to repeat its record year.

Our estimate of Chinese jewellery demand for 2009 is 1,700koz, making this a record demand year, beating 2002 by c.200koz. A key point to note was the subsequent decline to an average demand level of c.800koz from 2006 to 2008, as high prices and fabricator margin pressure and subsequent de-stocking weighed on consumption. The high apparent consumption in 2009 contains a significant level of re-stocking, which is unlikely to be repeated in 2010 in our view. We are forecasting a decline of 300koz in Chinese jewellery demand, stabilizing at c.1,100koz over the medium term. The jewellery market is well-established in China, and in our view will achieve modest growth over the medium-term, as China's GDP/capita grows with the rising, more affluent middle classes. The near-term risk is that higher prices in 2010/11 lead to a rapid de-stocking.

Rebounding auto production – a strong driver for demand in 2010/11

Autocat consumption in 2009 is likely to be significantly lower than our initial expectations, especially in the key European market. However, at an estimated 2009 demand of 1200koz in Europe, this represents a decline of 40%. Globally, we expect autocat demand to be down 30% Y/Y at 2.65Moz. To put these figures in context, estimates of vehicle production are down between 12 and 15% globally and 18 – 20% in Europe. We believe some de-stocking of platinum inventories have taken place, starting off at the end of 2008 and continuing into the first half of 2009.

Vehicle sales on the other hand have been surprisingly robust, with DB estimating W European car sales flat Y/Y and sales in the US up 7% Y/Y, helped largely by the "cash for clunkers" and scrappage schemes. DB analysts expect sales increases across all regions, expect Europe. More importantly in our view, is the stronger rebound in global vehicle production in 2010 and 2011. Sales outstripped production in 2009, which we believe has flushed out most of the vehicle inventory. Our current forecasts still show sales outstripping production in absolute terms in 2010, which is an upside risk to autocat demand should production rise to match sales.

On a regional basis, the stronger rebound in North America, combined with the continued growth in China favours palladium over platinum, but the rebound is positive for all three PGM's in our view. Despite the improving trend in autocat demand, we only forecast consumption to return to the peak 2007 levels by 2012/13, as new vehicles sales have been skewed toward smaller engine sizes, which have in turn meant a lower diesel penetration in Europe

Investment demand to show continued strength into 2010 and 2011

Investment demand was typically only a small part of the total demand for platinum running at c.1% before the advent of ETF's. Since 2007, investment demand has comprised c.8–9% of total demand. Gold has played an important role in platinum's performance over the past year, and whilst we expect this driver to be largely absent in 2010, specific events in the precious metals should prolong the strength in investment demand. On a relative basis North America has always been an important region for investment demand, but this has been in the form of coins and physical bars. The recent approval of a physically backed US listed ETF for both platinum and palladium will in our view be positive for investment demand, providing more liquidity and avenues for investment directly in the metal (the ETF started trading on the 8th of January (PPLT & PALL) on NYSE Arca).

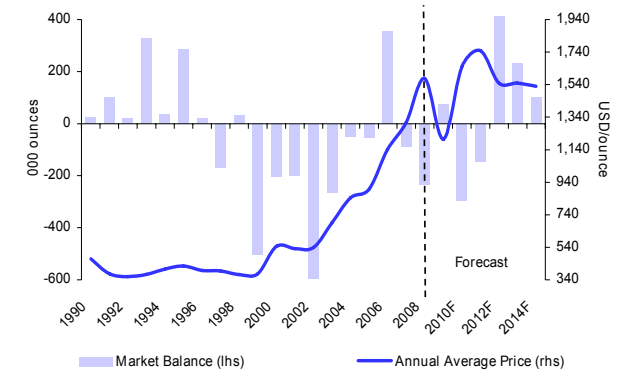
We expect investment demand to rise to a peak of 725koz in 2011as a result of this listing. However, we believe significant "pre-buying" has already occurred which increases the risk of a short-term pull-back as the ETF begins to trade. As the global economic recovery becomes more certain, and interest rates start to rise as a means to combat inflation, we expect investment inflows to slow. The timing of this event is difficult to call, but we have factored this slowdown in 2012, which is one of the key reasons we expect the platinum market to return to a surplus.

Recycled supply remains a risk, but not near-term

Recycled material, especially from autocats is an imperative to balance the PGM markets. As "end-of-life vehicle" ELV legislation has been introduced and become more onerous in the OECD, autocat collection and processing efficiencies have improved over the past two decades. The value of the PGM in the autocat has also provided a financial incentive to recycle – a key reason for the peak in 2008, at 1.12Moz. The dramatic drop in 2009 was due to consumer buying patterns i.e. retaining their vehicles for longer, but as vehicle sales gained momentum in the second half of 2009, we expect the volume of recycled material to increase Y/Y from 2010 onwards. In our base case we expect secondary supply to increase by 27% by 2016.

There is however the risk that robust PGM prices and a poor mined supply response provides additional incentive to improve collection and processing efficiencies over and above those dictated by legislation. The Static recycling ratio is defined as the ratio between recycling today versus gross consumption today. In a rising consumption environment, a flat static ratio would imply increasing volumes of recycled material in absolute terms, but that collection and processing efficiencies remain static. In the chart below, the static recycling ratio is rising for platinum, albeit modestly, implying improving collection rates and processing efficiencies. The key risk to our base would be better recycling rates as indicated by a "steeper" static ratio. A "risk" case we outline below could yield an additional 200koz of platinum by 2016, and the theoretical trend-line" an additional 400koz, close to 1.9Moz. This equates to 3x Lonmin's current annual production.

Figure 1: Platinum supply/demand balance



Source: Deutsche Bank, Bloomberg

Palladium: A balanced market near-term, turning into deficits by 2014

Palladium has outperformed platinum in 2009, by c.50%, and in a sense can be considered to have the same relationship to platinum as silver has to gold i.e. that palladium is a "high-beta" form of platinum. We are forecasting essentially a balanced market in 2010/11, but the fundamental investment case continues to improve in our view, with increasing substitution over platinum and vehicle production growth skewed towards China driving demand. Although the net demand picture is similar to that of platinum in 2009 (both down c.5%), the drivers have been slightly different for palladium. In contrast to platinum autocat demand palladium did not fall as sharply, but neither was the increase in jewellery demand as sharp. Investment demand, a common theme was also a strong driver in 2009F, with an increase of 250koz or 60%.

A stronger rebound in US auto production favours palladium

The decline in autocat demand globally in 2009F of 13% is quite modest compared to platinum and more in line with the decline in vehicle production. This perhaps surprising outcome was driven by two factors i) a small decline in autocat demand of 6% in Europe – the introduction of Euro 5 emission rules and the increasing percentage of palladium in diesel catalysts increased loadings despite a fall in vehicle production, and ii) a sharp increase in autocat demand from China – the introduction of Euro 3 and 4 legislation in certain areas in mid 2008 has lead to palladium demand growing more than vehicle output.

In 2010/11, the trend of increasing substitution in Europe and increased loadings in China should be augmented by a rebound in European auto-production and continued strong growth in China. DB analysts are forecasting a sharp rebound in North American auto output, which is much more palladium intensive than its European counterpart. Our expectation that Chinese auto output, which is also much more palladium intensive, continues to grow strongly over the next decade is likely to drive palladium consumption such that China should outpace the US by 2015 and Europe by 2018.

Investment demand strength mirrors that of platinum

Investment demand was typically only a small part of the total demand for palladium running at c.2% before the advent of ETF's. Since 2007, investment demand has increased to c.4-5% of total demand. As discussed previously the performance of gold has played a role PGM performance, with investment demand comprising 9% of the total in 2009F. We expect the level to remain at 9 – 10% over the next two years with continued demand in Europe and the recent approval of a physically backed US listed ETF which will provide more liquidity and avenues for investment directly in the metal (the ETF started trading on the 8th of January (PPLT & PALL) on NYSE Arca).

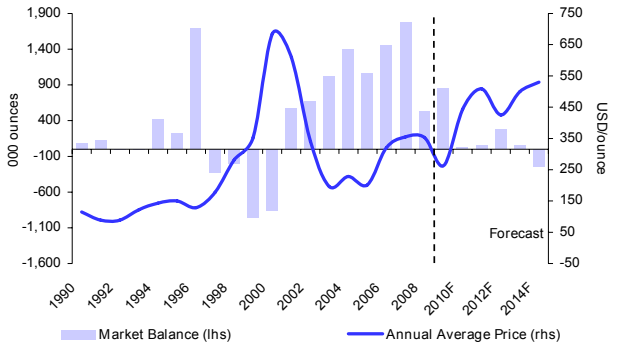
We expect investment demand to rise to a peak of 880koz in 2010 as a result of this listing. However as with platinum, we believe significant "pre-buying" has already occurred which increases the risk of a short-term pull-back as the ETF begins to trade. As the global economic recovery becomes more certain, and interest rates start to rise as a means to combat inflation, we expect investment inflows to slow. The timing of this event is difficult to call, but we have factored this slow-down in 2012, which is one of the key reasons we expect the palladium market to be in a more significant surplus position.

Recycling and Russian stockpile sales remain a risk

Palladium recycling trend mirrors that of platinum with a peak "supply" of 1.12Moz registered in 2008. The decline in 2009F is likely to be c.13%, rebounding strongly by 15% in 2010 to match that of 2008. As with platinum, the key factor is a surge of end-of-life vehicles making their way into the recycling system post the "cash-for-clunkers" schemes. In our base case we have assumed increasing amounts of recycled material but a stable static recycling ratio of c. 25%. The key risk is that collection and recovery efficiencies improve so that the ration increases to c.29%, by 2016. This modest increase could amount to an additional 200koz by 2014, leading to a more balanced market.

Russian stockpile sales have stabilized between 750koz to 1.5Moz over the past decade, but have been higher historically. Whilst the absolute level of stockpiles is unknown, we believe Russian sales will be managed such that the market remains balanced. We have assumed an annual sales level of c.900koz. It is only from 2014/15 onwards, when the palladium market moves into deficit that the absolute level becomes more important, in our view.

Figure 2: Palladium supply/demand balance



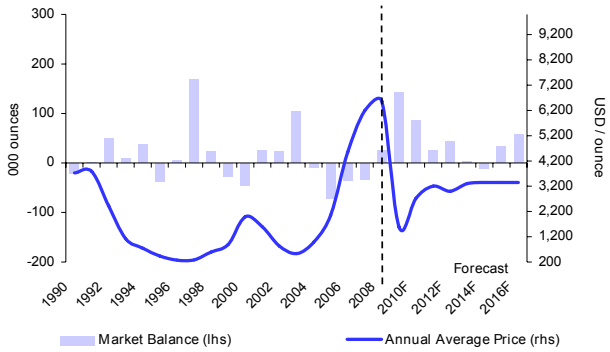
Source: Deutsche Bank, Johnson Matthey

Rhodium: Recovering Auto production is supportive, but the market remains in surplus

Rhodium has been the best performing PGM in 2009, up 120% since the beginning of the year, and up 174% since the lows in November 2008. Rhodium is seen as the indicator of demand in the auto-catalysts as 85 – 90% of demand arises from this sector. If this is true, then the outlook has improved steadily through the course of the year. Whilst there is no ETF or coins to create an investment market that can be tracked, the metal can be actively traded, although the market is not as deep or as liquid as that of platinum and palladium. This trading activity can influence pricing over the short-term. As with platinum and palladium, we are forecasting a strong

rebound in demand in 2010/11, up 17% and 12% respectively, as global auto-output rebounds. Despite the strong rebound in demand, we are forecasting the market to remain in surplus in 2010/11, and with the significant surplus likely in 2009, we think this will mute any significant price appreciation over the medium-term.

Figure 3: Rhodium supply/demand balance



Source: Deutsche Bank, Johnson Matthey

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#13 Investor Flows & Regulation

The Rise of Exchange Traded Funds

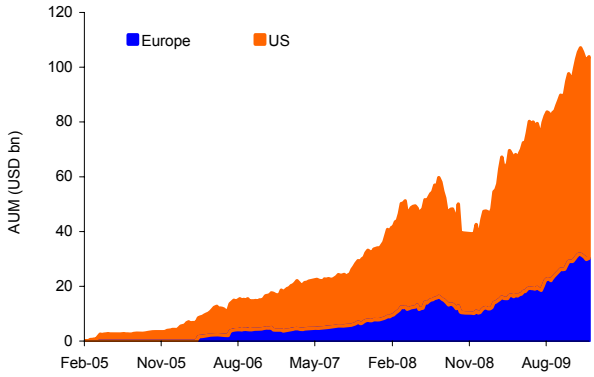
- **The popularity of commodity Exchange Traded Funds has soared over the past few years. In terms of regions, the US and Europe represent the lion's share in terms of the number listed and the size of assets under management.**
- **We estimate that the US and Europe alone constitute more than 95% of total AUM of commodity ETFs globally.**
- **In both regions, precious metals and specifically gold constitute not only the lion's share in terms of volume, but, also in reported growth in AUM of commodity ETFs.**
- **We believe gold ETFs are fundamentally altering the relationship between gold prices and the US dollar. For example, in periods of extreme risk aversion and US dollar strength we believe gold prices can still rally in response to inflows into physically backed gold ETFs.**
- **Currently there are three physically backed ETFs in platinum and palladium. These are listed in London, Zurich and Australia. Physical ETF holdings in platinum and palladium amounted to approximately 20 tonnes and 35 tonnes respectively as at the end of last year. This compares with ETF holdings of more than 1,700 tonnes in gold.**
- **However, last month the US Securities & Exchange Commission granted approval for the listing of platinum and palladium ETFs. We believe this could have a significant impact on the PGM sector given its relatively small size. Annual production of platinum and palladium is less than one tenth that of gold.**
- **At the same time, we expect the CFTC will propose measures to curb speculative activity in commodity markets. We expect ETFs will escape the glare of the CFTC not least since the agency has been largely focused on the excessive rise in energy and agricultural prices during 2008, which can not be blamed on ETF flows in our opinion.**

There has been considerable discussion on the role of investment flows on asset prices and specifically commodity prices over the past few years. Indeed the surge in commodity prices last year and their subsequent decline has led to increasing calls among US regulators and policy-makers to curb speculative activity in commodity markets. Possible US action might include a more rigorous enforcement of position limits, raising margin requirements and the revocation of hedging exemptions.

We believe one area of concern among policymakers has been the rapid growth in commodity Exchange Traded Funds over the past few years. In our view, these vehicles have become an attractive way to gain exposure to commodity markets and which has only been open to investors in the last five years. Previously the most traditional routes to gain commodity exposure had been via equity investment in major exchange-listed commodity producing companies or investing in resource-economy currencies such as the Australian and Canadian dollars. One of the benefits of investing in a commodity ETF is that it can provide exposure to the underlying commodity price which might not be possible via the equity route.

The growth in commodity ETFs so far this decade has been largely confined to the US and Europe. The combined AUM for both regions has risen to a record high such that AUM are almost double the levels prevailing in the middle of last year, when many commodity prices were significantly higher.

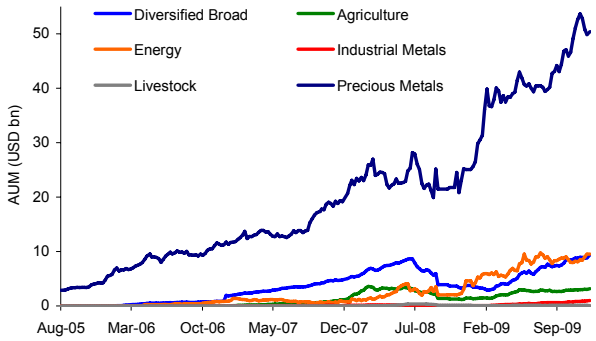
Figure 1: Assets under management of commodity ETFs in the US & Europe



Source: Deutsche Bank

However, the composition of inflows into commodity ETFs reveals a significant distortion in these flows, namely that the lion's share of investment flows is heading into the precious metals complex and specifically gold. Figure 3 tracks AUM by commodity sector in the US. A similar picture emerges in Europe such that in both regions precious metals account for almost 70% of total AUM of commodity ETFs listed. We believe these findings pose an interesting dilemma for regulators. It suggests that the role of ETFs on energy, industrial metals markets and agricultural markets is relatively trivial when compared to the significant inflows into the precious metals complex. Consequently any steps by the regulators to curb speculative activity in the ETF space would need to be focused on reining in physically backed ETF products in the precious metals complex since these constitute the bulk of the ETF universe.

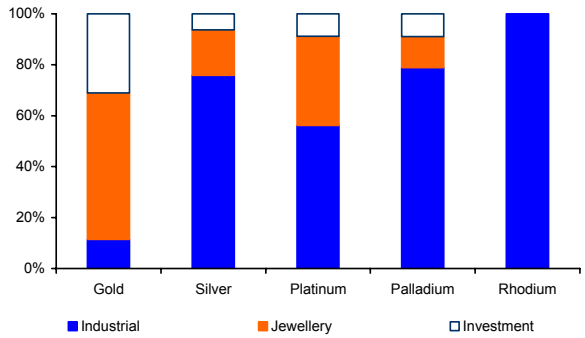
Figure 2: Assets under management of commodity ETFs in the US by sector



Source: Deutsche Bank

We would put a low probability on such action since this would most likely move investor flows to other ETFs listed in non-US jurisdictions, which are growing in number. Indeed we find US legislation remains supportive to the growth in ETFs. Last month the US Securities & Exchange Commission granted approval for the listing of physically backed ETFs in platinum and palladium. We believe this could have a significant effect on these markets. Figure 3 examines the various en uses across the precious metals complex. Not surprisingly, gold has the largest share of investment demand as an end use at just over 30% in 2008. In contrast investment demand represents no more than 9% of total demand for platinum and palladium.

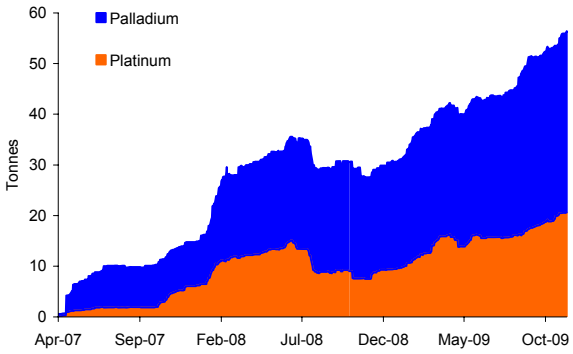
Figure 3: End use by category across the precious metals complex



Source: Deutsche Bank, World Gold Council, Johnson Matthey

As of December 2009 there were three physically backed ETFs for platinum and palladium. These were listed in London, Zurich and Sydney and in total amounted to between 20 and 35 tonnes, Figure 4. In comparison, holdings of physically backed gold ETFs reached approximately 1,800 tonnes at the end of last year.

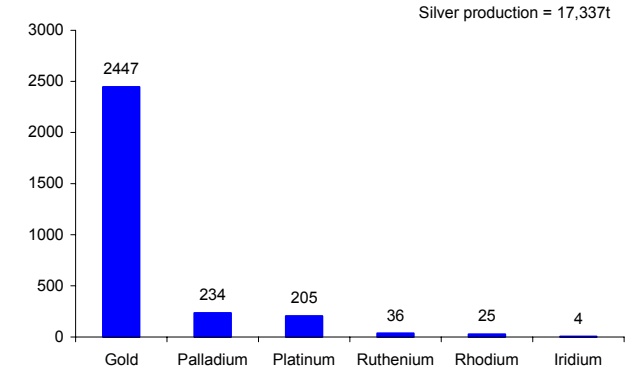
Figure 4: Total holdings in platinum & palladium ETFs



Source: ETF Securities, ZKB, Metals Securities Australia

We believe the relatively small size of the PGM market may also mean that physically backed ETFs have a disproportionate effect on price. For some time we have argued that we doubt the role of speculators in affecting commodity prices where investment has been restricted to the futures market. However, where investors are taking physically delivery and hoarding then the impact on price is unambiguous in our view. As a result, the relatively small size of the PGM market would suggest that investment flows could have a significant pricing impact. For comparison purposes, annual gold production was approximately 2,500 tonnes compared to between 200-250 tonnes for platinum and palladium, Figure 5.

Figure 5: Precious metals production compared



Source: Deutsche Bank, World Gold Council, Johnson Matthey (2007 data)

Conclusion

2009 marked a milestone for the US and Europe: the two largest global Exchange Traded Products (ETP)[1] markets grew by a combined 46.2% and assets surpassed the one trillion dollar mark. Equities and fixed income remain the dominant ETP asset class in terms of size; however, market conditions opened the door to investors evaluating commodities in a significantly more favourable light. Fixed income and commodity ETPs started 2009 far apart in terms of AUM, with USD96.7bn and USD48.5bn respectively but finished last year closer with AUM at USD152.8bn and USD103.1bn respectively.

While the rise of commodity ETPs began in 2007, investors showed keen interest throughout 2009 and they are now firmly established as the third biggest ETP asset class, having grown by an impressive 114% over 2009 with USD40.1 billion of net inflows. To put this growth into context, we should highlight two major events, that happened over the past two years but whose impact has crystallized over the past year, and can help explain investors' appetite for ETP commodity vehicles.

The first event was value driven. With the markets being marred with credit concerns, and in certain occasions with worries even for the creditworthiness of developed countries' governments, investors began to increasingly embrace the notion of turning into precious metals as the 'safe harbour' asset class. This move is quite unique and very uncharacteristic of the economic cycles over the past fifteen years. To highlight investors' motives behind ETP asset reallocations it might be useful to indicate that nearly half of the commodity ETP inflows over 2009 occurred in the first quarter of the year. During this same quarter US and European investors channelled USD19.5 billion into commodity ETPs, outstripping the USD15.7 billion into fixed income ETPs over the same period. With historically low interest rates, that trend continued in Europe over the remainder of the year, where money market ETPs saw net outflows of EUR4.3 billion. We believe these events are instructive to help understand how the market re-evaluated the role of precious metals ETPs.

The credit concerns and the quest for safety, while it accounts for most of the story, is complemented by the observation that other investors were in search of more macro-focused value drivers. On the back of this, Energy ETPs saw their fortunes rise as investors saw attractive valuations in the prices of such commodities as oil and industrial metals. By the middle of 2009, with the possibility of recovery looking more visible, investors increased exposure in non precious metal commodity ETPs in order to capitalize on the anticipated recovery.

The second event that has helped propel the growth of commodity ETPs is more perfunctory. It relates to the increased innovation observed in the ETP commodity product creation space both in the US and Europe. In the US most commodity ETP products are issued as debt and are structured as exchange-traded notes (debt). In Europe, ETP commodity products are issued as ETFs (shares) and exchange-traded commodities (ETCs) (debt). In both regions, both the vehicles' composition in relation to their respective benchmarks as well as the level of collateralization and exchange-listing conventions vary significantly. A number of new structures with diverse appeal have helped position products to investors with different mandates. For more details on ETP commodity product types and structures please refer to the appendices of our recently published ETP & ETFs 2009 Market Review & 2010 Outlook.

As the commodity ETP asset class grew in complexity and popularity, ETP commodity provider specialists began to emerge as well. They came both in the form of established players in the ETP space (State Street, Blackrock and Deutsche Bank) but also in the form of specialized new providers (United States Commodity Funds, ETF Securities and Barclays Capital). Together these six providers control the majority of the ETP commodity assets and by tapping their investor networks helped enhance investors' access to commodity ETPs.

We believe the growth and innovation in the commodity ETP space will continue into the year ahead with a number of providers enhancing their product ranges. We believe three factors will be crucial going forward in the commodity ETP space:

The impact of the economic recovery on asset valuations, commodity prices and resulting asset allocations.

Market conditions which will permit - continued - competitive pricing of these products. ETP providers continue to streamline both product development and creation as well as hedging mechanisms which ensure competitiveness of derivative instruments pricing that form an integral part of the structuring of many commodity ETPs. Additionally, the bankruptcy of Lehman brothers and credit losses suffered by a number of commodity exchange-traded note holders underwritten by that bank are still fresh in the minds of many investors. Going forward, the majority of providers have begun collateralizing a lot of commodity ETPs with various types of collateral. How the economics in those underlying collateral markets develop will also impact the pricing and competitiveness of the commodity ETP products and as a result their popularity with investors and feasibility-to-structure with ETP providers.

Regulatory developments will also play an important part in how the commodity ETP market develops. Restrictions in futures trading, as the Commodity Futures Trading Commission in the US prepares to introduce new legislation to curb speculative activity on commodity markets only highlight the important role that regulators have in the providers' ability to continuously access product building blocks.

On the other hand, we believe the ETP space will be relatively unaffected by regulatory action. Indeed over the past month the approval and launch in the US of new ETFs in platinum and palladium will provide a new route to position for a recovery in world GDP growth, an improvement in the global auto sector and the recurring threat of power constraints in the South African mining sector.

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[1] We define exchange-traded products as a delta-one exchange-traded equity or debt instrument with no embedded optionality and market-wide appeal to investors. In the commodities space. Issuance of such products varies between the US and Europe. In the US, all commodity ETPs are issued as exchange-traded notes and exchange-traded vehicles, neither of which are classified as funds. In Europe, commodity ETPs are issued either as exchange-traded funds (issuing shares) or as exchange-traded commodities (issuing debt) under the European Union Prospectus Directive.

#14 Industrial Metals

Aluminium

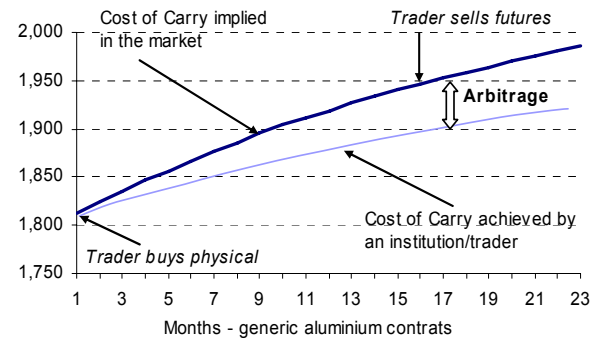
Summary View: *Aluminium fundamentals remain the best of the industrial metals complex in our view. This is a function of positive physical demand as evinced by rising aluminium premiums, continued financial participation (financing deals keeping metal off the market) and rising global production costs. While we do expect that some weakness in pricing could occur over the next several quarters we believe that aluminium should outperform. We have increased our 2010/2011 forecasts by 20%.*

We do not dispute the view that the global aluminium market faces considerable structural challenges. Over the past several years China smelter capacity growth has risen significantly, in excess of domestic demand. Consequently this represents a considerable overhang for the market. Furthermore, the recent recession has resulted in a buildup of record high inventories in the LME. These factors are well recognized.

The financial impact on aluminium markets is, in our view, less appreciated partly because it is a relatively new phenomenon. Financial buyers of aluminium have appeared, and now compete in both physical and futures markets, resulting in pricing which increasingly reflects the poor return of cash relative to other assets.

- **Financial demand in physical markets:** The forward curve in the aluminium market has provided opportunities for certain institutions (banks/traders/etc.) to lock in profits with little commensurate risk. This is achieved because some financial players experience a lower cost of carry than that reflected in the market. This results in the purchase of physical metal and coincident sale of futures contracts in equal volume. In most cases futures contracts are sold to other investors (index).

Figure 1: Schematic of the arbitrage opportunity



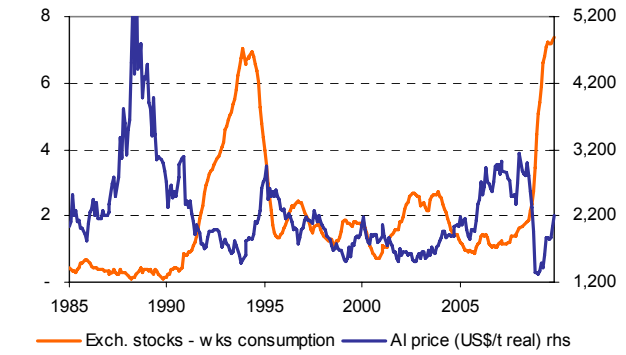
Source: DB Research

We believe that financial entities now hold roughly 70% of the metal stored at LME warehouses. Importantly, this metal is unavailable to the market, thus the actual physical availability of metal is quite low. We do not believe that this is likely to change in the near-term and indeed expect that these same institutions will look for opportunities to increase their positions, depending on the attractiveness of the forward curve.

In our view financial demand changes the dynamic of the aluminium market sufficiently to warrant a reassessment as to future prospects vs. that based solely on physical fundamentals. We contend that the market may not be as challenged as the consensus view would have us believe. Therein lies the opportunity in our view.

While we anticipate that aluminium prices could be under pressure over the next two quarters as we expect that the overall level of demand could disappoint the market; we believe that the metal is likely to outperform other industrial metals. Outperformance is likely particularly against copper, for which consensus is overwhelmingly bullish in our view.

Figure 2: Aluminium: Price & Exchange stocks (wks)



Source: Bloomberg, DB Research

Cost-push re-emerging

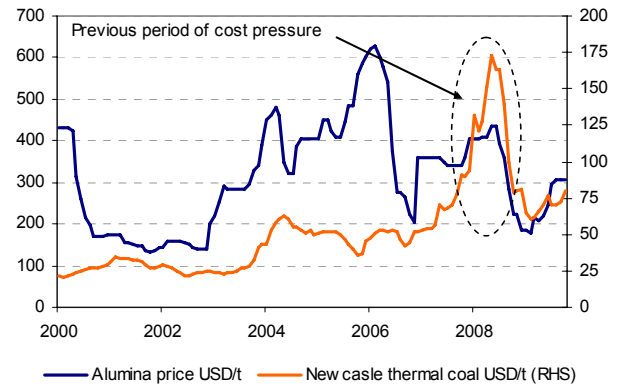
About 18 months ago, as the market became convinced that energy prices would remain at elevated levels, there was growing conviction that this would help to push aluminium prices higher given the metal's exceptionally high power requirements. This cost-push element disappeared with the credit crunch; however it is once again re-emerging as a force in the aluminium market; potentially limiting downside risks for pricing and constraining output in several important aluminium-producing regions.

We believe that over the next 12 months marginal cash production costs for the industry will reside between USD1,900-USD2,100/t

From a global perspective it is clear that input costs are rising. Alumina prices have rebounded to USD305/t, thermal coal prices (a longer-term driver for power) in Asia are now over USD80/t and anode prices (a source of carbon used in smelting), have been rising with oil prices.

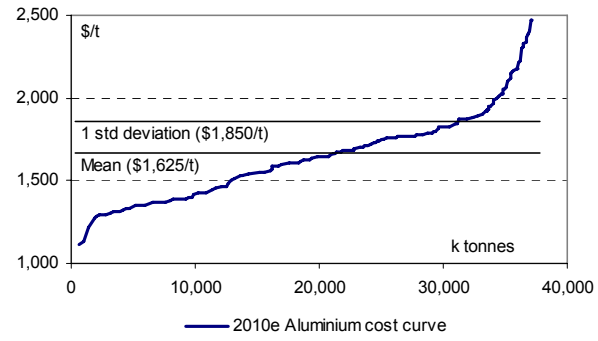
Power remains a key source of concern for aluminium smelters. Regions where pressure appears to be building include: South Africa, China, Europe and North America.

Figure 3: Key cost elements: Alumina & Energy



Source: Bloomberg , Deutsche Bank

Figure 4: Estimates 2010 industry cost curve



Source: Brook Hunt , Deutsche Bank

Implications for future conditions

1) We expect that physical demand conditions will remain challenging in 2010; while Chinese and emerging markets demand should remain strong, we believe that OECD demand will continue to struggle. We don't believe that re-stocking will be sufficient to justify a meaningful increase in metals pricing from current levels.

2) Financial demand is likely to be sustained. An increase in OECD orders has resulted in pick-up in aluminium premiums and a tightening of the market, this has resulted in a flattening of the forward curve. As a consequence, the financial incentive for buying aluminium has disappeared. If the curve remains flat, we would expect that physical availability in the market could improve as positions come off in the second half of the year.

3) Cost inflation should be a growing issue in 2010. We believe that elevated energy, alumina and anode prices should result in higher marginal production costs in the industry, supporting metal prices.

Summary model

The table below outlines the basic statistics that make up or aluminium supply/demand model.

Figure 5: Aluminium supply/demand balance

	2008	2009	2010e	2011e	2012e
World Refined Production	39.6	37.7	38.0	39.6	42.9
World Refined Consumption	38.0	34.8	36.7	39.2	41.5
Market Balance	**1.64**	**2.84**	**1.30**	**0.35**	**1.38**
Average Aluminium cash price (USD/t)	2,571	1,666	2,204	2,645	2,204
Average Aluminium cash price (USD/lb)	116.6	75.6	100.0	120.0	100.0

Source: Brook Hunt , Deutsche Bank

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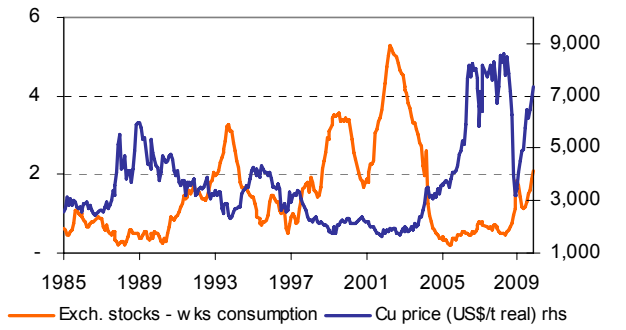
Copper

Summary View: *We believe that copper is vulnerable to correction. Consensus for copper is overwhelmingly positive and while we acknowledge the strong long-term fundamentals for the metal, we believe that the drivers/catalysts which have pushed prices higher over the past several quarters have run their course. We don't see the same dynamic over the next several quarters. Indeed, given we see supply-side risks (in the form of potential mine strikes) now much diminished and the possibility that Chinese imports could meaningfully fall, we believe there are growing downside risks for the metal.*

Thus while its possible that new money is allocated to the copper market in the new year as investors look with fresh eyes for opportunities, we believe that strength could be short-lived. We believe that most of the good news is already priced into the commodity. The recovery in consumption growth, that surge in apparent demand, is largely history in our view and we see a deceleration in demand next year. We believe that it is this reversal in the second derivative that is cause for caution. **This and the potential for disappointment or another bout of risk aversion leads us to forecast weakening copper prices to mid-2010.**

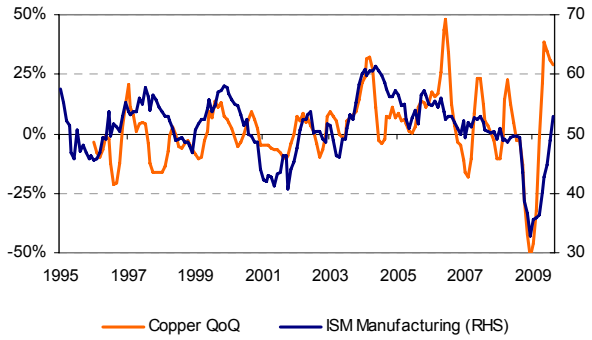
Figure 1: Copper price vs. exchange stocks (wks)



Source: Bloomberg, Deutsche Bank

The chart below illustrates the impressive recovery in US ISM over the past couple of quarters, now firmly back above 50. This has coincided closely with a sharp rise in copper prices. There are two concerns we have at this stage of the cycle. 1. The market now reflects recovery, it is difficult to envisage further strong performance in copper prices given the upside to ISM, etc looks rather muted. 2. We believe that re-stocking in the OECD in 2010 will be more modest than is widely expected. This is partly a function of slower demand recovery by consumers and corporates; but also a function of manufacturing/fabrication capacity. Over the past decade there has been a transition globally. China has taken over the role as manufacturer to the world. Thusly this has coincided with a shift in capacity to China. The China re-stocking event has already occurred in our view; meaning that much of the world's manufacturing capacity has already reacted to improving conditions and government stimulus. On this basis we find it difficult to imagine the OECD responding on the inventory front as vigorously as some analysts would believe.

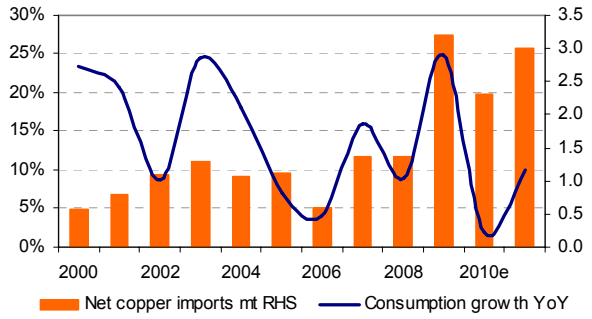
Figure 2: Copper price volatility and US ISM



Source: Bloomberg, Deutsche Bank

From the China perspective, while we expect demand to continue to be strong in 2010, we do not expect a continuation of the re-stocking event that dominated the copper market in 2009. Indeed we expect that net copper imports this year could fall about 30%. This would still be much higher than the 'normal' level of imports (ignoring 2009) as shown in the chart below. We expect that the market would take this change negatively.

Figure 3: China: Imports and consumption growth

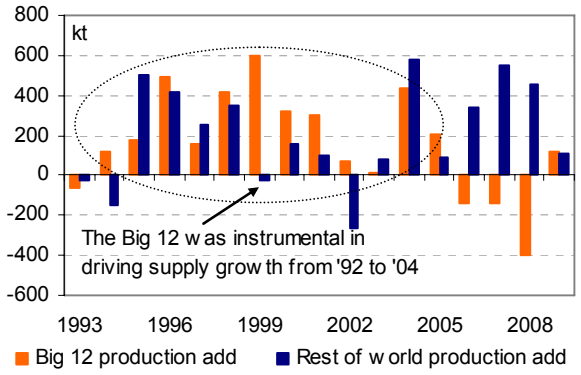


Source: Bloomberg, Deutsche Bank

While we expect weakness in the copper market in the near-term we continue to acknowledge the very strong longer-term fundamentals for the metal. Underinvestment, declining grades and aging mines, higher risks, and rising costs are all conspiring to constrain copper output over the next 3-5 years. As illustrated in Figure 3, much of the growth in the global copper market in the past has been a

function of a few very large mining operations, the 'Big 12'. These mines are no longer contributing meaningfully to supply and it is up to a new generation of mines to fill the void. The problem for the market is that there are no obvious heirs to these aging giants.

Figure 4: 'Big 12' Copper mines supply contribution*

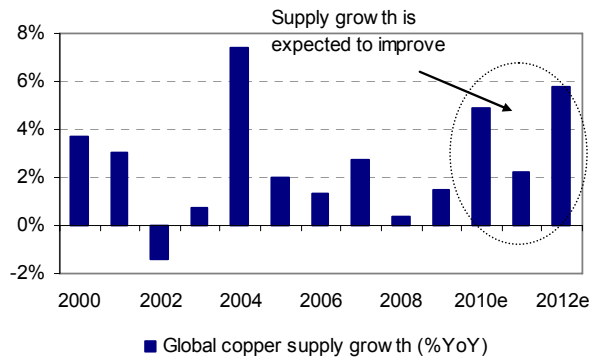


Source: Brook Hunt, Deutsche Bank *The 'Big 12' includes: Escondida, Grasberg, Collahuasi, Chuquicamata, El Teniente, Norilsk, Antamina, Los Pelambres, Bingham Canyon, Radomiro Tomic, Andina and Morenci

Supply: Q4 2009 as bad as it gets?

Average copper supply growth over the past five years has been a meagre 1.6%, as compared to the previous 15 years which averaged 3.6%. This +50% contraction in growth reflects some longer-term issues that the copper market faces, issues which include underinvestment, declining grades, increased production risks and considerable cost inflation. In large part we would argue that these chronic supply challenges have been well flagged to the market and therefore should already be reflected in the copper price. Nevertheless, because of poor supply growth, production setbacks can therefore have a magnified impact on the copper market.

Figure 5: Global copper supply growth



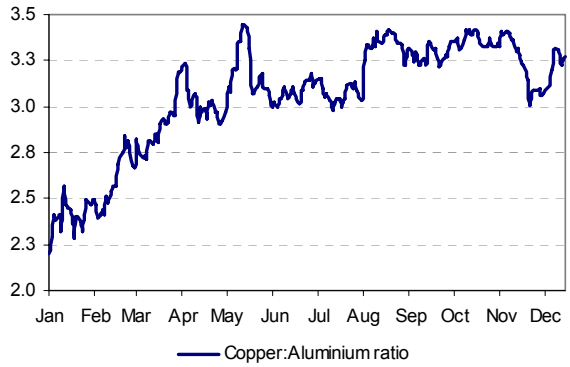
Source: Deutsche Bank

Over the past quarter the market has been beset by supply-side risks, largely a function of ongoing labour negotiations at some of the larger copper mines in Chile. We believe this has now largely run its course and with supply threats now dissipating we believe that one of the recent supports for the copper price is likely to be removed.

Relative performance

At this juncture, we are anticipating an inflection point in price performance for the industrial metals. The timing of an inflection however can be challenging. Thus we prefer relative trade ideas vs. recommending outright long or short positions to be taken in specific metals. In the case of copper, as discussed, we remain concerned that the metal is reflecting an ideal physical demand environment; one which we think has dangers. We believe that aluminium while susceptible to similar threats has less downside due to the influence of the financial market and rising industry costs. The chart below shows the copper/.aluminium ratio. We expect that the ratio could continue to fall over the next quarter or so.

Figure 6: Copper : Aluminium ratio



Source: Bloomberg, Deutsche Bank

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Nickel

Summary View: *We believe that nickel is vulnerable to further correction. LME inventories continue to rise and stainless steel markets remains reasonably moribund at this time. While we could expect to see some firming of markets late in Q1, the physical market could remain relatively weak. However, we expect that support from financial markets is likely to build, potentially offsetting some of the pressure from the physical market. Financing deals have been important in tying up about 65% of nickel metal in LME inventories; this could continue, depending on the shape of the forward curve. Furthermore we believe that the creation of physically-backed base metal ETFs could emerge to support certain metals such as nickel.*

Caution near-term

We expect that over the next couple of quarters nickel prices are likely to witness some further downward pressure as we believe that physical supply/demand conditions could remain challenging. Chinese demand conditions are likely to remain strong, however the surge in apparent demand witnessed in 2009 is unlikely to be repeated in 2010, and this could be most evident in the first part of next year. OECD re-stocking is widely anticipated, however as we have indicated in our previous analysis of both copper and aluminium we do not expect that re-stocking in the west will offset the decline in apparent consumption in emerging markets.

Nickel may continue to be a leading indicator

Nickel is the only base metal which appears to be correcting at the current time. Historically, as illustrated in Figure 2, the metal has acted as a leading indicator for other base metals such as copper. On previous occasions the metal has lead copper lower by 1-6 months.

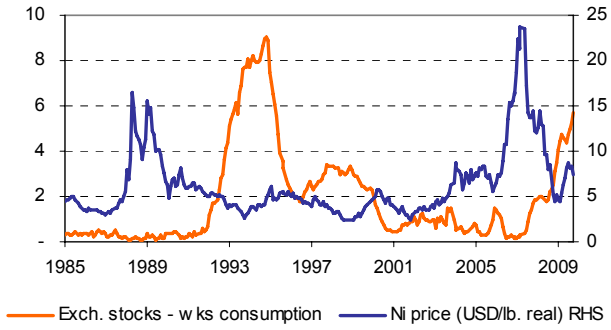
Financial trends could be supportive however

Notwithstanding our caution regarding the physical market however, we do believe that financial demand could emerge as a growing support for the market. The increased participation of financial institutions taking advantage of the contango arbitrage and the eventual introduction of a physically-backed nickel ETF (equity traded fund) could be very important for the market and could generate unexpected demand which helps to tighten the market.

If investors remain convinced that interest rates will remain at current low levels and become concerned regarding the implications for future inflation and the weakness of the US dollar, we expect that investor appetite for commodities in general will continue in 2010.

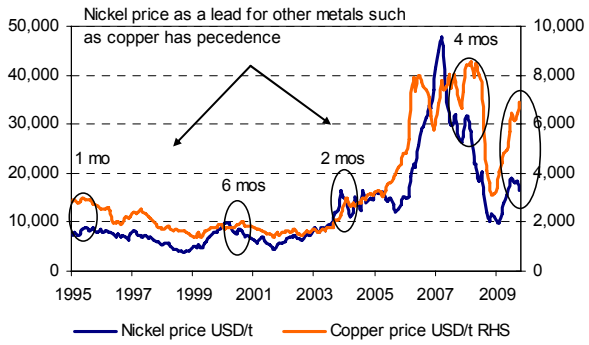
Nickel could be a beneficiary of this trend in our view. Chart 25 shows nickel prices, not in dollar terms, but in gold terms. The commodity appears cheap from this perspective; i.e. the perspective of measuring the value of the metal in non-fiat currency terms.

Figure 1: Nickel prices & LME inventories



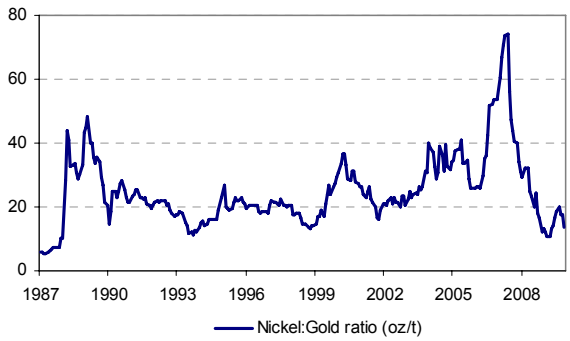
Source: Deutsche Bank

Figure 2: Nickel – a leading indicator for other metals?



Source: Deutsche Bank

Figure 3: Nickel : Gold ratio (Nickel priced in oz/t)



Source: Deutsche Bank

Demand conditions for nickel appear to be deteriorating in most regions. While we expect that demand in China will be sustained well into next year given extensive government stimulus driving fixed asset investment and subsidies spurring consumer demand, it is much less clear how healthy OECD demand will be.

Currently many stainless steel mills in Europe and North America are facing falling base prices as apparent demand deteriorates into the end of the year. Clearly there are seasonal factors at work moving into the holiday period, however the prospects for a meaningful reversal driven by inventory restocking are, at this point, unlikely near-term. We would anticipate that the next period of potential improvement in order books could occur in Q2 2010 as seasonality moves in the industry's favour.

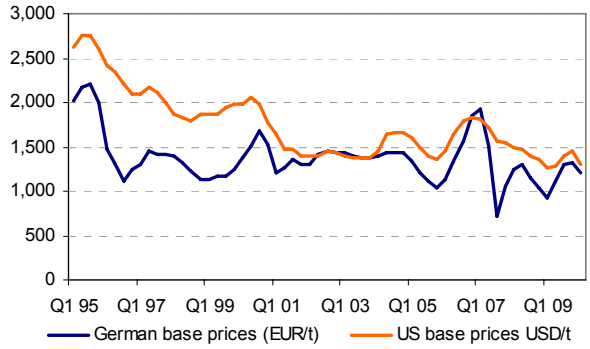
Figure 4 illustrates the trend in stainless steel base prices over the past 15 years or so. After considerable strength in 2007, coincident with exceptionally high nickel prices, base prices have trended lower and, in our view, should remain at trough levels until Q2 2010 when some seasonal strength is expected.

- **What are Base prices?:** Stainless steel prices are a combination of two things: the Alloy surcharge (principally composed of nickel and chrome priced on a lagged basis) and the Base price. The Base price is effectively the carbon steel component and the stainless producer has ability to modify the price it charges for this component depending on demand. We believe that base prices represent an important leading indicator for nickel.

Exacerbating the difficulties facing stainless steel producers are inventories. Stocks in most regions, while fairly low in absolute terms actually remain quite elevated relative to the level of demand. In the case of Japan, stocks in weeks of consumption terms have risen to extreme levels. The key questions in our view however are: 1) What level of demand growth is likely to be 'normal' going forward; and 2) How long is it likely to take for demand to recover back to normal levels?

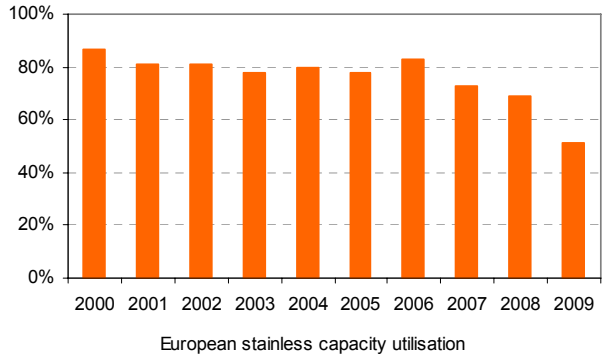
In 2009 utilisation rates for stainless mills have oscillated to a high degree, recovering mid-year and now falling once again. Overall utilization rates in Europe are likely to average around 50% this year and the US should be fairly similar. Asian utilization rates are harder to gauge, but we believe that they are falling, particularly in China, as prices retreat and producers cut production in order to try to stabilize the market. We estimate that utilization rates in China could be around 65%. We expect that average utilization rates in the west could rise modestly in 2010, perhaps to the 60% level.

Figure 4: Base prices – Germany & US



Source: CRU, Deutsche Bank

Figure 5: European stainless capacity utilisation



Source: CRU, Deutsche Bank

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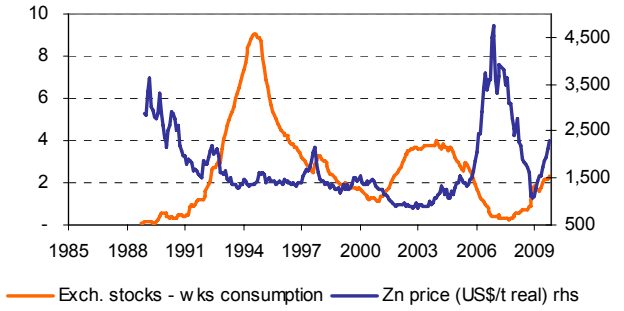
Zinc

Summary View: *We believe zinc market is likely to be relatively well supported in the near term. This is a function of our expectation that extreme cold winter in the northern hemisphere could spur supply disruption as smelters face transportation difficulty and power shortages. On the demand side, we expect that while OECD demand recovers gradually, Chinese demand will remain strong although grow at a slower rate. We expect zinc prices to weaken moderately from Q2 this year.*

Zinc has been an impressive performer in the industrial metals complex rising over 100% last year. LME zinc inventories are quite low on weeks of consumption basis, supporting pricing levels.

Figure 1: Zinc prices & LME inventories

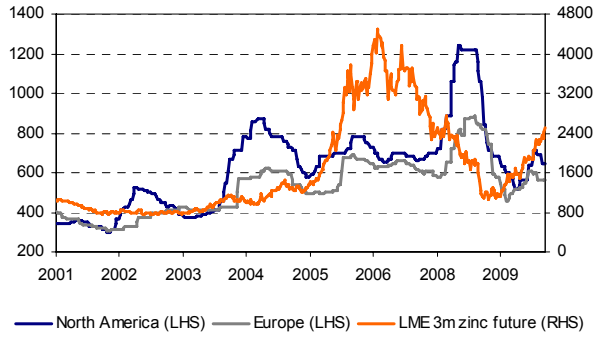


Source: Bloomberg Deutsche Bank

Galvanised steel outlook

Galvanised steel is a key end-market for zinc. Figure 2 illustrates the trend in North America and Europe hot dip galvanizing sheet prices over the past decade. Pressure remains on galvanised steel prices in the western world. If prices continue to weaken this could pull zinc lower.

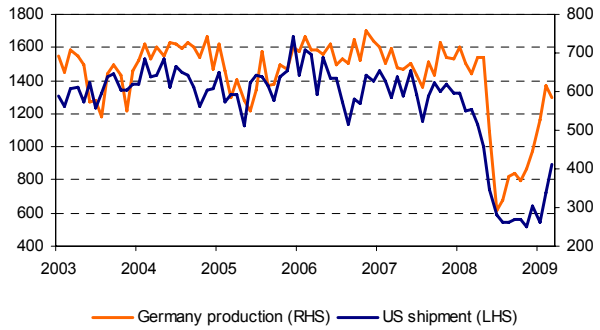
Figure 2: N. America & Europe HDG* vs. LME zinc prices



Source: Bloomberg, Deutsche Bank *HDG = Hot Dip Galvanised steel

Both US and German galvanized steel output declined by around 60% during the recent recession. Both regions are recovering, albeit at different rates; we believe that government sponsored auto scrapping schemes have been an important driver. Sustainability therefore is a key question going forward. We expect that galvanized steel demand will depend on how quickly global auto, housing and consumer industries recover and, ultimately, where 'normal' demand levels reside, particularly given the lack of leverage/credit available to consumers. .

Figure 3: US & German galvanized steel output



Source: Brook Hunt, Deutsche Bank

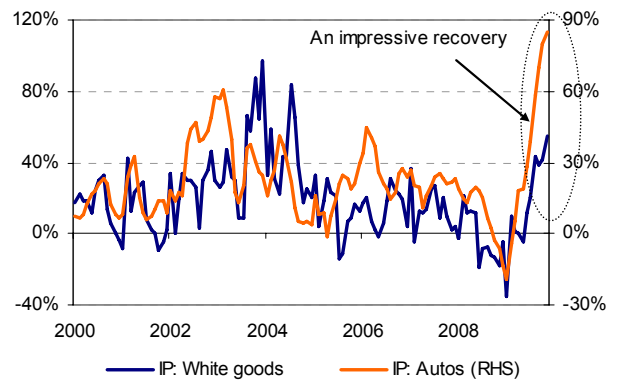
Thanks to low borrowing cost and extension of first time homebuyer tax credit into 2010, the latest US housing data continued to show further signs of stabilization. However, we view the possibility of a marked improvement in the US housing market this year as remote. As the market expects Fed to raise rates in August, this may threaten the favorable interest rate environment for home buyers. In the auto market, DB equity research team expects a further 10% reduction in European car sales in 2010, which compared to a total decline of 8% over the past two years. This is because the incentives that have significantly boosted car demand (mainly from Germany) are not recurring next year. In contrast, the US auto industry is recovering gradually. However, we believe relatively high consumer leverage and wealth destruction associated with depressed home values will lead to a new, lower, level of normal demand which may not match historical patterns.

Chinese demand likely to remain supportive

China has been a supplier to the global zinc market for most of the past decade. Like other metals, the surge in Chinese zinc imports in 2009 was unprecedented. We believe as China's regulators and central bank begin to tighten lending rules and monetary policy, zinc import growth is likely to slow. In addition, the NDRC recently

indicated a possibility of delaying RMB 4trn spending and changes in budget priorities. The implication is that FAI growth could drop significantly. Indeed, DB economists expect a major decline in the contribution of investment of GDP growth from 81% in 2009 to 48% in 2010. Meanwhile, we believe central government will maintain its pro-growth housing policies in 2010. We also expect auto and white goods consumption to continue its steady growth over the next few years as government shifts investment and export led growth to domestic consumption.

Figure 4: China IP components: white goods & autos

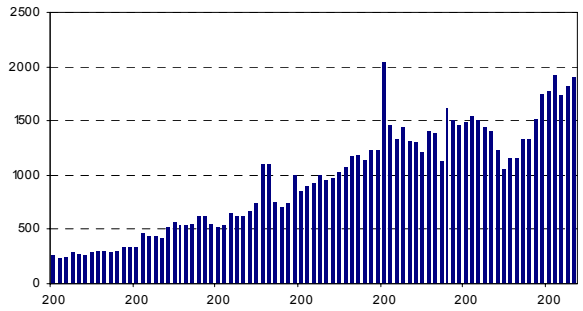


Source: Deutsche Bank

China's galvanized steel market

Chinese galvanized steel production continued to expand in 2009. Chinese galvanized steel capacity is likely exceed 35Mt/a in 2010.

Figure 5: Chinese galvanized steel production



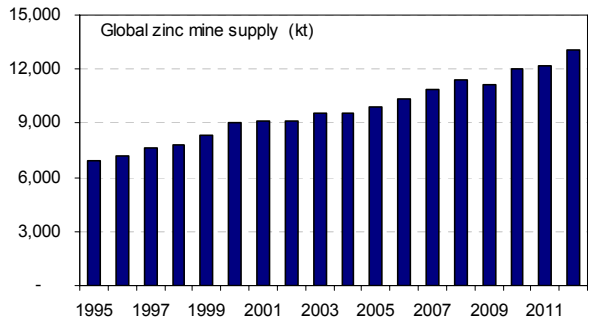
Source: Brook Hunt, Deutsche Bank

Supply & costs

We believe that extreme cold winter in the northern hemisphere could result in some supply disruption in the near term. We are aware that China recently suspended several zinc/lead mines in Inner Mongolia due to heavy snow.

Nevertheless, supply growth is likely to be reasonably robust in 2010, at 8%, only marginally exceeded by demand growth estimated at 9%. There are risks to our supply projections; however, given the zinc mining industry is quite fragmented and dominated by smaller mines and mining companies. Credit could act to constrain output if conditions remain challenging.

Figure 6: Global zinc mine output (kt)



Source: Brook Hunt, Deutsche Bank

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#15 Bulk Commodities

Iron Ore

Summary view: *Sot prices have recently rallied, surpassing USD130/t, a function of surging imports of ore into China as the economy continues to grow, spurred by government incentives and recovering trade. Chinese steel production could grow by about 10% in 2010, decelerating from 2009, but reaching an impressive 630mt nevertheless. Given the recovery in global steel production we believe that negotiating conditions have swung very much in favour of ore suppliers. We expect that the 2010 contract price will be settled at a +35%.*

Spot points to a tightening market despite weak steel

Much of the iron ore price given up by the miners in 2009 is likely to be recouped in 2010 in our opinion. We expect an average 35% increase in fines prices, a 38% increase in lump prices and a 41% increase in pellet prices in the upcoming round of price negotiations.

There are a number of positive elements for pricing in the current round negotiations including:

- 1) Spot price trading c.75% above the benchmark
- 2) Strengthening producer currencies requiring a 33% price increase to return to the levels achieved at the start of the contract period
- 3) Global steel production back at 2008 levels
- 4) Cost of marginal production in China estimated at 15% above the current benchmark

On the other hand, steel prices remain somewhat moribund, recovering only to 2006/2007 levels; with particular weakness in Japan (a key benchmark supporter).

Our new price forecasts are shown in the table below.

Figure 1: : Key iron ore benchmark prices USc/dmtu

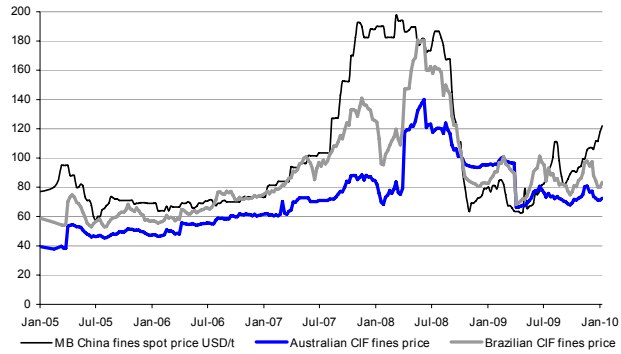
	2008	2009	2010F	2011F	2012F	2013F	LT
Australia Lump to Asia	202	112	154	139	139	115	92
Australia Fines to Asia	145	97	130	117	117	94	71
Carajas fines to Asia	125	90	122	110	110	87	65
Brazilian Pellets to Europe	220	114	161	144	144	126	107
Percentage change from previous period							
Australia Lump to Asia	97%	-45%	38%	-10%	0%	-17%	
Australia Fines to Asia	80%	-33%	34%	-10%	0%	-20%	
Carajas fines to Asia	71%	-28%	36%	-10%	0%	-21%	
Brazilian Pellets to Europe	87%	-48%	41%	-10%	0%	-13%	

Source: Source: Company data, Deutsche Bank

Negotiation Dynamics

Throughout most of 2009 iron ore producers would have had difficulty pushing the case for a price rise in 2010 given the largest producer, Vale, had a landed price in China (on spot freight rates) greater than or close to the spot price. Over the past several months however the situation has reversed with the landed price of contract Brazilian ore falling with weakening freight rates and the Chinese spot price rising. Strong Chinese demand in addition to adverse weather in Australia and Indian export tariffs have been principally responsible.

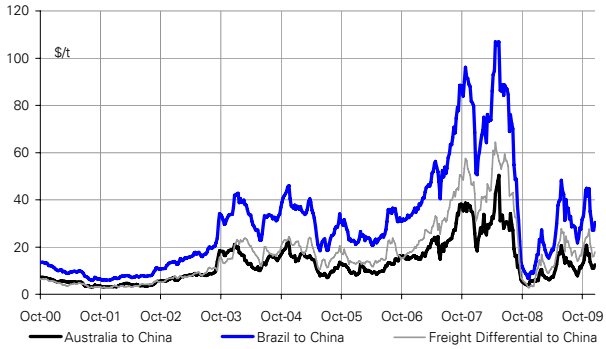
Figure 2: Comparison of benchmark and spot prices



Source Company data, Reuters, Deutsche Bank
We have calculated the notional CIF prices for contract iron ore by using the spot freight rates.

While relatively volatile, we expect supply side pressure could keep downward pressure on freight rates, which in turn is likely to benefit Chinese steel mills.

Figure 3: Key capesize shipping rates and differential

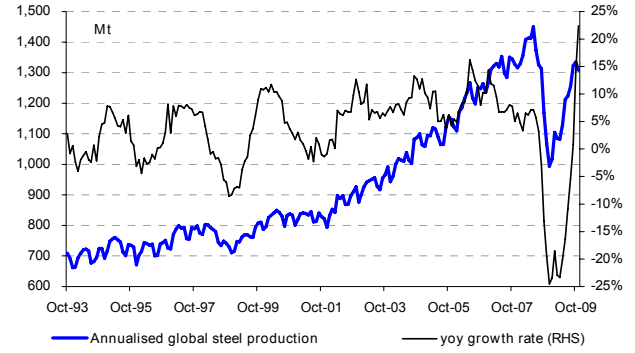


Source: Reuters, Deutsche Bank

As shown in the chart below global steel production levels are back at 2008 levels, largely thanks to a surge in Chinese production. After an unprecedented contraction in output globally, a dramatic recovery has taken place, with growth of +20% now being experienced. We acknowledge that this recovery has been quite, asymmetric, with emerging markets growing strongly while western markets remains somewhat weak. Nevertheless, given the world's largest steel market,

China, remains dependent on imported iron ore, and represents about 55% of the seaborne market the Chinese steel dynamic in large part dictates pricing in our view.

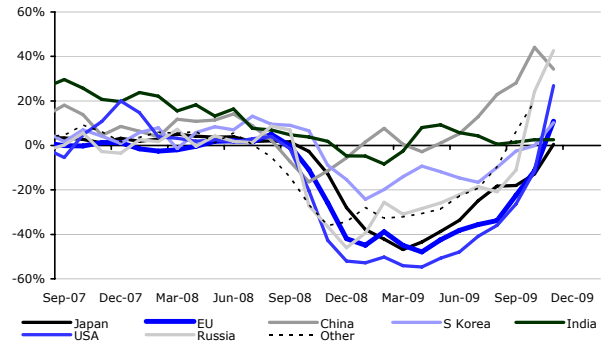
Figure 4: Global steel production and growth



Source: IISI, Deutsche Bank

Nevertheless, while iron ore import growth into Japan may be less than impressive we believe Japan is still likely to figure in the thinking of the iron ore producers. Vale continues to advocate its preference for the maintenance of the benchmark system where China has a much broader range of contract preferences among its steel producers and indeed and number of producers reneged on contracts in 2009. Japanese mills are supporters of the benchmark system and in our opinion, Vale will need to achieve a contract price that is acceptable to the Japanese mills if it wants to maintain the benchmark system.

Figure 5: Steel production growth, selected regions

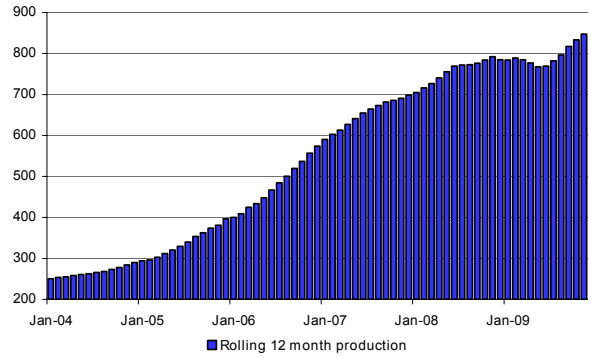


Source IISI, Deutsche Bank

Chinese iron ore production

The dip in Chinese domestic production of iron ore in mid 2009 has continued its reversal as the spot iron ore price has continued to rise, highlighting the sensitivity of the Chinese production to spot markets.

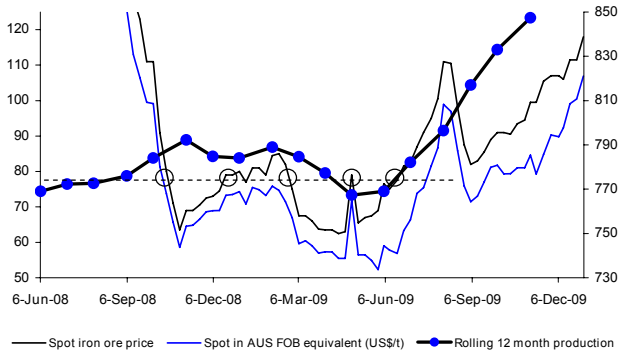
Figure 6: Chinese iron ore production (mt)



Source: China statistical Data, Deutsche Bank

The price sensitivity of the Chinese domestic producers triggered at close to USD80/t CIF in 2009 as highlighted in Figure 7.

Figure 7: Chinese production, price sensitivity



Source: Metal Bulletion, ReutersDeutsche Bank

With steel production recovering rapidly and iron ore project delivery slower than planned, we believe that the market in 2010 will experience a modest deficit.

Figure 8: Apparent iron ore supply / demand

	2008	2009E	2010E	2011E	2012E	2013E
Total World Production Adjusted (Mt)	1793	1717	1855	2043	2214	2421
Apparent Demand for Iron Ore (Mt)	1794	1664	1876	2022	2215	2426
Surplus/deficit	-1	53	-21	21	-1	-5

Source: Deutsche Bank estimates/forecasts

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Coking Coal

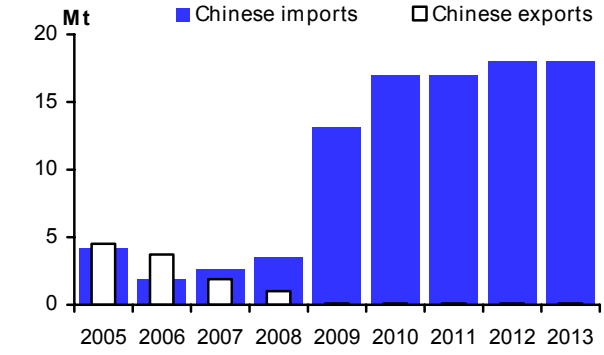
Summary view: *We have raised our coking coal forecast lifted to US$175/t, up 35% on the JFY09 benchmark of US$129/t. Key support is provided by Chinese domestic prices which although at a discount on a delivered basis are likely to rise. The LV PCI is up a little more, 38% to US$124/t as that market has tightened up considerably. Infrastructure constraints are re-emerging in the coking coal market. Ship queues off DBCT in Queensland, Australia peaked at 80 vessels (+30 day wait) in late 2009, having been as low as 5 vessels at the start of the year.*

The change in market balance drivers

As with the thermal coal market China's net import of metallurgical coal jumped last year, increasing from 7Mt to 21Mt. This sees China move past South Korea (16Mt) to become the third largest met coal importer behind India (31Mt) and Japan (49Mt). These four countries consume for ~60% of global seaborne trade (~210Mt in 2010). We expect Chinese import levels will grow more slowly from this point on.

As a result of this new source of demand, and our expectation of by subsequent demand recovery in other parts of Asia, namely Japan and Korea, we see the Asia-Pacific region as providing a leading price reference.

Figure 1: China net imports of coking coal jump



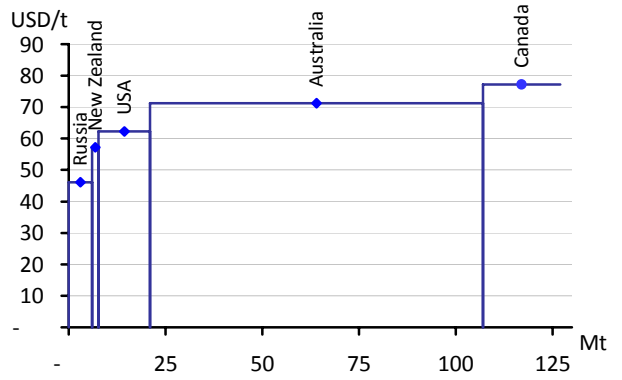
Source: AME, Deutsche Bank

Spot prices for coking coal have risen 52% from a low of US$115/t FOB in April to be ~US$170-180/t by the end of the year. However there has been a paucity of reported deals in recent weeks making it difficult to accurately gauge spot prices. A price around this level is what we expect to see when the JFY10 benchmark price is set. It represents a ~35% increase over the JFY09 price of US$129/t FOB. There appears to be genuine support for prices at this level with spot having been stable for several months. As with the thermal coal market mine closure in China, particularly the Shanxi province has reduced the domestic supply volumes. China has a large liquid domestic coal market and like with thermal coal the domestic delivered prices are supportive of the seaborne FOB prices once freight, taxes and quality differences are factored in.

For each of the met coal types we see prices rising again in 2011 by ~10%. This would take hard coking up to US$190/t from US$175/t in JFY10, and LV PCI up to US$136/t from US$124/t in JFY10. One of the key elements behind this view is the dwindling of surplus production capacity from the mines; early in 2009 there was 30-40Mt of idle met coal capacity globally, but by the end of the year this number had halved. When this situation is combined with our expectation for ongoing demand recovery the met coal market is likely to become increasingly tight.

Supply

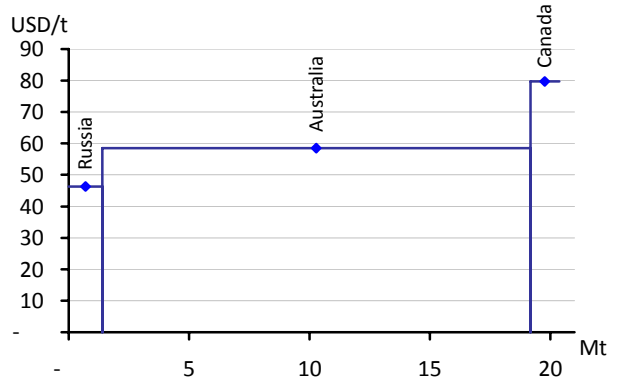
Figure 2: Simple Coking coal cost curve



Source: AME

Australia is primary supplier of seaborne met coal volumes, especially in the Coking and Low Vol PCI markets where there is minimal diversity of supply. As with the Thermal coal markets infrastructure constraints are once again looming as an issue.

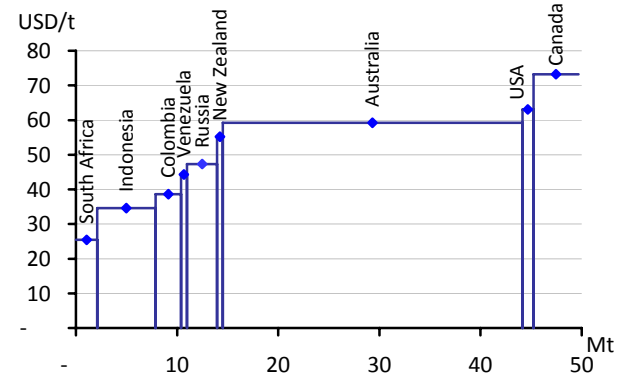
Figure 3: Simple Low Vol PCI coal cost curve



Source: AME

With this in mind it is worth noting the change in the AUD currency that has occurred over the past 12mths. When the last benchmark prices were set the AUD was ~70c. So the coking coal at US$129/t provided about A$185/t. At our new price forecasts of US$175/t and today's AUD rate of ~90c the converted price is A$195/t. So, in simple terms, the major supply source is only achieving a 5% price increase. Therefore it can be argued that the suppliers are overly benefiting from the seaborne price rises and will be looking to push this point during contract determinations.

Figure 4: Simple Semi-soft coking coal cost curve

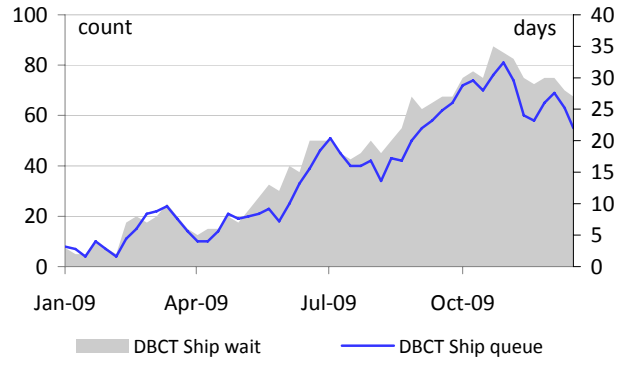


Source: AME

Port capacity once more an issue

The latter stages of 2009 saw the ship queue at Australia's DBCT terminal in Queensland rise remarkably. Driven be strong demand, rail constraints and port maintenance work. In the latter stages the queue eased, but this was due to additional trains temporarily becoming available as BHP's nearby Hay Point terminal underwent scheduled maintenance.

Figure 5: Infrastructure constraints appear again



Source: AME

Adjustment in the long-term outlook for coking coal

We believe that Australia will remain central to the export met coal markets but Mongolia, Mozambique and Indonesia are likely to contribute increasing volumes in the future spreading out the cost curve.

Figure 6: Coking coal supply - demand balance (Mt)

	2008	2009	2010E	2011E	2012E	2013E	L/T
Seaborne Demand (Mt)	151	129	140	146	155	160	166
Seaborne Supply (Mt)	151	129	134	140	151	159	166
Surplus/deficit	0	0	-6	-6	-4	-1	0
	JFY08	**JFY09**	**JFY10**	**JFY11**	**JFY12**	**JFY13**	**L/T**
Coking coal, US$/t FOB	300	129	175	190	190	150	120

Source: Deutsche Bank estimates/forecast

Our long-term price for coking coal has been increased to US$120/t, up 9%. This was following a review of what price is required to support a new greenfield project being commissioned to commence production in 2015.

Figure 7: LV PCI coal supply - demand balance (Mt)

	2008	2009	2010E	2011E	2012E	2013E	L/T
Seaborne Demand (Mt)	35	25	28	30	31	32	33
Seaborne Supply (Mt)	35	25	26	28	30	32	34
Surplus/deficit	0	0	-2	-2	-1	0	1
	JFY08	**JFY09**	**JFY10**	**JFY11**	**JFY12**	**JFY13**	**L/T**
LV PCI coal, US$/t FOB	245	90	124	136	136	115	95

Source: Deutsche Bank estimates/forecasts

Figure 8: SS Coking supply - demand balance (Mt)

	2008	2009	2010E	2011E	2012E	2013E	L/T
Seaborne Demand (Mt)	54	43	48	51	54	57	59
Seaborne Supply (Mt)	54	43	47	49	52	57	60
Surplus/deficit	0	0	-1	-2	-2	1	1
	JFY08	**JFY09**	**JFY10**	**JFY11**	**JFY12**	**JFY13**	**L/T**
LV PCI coal, US$/t FOB	235	75	103	112	112	101	90

Source: Deutsche Bank estimates/forecasts

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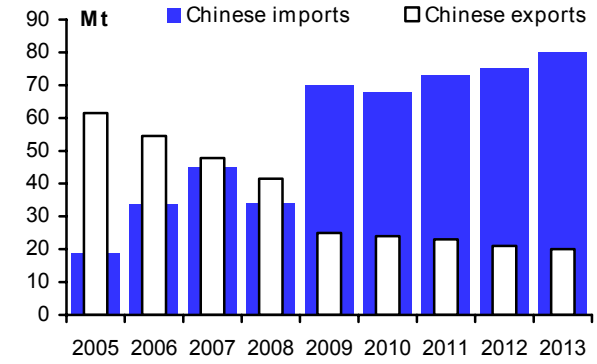
Thermal Coal

Summary view: *Forecasts raised to USD85/t and USD100/t for 2010 and 2011 respectively. Key near-term support is provided by Chinese domestic prices which are comparable on a delivered basis. This is relevant now that China has swung from net exports to net imports. Upside pricing rests on Chinese demand remaining robust. We view thermal coal as one of the fundamentally strongest commodity markets in the asset class.*

China no longer a net exporter of coal

The transition of China from a net exporter of coal to a net importer is the key change in the seaborne market. It had net imports about 50Mt of thermal coal in 2009, up from 8mt of net exports in 2008; giving it 7% of global seaborne demand - a level we see more likely to rise than fall with time. This has been driven by both an increase in demand as economic growth and stimulus propel requirements higher and by a curtailment of production; primarily in the Shanxi province as small operations were closed in the name of safety and environmental interests. As a result of this new international demand source, and our expectation of by subsequent demand recovery in other parts of Asia, namely Japan and Korea, we see the Asia-Pacific region as providing a leading price reference.

Figure 1: China swings to net imports

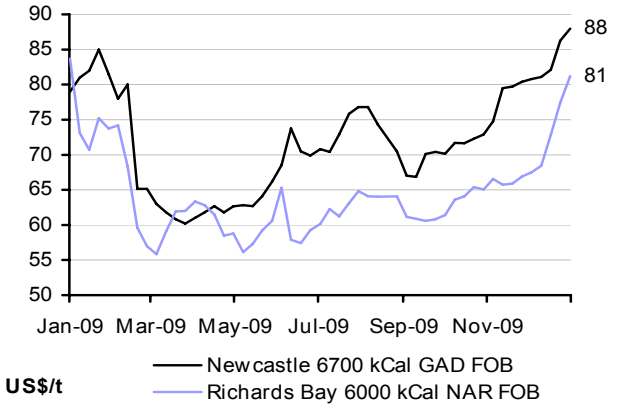


Source: AME, Deutsche Bank

Market conditions

Spot prices for thermal coal out of Newcastle, Australia, have risen 30% from a low of USD62/t FOB in April to ~USD86/t by the end of the year. A price around this level is what we expect to be see when the JFY10 benchmark price is settled. There may be some upside beyond this price for contracts as small mine closures, snow storms and accident disruptions all contribute to ongoing import demand from China. The chart below shows the upward momentum in the spot prices.

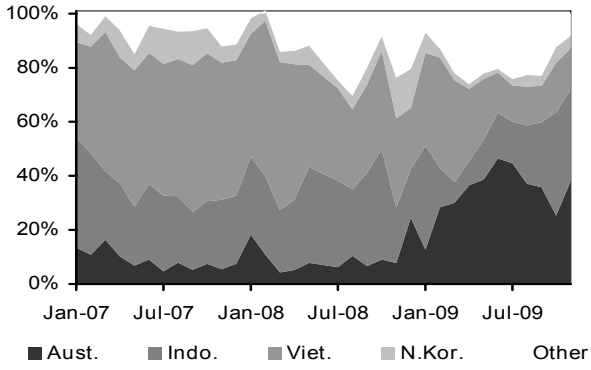
Figure 2: Spot prices on the rise



Source: Bloomberg

Falling freight rates have allowed volumes from South Africa have become more competitive in Asia but most of tonnes haven't made it past India which has also been increasing its imports significantly. Strong demand along with concerns about supply constraint – particularly at the export ports – that has caused markets tighten significantly. We view these changes as long-lived in nature.

Figure 3: Share of Chinese import volumes

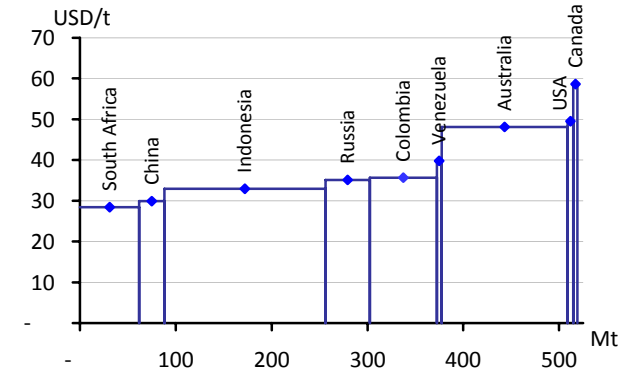


Source: Bloomberg

Supply

Indonesia remains the largest single source of thermal coal with about 170Mt of exports. Australia is the second largest with about 140Mt of exports, but its collective position at the upper end of the cost curve gives it an influential role in determining the coal price. The USA and Canada remain swing exporters.

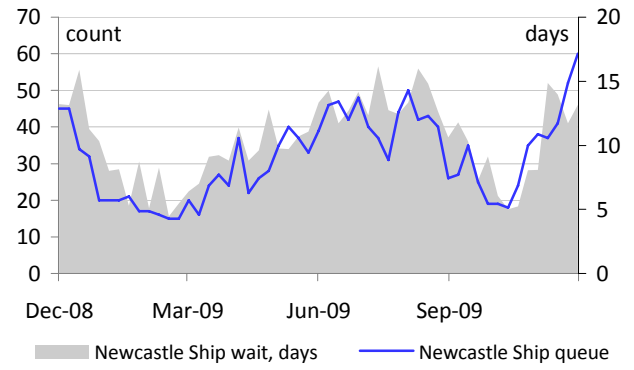
Figure 4: Simple thermal coal cost curve



Source: AME

As demand recovers and infrastructure constraints are once again becoming an issue. At Australia's largest thermal coal port, Newcastle the ship queue recently reached 60 vessels a two year high.

Figure 5: Infrastructure constraints appear again



Source: AME

Domestic Chinese prices supportive of current spot

Chinese domestic prices are supportive of current spot prices and this may remain the case following recent snow storm impacts and likely mine suspensions following the explosion at a mine in Heilongjiang province. Domestic production costs have risen in China and producer margins have been under pressure. When allowance is made for freight, VAT, port costs and quality differentials we find, as shown in the table below, that Chinese domestic prices are supportive of the current spot price level. As such we see this, coupled with our expectation that China will remain a net importer, as a fundamental driver for higher coal prices.

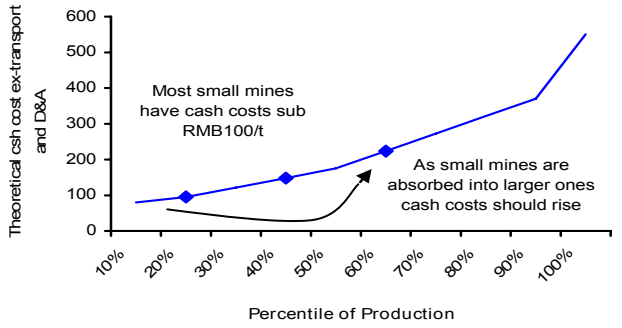
DB analysis has identified that the closure of numerous small mines in China has lead to a rise in the cost curve. This may seem somewhat counter-intuitive but it is a reflection of the lack of spending on non-production related activities, namely safety and environment, at these operations.

Figure 6: Prices comparable after freight, tax, quality

		JFY10	JFY11
Ex-Aust. 6000kCal FOB	US$/t	85.0	100.0
Freight	US$/t	12.0	12.0
VAT	US$/t	17.0	20.0
Unload	US$/t	3.5	3.5
LANDED	US$/t	117.5	135.5
Seaborne premium	%	12	12
Equiv. Domestic	US$/t	103.4	119.2
USD:RMB		6.8	6.8
Domestic Price	RMB/t	703	811
Quality conversion		85%	85%
Domestic Price, 5400kCal	RMB/t	595	686
Domestic Chinese Forecasts	RMB/t	600	635

Source: Deutsche Bank

Figure 7: Chinese cost curve shift



Source: Deutsche Bank, Dec-09

Thermal coal pricing and supply/demand balance

Our long-term price for thermal coal has been increased to USD84/t, up 5%. This was following a review of what price is required to support a new greenfield project being commissioned.

Figure 8: Thermal coal supply - demand balance (Mt)

	2008	2009	2010E	2011E	2012E	2013E	L/T
Seaborne Demand (Mt)	675	661	685	711	730	743	762
Seaborne Supply (Mt)	675	661	678	705	724	752	774
Surplus/deficit	0	0	-7	-6	-6	9	13
	JFY08	**JFY09**	**JFY10**	**JFY11**	**JFY12**	**JFY13**	**L/T**
Thermal coal, US$/t FOB	125	71	85.0	100.0	95.0	90.0	84.0

Source: Deutsche Bank estimates/forecasts

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#16 Agriculture

Ten Reasons To Go Long Agriculture

- **We believe the structural factors that will drive agricultural prices higher over the medium term remain in place.**
- **This reflects the increasing need to feed people, cattle and cars in an environment of land and water constraints.**
- **However, we believe the financial crisis and record harvests in a number of key agricultural producing countries have temporarily overwhelmed these factors.**
- **Heading into next year, we believe price weakness in certain markets such as grains and soybeans will prove temporary. Indeed the surge in some agricultural prices this year such as sugar and cocoa, demonstrates to us that in the event of a disruption in supply, prices can react violently to the upside.**
- **In this article we outline ten key drivers which we expect will propel agricultural prices higher over the medium term.**

#1 Population growth

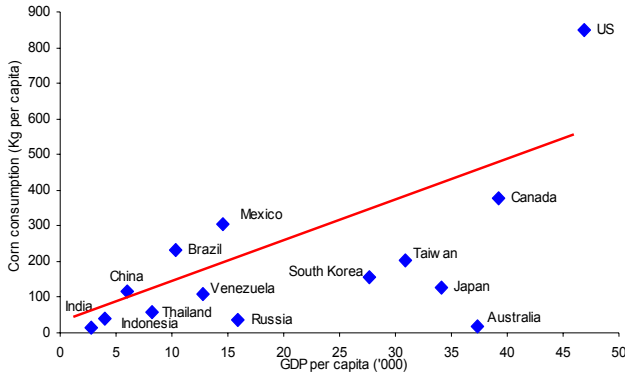
In 2005 the number of people on the planet was estimated to be 6.5 billion. By 2050, the United Nations estimates that the world's population will have grown to 9.5 billion people. India is estimated to represent 20% of this growth compared to 4% for China. We expect the rise in population levels will lead to an additional 1 billion tons of soft grain consumption either directly as food or indirectly as a feedstock. Consequently we believe just over one third of the total growth in soft grains consumption between now and 2050 will be driven by demographics.

#2 Income growth

As per capita incomes in the developing world are increasing so too is the move to more high protein diets. This is largely responsible for the steady increase in feedstock commodity consumption per capita. We estimate that higher GDP per capita levels should more than double global protein demand between now and 2050 from 210 million tons to 450 million tons and increase indirect feedstock soft grain consumption by about 1 million tons during this period.

As a result, we expect just over one third of the total growth is soft grains demand will be driven by income growth. Figure 1 examines the relationship between per capita income and per capita corn consumption. While per capita corn consumption in the US is exaggerated by the role of corn as a feedstock for ethanol production, corn consumption remains relatively low across the developing world.

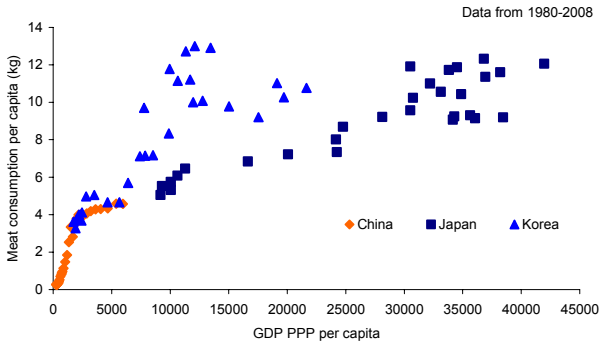
Figure 1: Corn consumption intensity



Source: Deutsche Bank, USDA (2008), IMF

According to data from the FAO, daily calorific intake in China and India has been rising since the early 1980s and the improvement in diets is accelerating. A large part of this is being driven by rising meat consumption such that China is following similar consumption patterns to Korea and Japan 20 years ago, Figure 2.

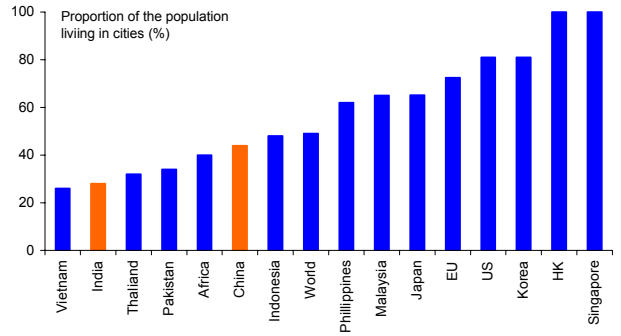
Figure 2: Meat consumption versus income



Source: Deutsche Bank, USDA, IMF

We believe the challenge will be to raise agricultural production given the constraints of land and water at the same time that urbanisation rates are rising. In China, the urbanisation rate stands at just over 40%. We assume China's urbanisation rate will rise towards 55% by 2020-2025 in line with rates prevailing in Malaysia and the Philippines, Figure 1. This would imply an increase in China's urbanisation rate of approximately 1 percentage point per annum, the equivalent of 13 million people moving into urban areas every year.

Figure 3: Urbanisation rates around the world

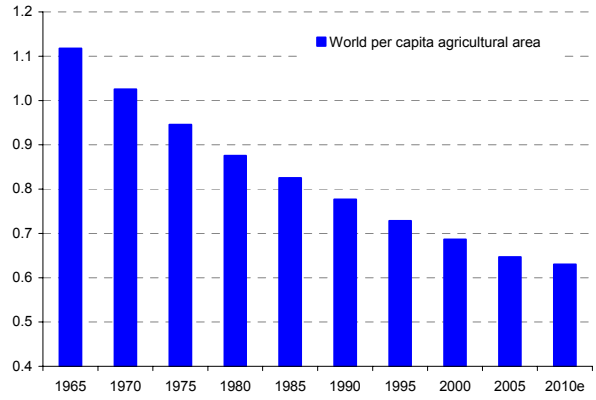


Source: Deutsche Bank, World Bank

#3 Land & water constraints

Urbanisation has been partly responsible for the steady decline in land dedicated to agricultural production globally. In fact since the 1960s, the size of agricultural land per capita globally has been cut in half, Figure 4. However, to some degree this has been offset by a significant improvement in agricultural yields in certain parts of the world. Even so, we expect significant challenges lie ahead not least given the availability of water resources, particularly across Asia.

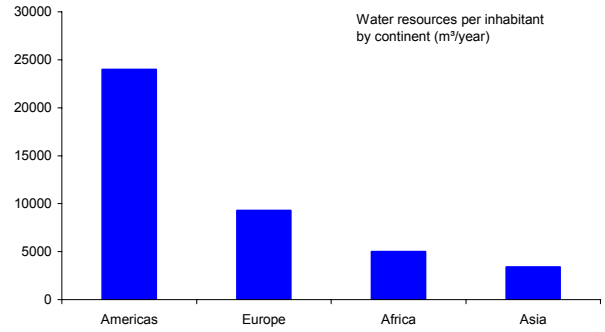
Figure 4: World agricultural land per capita



Source: Deutsche Bank, USDA, IMF

Water resources are unevenly distributed across the world. According to the FAO, the Americas have the largest share of the world's total fresh water resources at 45%, followed by Asia with 28%, then Europe with 15.5% and finally Africa with 9%. However, in terms of resources per inhabitant, the Americas have 24,000m³/year, Europe 9,300m³/year, Africa 5,000m³/year and Asia 3,400m³/year, Figure 5. In an average year, 1,000m³ of water per inhabitant can be considered as a minimum to sustain life and ensure agricultural production in countries with climates that require irrigation for agriculture. The FAO identifies 33 countries that depend on other countries for over 50% of their renewable water resources of which Argentina, Uzbekistan, Ukraine and Vietnam can be considered important agricultural exporters and consequently vulnerable to adverse weather conditions such as droughts. In contrast, the world's four water richest countries are Brazil, Russia, Canada and Indonesia.

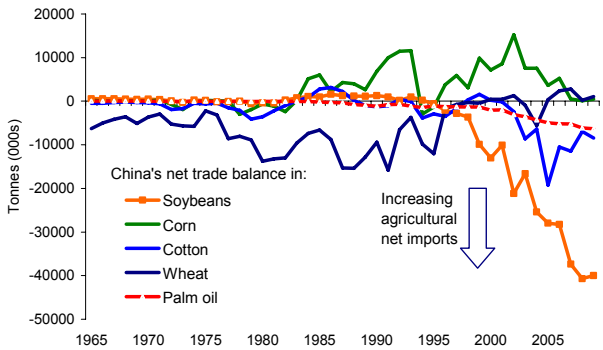
Figure 5: World water resources by region



Source: FAO

We believe the mix of rising population levels, urbanisation, improving living standards alongside land and water constraints will lead to increasing agricultural shortages, particularly across Asia. This is already visible in China's trade position which has seen a surge in agricultural imports during this decade, Figure 6.

Figure 6: China's trade position in various agricultural commodities



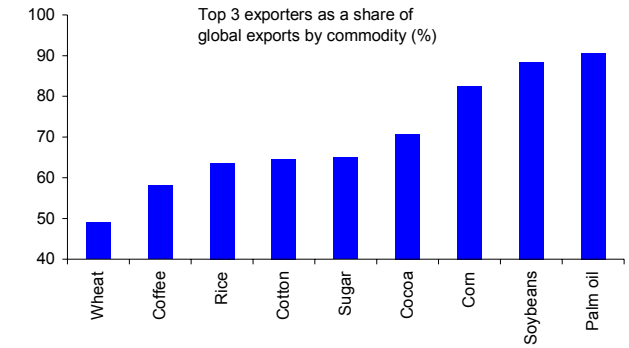
Source: Deutsche Bank, USDA

#4 The concentration of agricultural exports

In contrast to the energy and metals sector, agricultural exports tend to be concentrated in the hands of just two or three countries. Figure 7 examines the concentration of agricultural exports for a variety of commodities. We find that for many agricultural commodities, over 50% of the global export market is in the hands of just three countries. This year has been a good example of one or two key producing countries faced with supply problems having a profound effect on price. Indeed the rise in sugar and cocoa price this year has been attributable to supply problems in Brazil and the Ivory Coast respectively.

Consequently, country specific events such as regulation or weather can have a powerful effect on agricultural production and hence global export markets. For example, Malaysia and Indonesia together account for almost 90% of global exports of palm oil. In terms of soybeans, the US, Brazil and Argentina combined account for approximately 88% of global exports while Thailand, Vietnam and Pakistan represent 64% of the global rice market.

Figure 7: Market share of the world's top 3 exporters for various agricultural commodities

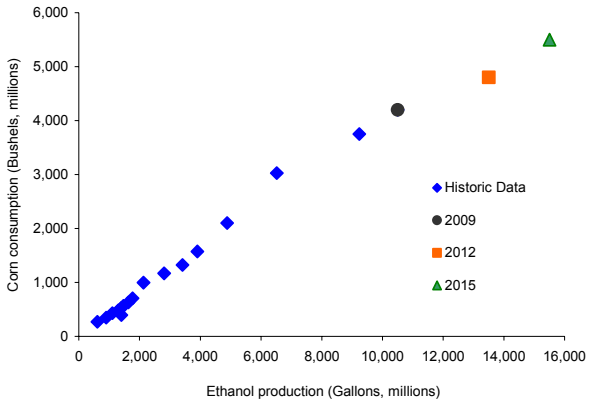


Source: Deutsche Bank, USDA

#5 Biofuels

The US government has made a strategic decision to increase the role of biofuels and specifically ethanol in the country's energy mix. We believe the use of soybeans and corn as feedstocks for biodiesel and ethanol production globally have had a powerful effect on demand side fundamentals in these agricultural markets. According to the USDA, the US ethanol industry will be responsible for just over 50% of global corn consumption growth in 2009. Today more than 30% of the US corn harvest is used for ethanol production. Given US Federal government targets this could rise to as high as 40% by 2015, or 5.5 billion bushels, Figure 8.

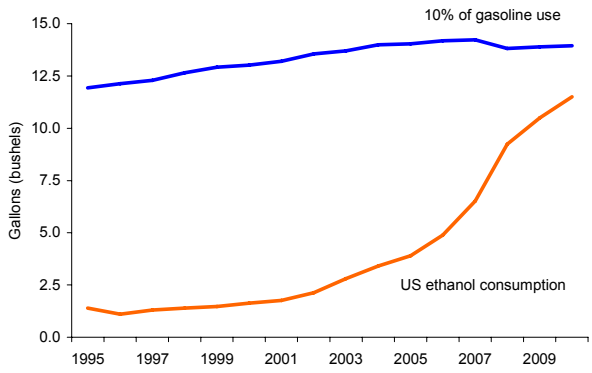
Figure 8: US corn use in domestic ethanol production



Source: Deutsche Bank, USDA

In order to achieve the targets for US ethanol production we expect the US Environmental Protection Agency will increase the current 10% blend of ethanol in gasoline use by five percentage points from the middle of next year. This would not only increase ethanol consumption by approximately 7 billion gallons, but, it would also avert the US ethanol industry from hitting the 'blend wall', that is when ethanol production and use is equal to 10% of the country's gasoline supply, Figure 9. We believe the increasing use of corn for ethanol production will sustain corn inventories at critically low levels and consequently sustain the price spike risk in this market.

Figure 9: US ethanol consumption approaches the blend wall



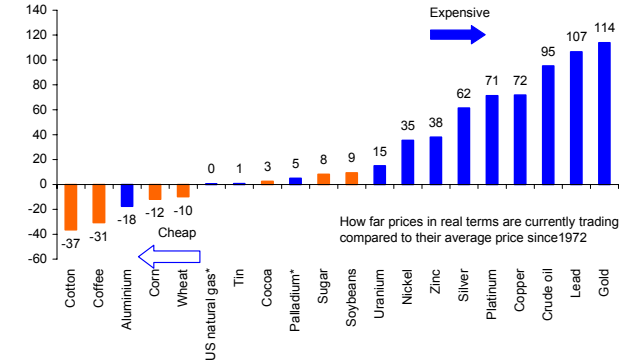
Source: USDA, EIA

#6 Valuation

Unlike other parts of the commodities complex, agricultural prices have failed to recover to the same degree as has occurred in the energy and metals sectors during 2009. Figure 10 illustrates how far current prices in real terms are trading above or below their long run historical averages. We find that gold, lead and crude oil

are the most richly priced commodities trading around 100% above their real term price over the 1957 to 2008 period. Meanwhile prices in many parts of the agricultural complex are trading at or below their long run historical averages in real terms. We believe this cheap valuation of the agricultural sector is inconsistent with bullish fundamentals across the complex.

Figure 10: Valuing commodities in real terms



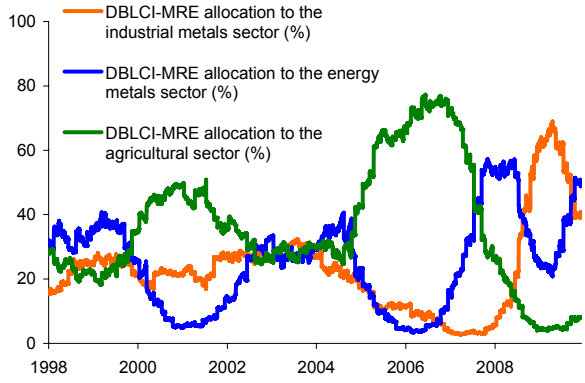
Source: Deutsche Bank, Bloomberg (End November 2009)

Another useful way of assessing which parts of the commodities complex are trading cheap and expensive is by examining the rules governing the DBLCI-Mean Reversion Enhanced index. Unlike traditional commodity indices where index weights are rebalanced every year, there is no annual re-balancing for the DBLCI-MRE. Instead, the weights are reset every time any one of the commodities undergoes a 'trigger event'. This happens when the one-year moving average of the commodity price is a whole multiple of 5% away from the 5-year moving average. When this happens, the weights of all commodities are rebalanced: 'expensive' commodities have their weights reduced, 'cheap' commodities have their weights increased according to a simple pre-defined formula.

At the end of last year, the DBLCI-MRE had built an aggressive allocation to the industrial metals sector, which it viewed as trading cheap relative to its five year average price. As industrial metal prices rallied this year so the DBLCI-MRE has cut its exposure to this sector and reallocated to the energy complex, Figure 11. If this trend continues then this would suggest that the DBLCI-MRE is positioning for the energy sector to become the next engine room of performance. In our view, a strong rebound in oil prices holds important implications for the agricultural complex given the contagion effects of higher oil prices on the complex.

After almost eliminating its exposure to the agricultural sector during 2007 and 2008, we expect the allocation to the agricultural complex will treble to over 20% by the middle of next year. As a result, during the second half of next year the DBLCI-MRE will have a combined exposure to energy and agriculture of approximately 80%.

Figure 11: Sector allocations of the DBLCI-MR Enhanced

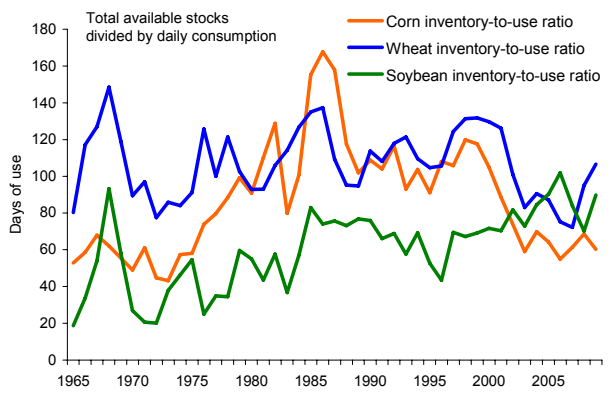


Source: Deutsche Bank

#7 Inventories

According to the USDA, inventories in a number of agricultural markets are low and set to fall further heading into next year. We find that global corn inventories are now equivalent to just 60 days of consumption, versus an average of 88 days between 1960 and 2008, Figure 12. However, some caution is needed when reading this data since when measuring agricultural inventories on a global basis, it ignores the fact that inventories are an aggregation of ending stocks in different counties with different crop years. For example, on August 31 for the US, which marks the end of crop year for corn and soybeans, but, South America still have more than their projected ending stocks left as their crop year ends in February. As a result, the actual grain stocks typically never gets as low as the reported word ending stock figures imply. However, we find that many agricultural markets are in deficit, for example in coffee and cocoa.

Figure 12: Global inventory-to-use ratios



Source: Deutsche Bank, USDA

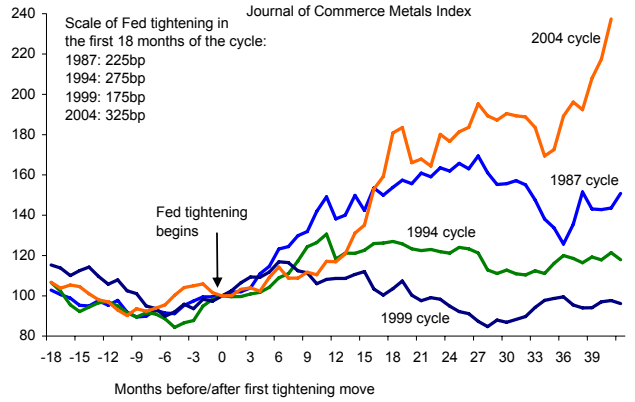
#8 Climate change

Weather systems can have an important bearing on global energy and agricultural markets. Over the past few years the world has had to contend with the increasing frequency of extreme weather events. Last year adverse weather was responsible for a drop in Indian and Brazilian sugar production.

#9 Diversification

We believe the significant rise in investor flows into the commodities complex during this decade has increased the contagion effects from interest rate, exchange rate and global equity markets onto the commodities complex. However, we believe the agricultural complex may prove to be less sensitive to the course of US interest rates, the US dollar and the S&P500 financial markets which have had a powerful impact on energy, precious metals and industrial metal prices. Indeed we find that gold returns have tended to be sensitive to the US dollar and loosely positively correlated with real interest rates. Industrial metal prices have been positively correlated with the S&P500 as well as nominal US interest rates, particularly at the start of a new monetary tightening cycle, Figure 13 while the oil price has become increasingly more correlated with the US dollar and the S&P500.

Figure 13: The performance of industrial metals in the first 12 months of a Fed tightening cycle



Source: Deutsche Bank, Bloomberg

Given the risk of US dollar strength, the possibility that the S&P500 falters as governments and central banks start to remove monetary and fiscal stimulus and sovereign default risk threatens a more significant rise in long term interest rates, we believe the agricultural sector may prove to be a relative safe haven unaffected by financial market volatility and rather taking its lead from acreage levels, crop yields and weather among other things, which are broadly unaffected by financial markets.

#10 Government action & stockpiling

Agricultural shortages and price increase would, in the absence of government action, tend to divert resources towards the agricultural sector and hence boost production over the medium term. However, during the rise in agricultural prices during 2007 and 2008 many governments in key producing regions such as Argentina and Kazakhstan introduced trade barriers to restrict or even ban the export of agricultural products to limit price increases at home. This had the effect of depressing farm incomes and in the extreme leading to crop plantings to be cut and hence exacerbating the shortage situation.

Today attention has turned to the rice market following poor harvests in the Philippines, India and Vietnam. Given the risk of shortages heading into next year some countries such as India and Bangladesh have banned rice exports. We believe any sign of agricultural shortages therefore increases price spike risk via government action. Moreover the threat of shortages is already leading some governments to build strategic inventories in key agricultural commodities. Indeed the deterioration in Chinese agricultural trade position has already led to the government to start stockpiling in grains and soybeans.

Conclusion

We believe the financial crisis and bumper harvests in a number of key crops have driven many agricultural prices to under-valued levels. We believe this will prove temporary given the ongoing competition to feed people, cattle and cars in a land and water constrained world. In particular we view the rally in sugar prices as set to continue on increased demand in India and other emerging markets. Moreover we believe the increasing use of corn as a feedstock for ethanol in the US alongside strong demand across Asia will push corn prices higher.

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#17 Global Carbon Markets

Uncertain Outlook for Global Carbon Markets after Copenhagen

- **The Fifteenth Conference of the Parties (COP-15) of the United Nations Framework Convention on Climate Change (UNFCCC) ended in the adoption of the so-called Copenhagen Accord (CA).**
- **The CA was agreed upon by the US, China, and certain other large emitters outside the formal negotiations at COP-15, and subsequently endorsed by the UNFCCC, albeit with certain countries objecting to its adoption.**
- **The CA does not yet specify any emissions-reduction targets either by 2020 or 2050.**
- **We think this outcome leaves significant uncertainty over how and when a new legally-binding international climate treaty can ultimately be achieved.**
- **In our view, there is now no near-term prospect of the EU's raising its 2020 target beyond the current 20%.**

COP-15 ends in adoption of the Copenhagen Accord

After nearly two weeks of negotiations in Copenhagen over 7-18 December last year, the final hours of the conference were very chaotic.

According to Point Carbon, the US, China, India, Brazil, and South Africa agreed the wording of a final text sketching the outlines of a new international deal to be elaborated upon and finalized at a future but unspecified point in time.

The CA, which does not yet specify any emissions-reduction targets either by 2020 or 2050, was then agreed to by the EU.

However, only after a long, heated and interrupted closing session was it finally adopted in plenary (and even then only with the COP taking note of the formal objections of some Parties to the UNFCCC).

What does the Copenhagen Accord say?

In our view, the main elements of the CA are: (i) action should be taken to limit the increase in global temperature to no more than 2°C against pre-industrial levels; (ii) emissions should peak as soon as possible; (iii) rich countries should submit non-binding 2020 emissions-reduction targets to the UNFCCC by end January 2010; (iv) developing countries should submit nationally appropriate mitigation actions (NAMAs) to the UNFCCC by end-January 2010; (v) developed countries should provide $30bn in financing to developing countries by end-2012, rising to $100bn per year by 2020; (vi) measures should be established immediately to cut emissions from deforestation; and (vii) an assessment of the CA's implementation should be completed by 2015, and should allow for a tightening of the 2°C target to 1.5°C if warranted.

What next for the UN process and the CDM/JI market?

We think the outcome of COP-15 creates uncertainty over the precise role of the UNFCCC from this point on in delivering the new legally binding international climate-change deal towards which the adopted text is intended as a first step. Accordingly, we think this heightens uncertainty over the continuation of the CDM and JI mechanisms beyond 2012, at least in their current forms.

There is now no near-term prospect of the EU's raising its 2020 target

We do not think there is now any prospect of the EU's raising its 2020 emissions-reduction target beyond 20% in the near term.

Indeed, with the selling of surplus EUAs by industrials in early 2010 already a possibility before the outcome of Copenhagen was known, we would not be surprised to see some price weakness in EUAs through to the middle of February 2010.

That said, we think the outcome of COP-15 could well create genuine concern about the prospects for CER/ERU supply beyond 2012, and raise the possibility of the EU's invoking Paragraph 5 of Article 11a in the EU-ETS Directive at some future point if negotiations through the UNFCCC do not proceed expeditiously over the next 12-18 months.

Moreover, and as explained in the previous section above, as a result of demand from German generators for Phase-3 allowances, we would expect the Dec-10 EUA contract to revert to the level of €15-16/t by the beginning of Q3, and to remain comfortable at this level over H2 of this year before rising further over 2011 and 2012 in line with our longer-term valuation methodology.

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US Carbon Trading

US Climate Policy After Copenhagen

- **The Copenhagen Accord has, at least temporarily, shifted political momentum away from a comprehensive global agreement and toward high level commitments of key countries to establish individual mitigation actions under an international monitoring, reporting and verification system.**
- **The American Clean Energy and Security Act of 2009 passed in the US House of Representatives in June 2009.**
- **The Kerry-Boxer bill in the Senate (already more favorable to the natural gas and nuclear industry than the House bill) appears to have given way to a bill proposed by Senators Graham, Kerry, and Lieberman that attempts to broaden the support base for the legislation.**
- **Meanwhile, the EPA is moving ahead under its own authority to regulate GHG emissions. One difficulty with this approach is that Congress could yet enact legislation that would preclude EPA regulation in favor of its own regulatory prescription.**
- **The consensus view in Washington is that some law on this topic may yet be signed by President Obama in early 2010 (ahead of the run-up to mid-term elections), with the next window open in 2011.**
- **Health care, Social Security and foreign policy issues are all weighing on the time and stamina needed to move on this issue.**

ACES in the House

The American Clean Energy and Security Act (ACES) was passed in June by the House of Representatives on a 219 to 212 vote. The legislation includes a cap and trade system for greenhouse gas emissions that sets a target 3% below 2005 emission levels in 2012, 17% below 2005 levels in 2020; requires electric utilities to meet 20% of their electricity demand through renewable energy sources and energy efficiency by 2020; mandates new energy use standards for buildings, appliances, and industry; and approves billions of dollars for investment in new clean energy technologies including efficiency, carbon capture, and advanced technology autos.

Kerry-Boxer in Senate

The Kerry-Boxer "Clean Energy Jobs and American Power Act" was introduced in the Senate in response to the passage of the Waxman-Markey bill in the House. The bill was voted out of the Senate Environment and Public Works Committee in November in hopes of creating some momentum going into the Copenhagen conference. Because Republican members boycotted the mark-up, thus preventing consideration of amendments, many analysts see this bill at a dead end.

Kerry-Graham-Lieberman

Hopes for action in the Senate have now focused on a bill proposed by Senators Graham, Kerry, and Lieberman in an effort to guarantee the required 60 votes in the Senate. Details have remain veiled, but are believed to include a market-based "cap and dividend" approach that emphasises revenue returned to consumers, as well as investment in nuclear power, incentives for carbon capture and sequestration, domestic oil and gas exploration, and border measures to protect U.S. industry.

Proposals by EPA to regulate CO2 emissions

Authorised by the April 2007 US Supreme Court ruling that the harms associated with climate change are serious and well recognized, the US Environmental Protection Agency (EPA) has taken a series of steps to regulate GHG emissions. In April 2009 the EPA issues a proposed "Endangerment Finding" that GHGs endanger public health and welfare and thus must be regulated under the Clean Air Act (CAA) from motor vehicles. In September 2009, EPA proposed the "tailoring rule" intended to temper the mandate in the CAA that set 250 tons per year as the regulatory threshold by increasing the floor to 25 thousand tons. On December 7 the endangerment finding was made final. The EPA expects to rule by March 10 on the regulations for automobile emissions and shortly after that on stationary sources. There are legal pitfalls in the EPA approach according to experts at Van Ness Feldman. Legal challenges to the endangerment finding could result in its invalidation by the courts. Or the whole process could falter if voter opposition results in constraints on EPA's proposals.

Green energy incentives and mandates

Congressional leaders are still focused on green energy incentives and mandates that can be tied to jobs creation. Alternative energy tax credits, renewable electricity standards, and the clean energy bank proposals are still very much in political favour. If a comprehensive cap-and-trade bill proves too ambitious in 2010, it is possible that environmental groups may coalesce around a narrower approach that covers power utilities and refiners only. In general, we believe that some form of climate/energy legislation or EPA green house gas regulation will act to constrain US reliance on carbon fuels. Last year, for example, several US utilities announced the early retirement of older coal units in anticipation of a tighter regulatory environment. In addition at the state-level, numerous permits were delayed due to siting concerns.

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EU Carbon Emissions

The Outlook for EUAs in 2010

- **We have downgraded our ETS emissions forecasts for 2009-12, but our Phase-3 forecasts remain unchanged. We see moderate downside price risk in the short run, but no repeat of Q1 2009.**
- **Incumbent generators are still very short EUAs over Phase 2 and should have growing demand to hedge 2013 power sales over 2010.**
- **From Q2 onwards, we expect that power generators (and particularly German generators) will be selling an increasing amount of electricity forward into 2013, and 2013 EUAs will not be available for purchase on the market until Q3 2011 at the earliest.**
- **In our view, this means that German generators will have to hedge their carbon exposure in 2013 via the purchase of Phase-2 allowances (primarily the 2012 vintage), which in turn should support prices across the curve.**
- **As a result of this demand from German generators, we would expect the Dec-10 EUA contract to revert to the level of EUR15-16/tonne by the beginning of Q3, and to remain well supported at this level over H2 before rising further over 2011 and 2012 in line with our longer-term valuation methodology.**

We have downgraded our ETS emissions forecasts for 2009-12 to take account of an even weaker EU economy in H2 of 2009 than previously assumed. We see moderate downside risk to EUAs until mid-February, but think that thereafter utility buying could see prices revert to €15-16/t by mid-year.

This is because generators will have to hedge increasing amounts of 2013 power sales this year, and with the auctioning of 2013 EUAs unlikely before Q3 2011 at the earliest, they will have to buy Phase-2 EUAs instead.

Downgrading estimates for 2009-12, but Phase-3 forecasts unchanged

We have downgraded our 2009 ETS emissions forecasts by 70Mt to 1,900Mt, and also trimmed our estimates for 2010-12 to reflect the lower base from which the recovery we are assuming in our model will now be taking place. However, we have left our estimates for 2013-20 unchanged.

On our revised estimates, Phase 2 of the ETS will now be long by +260m EUAs (+115m previously) assuming that all the allowances in the new-entrants reserve (NER) come to market over this period. After taking into account the allowed maximum use of CERs/ERUs, this means that for Phases 2 and 3 combined we now derive an average residual abatement requirement over 2008-20 of -30Mt p.a. (-42Mt previously).

Moderate downside risk in the short run, but no repeat of Q1 2009

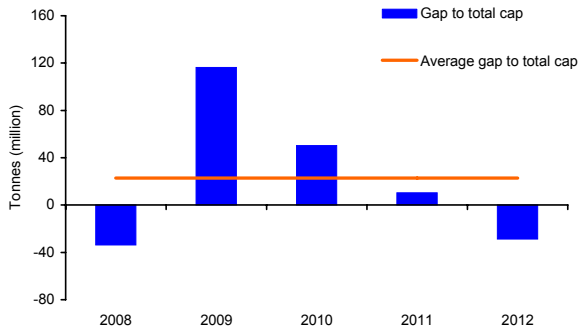
We would not be surprised to see some selling of industrial companies' EUA surpluses over the next month, and some speculative selling of EUAs ahead of the allocation of the 2010 quotas in mid-February is also a possibility.

Against this backdrop, we think the price risk for EUAs in the very short term remains to the downside. That said, we would not expect prices to come under anything like the same pressure as witnessed over the same period last year, when the impact of the credit crunch on industrials' working-capital positions compounded the weak economic outlook. Furthermore, the abnormally cold start to 2010 will help support short-term prices in our view.

Incumbent generators still very short EUAs in Phase 2

Although on our revised estimates Phase 2 is +260m EUAs long if the full NER comes to market, incumbents are still short.

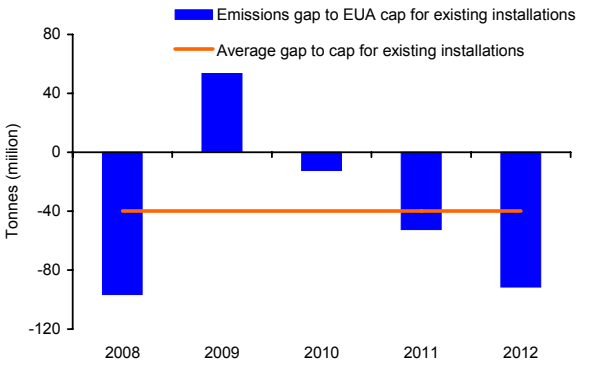
Figure 1: DB estimate of average annual EUA surplus over Phase 2 if full NER used



Source: Deutsche Bank

If we take all ETS incumbents together, the average EUA deficit on our revised estimates is -10m p.a. over Phase 2 (-40m p.a. previously).

Figure 2: DB estimate of average annual EUA deficit of incumbents over Phase 2



Source: Deutsche Bank

However, if we consider only incumbent generators, the average EUA deficit is -148m p.a. (-167m p.a. previously). This means that the timing of the release of surplus NER allowances to the market could have a significant bearing on EUA pricing, and we would not expect the majority of surplus NER allowances to be sold into the market until late 2011 or 2012.

And will have growing demand to hedge 2013 power sales over 2010

Power generators (and particularly German generators) will be selling increasing amounts of electricity forward into 2013 over the course of this year, and we do not think the first 2013 EUAs will be auctioned until Q3 2011 at the earliest.

In our view, this means that German generators will have to hedge their 2013 carbon exposure via the purchase of Phase-2 EUAs (primarily the 2012 vintage), which in turn should support prices across the curve.

As a result of this demand from German generators, we would expect the Dec-10 EUA contract to revert to the level of EUR15-16/tonne by the beginning of Q3, and to remain comfortable at this level over H2 of this year before rising further over 2011 and 2012 in line with our longer-term valuation methodology.

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#18 Uranium

Market Surplus & Flat Prices In 2010

- **The spot and term uranium price declined by 16% and 14% in 2009 finishing at USD44.5/lb and USD60/lb at year end respectively, according to TradeTech.**
- **Although we are believers in the long term bullish outlook for nuclear energy we expect 2010 to be another challenging year for the uranium price. We believe this stems from strong production growth in Kazakhstan, higher US DOE spot sales and lower than expected reactor build between 2009 and 2012 on the back of financing and permitting issues in the Western World.**
- **In the near term we believe that the US DOE will remain the price setter. The DOE has scheduled 9.7Mlb of spot sales in 2010. Thus far the DOE sales (in the form of UF6) have not been price sensitive and indeed we believe recent sales have been completed below the current spot price of US$44.5/lb.**
- **Despite the loss of 3.8Mlb of production from BHPB's Olympic Dam project in South Australia we expect the market will move into surplus in 2010. We now estimate that the uranium market will move from a deficit of 5.4Mlb in 2009 to a small surplus of 1.1Mlb in 2010 and then to a larger surplus of 8.6Mlb by 2012, equivalent to approximately 4% of total demand.**
- **We have reduced our 2010 term price forecast from USD70/lb to USD65/lb and have reduced the entire forward price curve between 2010 and 2014. Our LT price remains at USD50/lb from 2015 onwards, which is set at the marginal cost of production, being the high cost US in-situ leach producers and the 3Mlbpa Mclean Lake operation in Canada owned and operated by French uranium company Areva.**
- **Just three new nuclear reactors were commissioned in 2009 however we forecast six new reactors starts in 2010. The big lift should be in 2011 when we forecast 12Gw of new capacity and should reach a high of 18Gw in 2013 mostly due to the commissioning of 9 new Chinese reactors.**
- **We forecast 26 new 1Gw AP1000 Chinese reactors between 2010 and 2015. China continues to shoot for a target if 80Gw of nuclear capacity by 2020. India has also outlined a 30Gw target by 2020.**

Secondary Supply: US DOE to remain near term price setter

Secondary uranium supply from non-mining or stockpiled sources contributes ~30% to total annual global supply or ~50Mlb. Secondary supply should decline from 2011 onwards on lower Russian re-enriched tails supply which is price sensitive and a slight drop in US DOE sales off a high level. The current sales agreement between Russia and the US for the sale of blended down Russian Highly Enriched Uranium (HEU) expires in 2013. However recent discussions between US President Barack Obama and Russian President Dmitri A. Medvedev indicate that the agreement could be extended well beyond 2013.

The majority of secondary uranium stocks (>80%) are in the form of HEU and we estimate that the Russian government has at least 1,150t of HEU and the US government 500t. Depending on grade (varies between 20-90% U-235 but is typically 90%), total U3O8 yellow cake (0.7% U- 235) in stockpiles could be as high as 1,100Mlb or ~9yrs of total mine supply.

In the near term, the spot price continues to be pressured by US DOE sales. The DOE is selling 780klb of U3O8 in the form of UF6 per quarter in 2009 and 2010 for cleanup at the Portsmouth Gaseous Diffusion Plant. This material is in addition to the 47.6Mlb of sales between 2009 and 2015, and a total of 153Mlb of U3O8 for sale over a 25yr period between 2009 and 2034 outlined in its Excess Uranium Inventory Management.

Figure 1: DB Uranium SD (Mlb) and Term price forecasts (US$/lb)

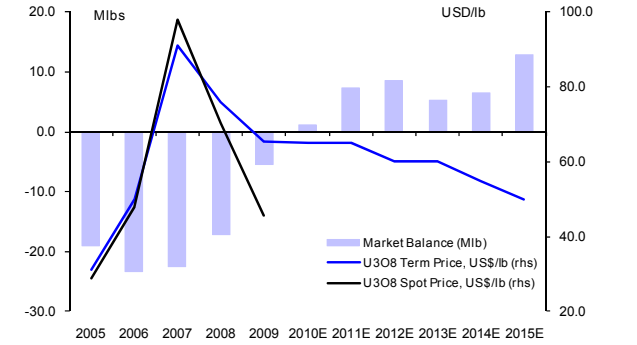
	2009	2010E	2011E	2012E	2013E	2014E	2015E
Mine supply	129.5	134.1	150.4	160.2	168.6	189.2	206.8
Secondary Supply	52.5	54.7	48.9	47.1	46.7	33.8	32.1
Total Supply	**182.0**	**188.9**	**199.3**	**207.3**	**215.3**	**223.0**	**238.9**
Reactor Requirements	173.2	173.6	177.5	183.7	194.3	200.3	209.2
Stockpiling	12.1	12.1	12.4	12.9	13.6	14.0	14.6
Investment demand	2.1	2.1	2.1	2.1	2.1	2.2	2.2
Total Demand	**187.4**	**187.8**	**192.0**	**198.7**	**210.1**	**216.5**	**226.1**
Market Balance	**-5.4**	**1.1**	**7.4**	**8.6**	**5.3**	**6.4**	**12.8**
Term Price (US$/lb)	**65.3**	**65.0**	**65.0**	**60.0**	**60.0**	**55.0**	**50.0**

Source: WNA, UxC, Deutsche Bank Global Markets Research

The near term impact by the DOE on the spot and term market has been noticeable. We believe the spot price will be range bound between US$40 and US$55/lb in 2010. We continue to see strong evidence that yellowcake and UF6 stockpiles at conversion facilities are at high levels. As we saw in 1Q 2009 US$40/lb appears

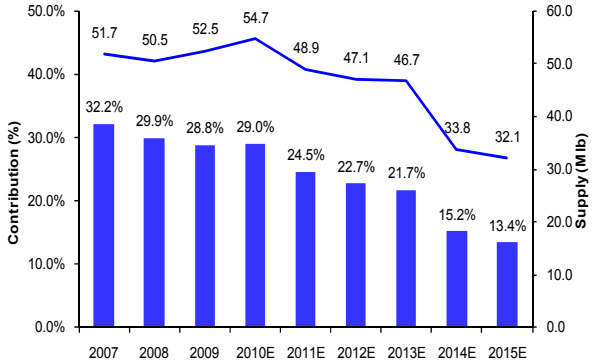
to be a strong support level. We do believe that the term price will stabilize in 2010 and strengthen slightly from US$60 to US$65/lb but we see little upside from this level.

Figure 2: DB uranium supply/demand forecasts (Mlb)



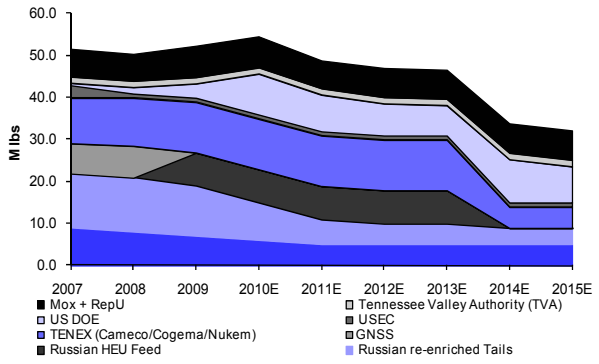
Source: Deutsche Bank, UxC, WNA

Figure 2: Secondary supply (% of total supply)



Source: Deutsche Bank, UxC, WNA

Figure 3: Secondary supply by source



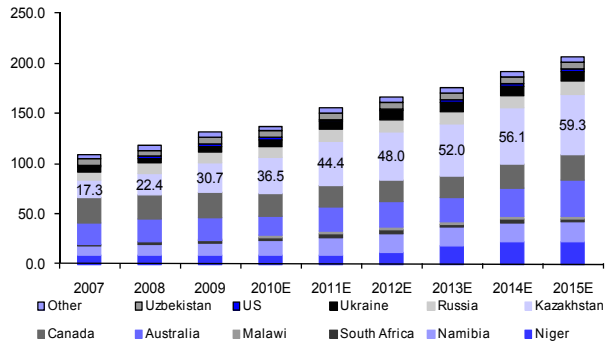
Source: Deutsche Bank, UxC, WNA

Primary Mine Supply: Kazakhstan delivering

In 2009 primary mine supply increased by 12.6Mlb (9.5%). The majority of the primary mine supply growth came from Kazakhstan. State owned mining entity Kazatomprom increased uranium production by 37% to 30.7Mlb and the country now has 21 in-situ leach (ISL) projects in operation. We forecast a further 19% increase in Kazakh uranium production in 2010 and 22% in 2011 and the nation should be able to double its production by 2015. However Kazatomprom is very ambitious with its forecasts and is targeting production of 47Mlb in 2010 vs. our forecast 37Mlb therefore there is upside risk to our market surplus forecasts in our view.

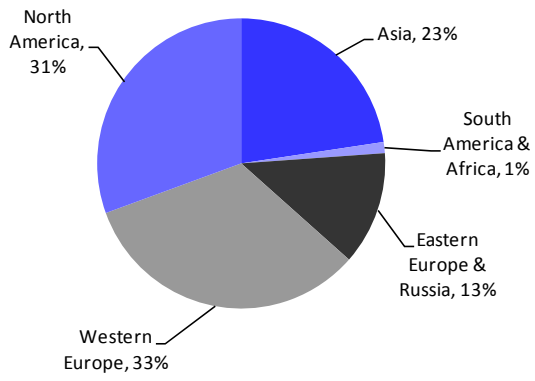
Other areas of growth in 2009 included Namibia, South Africa and the Ukraine. Going forward we forecast flat production from Canada until 2014 when we expect Cameco's large Cigar Lake operation to begin production. Niger is doubling production from 9Mlb to 22Mlb by 2013 and we expect BHPB's 6Mlbpa Yeelirrie operation and Extract's 16Mlbpa Rossing South mine to begin production in 2014. New mine supply appears sufficient to meet nuclear demand growth this decade.

Figure 4: Primary mine supply



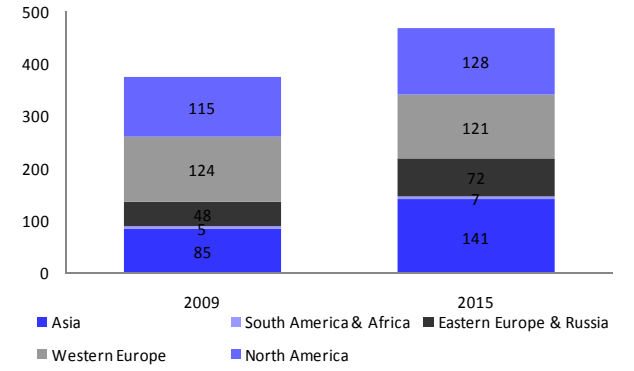
Source: Deutsche Bank, UxC, WNA

Figure 5: Current generating capacity by region (%)



Source: Deutsche Bank, UxC, WNA

Figure 6: Nuclear growth by region (Gw)



Source: Deutsche Bank

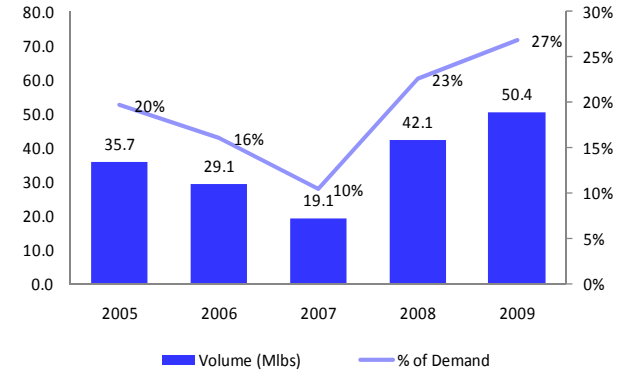
Utility strategic demand hit by tight budgets

In early 2009 global nuclear utilities were hit with tighter budgets and widening credit spreads with most utilities rethinking their supply chain and inventory management. Several fuel buyers have outlined plans to further reduce their inventory costs in 2010 and this may result in the move away from the holding of strategic inventories. Material lending should also increase and we believe that this strategy is covering most of the production shortfall from BHPB's Olympic Dam operation.

Financial demand and trading remains strong

Spot volumes reached a record high in 2009 of 50Mlb representing 27% of total market demand. We expect "cycling" of yellowcake to continue in 2010 but this should have little effect on price in our view. It appears that most selling has been "inventory shifting and reduction" by North American utilities to financial investors and sales by emerging producers to Asian utilities.

Figure 7: Spot volumes on the rise



Source: Deutsche Bank

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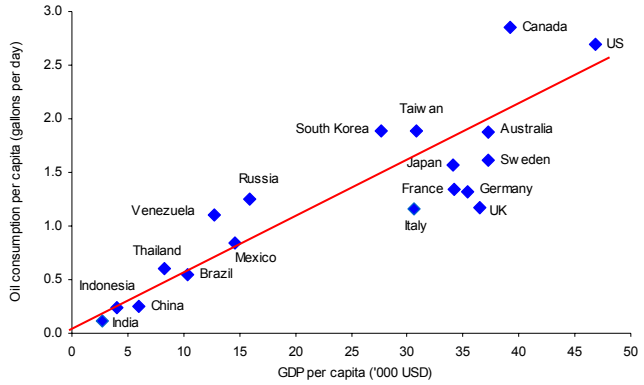
paul-d.young@db.com

Commodities Chartbook

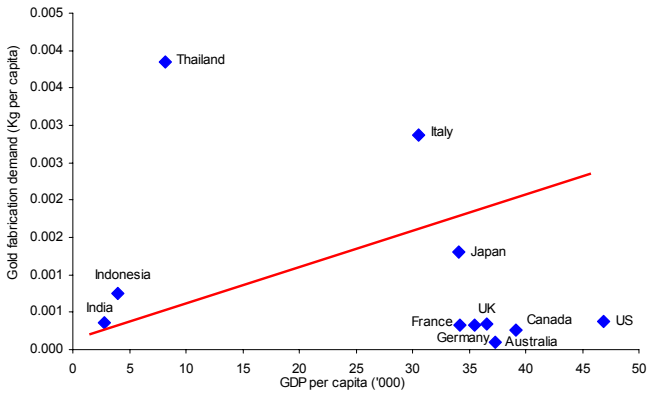
Commodity consumption around the world relative to per capita income

Figure 1: Oil consumption intensity



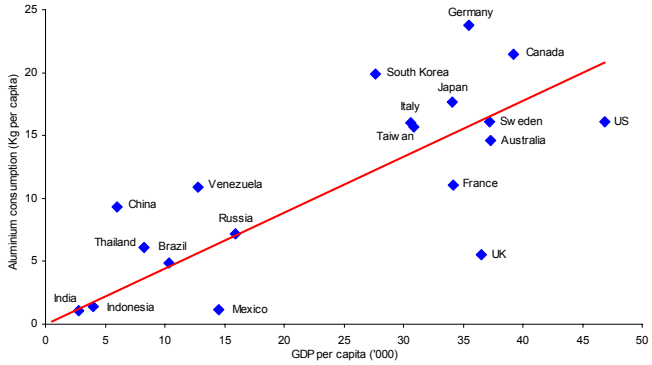
Source: DB Global Markets Research, IMF, IEA (2008)

Figure 2: Gold consumption intensity



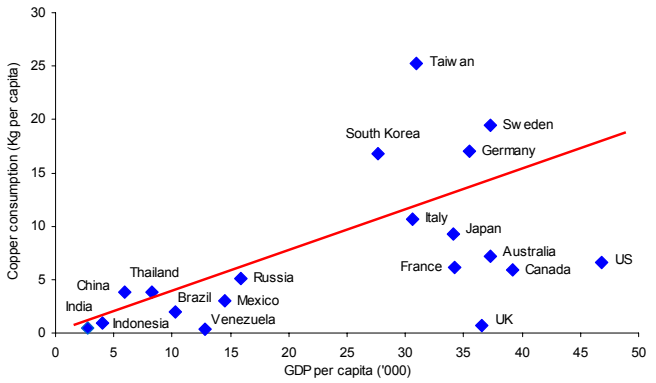
Source: DB Global Markets Research, CPM Group, IMF (2008)

Figure 3: Aluminium consumption intensity



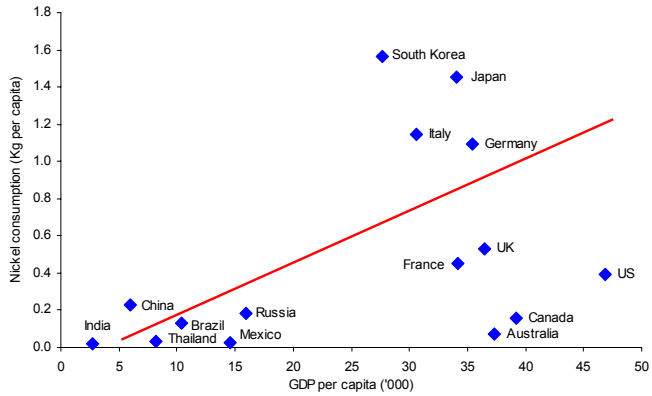
Source: DB Global Markets Research, IMF, WBMS (2008)

Figure 4: Copper consumption intensity



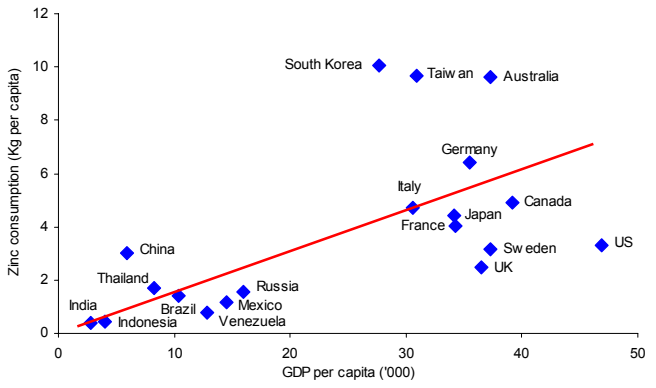
Source: DB Global Markets Research, IMF, WBMS (2008)

Figure 5: Nickel consumption intensity



Source: DB Global Markets Research, IMF, WBMS (2008)

Figure 6: Zinc consumption intensity

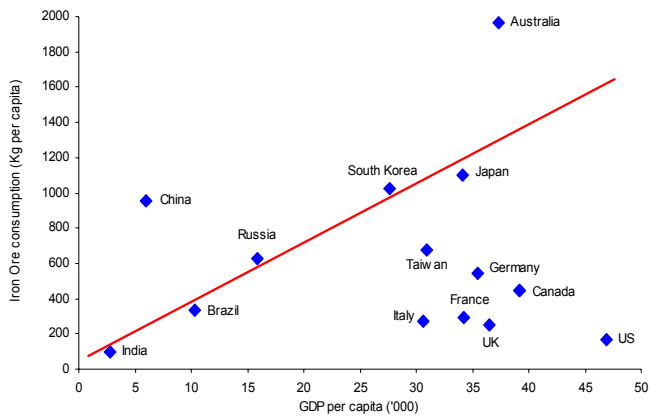


Source: DB Global Markets Research, IMF, WBMS (2008)

Commodities Chartbook

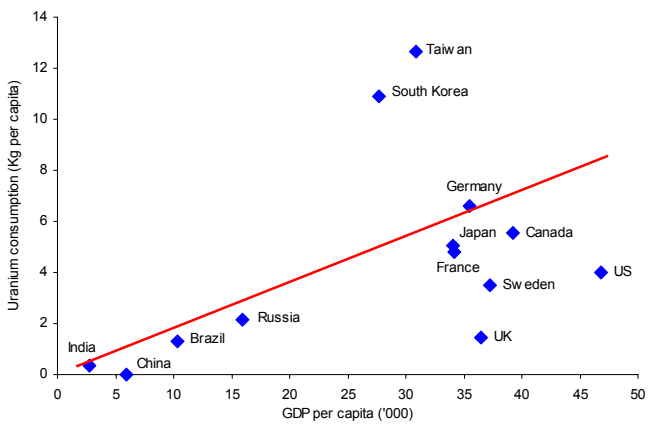
Commodity consumption around the world relative to per capita income

Figure 7: Iron ore consumption intensity



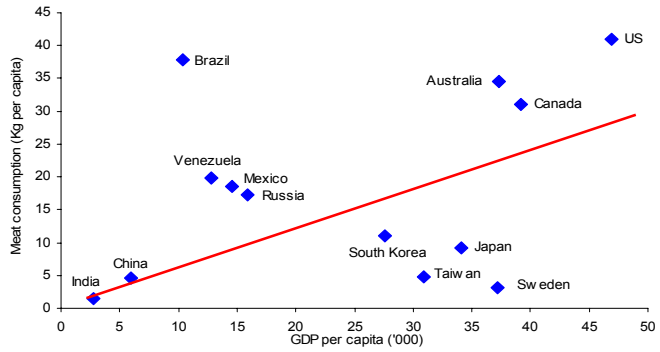
Source: DB Global Markets Research, AME, IMF (2008)

Figure 8: Uranium consumption intensity



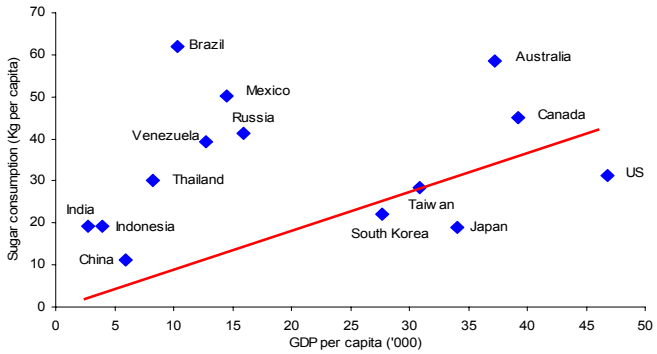
Source: DB Global Markets Research, (2008), IMF

Figure 9: Meat consumption intensity



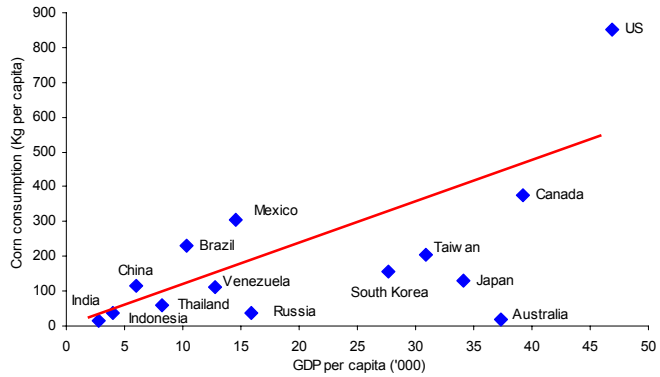
Source: DB Global Markets Research, USDA (2008), IMF

Figure 10: Sugar consumption intensity



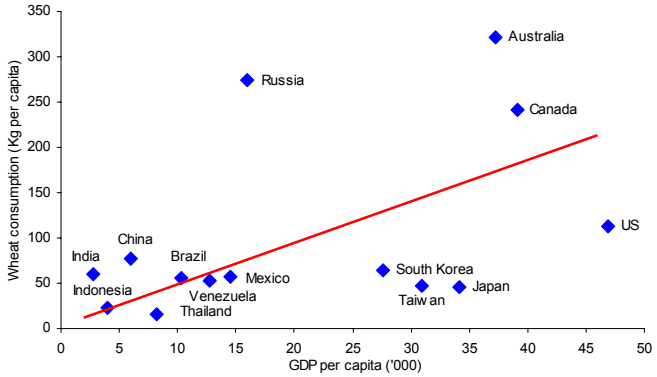
Source: DB Global Markets Research USDA (2008), IMF

Figure 11: Corn consumption intensity



Source: DB Global Markets Research, USDA (2008), IMF

Figure 12: Wheat consumption intensity

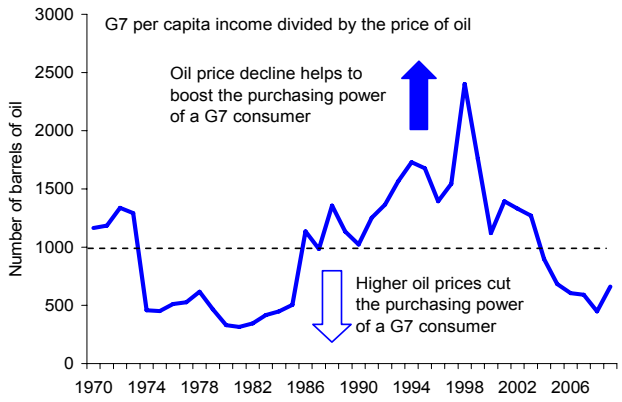


Source: DB Global Markets Research, USDA (2008), IMF

Commodities Chartbook

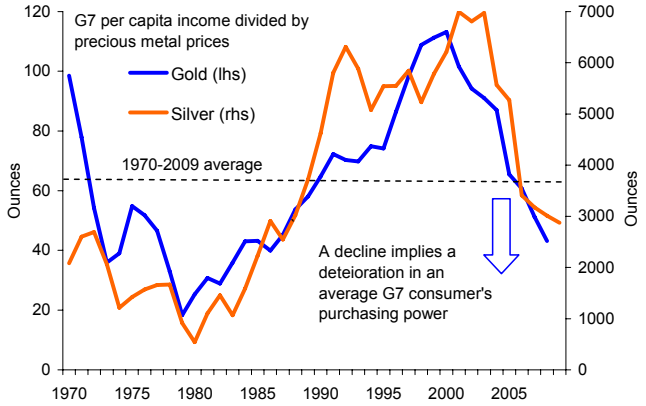
Commodities relative to G7 per capita income

Figure 1: Crude oil prices relative to per capita income



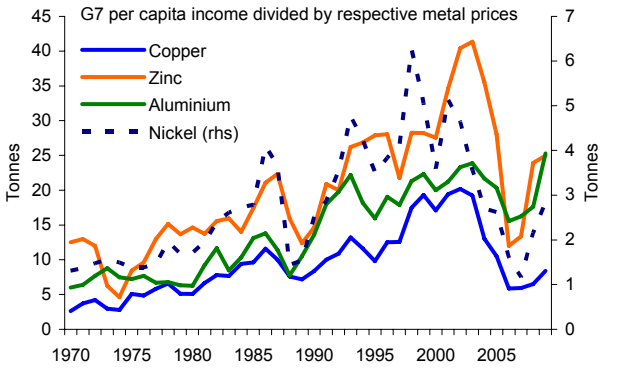
Source: DB Global Markets Research, IMF

Figure 2: Gold & silver prices relative to per capita income



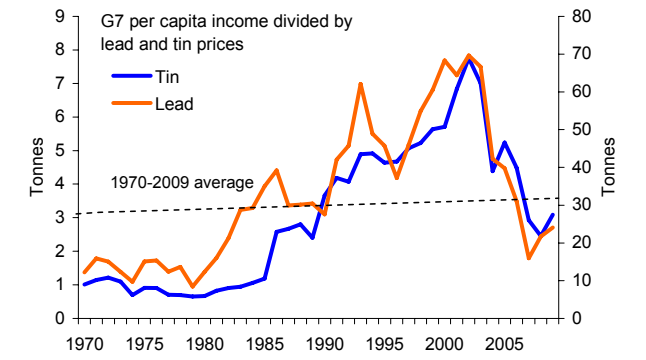
Source: DB Global Markets Research, IMF

Figure 3: Industrial metal prices relative to per capita income



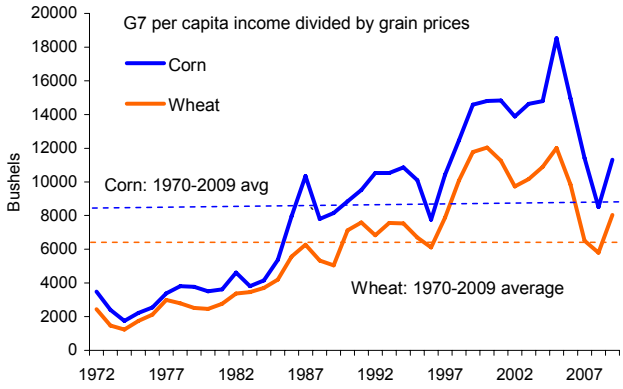
Source: DB Global Markets Research, IMF

Figure 4: Lead & tin prices relative to per capita income



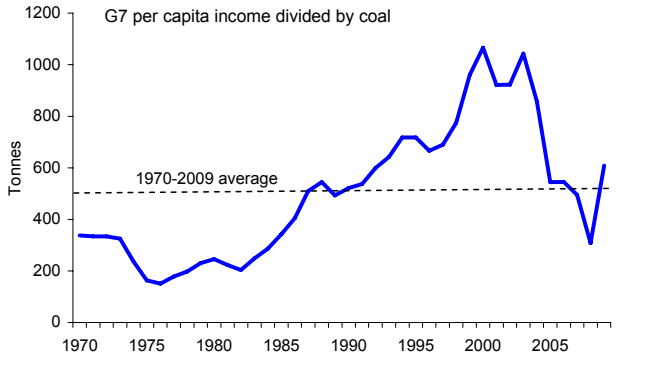
Source: DB Global Markets Research, IMF

Figure 5: Grain prices relative to per capita income



Source: DB Global Markets Research, IMF

Figure 6: Coal prices relative to per capita income

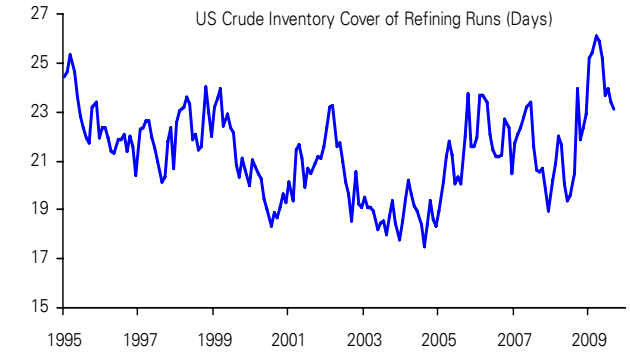


Source: DB Global Markets Research, IMF

Commodities Chartbook

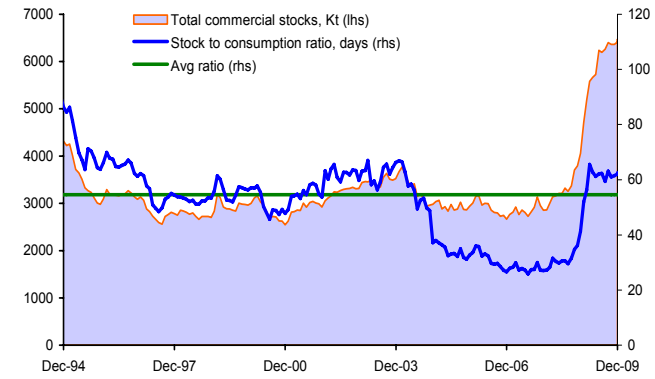
Commodity inventory-to-use ratios

Figure 1: US oil inventory-to-consumption ratio



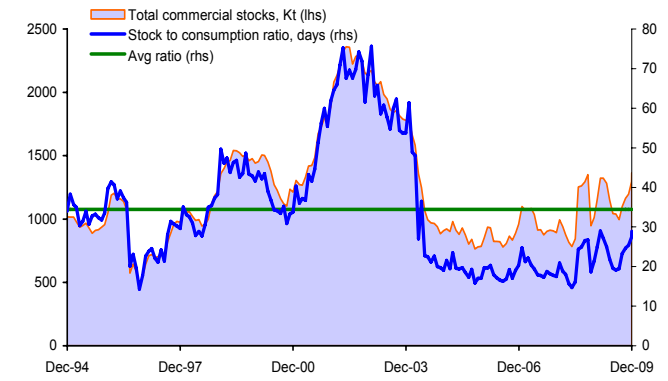
Source: IEA

Figure 2: Aluminium stock-to-consumption ratio



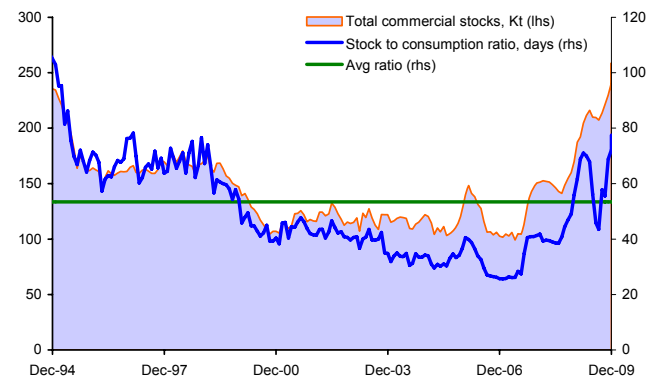
Source: Reuters, WBMS

Figure 3: Copper stock-to-consumption ratio



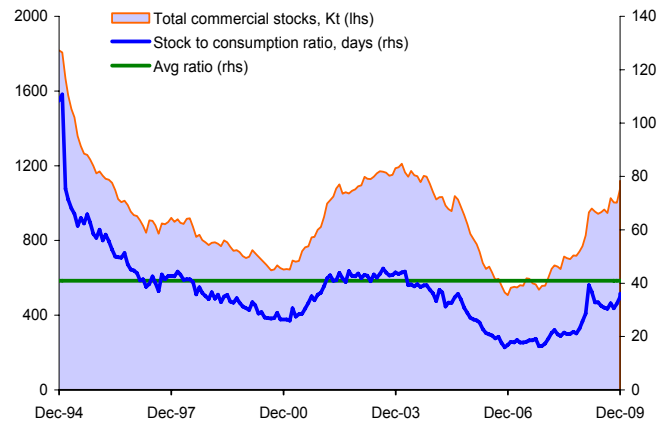
Source: Reuters, ICSG

Figure 4: Nickel stock-to-consumption ratio



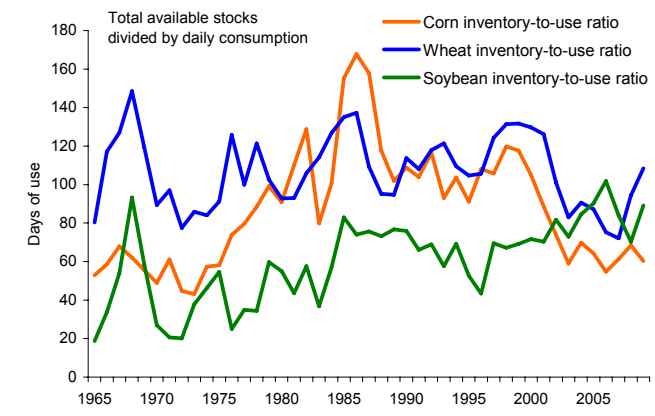
Source: Reuters, INSG

Figure 5: Zinc stock-to-consumption ratio



Source: Reuters, ILZSG

Figure 6: Corn, soybeans & wheat stock-to-consumption ratio

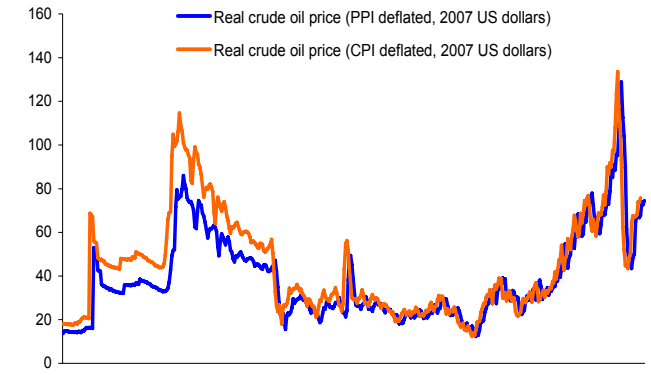


Source: USDA

Commodities Chartbook

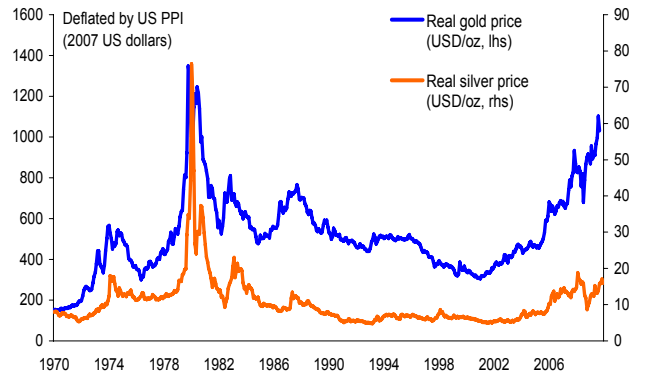
Commodities prices in real terms

Figure 1: Crude oil prices in real terms



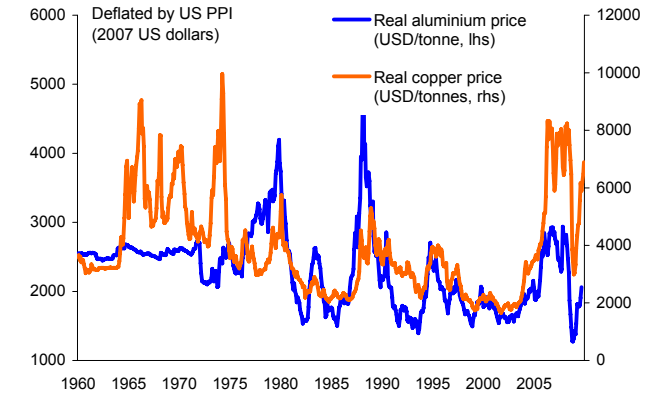
Source: IMF, Bloomberg

Figure 2: Precious metal prices in real terms



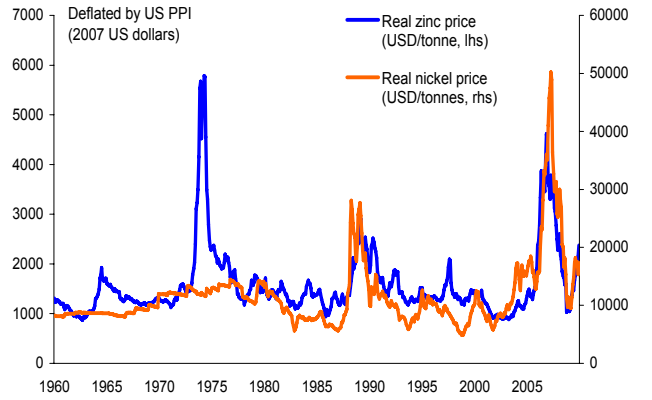
Source: IMF, Bloomberg

Figure 3: Aluminium & copper prices in real terms



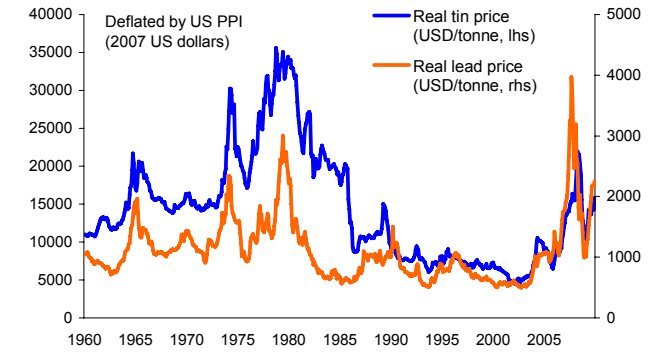
Source: IMF, Bloomberg

Figure 4: Nickel & zinc prices in real terms



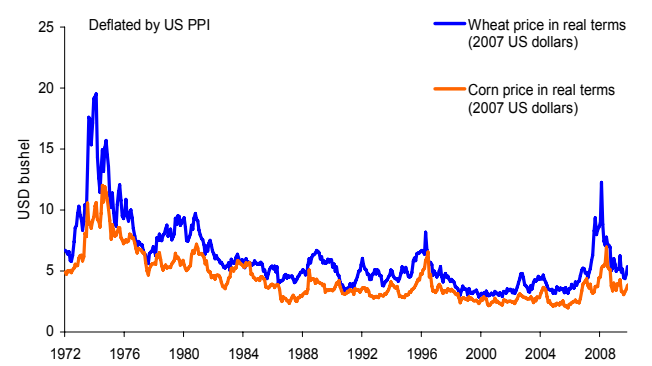
Source: IMF, Bloomberg

Figure 5: Lead & tin prices in real terms



Source: IMF, Bloomberg

Figure 6: Corn & wheat prices in real terms

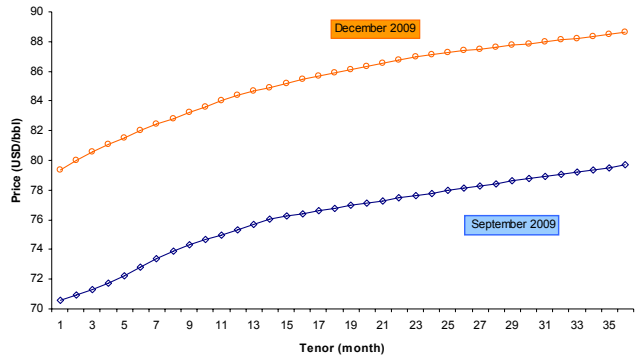


Source: IMF, Bloomberg

Commodities Chartbook

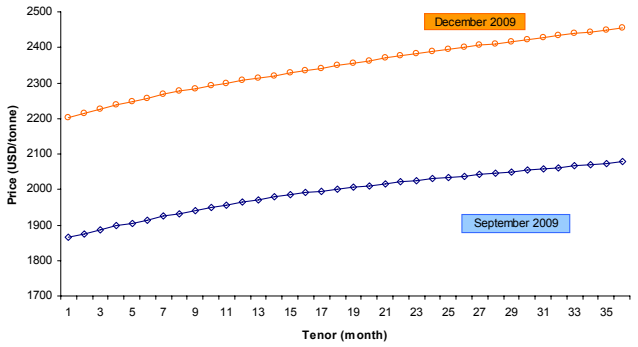
Commodity Forward Curves

Figure 1: WTI crude oil forward curve



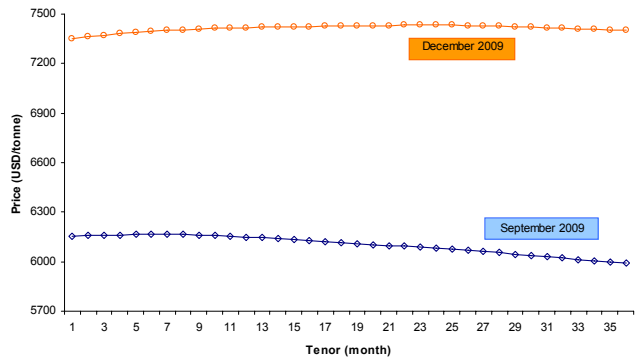
Source: DB Global Markets Research

Figure 2: Aluminium forward curve



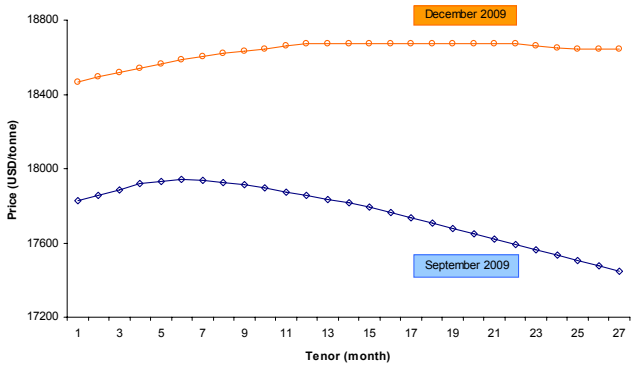
Source: DB Global Markets Research

Figure 3: Copper forward curve



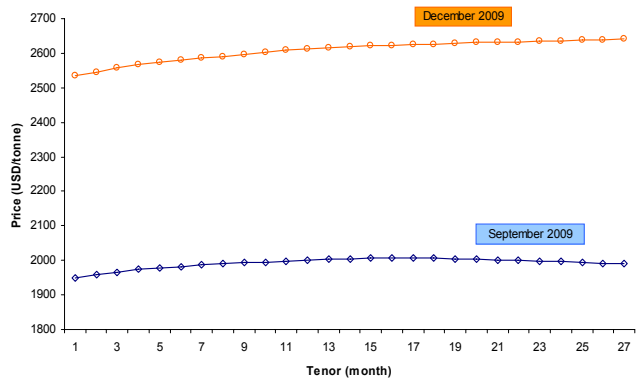
Source: DB Global Markets Research

Figure 4: Nickel forward curve



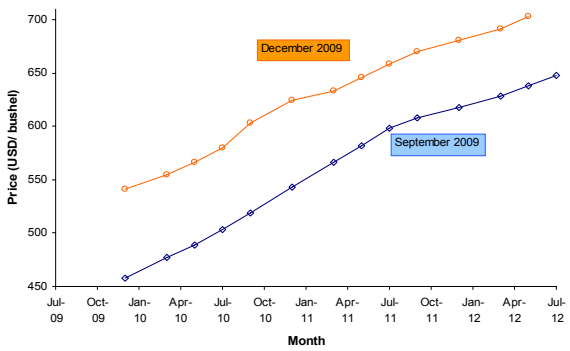
Source: DB Global Markets Research

Figure 5: Zinc forward curve



Source: DB Global Markets Research

Figure 6: Wheat forward curve

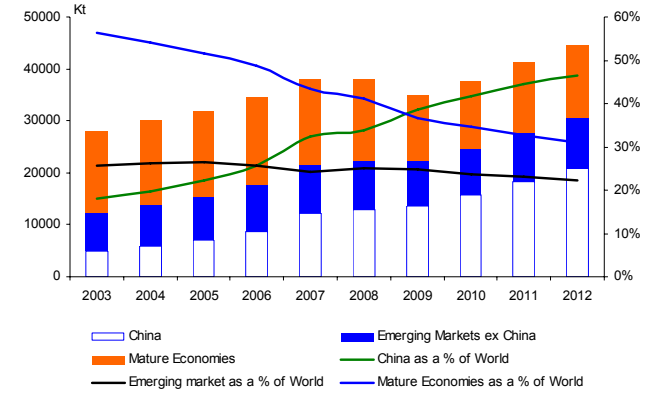


Source: DB Global Markets Research

Commodities Chartbook

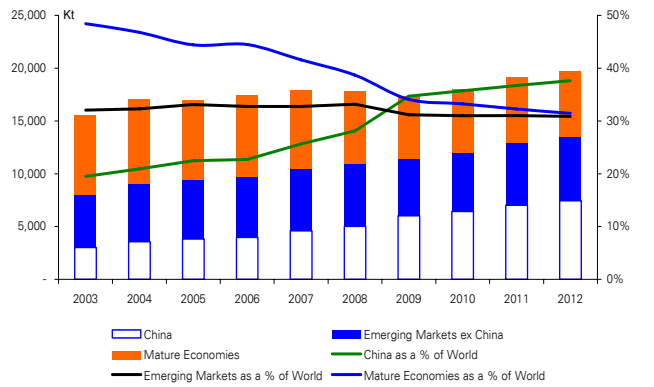
BRIC & OECD commodity demand

Figure 1: Aluminium demand



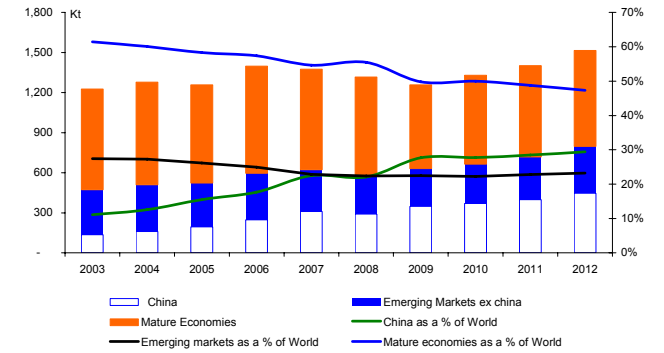
Source: DB Global Markets Research, Brook Hunt

Figure 2: Copper demand



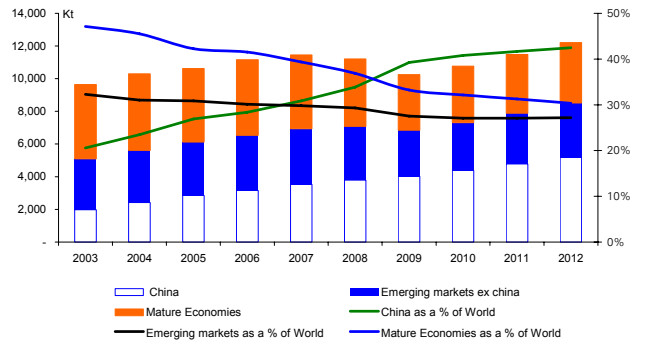
Source: DB Global Markets Research, Brook Hunt

Figure 3: Nickel demand



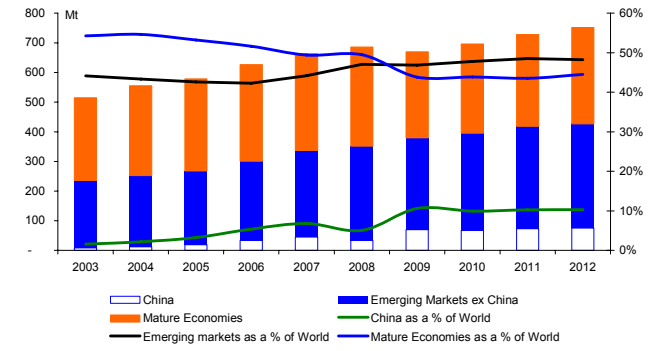
Source: DB Global Markets Research, Brook Hunt

Figure 4: Zinc demand



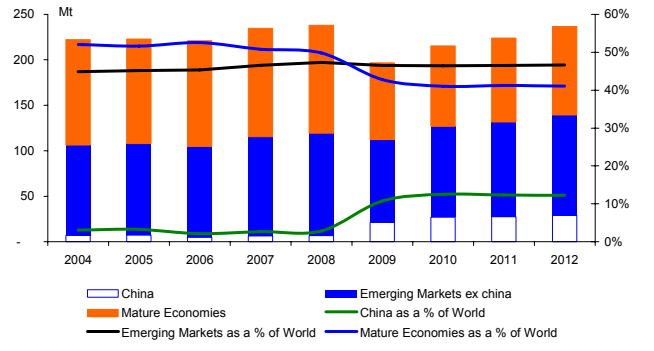
Source: DB Global Markets Research, Brook Hunt

Figure 5: Thermal coal demand



Source: DB Global Markets Research, AME

Figure 6: Metallurgical coal demand



Source: DB Global Markets Research, AME

Commodity Price Forecasts

Energy Commodities Price Forecasts

USD	Q1 10	Q2 10	Q3 10	Q4 10	2010	2011	2012	2013
WTI (bbl)	75.00	65.00	60.00	60.00	65.00	80.00	85.00	90.00
% Change from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Brent (bbl)	75.00	65.00	60.00	60.00	65.00	80.00	85.00	90.00
% Change from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
RBOB gasoline (g)	2.05	1.80	1.70	1.70	1.82	2.15	2.25	2.35
% Change from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Heating oil (g)	2.15	1.85	1.75	1.75	1.88	2.25	2.40	2.55
% Change from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
IPE gasoil (t)	680	585	540	540	585	725	770	815
% Change from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Singapore Jet (bbl)	90.00	80.00	75.00	75.00	80.00	95.00	105.00	110.00
% Change from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
US Natural Gas (mmBtu)	5.50	6.00	6.00	6.50	6.00	6.00	6.25	6.50
% Change from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Thermal Coal Jap. Guide Price (t)	71.00	85.00	85.00	85.00	85.00	100.00	95.00	90.00
% Chg from previous forecast	*0.0%*	*19.7%*	*19.7%*	*19.7%*	*19.7%*	*33.4%*	*18.8%*	*12.5%*
Uranium (U3O8) (lb) [term]	65.00	70.00	70.00	70.00	68.75	70.00	65.00	65.00
% Change from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Source: Deutsche Bank, Figures are period averages

Industrial Metals Price Forecasts

	Q1 10	Q2 10	Q3 10	Q4 10	2010	2011	2012	2013
Aluminium								
USc/lb	105.0	100.0	95.0	100.0	100.0	120.0	100.0	100.0
USD/t	2315	2205	2094	2205	2205	2646	2205	2205
% Chg from previous forecast	*23.5%*	*25.0%*	*26.7%*	*11.1%*	*21.2%*	*20.0%*	*11.1%*	*25.0%*
Copper								
USc/lb	325.0	300.0	275.0	300.0	300.0	350.0	300.0	285.0
USD/t	7165	6614	6063	6614	6614	7716	6614	6283
% Chg from previous forecast	*12.1%*	*20.0%*	*22.2%*	*9.1%*	*15.4%*	*6.1%*	*0.0%*	*0.0%*
Lead								
USc/lb	110.0	100.0	80.0	90.0	95.0	110.0	80.0	60.0
USD/t	2425	2205	1764	1984	2094	2425	1764	1323
% Chg from previous forecast	*22.2%*	*42.9%*	*33.3%*	*12.5%*	*26.7%*	*15.8%*	*0.0%*	*0.0%*
Nickel								
USc/lb	850.0	750.0	800.0	900.0	825.0	950.0	800.0	750.0
USD/t	18739	16535	17637	19842	18188	20944	17637	16535
% Chg from previous forecast	*0.0%*	*4.9%*	*21.2%*	*20.0%*	*10.9%*	*18.0%*	*3.2%*	*0.0%*
Tin								
USc/lb	725.0	650.0	600.0	650.0	656.3	750.0	700.0	680.0
USD/t	15983	14330	13228	14330	14468	16535	15432	14991
% Chg from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Zinc								
USc/lb	120.0	110.0	90.0	100.0	105.0	130.0	90.0	80.0
USD/t	2646	2425	1984	2205	2315	2866	1984	1764
% Chg from previous forecast	*37.9%*	*46.7%*	*32.4%*	*17.6%*	*33.3%*	*44.4%*	*5.9%*	*0.0%*

Source: Deutsche Bank, Figures are period averages

Commodity Price Forecasts

Precious Metals Price Forecasts

USD/oz	Q1 10	Q2 10	Q3 10	Q4 10	2010	2011	2012	2013
Gold	1125	1150	1150	1175	1150	1250	1000	800
% Chg from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*4.2%*	*0.0%*	*0.0%*
Silver	18.00	19.00	19.00	20.00	19.00	22.00	17.00	15.00
% Chg from previous forecast	*-4.8%*	*-3.6%*	*-6.4%*	*-5.7%*	*-5.1%*	*0.0%*	*0.0%*	*0.0%*
Platinum	1550	1650	1650	1750	1650	1750	1550	1550
% Chg from previous forecast	*14.8%*	*17.9%*	*17.9%*	*22.8%*	*18.4%*	*16.7%*	*12.7%*	*10.7%*
Palladium	425	400	450	500	444	525	425	500
% Chg from previous forecast	*37.1%*	*25.0%*	*40.6%*	*49.3%*	*38.1%*	*45.8%*	*9.0%*	*19.0%*
Rhodium	2600	2700	2700	2900	2725	3200	3000	3300
% Chg from previous forecast	*36.8%*	*35.0%*	*35.0%*	*41.5%*	*37.1%*	*18.5%*	*3.4%*	*10.0%*

Source: Deutsche Bank, Figures are period averages

Minor Metals Price Forecasts

	Q1 10	Q2 10	Q3 10	Q4 10	2010	2011	2012	2013
Molybdenum (USD/lb)	14.00	14.00	16.00	16.00	15.00	16.00	16.00	16.00
% Chg from previous forecast	*-12.5%*	*-12.5%*	*0.0%*	*0.0%*	*-6.3%*	*0.0%*	*0.0%*	*0.0%*
Zircon (USD/t)	875	850	825	800	838	738	763	813
% Chg from previous forecast	*9.4%*	*6.3%*	*6.5%*	*3.2%*	*6.3%*	*0.0%*	*10.2%*	*21.3%*

Source: Deutsche Bank, Figures are period averages

Bulk Materials Price Forecasts

	Q1 10	Q2 10	Q3 10	Q4 10	2010	2011	2012	2013
Australian Lump to Asia (t)	73	100	100	100	100	90	90	75
% Chg year-on-year					*38%*	*-10%*	*0%*	*0%*
Australian Fines to Asia (t)	60	81	81	81	81	73	73	58
% Chg year-on-year					*34%*	*-10%*	*0%*	*0%*
Premium Hard Coking Coal JFY (t)	129	175	175	175	175	190	190	150
% Chg year-on-year					*36%*	*9%*	*0%*	*-21%*
Low-volatile PCI JFY (t)	90	124	124	124	124	136	136	115
% Chg year-on-year					*38%*	*10%*	*0%*	*-15%*
Chrome Ore (t)	200	200	200	210	203	210	220	220
% Chg from previous forecast	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Ferro-chrome (USc/lb)	101	100	110	110	105	120	102	102
% Chg from previous forecast	*6.3%*	*0.0%*	*0.0%*	*0.0%*	*1.4%*	*0.0%*	*0.0%*	*0.0%*
Manganese ore (USc/dmtu)	6.00	6.00	6.00	6.00	6.00	7.00	5.00	5.00
% Chg from previous forecast	*20.0%*	*9.1%*	*9.1%*	*0.0%*	*9.1%*	*0.0%*	*0.0%*	*0.0%*
Ferro-manganese (t)	1350	1400	1800	1800	1588	2000	1800	1500
% Chg from previous forecast	*-3.6%*	*0.0%*	*0.0%*	*0.0%*	*-0.8%*	*0.0%*	*0.0%*	*-16.7%*

Source: Deutsche Bank, Figures are period averages

Global Economic Indicators

	Growth of real GDP (% yoy)				Inflation, CPI (% yoy)				Current Account (% of GDP)			
	2008	2009F	2010F	2011F	2008	2009F	2010F	2011F	2008	2009F	2010F	2011F
US	0.4	-2.5	3.5	3.3	3.8	-0.4	1.8	1.7	-4.9	-3.0	-3.2	-3.4
Japan	-0.7	-5.5	1.0	0.5	1.4	-1.4	-1.5	-0.7	3.2	2.9	4.6	5.2
Euroland	0.6	-3.9	1.5	1.2	3.3	0.3	1.2	1.3	-1.5	-1.2	-0.8	-0.6
Germany	1.4	-4.9	2.1	1.4	2.8	0.3	0.8	1.0	6.6	3.4	5.3	4.0
France	0.3	-2.3	1.5	1.1	3.2	0.1	1.3	1.1	-2.3	-2.0	-1.9	-2.1
Italy	-1.0	-4.8	1.1	1.1	3.5	0.8	1.4	1.6	-3.4	-3.1	-2.8	-3.2
Spain	0.9	-3.6	-0.1	0.6	4.2	-0.3	1.1	1.4	-9.6	-5.3	-3.9	-4.0
Netherlands	2.0	-4.0	1.3	1.4	2.2	1.0	0.9	1.1	4.2	3.0	3.5	4.0
Belgium	0.8	-3.1	1.6	1.2	4.5	0.0	1.3	1.5	0.2	0.0	1.0	1.5
Austria	2.0	-3.5	1.8	1.3	3.2	0.4	1.2	1.4	3.6	1.5	2.0	2.5
Finland	0.8	-6.7	1.7	1.6	3.9	1.6	1.2	1.3	2.6	1.0	1.5	2.0
Greece	2.9	-0.7	-0.7	0.4	4.2	1.3	1.9	1.9	-13.8	-9.0	-7.0	-6.0
Portugal	0.0	-2.6	1.6	1.2	2.7	-1.0	0.5	0.8	-12.1	-9.0	-7.0	-6.0
Ireland	-3.0	-6.6	-0.6	1.5	3.1	-1.6	-0.3	0.5	-5.1	-3.0	-1.5	-1.5
Other Industrial Countries												
United Kingdom	0.6	-4.7	1.5	2.5	3.6	2.1	2.3	0.7	-1.6	-2.5	-2.3	-1.5
Denmark	-1.2	-5.1	1.0	2.0	3.4	1.4	1.7	1.6	2.2	2.0	2.0	1.8
Norway	1.7	-1.1	1.8	2.5	3.8	2.2	1.7	1.7	19.5	14.9	15.0	16.0
Sweden	-0.4	-4.7	1.5	2.1	3.5	-0.4	0.9	1.5	6.2	7.0	7.2	7.5
Switzerland	1.8	-1.8	0.4	1.3	2.4	-0.5	0.6	0.7	2.4	7.5	6.5	6.0
Czech Republic	2.8	-4.0	2.0	3.6	6.4	1.0	1.9	1.5	-3.5	-1.1	-2.1	-2.1
Hungary	0.6	-6.4	2.2	2.5	6.1	4.3	3.7	2.8	-7.4	0.2	-1.2	-2.5
Poland	5.0	1.9	2.4	2.6	4.2	3.4	2.5	2.5	-5.1	-0.7	-3.3	-4.1
Canada	0.4	-2.5	3.0	3.5	2.4	0.3	1.7	2.5	0.5	-2.9	-2.9	-2.6
Australia	2.4	1.0	2.5	4.1	4.4	1.7	2.1	2.8	-4.6	-4.1	-5.7	-7.0
New Zealand	0.2	-1.4	2.7	2.7	4.0	2.2	1.4	1.9	-8.9	-2.9	-3.7	-5.3
Emerging Europe/Africa												
Egypt	7.2	4.7	5.4	5.9	20.2	10.0	11.7	6.5	0.5	-2.4	-1.7	-1.6
Israel	4.0	0.1	3.5	3.7	3.8	3.7	2.4	2.1	1.0	3.1	2.7	2.7
Kazakhstan	3.3	-2.1	3.3	5.5	9.7	6.3	4.2	4.4	4.9	-0.5	0.1	3.7
Romania	7.1	-6.1	3.3	4.8	6.3	4.6	4.0	3.3	-12.1	-4.7	-5.5	-6.4
Russia	5.6	-7.4	3.8	4.5	13.3	9.1	8.5	9.5	6.0	4.8	0.2	0.7
Turkey	0.6	-5.8	3.9	3.5	10.1	5.7	6.4	6.4	-5.7	-2.0	-3.2	-4.5
Ukraine	2.1	-13.4	2.2	4.2	22.3	15.8	13.3	11.0	-4.7	-0.2	-1.7	-2.8
South Africa	3.1	-1.6	3.1	3.3	9.1	6.6	4.3	5.6	-7.3	-4.1	-5.2	-6.0
Asia (ex-Japan)												
China	9.0	8.5	9.0	9.0	5.9	-0.8	3.4	2.5	7.2	5.7	4.3	3.7
Hong Kong	2.4	-3.0	6.5	5.5	4.3	0.5	1.5	2.0	14.2	12.7	14.1	13.6
India	7.3	6.0	7.5	7.7	8.3	1.7	5.9	6.0	-3.0	-1.5	-1.0	-1.2
Indonesia	6.1	4.3	5.5	6.5	9.8	4.9	6.0	6.5	0.0	1.4	1.5	1.7
Korea	2.2	0.4	5.5	3.9	4.7	2.8	3.1	3.9	-0.7	5.4	1.9	0.8
Malaysia	4.6	-2.3	5.5	4.8	5.4	0.6	1.8	2.0	17.5	17.2	12.9	10.0
Philippines	3.7	1.4	3.5	5.0	9.3	3.3	6.0	5.0	2.3	3.8	4.3	3.6
Singapore	1.1	-2.0	6.5	5.5	6.5	0.2	2.7	2.2	14.9	13.5	14.8	17.5
Taiwan	0.7	-2.5	6.1	4.2	3.5	-0.8	2.1	3.0	6.5	10.1	8.6	7.1
Thailand	2.6	-3.0	5.5	4.1	5.5	-0.9	3.7	4.1	0.6	7.8	4.5	3.1
Latin America												
Argentina	6.8	-3.1	2.8	2.6	23.0	13.5	15.3	17.1	2.2	2.2	1.5	0.1
Brazil	5.1	-0.3	5.8	4.5	5.9	4.3	4.5	4.7	-1.8	-1.3	-2.6	-3.8
Chile	3.2	-1.6	4.8	4.0	7.1	-1.2	2.8	2.9	-2.0	2.9	3.0	3.7
Colombia	2.5	0.2	2.4	2.8	7.7	2.6	3.5	3.5	-3.4	-2.0	-2.2	-2.5
Mexico	1.8	-6.8	2.6	2.9	6.5	3.9	4.5	3.6	-1.8	-0.8	-1.1	-1.3
Venezuela	4.5	-2.2	1.2	1.8	30.9	27.0	30.0	30.0	13.9	0.0	1.8	2.0
EM countries	**5.7**	**1.6**	**6**	**4.2**	7.4	2.7	4.8	4.6	2.5	3.0	1.8	1.3
World	**2.7**	**-1.1**	**4**	**3.9**	5.3	1.2	2.9	2.9				

QUARTERLY GDP

	(% qoq annualised)											
	Q1 2009	Q2 2009F	Q3 2009	Q4 2009F	Q1 2010F	Q2 2010F	Q3 2010F	Q4 2010F	Q1 2011F	Q2 2011F	Q3 2011F	Q4 2011F
US	-6.4	-0.7	2.2	4.0	4.5	3.5	3.7	3.8	3.4	2.9	2.7	2.5
Japan	-11.9	2.7	1.3	-0.7	1.8	1.7	1.8	-2.5	0.0	1.2	1.1	1.9
Euroland	-9.6	-0.7	1.6	2.1	2.0	1.7	0.9	0.9	0.9	1.3	1.8	1.8
United Kingdom	-9.6	-2.3	-1.2	1.4	2.2	2.6	3.0	2.8	2.3	2.4	2.1	2.1
Dollar Bloc												
Canada	-6.2	-3.1	0.4	3.6	3.8	3.9	4.3	4	3.4	3.4	3.8	3.3
Australia	1.6	2.5	2.3	2.6	1.4	3.1	2.9	3.9	4.8	4.5	3.9	3.9
New Zealand	-3.0	0.3	1.5	3.3	3.6	3.1	3.2	3.0	2.8	2.2	2.2	2.2

Sources: Deutsche Bank Global Markets Research, National Statistical Authorities

Glossary

API#2 – TFS API#2 ® average price index for coal delivered CIF ARA. A**PI#4** – TFS API#4 ® average price index for coal loading FOB Richards Bay, South Africa.

ARA: Amsterdam-Rotterdam-Antwerp – major delivery hub for cargo entering Northwest Europe.

ATS: Aviation Trading Scheme – this is a carbon-trading scheme for the aviation sector in the EU, and will run parallel to the broader EU-ETS from 2012. All flights entering and leaving the EU will be covered by the ATS from this date.

Bcf: Billion cubic feet – macro measure of natural gas volume.

Bunkers: Fuel oil used to power ships.

CAT: Cumulative average temperature. The sum of daily high + low)/2, usually over a month or season.

CDD: Cooling degree day – excess of daily average temperature over 65°F; usually cumulated over time.

CDM: Clean Development Mechanism – one of the Kyoto Protocol's two "flexible mechanisms" that allows carbon offsets known as CERs (Certified Emissions Reductions) to be produced. CERs can then be used in the EU-ETS for compliance purposes.

CIF: Cost, Insurance, and Freight – denotes commodity price delivered to destination, e.g. fuel oil CIF Rotterdam.

Clean Spread: The spark spread minus the cost of emissions.

Crack: Price spread between crude oil and refined product (after the refining process of "cracking" large molecules to make smaller).

DBLCI: Deutsche Bank Liquid Commodities Index – tracks six commodities, rolling positions in crude oil and heating oil monthly, and in gold, aluminum, corn and wheat once per year. Reuters: DBLCI. Bloomberg: DBCM. **DBLCI-MR**: DBLCI-Mean-reverting – rule-based variant of the above.

Distillate: Class of refined oil products including heating oil (aka gasoil) and diesel, and usually jet fuel and burning kerosene.

EUAs: European Unit Allowances – these are the carbon credits allocated for use in the EU-ETS, and can be supplemented with CERs and ERUs.

EU-ETS: The European Union' Emissions Trading Scheme – the EU's carbon-trading scheme for large industrial companies. Phase 1 of the ETS ran over 2005-07, Phase 2 runs over 2008-12, and Phase 3 will run over 2013-20.

FOB: Free on Board – denotes commodity price loaded and cleared for export at load port, e.g. coal FOB Richards Bay, South Africa.

Fuel oil (FO) – Dense refined oil product used to fuel ships and generating stations.

German Dark Spread: The spread between German power and coal -- Dark Spread = German power – coal/(2.65*EURUSD)

HDD: Heating degree day – deficit of daily average temperature below 65°F in US, 18°C elsewhere.

Henry Hub: Louisiana delivery point for NYMEX natural gas.

HSFO: High sulphur fuel oil.

JI: Joint Implementation Mechanism – one of the Kyoto Protocol's two "flexible mechanisms" that allows carbon offsets known as ERUs (Emissions Reduction Units) to be produced. ERUs can then be used in the EU-ETS for compliance purposes.

LNG: Liquefied natural gas – can be shipped on special-purpose tankers.

PADD: Petroleum Area of Defense District – US regions for petroleum market data, defined approximately as:

PADD1 – East coast
PADD2 – Midwest
PADD3 – Gulf coast
PADD4 – Inter-mountain west
PADD5 – West coast

Spark Spread: Price spread between electricity and the fuel (see also UK Spark Spread and German Dark Spread).

UK Spark Spread: The spark spread represents the marginal value of selling UK electricity and buying UK natural gas for a gas fired power station. Market standard UK Spark Spread = UK power – UK Natural Gas * 0.6944

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Correlation Matrix

Commodities Correlation Matrix

	CL	LCO	HU	HO	LGO	NG	MAL	MCU	HG	MNI	MZN	GC	PL	SI	W	C	DBLCI	DBLCI-MR	GSCI-TR	EUR	GBP	NOK	CAD	AUD	JPY	ED	ECU 3m	AUD 3m	SPX	iBOX
Light Crude		0.91	0.92	0.92	0.81	0.23	0.42	0.48	0.66	0.41	0.42	0.50	0.57	0.48	0.15	0.26	0.93	0.94	0.97	0.40	0.41	-0.37	-0.43	0.43	0.17	-0.08	-0.05	0.13	0.60	-0.20
Brent	0.91		0.89	0.91	0.79	0.27	0.49	0.53	0.69	0.47	0.46	0.52	0.63	0.48	0.09	0.14	0.90	0.92	0.93	0.42	0.43	-0.38	-0.46	0.48	0.11	0.02	-0.04	0.13	0.61	-0.18
Unleaded Petrol	0.92	0.89		0.90	0.76	0.18	0.43	0.49	0.63	0.44	0.42	0.49	0.53	0.42	0.19	0.27	0.92	0.92	0.93	0.29	0.39	-0.27	-0.41	0.42	0.22	-0.09	-0.02	0.10	0.49	-0.15
Heating Oil	0.92	0.91	0.90		0.82	0.29	0.51	0.54	0.65	0.50	0.49	0.43	0.59	0.44	0.14	0.20	0.92	0.95	0.95	0.37	0.46	-0.34	-0.42	0.48	0.24	-0.05	-0.04	0.18	0.54	-0.22
Gas Oil	0.81	0.79	0.76	0.82		0.13	0.58	0.58	0.56	0.54	0.51	0.35	0.61	0.43	0.07	0.13	0.79	0.83	0.83	0.53	0.52	-0.52	-0.61	0.60	0.23	0.05	-0.08	0.24	0.57	-0.16
Natural Gas	0.23	0.27	0.18	0.29	0.13		0.14	0.10	0.13	0.10	-0.03	-0.04	0.06	0.04	-0.05	-0.01	0.23	0.26	0.31	-0.02	0.15	0.02	-0.13	0.18	0.10	0.04	0.02	0.10	0.11	0.01
LME Al	0.42	0.49	0.43	0.51	0.58	0.14		0.79	0.41	0.86	0.78	0.32	0.55	0.46	0.04	-0.07	0.48	0.55	0.47	0.57	0.62	-0.70	-0.70	0.77	0.36	-0.04	-0.10	0.08	0.27	-0.05
LME Cu	0.48	0.53	0.49	0.54	0.58	0.10	0.79		0.56	0.86	0.84	0.37	0.58	0.52	0.19	0.09	0.56	0.58	0.53	0.62	0.64	-0.70	-0.70	0.83	0.41	0.04	-0.10	0.22	0.38	0.04
High Grade Copper	0.66	0.69	0.63	0.65	0.56	0.13	0.41	0.56		0.47	0.41	0.60	0.67	0.65	0.14	0.19	0.73	0.75	0.71	0.49	0.56	-0.49	-0.57	0.50	0.07	0.00	0.08	0.12	0.57	-0.29
LME Nickel	0.41	0.47	0.44	0.50	0.54	0.10	0.86	0.86	0.47		0.82	0.31	0.54	0.44	0.07	0.07	0.49	0.53	0.47	0.56	0.69	-0.70	-0.71	0.84	0.44	0.04	0.02	0.17	0.29	-0.02
LME Zinc	0.42	0.46	0.42	0.49	0.51	-0.03	0.78	0.84	0.41	0.82		0.42	0.52	0.52	0.10	0.04	0.47	0.48	0.44	0.61	0.66	-0.71	-0.65	0.80	0.35	0.05	-0.11	0.31	0.23	0.06
Comex Gold Future	0.50	0.52	0.49	0.43	0.35	-0.04	0.32	0.37	0.60	0.31	0.42		0.73	0.83	0.18	0.11	0.56	0.52	0.50	0.54	0.54	-0.40	-0.44	0.40	-0.13	-0.05	-0.03	0.02	0.42	-0.16
NYMEX Platinum	0.57	0.63	0.53	0.59	0.61	0.06	0.55	0.58	0.67	0.54	0.52	0.73		0.74	0.20	0.12	0.68	0.67	0.63	0.67	0.63	-0.60	-0.60	0.61	0.00	0.04	-0.15	0.06	0.60	-0.15
Comex Silver	0.48	0.48	0.42	0.44	0.43	0.04	0.46	0.52	0.65	0.44	0.52	0.83	0.74		0.17	0.12	0.55	0.54	0.51	0.62	0.57	-0.54	-0.52	0.51	-0.01	-0.09	-0.11	0.08	0.45	-0.19
Wheat CBOT	0.15	0.09	0.19	0.14	0.07	-0.05	0.04	0.19	0.14	0.07	0.10	0.18	0.20	0.17		0.62	0.37	0.21	0.23	0.21	0.06	-0.15	-0.10	0.08	0.02	-0.36	-0.13	-0.07	0.34	0.09
Corn	0.26	0.14	0.27	0.20	0.13	-0.01	-0.07	0.09	0.19	0.07	0.04	0.11	0.12	0.12	0.62		0.44	0.26	0.32	0.12	0.13	-0.07	-0.02	0.02	-0.03	-0.40	-0.11	-0.09	0.14	0.03
DBLCI	0.93	0.90	0.92	0.92	0.79	0.23	0.48	0.56	0.73	0.49	0.47	0.56	0.68	0.55	0.37	0.44		0.97	0.98	0.45	0.51	-0.41	-0.47	0.48	0.17	-0.12	-0.07	0.11	0.63	-0.18
DBLCI-MR	0.94	0.92	0.92	0.95	0.83	0.26	0.55	0.58	0.75	0.53	0.48	0.52	0.67	0.54	0.21	0.26	0.97		0.98	0.44	0.52	-0.42	-0.50	0.52	0.21	-0.08	-0.04	0.12	0.62	-0.23
GSCI-TR	0.97	0.93	0.93	0.95	0.83	0.31	0.47	0.53	0.71	0.47	0.44	0.50	0.63	0.51	0.23	0.32	0.98	0.98		0.42	0.47	-0.38	-0.46	0.47	0.18	-0.08	-0.07	0.12	0.63	-0.20
EUR	0.40	0.42	0.29	0.37	0.53	-0.02	0.57	0.62	0.49	0.56	0.61	0.54	0.67	0.62	0.21	0.12	0.45	0.44	0.42		0.69	-0.85	-0.74	0.73	-0.08	-0.06	-0.20	0.04	0.46	-0.16
GBP	0.41	0.43	0.39	0.46	0.52	0.15	0.62	0.64	0.56	0.69	0.66	0.54	0.63	0.57	0.06	0.13	0.51	0.52	0.47	0.69		-0.69	-0.77	0.76	0.14	0.10	-0.09	0.19	0.34	-0.08
NOK	-0.37	-0.38	-0.27	-0.34	-0.52	0.02	-0.70	-0.70	-0.49	-0.70	-0.71	-0.40	-0.60	-0.54	-0.15	-0.07	-0.41	-0.42	-0.38	-0.85	-0.69		0.78	-0.81	-0.07	0.06	0.12	-0.14	-0.40	0.01
CAD	-0.43	-0.46	-0.41	-0.42	-0.61	-0.13	-0.70	-0.70	-0.57	-0.71	-0.65	-0.44	-0.60	-0.52	-0.10	-0.02	-0.47	-0.50	-0.46	-0.74	-0.77	0.78		-0.84	-0.18	0.04	0.03	-0.19	-0.47	0.12
AUD	0.43	0.48	0.42	0.48	0.60	0.18	0.77	0.83	0.50	0.84	0.80	0.40	0.61	0.51	0.08	0.02	0.48	0.52	0.47	0.73	0.76	-0.81	-0.84		0.27	0.06	-0.08	0.26	0.37	-0.01
JPY	0.17	0.11	0.22	0.24	0.23	0.10	0.36	0.41	0.07	0.44	0.35	-0.13	0.00	-0.01	0.02	-0.03	0.17	0.21	0.18	-0.08	0.14	-0.07	-0.18	0.27		-0.02	0.23	0.19	0.07	-0.02
ED	-0.08	0.02	-0.09	-0.05	0.05	0.04	-0.04	0.04	0.00	0.04	0.05	-0.05	0.04	-0.09	-0.36	-0.40	-0.12	-0.08	-0.08	-0.06	0.10	0.06	-0.04	0.06	-0.02		0.01	0.33	-0.02	0.17
ECU 3m	-0.05	-0.04	-0.02	-0.04	-0.08	0.02	-0.10	-0.10	0.08	0.02	-0.11	-0.03	-0.15	-0.11	-0.13	-0.11	-0.07	-0.04	-0.07	-0.20	-0.09	0.12	0.03	-0.08	0.23	0.01		0.31	-0.05	-0.13
AUD 3m	0.13	0.13	0.10	0.18	0.24	0.10	0.08	0.22	0.12	0.17	0.31	0.02	0.06	0.08	-0.07	-0.09	0.11	0.12	0.12	0.04	0.19	-0.14	-0.19	0.26	0.19	0.33	0.31		0.08	0.13
SPX	0.60	0.61	0.49	0.54	0.57	0.11	0.27	0.38	0.57	0.29	0.23	0.42	0.60	0.45	0.34	0.14	0.63	0.62	0.63	0.46	0.34	-0.40	-0.47	0.37	0.07	-0.02	-0.05	0.08		-0.36
iBOXX Euro Corp All	-0.20	-0.18	-0.15	-0.22	-0.16	0.01	-0.05	0.04	-0.29	-0.02	0.06	-0.16	-0.15	-0.19	0.09	0.03	-0.18	-0.23	-0.20	-0.16	-0.08	0.01	0.12	-0.01	-0.02	0.17	-0.13	0.13	-0.36	

Source: Deutsche Bank

This Pearson moment correlation matrix is calculated from the daily returns of the 60 most recent business days' data. For most, the first nearby futures contract is used. A roll adjustment is made by back-creating the price series according to the daily return of the prompt contract on the roll date. This avoids severe consequences for those commodities with significant term structure, where rolls introduce spurious jumps, which lower correlations. The shading scheme is as follows: numbers in interval [-0.4, 0.4] are unshaded; numbers in [-0.85, -0.4] and [0.4,0.85] have a light grey background; the highly correlated pairs (with a magnitude >=0.85) are shown with the darker grey.

Appendix 1

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