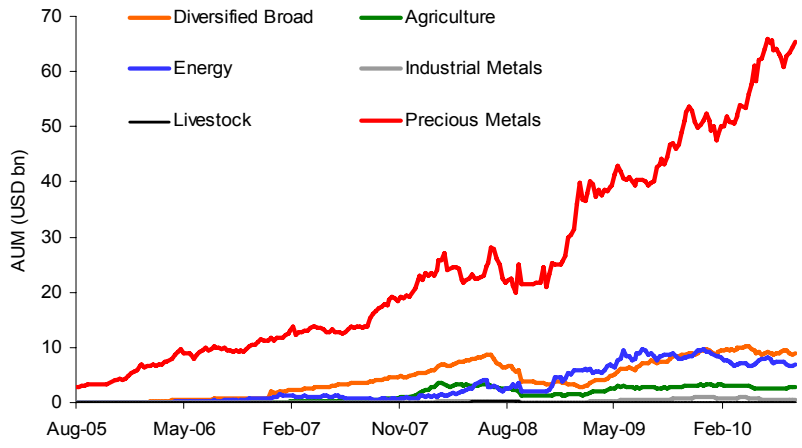
Deutsche Bank

17 September 2010

Commodities Weekly

- **DBLCI Commodity Returns:** Among the five broad commodity sectors, agriculture has been the best performing sector and energy the worst so far in 2010. Events this year are therefore reminiscent of 2006.
- **Crude Oil:** With the Enbridge pipeline restarting today and oil market fundamentals still weak, we believe crude's main source of support is the potential for equity market strength, which history would suggest will occur around the mid term elections in November.
- **Refined Products:** The surge in Asian gasoil exports to Europe in the first half of this year is, to some extent, out of sync with the historical East-West price relationship. In our view, this reflects the extent of the surplus in Asia chasing arbitrage opportunities.
- **Natural Gas:** Marcellus shale gas production appears on track to surpass 1.0bcf of production by 2011 and to reach over 3.0bcf by 2015. The State of Pennsylvania is publishing new data on shale activity in the commonwealth.
- **Precious Metals:** Gold prices hit a new all time nominal high this week. We believe exchange rate and interest rate trends as well as central bank purchases, heightened macro economic volatility and de-hedging programmes across the gold mining sector will sustain the rally.
- **Industrial Metals:** We maintain our neutral stance on the metals complex, with a positive bias for those that appear structurally scarce such as copper. While we anticipate that most metals will be range-bound for the balance of the year, copper has the potential to move higher.
- **Agriculture:** We view rising Chinese agricultural imports, a looming decision in the US on raising the ethanol blend in gasoline and generally low inventory levels across the complex as bullish the grains sector heading into next year.

Assets under management of US commodity ETFs by sector



Source: Deutsche Bank

Market Update

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Commodity Price Changes

	Price	%wk	%ytd
WTI	$74.6	0.4%	-6.0%
Brent	$78.5	1.3%	0.7%
Nat Gas	$4.06	7.8%	-27.1%
Gold	$1,273	2.1%	15.8%
Aluminium	$2,166	2.9%	-2.9%
Copper	$7,700	1.9%	4.4%
Corn	$4.96	8.7%	19.7%
Soybeans	$10.36	-0.1%	-0.3%
Wheat	$7.19	1.8%	32.8%
DBLCI	872.0	1.1%	-2.1%
DBLCI-OY	1108.8	1.3%	-2.6%
DBLCI-MR	1480.4	1.2%	-1.6%
DBLCI-MRE	381.9	1.1%	-6.2%
DBLCI-OY Balanced	374.2	1.5%	-2.7%
DB Commodity Harvest	284.1	-0.2%	-0.2%
DB Commodity Harvest 10%TV	990.6	-0.5%	-1.4%

as of COB Thursday

Source: Deutsche Bank

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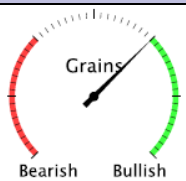
Commodity Views

Energy							
USD	Level	Δ wk	Δ ytd	12M Low	12M High	5Y Avg	3M View
WTI (/barrel)	74.57	0.43%	-6.04%	65.89	86.84	74.64	
Brent (/barrel)	78.48	1.30%	0.71%	64.82	87.44	74.48	
Heating oil (/gallon)	2.10	1.48%	-0.93%	1.68	2.29	2.08	
Gasoline (RBOB/gallon)	1.92	-0.55%	-6.23%	1.62	2.40	2.03	
US natural gas (/mmBtu)	4.06	7.80%	-27.10%	3.46	6.01	6.84	
Coal (API#2/tonne)	92.45	2.22%	12.33%	68.36	99.03	85.59	
Uranium (/lb)	48.00	2.67%	7.87%	40.50	50.00	59.49	
EUA Cal'10 (EUR/tonne)	15.26	-1.61%	21.79%	12.41	16.19	18.41	

Precious Metals							
Spot (USD/oz)	Level	Δ wk	Δ ytd	12M Low	12M High	5Y Avg	3M View
Gold	1272.50	2.08%	15.83%	990.15	1272.50	823.32	
Silver	20.76	3.96%	22.19%	15.14	20.76	13.93	
Platinum	1613.00	3.93%	9.90%	1277.25	1742.00	1325.87	
Palladium	549.00	5.32%	35.06%	288.50	567.55	339.51	

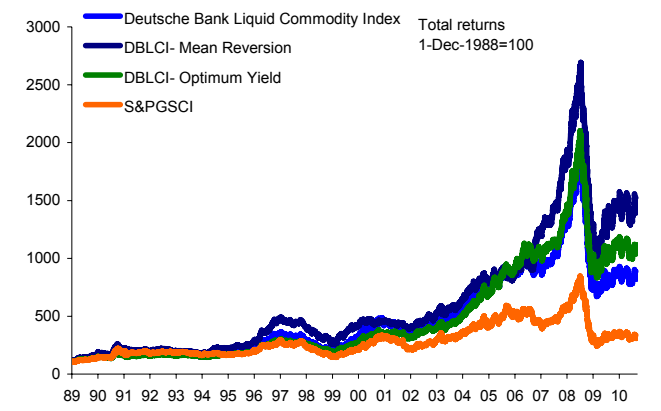
Industrial Metals							
3M Fwd (USD/tonne)	Level	Δ wk	Δ ytd	12M Low	12M High	5Y Avg	3M View
Aluminium	2166	2.87%	-2.89%	1790	2472	2339	
Copper	7700	1.92%	4.41%	5879	7990	6431	
Lead	2202	0.05%	-9.46%	1554	2680	1890	
Nickel	23250	2.20%	25.51%	16000	27290	22809	
Tin	23495	8.27%	38.61%	14200	23495	14002	
Zinc	2148	-0.23%	-16.09%	1628	2718	2412	

Agriculture							
1st nearby (USc)	Level	Δ wk	Δ ytd	12M Low	12M High	5Y Avg	3M View
Corn	496	8.71%	19.66%	316	496	373	
Lumber	21780	-2.16%	6.24%	16360	32680	24556	
Soybeans	1036	-0.14%	-0.34%	885	1061	916	
Sugar	24	9.14%	-9.17%	14	30	14	
Wheat	719	1.77%	32.83%	428	786	567	



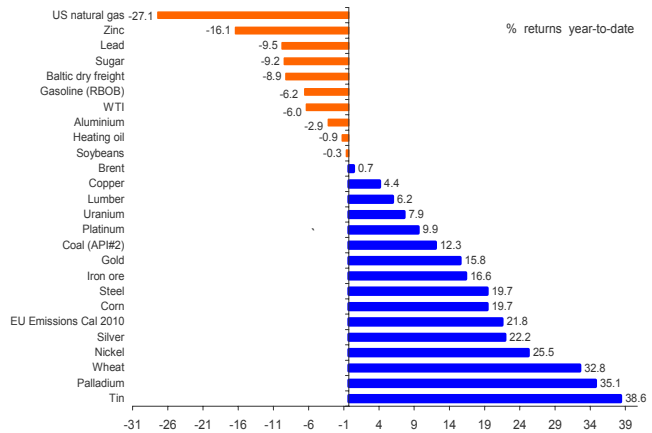
Source: DB Global Markets Research, Bloomberg Finance LP (Prices as of close of business Thursday)

Figure 1: Commodity returns in comparison



Source: Bloomberg Finance LP, Deutsche Bank

Figure 2: 2010 commodity scorecard



Source: Bloomberg Finance LP (data as of cob Thursday), Deutsche Bank

Global Trends

Why The Gold Price Rally Will Continue

- **Gold prices hit a new nominal high this week. We believe this rally has further to run. Indeed at the end of June we highlighted why gold prices would need to surpass USD1,455/oz to be considered extreme in real terms and hit USD2,000/oz to represent a bubble.**
- **For the time being we believe the drivers of this rally are fundamental rather than speculative. However, we admit physically backed gold ETFs are playing an important role in the gold market.**
- **However, we view interest rate and exchange rate trends as gold price bullish. Indeed history would suggest a collapse in the US dollar can not be dismissed out of hand. Moreover central banks have become a new source of gold demand while gold mining companies remain committed to closing their hedging programmes.**

The rally in the gold price has been underway since April 2001. Since the current rally is now in its ninth year, and that historically gold price rallies last no longer than four years, this represents the most durable rally in history. Moreover, the gold price has rallied by just over USD1,000/oz, representing the most powerful gold price rally in US dollar terms on record. However, to represent the most powerful rally in percentage terms then the gold price would need to hit USD2,100/oz as this would then be on a par with the 720% rally in the gold price between 1976 and 1980, Figure 2.

As these records have occurred there has been increasing debate that the rally in the gold price has either moved into over-extended territory or a bubble has formed. When one examines the performance of the gold price since 1800 these fears appear justified, Figure 1.

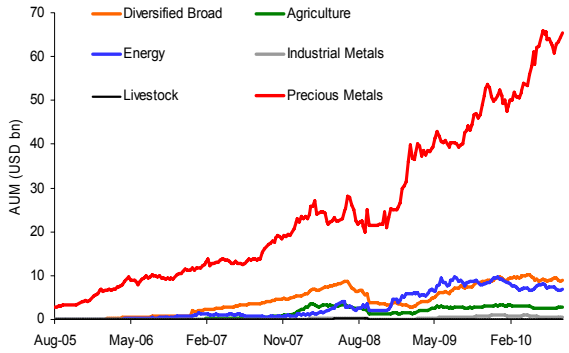
Figure 2: Gold price rallies compared

	Low (USD/oz)	High (USD/oz)	USD change	Magnitude	Duration (months)
Jan-71- Feb-75	37.9	185.3	147.4	389%	42
Aug'76 - Jan'80	103.5	850	746.5	721%	41
Jun'82 - Feb'83	296.8	509.3	212.5	71.6%	8
Feb'85 - Dec'87	284.3	499.8	215.5	75.8%	34
Sep'93 - Feb'86	345.2	415.5	70.3	20.4%	18
Apr'01 - current	255.6	1270	1014.4	397%	113

Source: Deutsche Bank

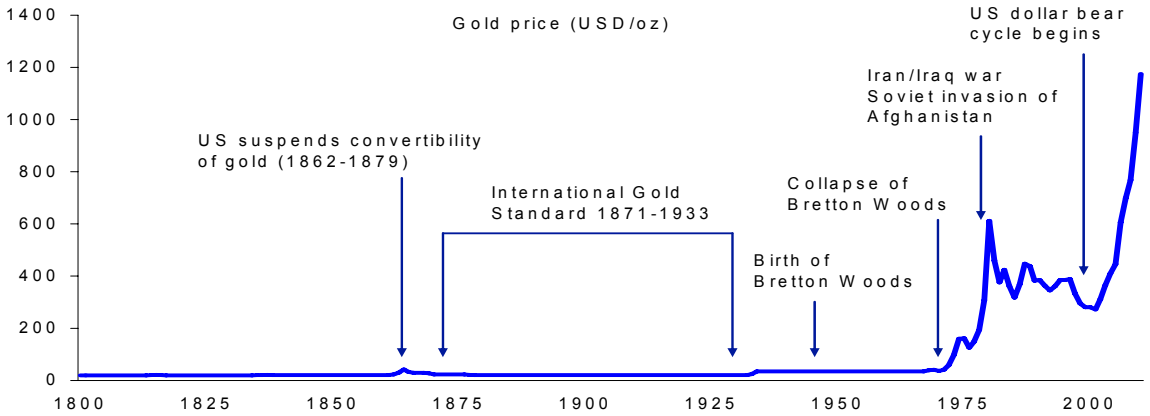
Indeed investor flows would seem to corroborate the view that the rally in gold is more speculative than fundamental. Figures 3 & 4 examine assets under management in commodity ETF in the US and Europe by sector. These two regions constitute approximately 95% of all listed commodity ETFs globally. We find that in both regions assets under management are skewed to the precious metals sector and specifically gold.

Figure 3: Assets under management of US commodity ETFs by sector



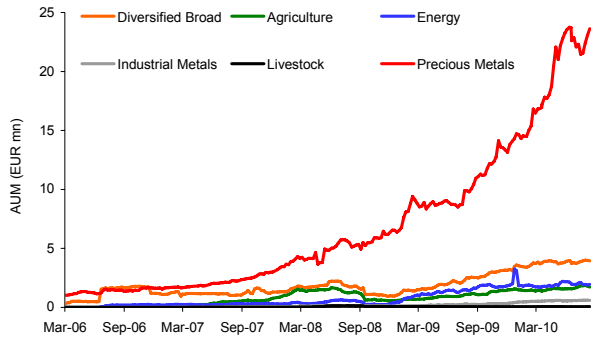
Source: Deutsche Bank

Figure 1: The evolution of nominal gold prices since 1800



Source: Deutsche Bank, Bloomberg Finance LP, NBER

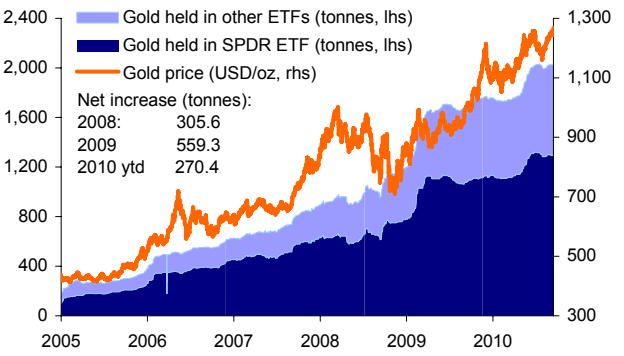
Figure 4: Assets under management of European commodity ETFs by sector



Source: Deutsche Bank

However, part of the surge in AUM in precious metal ETFs has been driven by price appreciation across the precious metals complex over the past few years. Consequently, we believe AUM figures exaggerate the inflows since on a volume basis the increase in physically backed gold ETFs has been more modest. Indeed we find that inflows into physically backed gold ETFs have slowed this year, Figure 5. So far this year physically backed gold ETFs have increased by 270 tonnes, compared to approximately 560 tonnes in 2009.

Figure 5: Holdings in physically backed gold ETFs



Source: Deutsche Bank (Data up to September 14, 2010)

Rather we view the rally in the gold price as fundamentally based. Indeed all the forces that drove gold prices lower during the 1990s have been moving in reverse since 2001, Figure 6. For example, the past decade has been marked by a new long term downtrend in the US dollar. Given the increasing likelihood that the Fed will delay monetary tightening until the second half of next year, we believe another collapse in the US dollar can not be ruled out of hand.

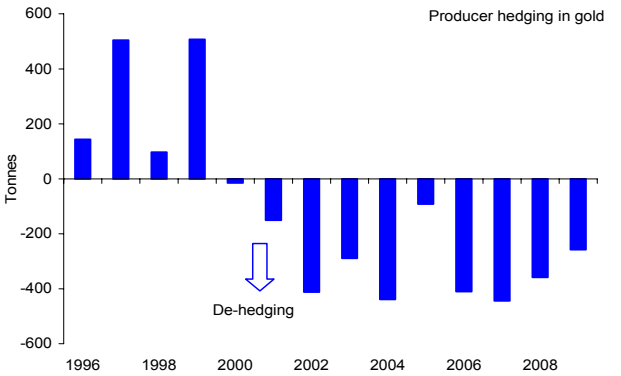
Figure 6: The new world order for gold

Forces driving gold prices lower during the 1990s	Forces driving gold prices higher during the 2000s
* A super strong US dollar	* A collapse in the US dollar
* High real interest rates	* Low or negative real interest rates
* Rampant global equity markets	* Skitish global equity markets
* Disorderly central bank sales	* Coordinated central bank gold sales
* Producer hedging	* Producer dehedging
* The rising peace dividend	* New gold investment vehicles
and the collapse of communism	* Falling mine production and rising costs
	* Terrorism & rising geopolitical risk

Source: Deutsche Bank

Another potential support for the gold price has been the elimination of gold hedging programmes across the mining sector. This week Anglogold confirmed its ongoing de-hedging programme which has been underway for several years. On an aggregate basis, the scale of de-hedging has been a reliable feature of the gold market for the past 10 years, Figure 7.

Figure 7: Producer (de)hedging in gold



Source: Deutsche Bank, GFMS

Conclusion

At the end of June we examined at what point gold prices could be considered extreme. This followed research conducted at the beginning of 2008 where we attempted to answer the same question for crude oil. At that time, we stated that for oil prices to be considered extreme prices would need to trade between USD90-USD150/barrel and beyond that range oil prices would move into territory that would represent a bubble.

Given the concerns that the gold market might repeat the price process of crude oil, three months ago we replicated this analysis for gold. We found the results interesting on two fronts. First, on none of the measures under investigation could gold prices be considered extreme at USD1,250/oz. Rather prices would need to hit USD1,455/oz to be considered extreme in real terms.

Second, in terms of a bubble forming the gold price would need to reach USD2,000/oz, Figure 8. As a result, we believe our USD1,600/oz target for gold in 2012 is not excessive given favourable interest rate and exchange rate trends and the appearance of new sources of demand for gold from both the private and public sectors.

Figure 8: The level of gold prices required to represent extreme levels of valuation versus a variety of indicators

Indicator	Gold price level
Analyst forecasting error	1,300
In real terms (PPI)	1,455
As a share of global GDP	1,500
In real terms (CPI)	1,880
Versus base metals	2,100
Relative to per capita income	2,390
Versus crude oil	2,890
As a share of the S&P500	2,960
Average	**2,059**

Source: Deutsche Bank

Figure 9: Gold prices in real terms since 1900

Source: Deutsche Bank

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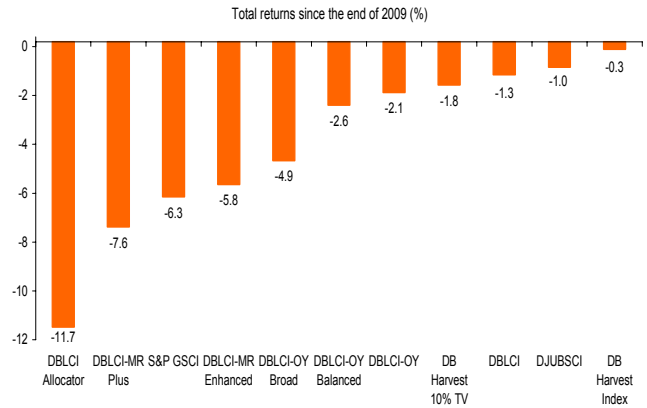
Asset Class Performance

- **The majority of the commodity indices posted positive returns over the past week. However, total returns on the S&PGSCI and DJUBSCI are still down 6.3% and 1% respectively since the end of last year.** In terms of the suite of DB commodity indices, total returns on the DBLCI-OY and DBLCI-MRE are down 2.1% and 5.8% respectively since the end of 2009.
- **With the exception of aluminium, all the components of the DBLCI posted positive returns over the past week with corn continuing to be the best performer rising 7.1**%. Having been the worst performing commodity sector in the first half of this year, agriculture and specifically the grains sector has become the best performer during the third quarter.
- We believe the strength in the grains sector has been triggered by ongoing drought conditions in Russia but also rising Chinese corn imports and strong ethanol demand in the US.
- **In contrast, the energy sector remains the worst performing sector since the end of last year. Like four years ago, energy returns continue to struggle with a negative roll return.** Despite weak physical fundamentals oil prices may find some support from the US mid-term elections which have typically proved bullish for US equity markets.
- **Gold returns are up 15% since the end of last year.** Gold prices hit a new all time nominal high this week We expect gold to continue to move higher given our expectation that dollar weakness will continue, real interest rates will remain low, central banks will continue to be net buyers of gold and heightened macro economic volatility will sustain private sector inflows into physically backed gold ETFs.

Figure 1: 2010 commodity index scorecard



Source: Bloomberg Finance LP (Data as of cob Wednesday), Deutsche Bank

Figure 2: Commodity index returns in 2010

USD terms	△wk	△qtd	△ytd	Sharpe
DBLCI-OY	1.49	9.42	-2.07	-0.13
DBLCI	1.94	9.50	-1.34	-0.08
DBLCI-MR Plus	1.58	3.96	-7.58	-0.56
DBLCI-MR Enhanced	1.06	5.90	-5.84	-0.36
DBLCI Broad	1.21	7.94	-4.86	-1.26
DBLCI-BB	1.25	10.35	-2.58	-0.19
DBLCI Allocator	-1.93	-1.76	-11.67	-1.38
DBLCI-Harvest	-0.62	-0.98	-0.30	-0.18
DBLCI-Harvest 10% TV	-1.83	-3.90	-1.76	-0.18
DBLCI-MR	1.87	11.22	-0.70	-0.04
Components of the DBLCI*				
Crude Oil	1.02	-1.30	-13.43	-0.57
Heating Oil	2.12	2.90	-5.94	-0.26
Aluminum	-0.38	7.69	-6.54	-0.29
Gold	0.89	1.54	15.02	1.12
Wheat	2.22	43.53	20.63	0.74
Corn	7.08	32.64	12.47	0.56
Performance of other benchmark indices				
S&PGSCI	1.85	5.48	-6.34	-0.36
DJ-UBSCI	1.62	9.47	-1.04	-0.07
S&P 500	2.43	9.65	1.33	0.08
EFFAS US Bond	-0.27	1.59	7.76	1.95

** Returns defined by DBLCI sub-index contract and rolls*
For quotes and compositions see Reuters: DBLCI and Bloomberg: DBCM

Source: Bloomberg Finance LP (Figures are cob Wednesday), Deutsche Bank

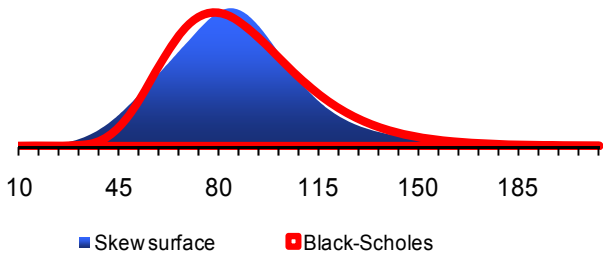
Options Focus

The charts show the probability density functions of the Jun'11 WTI and US natural gas contracts. The area under the probability function at any x-value represents the likelihood the contract will settle below that level at expiry.

Over the past week, there has been little change in the overall crude oil option market probabilities. The risk neutral probability of the Jun'11 contract expiring above USD 80/bbl has decreased slightly from 60% to 59%. At the same time, the options market has lowered its assessment of the same contract expiring below USD 70/bbl to 26%, compared to 25% a week ago.

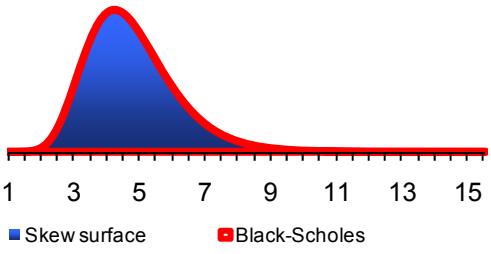
Meanwhile, the US natural gas options market is highlighting price risks to the upside. The likelihood of the Jun'11 US natural gas contract expiring below USD4/mmBtu has been cut to 29%, from 32% last week. At the same time, the option market is attaching a 40% probability that the Jun'11 contract will expire above USD5/mmBtu, 3% higher since last week.

Figure 1: Probability density function of the Jun'11 WTI contract



Source: Deutsche Bank

Figure 3: Probability density function of the Jun'11 natural gas contract



Source: Deutsche Bank

Figure 2: Probabilities of the Jun'11 WTI contract expiring above/below different price levels

WTI price	Probability	
(USD/bbl)	Below	Above
50	7%	93%
60	14%	86%
70	26%	74%
80	41%	59%
90	59%	41%
100	73%	27%
110	84%	16%
120	90%	10%
130	94%	6%

Source: Deutsche Bank

Figure 4: Probabilities of the Jun'11 US natural gas contract expiring above/below different price levels

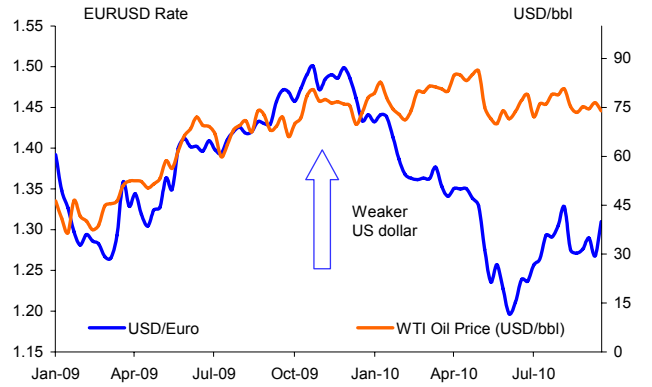
Natural Gas price	Probability	
(USD/mmBtu)	Below	Above
3	5%	95%
4	29%	71%
5	60%	40%
6	82%	18%
7	92%	8%
8	97%	3%

Source: Deutsche Bank

Crude Oil

Recent weakness in the US dollar is not providing the same level of consistent support for US WTI crude oil that was apparent throughout much of 2009, Figure 1.

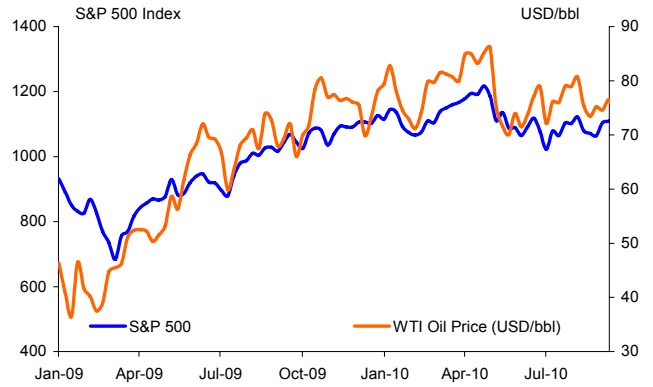
Figure 1: WTI and the US dollar / euro exchange rate



Source: Bloomberg Finance LP, Deutsche Bank

As the IEA recently pointed out in the September Oil Market Report, the oil markets seem to be characterized recently by a supply and demand "stalemate" that includes a "healthy supply cushion" meaning reduced power for isolated events to drive prices outside of the 2010 trading range near USD75/bbl. Other than the potential for a serious geopolitical event to shake up this standoff, we still see the stock market as providing the greatest potential for a shock.

Figure 3: WTI & the S&P 500 index



Source: Bloomberg Finance LP, Deutsche Bank

As depicted in Figure 3, oil prices have had a strong correlation to the S&P 500 index since March of last year. The possibility that US mid-term elections could provide a boost to the S&P 500 was explored in the September 9 Commodities Weekly. The downside risk comes from the potential for disappointing global economic news to offset the historical gains that have accompanied prior US elections cycles.

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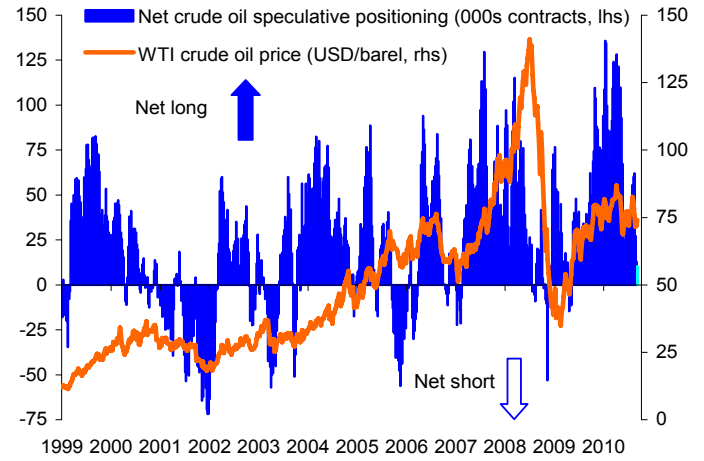
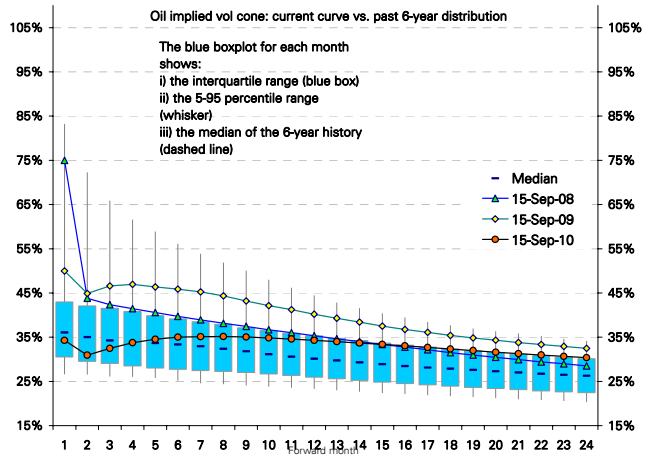
Figure 2: Speculative positioning in crude oil



Source: CFTC, Bloomberg Finance LP, Deutsche Bank

Figure 4: WTI crude oil volatility



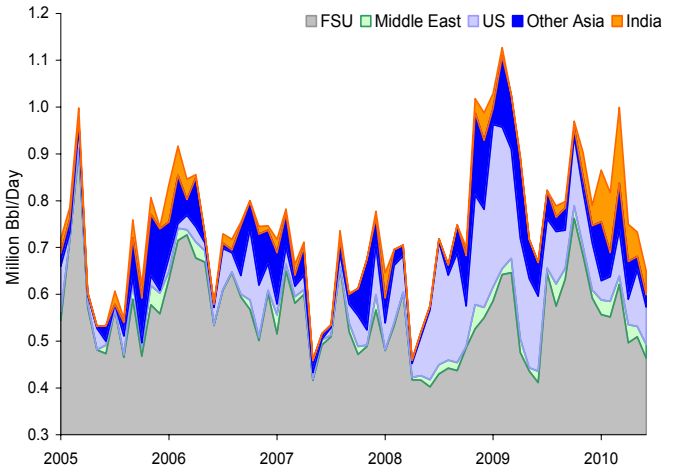
Source: Nymex, Deutsche Bank

Refined Products

An armada of gasoil is set to sail from Asia to Europe in the next few weeks, according to trade and media reports. Reuters estimates that five million bbl of gasoil is scheduled to load in 2H September-early October from Japan, South Korea and Taiwan destined for European ports. While this significant flow of East gasoil to the West in part reflects genuine demand given sustained low refinery runs in Europe in response to poor margin performance, this also reflects the growing surplus in Asia. Asian gasoil demand growth rates so-far this year have been stellar (YTD averaging growth of 9.2%), however, refinery capacity growth in the region, which has been dominated by China and India, has been equally stellar.

In Europe, refinery runs in 2009 were 1.1 mln b/d below 2008 levels, and runs so far this year are down a further 300kbd yoy. As a consequence, the massive surpluses in gasoil inventories that was a feature of onshore OECD European balances last year has been tamed to some extent. As of end-June, European gasoil stocks were brought down to 40 days of cover from 46 at the start of this year. In Asia, refinery runs rose 300kbd in 2009 and this year to-date runs are up 1.5 mln b/d, Figure 1. This trend in Asia has been driven entirely by the non-OECD, China in particular. China's refinery runs YTD are up 1.2 mln b/d, or 17% yoy. This imbalance in Asian gasoil fundamentals is reflected in the steady rise of gasoil from Asia to Europe, Figure 2. Asian gasoil exports to OECD Europe hit a peak in March, according to IEA data.

Figure 2: Asian gasoil exports to OECD Europe are climbing



Source: IEA, Deutsche Bank

In the first six months of this year, Asian gasoil exports to OECD Europe were up 46% yoy, largely attributed to India. YTD exports from Asia now represent about 17% of Europe's total gasoil imports from non-European sources, up from its 10% share in the same period last year. This surge in gasoil exports in the first half of the year is to some extent out of sync with the historical relationship between European gasoil premium to Singapore gasoil, Figure 3, which in our view reflects the extent of the surplus in the Asia region chasing arbitrage opportunities.

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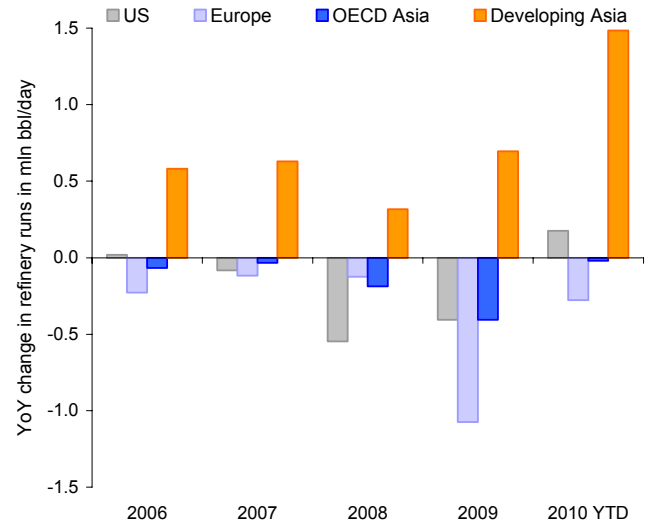
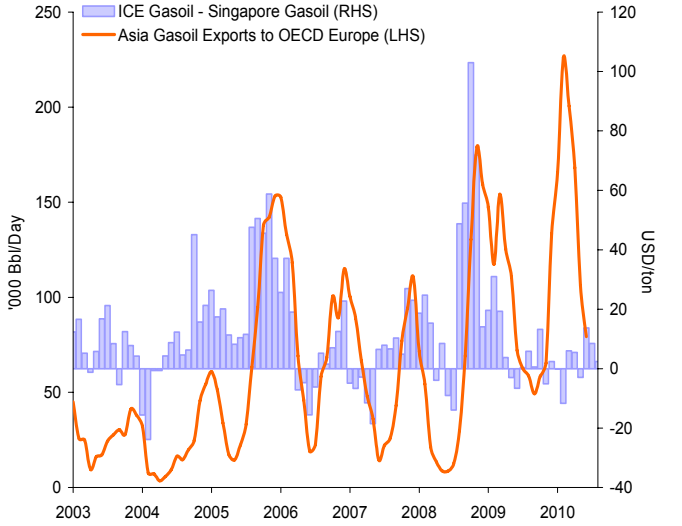
Figure 1: EM Asia refinery runs trend higher as the rest of the world lags



Developing Asia = China, India, Thailand, Taiwan, Philippines, Indonesia & Vietnam. Source: US DOE/EIA IEA, JODI, govt & trade data where available and credible, Deutsche Bank

Figure 3: East-West gasoil price & export trend



Price and export data are monthly averages. Source: IEA, Bloomberg Finance LP, Deutsche Bank

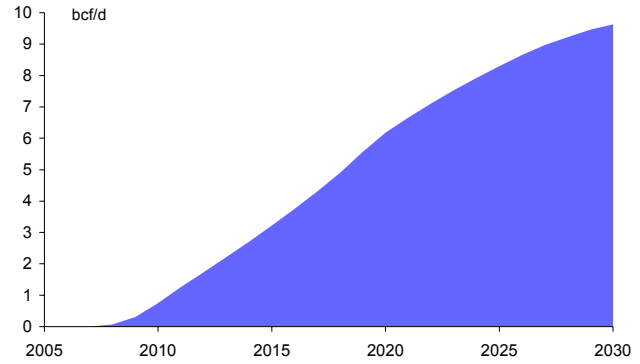
US Natural Gas

The US DOE/EIA points out in its Natural Gas Weekly Update publication that the Pennsylvania Department of Environmental Protection (DEP) has recently released preliminary production data for the Marcellus shale covering the period form July 1, 2009, through June 30, 2010.

With two-thirds of the state's current 74 operators reporting so far, the DEP estimates that Pennsylvania's Marcellus production will be at 184bcf or about 0.5bcf/d over the year ending June 30. Figure 2 shows estimates from Wood Mackenzie for Marcellus production from all states participating in the operation. WoodMac calculates that the Marcellus will average about 0.7mcf/d in 2010, climbing to a substantial 9.6bcf/d by 2030. A key assumption in this outlook is that neither Pennsylvania nor the federal government will significantly limit hydraulic fracturing.

The DEP states that by November, the public will be able to access an online database to search oil and natural gas production data state-wide, including data on how much wastewater and drilling waste is being generated at drilling sites. This will make fracturing activity more transparent to the public, but we do not believe it will dramatically change support for shale drilling within the state. With the state in need of tax revenues, and the city government in Harrisburg nearly in default on general obligation bonds, the pressures on legislators to find ways to work cooperatively with the industry are significant.

Figure 2: Marcellus shale production estimates



Source: Wood Mackenzie, Deutsche Bank

Working gas in storage was 3267bcf as 10-Sep according to EIA estimates, Figure 3. The implied build of 103bcf, compares to last year's 67bcf rise and a 5-year average of 77bcf for the week. The injection was well above market consensus expectation for a 95bcf build.

This week's storage number was surprising, not only in its magnitude, but also for the dominance of the West region in the rise. It is possible that one of the operators revised their inventory upwards but this was not disclosed by the EIA. Balances are on track for storage to reach 3675bcf at the start of the winter.

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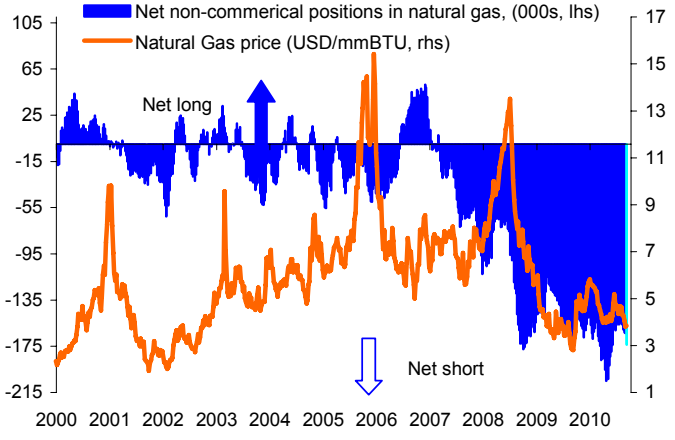
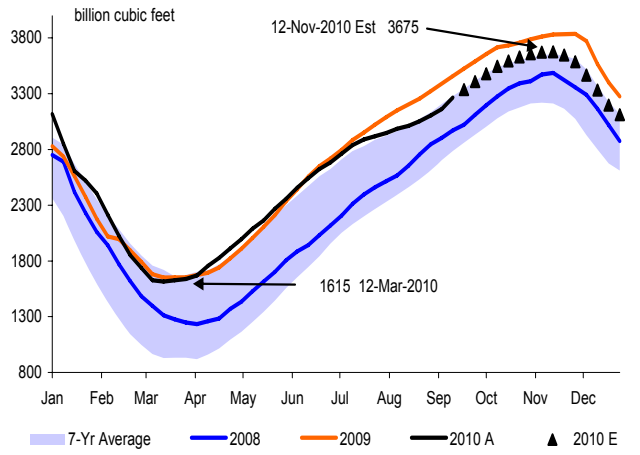
Figure 1: Speculative positioning in US natural gas



Source: CFTC, Bloomberg Finance LP, Deutsche Bank

Source: CPM Group, Deutsche Bank

Figure 3: US natural gas storage



Source: US DOE/EIA, Deutsche Bank

Industrial Metals

Last week, the LME indicated that ETF Securities had acquired an LMEsword account. LMEsword is an electronic transfer system for base metal warrants issued by LME-approved warehouses. We believe there is a strong likelihood that base metals ETFs could be launched before the end of this year, which will be backed by LME warrants (physically backed by LME metal). Indeed, in our view the industrial metals complex is well suited for physically backed ETFs given the low cost and ease of storage. We believe this will provide a new source of demand for industrial metals and have strong impact on the shape of the forward curves.

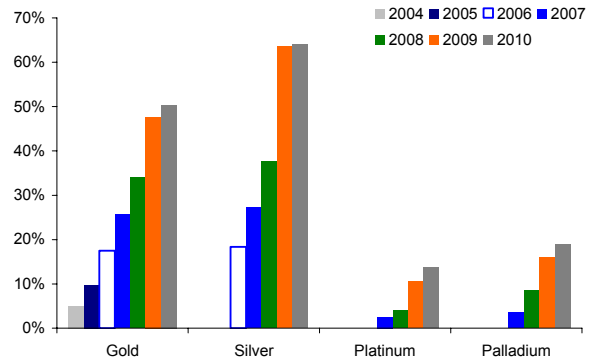
Since the launch of the first physically backed gold ETF in 2003, flows into precious metals ETFs have increased rapidly, especially in the last two years. Currently, the total holdings of gold physically backed ETF stand at just over 2,000 tonnes. Figure 1 shows the precious metals ETF holdings as a percentage of total market size, with gold and silver ETF holdings representing over half of 2010 global demand. Figure 2 shows that the annual changes of the four precious metals ETF holdings have averaged between 4% and 11% of global demand. If we make a conservative assumption of 2% for industrial metals ETF holdings, this would imply that we may see a larger impact on the copper and lead markets as the current inventory levels are relatively low, Table 1. We believe the ETF holdings could absorb an increasingly large amount of metals and could help to reduce the degree of contango in forward curves.

Table 1: Potential impact of industrial metals ETF

Industrial Metals	2010 demand (Mt)	2% of global demand (Kt)	Exchange inventory (Kt)	% of exchange inventory
Copper	18.7	373	576	65%
Aluminium	39.4	788	6086	13%
Zinc	12.0	240	858	28%
Nickel	1.4	28	120	24%
Lead	8.5	171	192	89%

Source: Deutsche Bank, Bloomberg Finance LP

Figure 1: Physically backed ETF holdings as a % share of global demand



Source: Deutsche Bank, Bloomberg Finance LP

With the exception of the PGM ETFs introduced in the US earlier this year, historically we find no significant price advances prior to the launch of ETFs for the four precious metals. However, as highlighted in Figure 3, significant price movements can coincide with flows into and out of ETFs.

We believe the introduction of investor capital in this manner, could have important repercussions for industrial metals in Q4. We would expect relative scarcity could result in differential performance between metals, the largest impact occurring with copper and lead markets.

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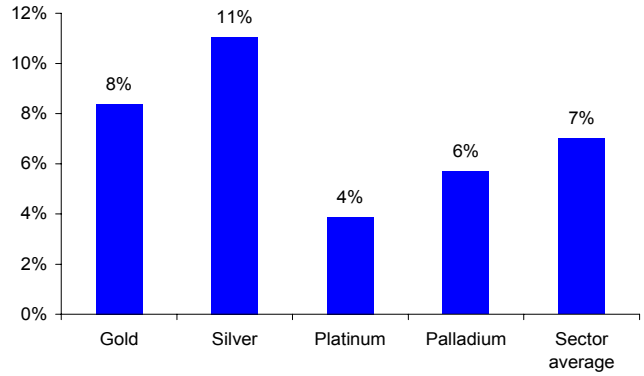
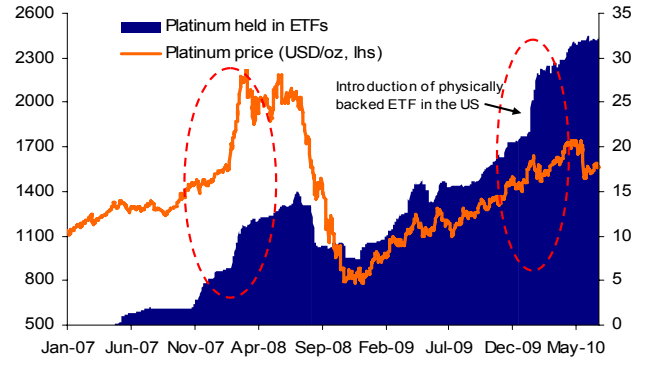
Figure 2: Average net change of ETF holdings per annum as % share of global demand



Source: Deutsche Bank, Bloomberg Finance LP

Figure 3: Total holding of platinum ETF vs prices

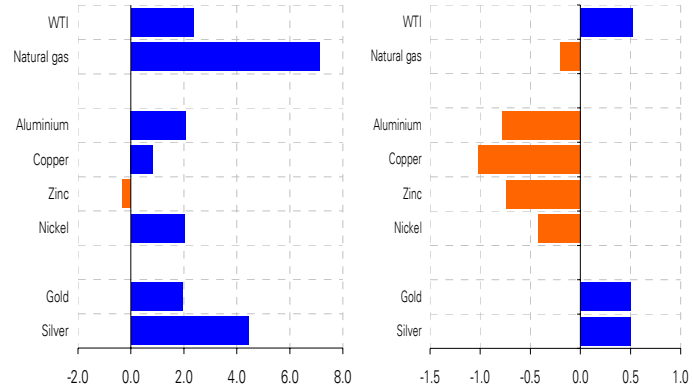


Source: Deutsche Bank, Bloomberg Finance LP

Commodity Correlations & Volatility

In our view, precious metals have benefited from the shift towards risk aversion. However, as inflationary concerns which we expect will resurface given the prospect for further monetary/fiscal accommodation by central banks, silver has witnessed strong support. In our view, the uncertainties with respect to inflation, coupled with the likelihood for higher industrial demand for silver from both the US and China, is pushing silver to new highs. *For a more detailed reading on the gold / silver relationship, please see "Metals / Bulk Materials: Autumn Outlook", dated 09/09/10.*

Figure 1: 1W change in spot and 3M implied volatility

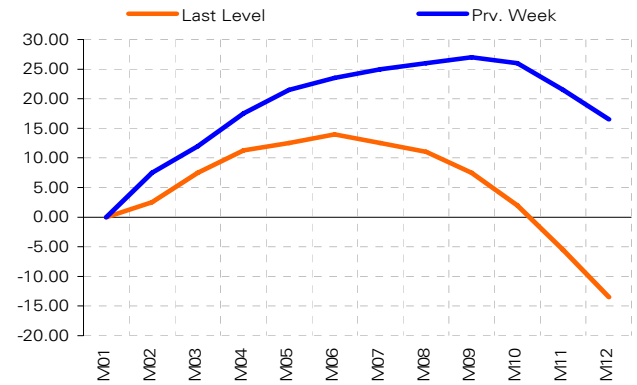


Source: Bloomberg Finance LP, Deutsche Bank, Figures are cob Wednesday

Across our correlation matrix, the natural gas correlation with XAU is unusually high. At the same time, the 1-month correlation 10Y USTs has become even more negative and is now significantly below the 1Y average. We also note that the XAU correlation with S&P500 has continued to decrease and is now significantly negative (as highlighted in the box in Figure 2), which we believe reflects the renewed perception of gold's value as a safe-haven asset.

Commodities forward curves moved lower during the week. WTI and copper forward curves have flattened. Consequently the far end of the copper forward curve dropped into backwardation. Meanwhile nickel has moved into full backwardation following a significant shift in the front end of the forward curve.

Figure 3: Copper futures term structure (spread to spot in USD)



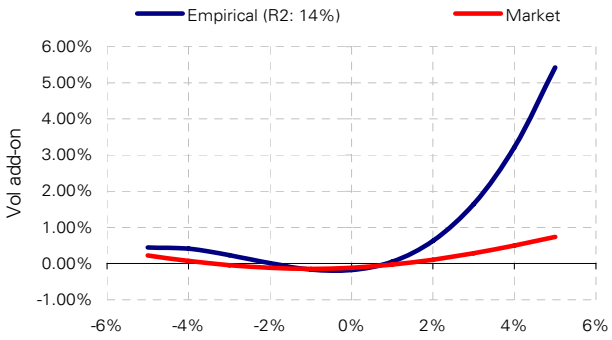
Source: Bloomberg Finance LP, Deutsche Bank

Figure 2: Historical correlation matrix (underlying assets – log changes*)

	WTI	NG	XAL	XCU	XZN	XNI	XAU	XAG	SPX	UST	€/$
WTI		-34	43	56	56	50	-19	7	69	61	49
NG	11		8	-26	-10	12	52	14	-10	-38	-2
XAL	38	15		75	79	68	23	26	44	2	44
XCU	47	-1	79		91	68	-6	5	52	18	60
XZN	55	18	78	83		83	11	1	41	10	42
XNI	44	5	61	70	64		10	-8	41	22	32
XAU	35	-13	0	13	12	7		60	-32	-55	-1
XAG	50	-4	24	37	32	27	86		6	-18	41
SPX	56	-10	42	38	37	39	29	50		78	63
UST	41	21	18	17	18	13	-7	7	61		27
€/$	46	-13	54	56	53	47	16	36	46	11	

*Source: Deutsche Bank, * Outright changes for UST. Upper triangle: 1M, 1d changes. Lower triangle: 1Y, 5d changes.*

Figure 4: 3m implied vol-spot relationship

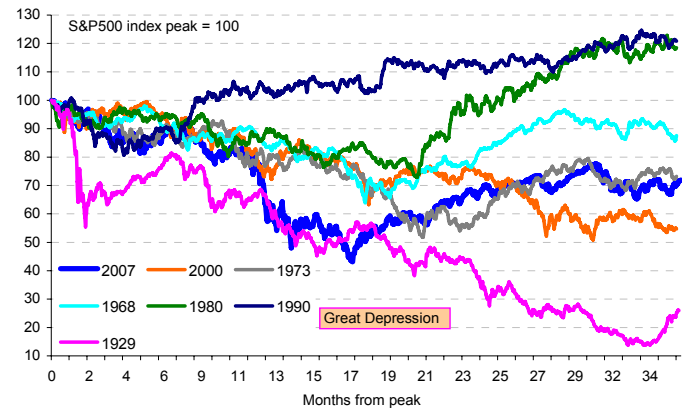


Source: Bloomberg Finance LP, Deutsche Bank

Chartbook

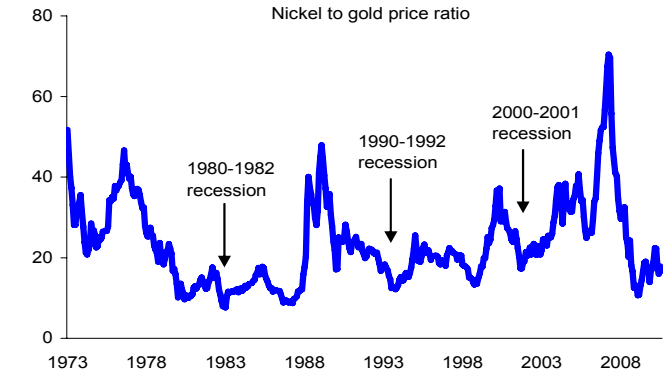
Reflation Watch

Figure 1: Equity market performance during downturns



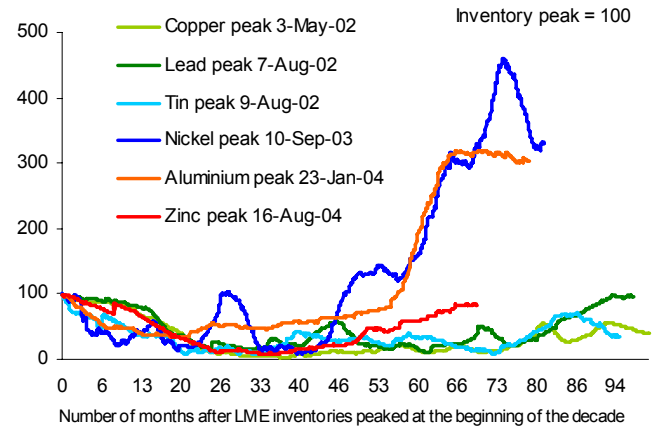
Source: Deutsche Bank, Bloomberg Finance LP

Figure 2: Nickel:Gold ratio



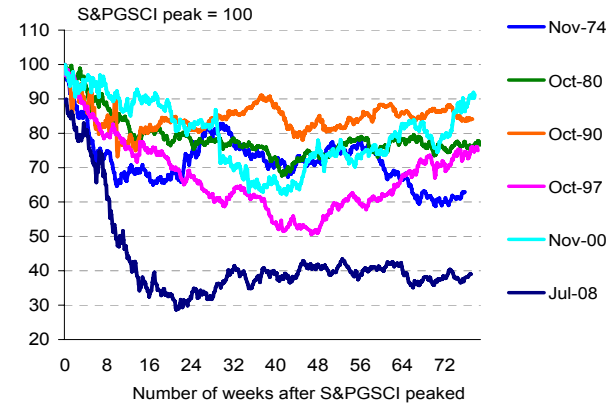
Source: Deutsche Bank, Bloomberg Finance LP

Figure 3: Inventory cycles on the LME



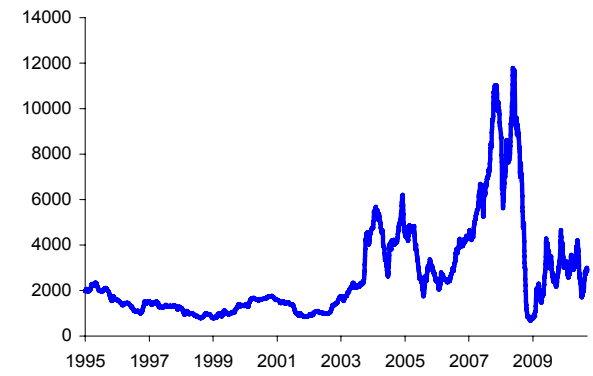
Source: Deutsche Bank, LME

Figure 4: Commodity index returns during downturns



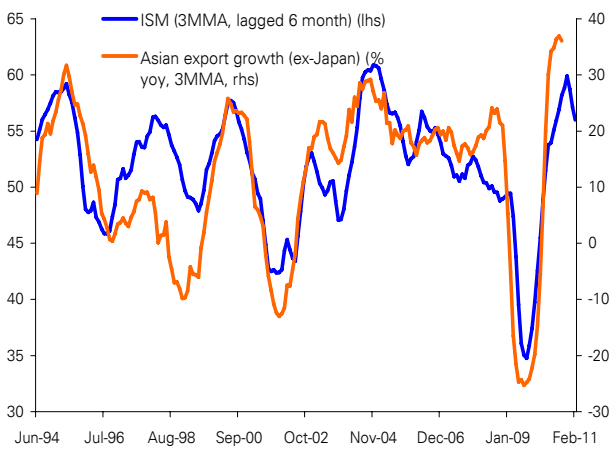
Source: Bloomberg Finance LP

Figure 5: Baltic dry index



Source: Deutsche Bank, Bloomberg Finance LP

Figure 6: Asian exports and ISM

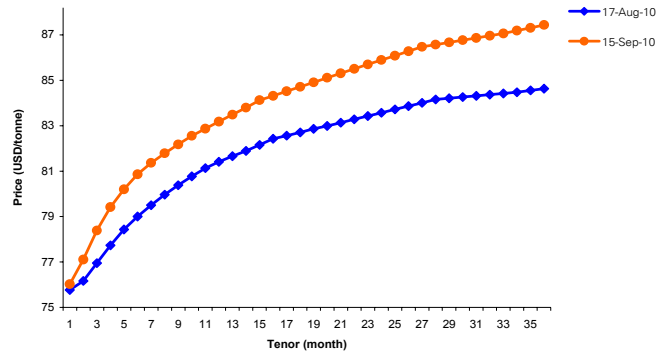


Source: Deutsche Bank, Haver

Chartbook

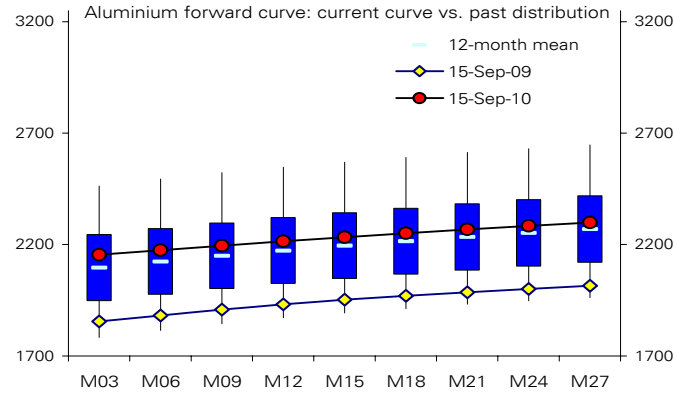
Commodity Forward Curves

Figure 1: WTI crude oil forward curve



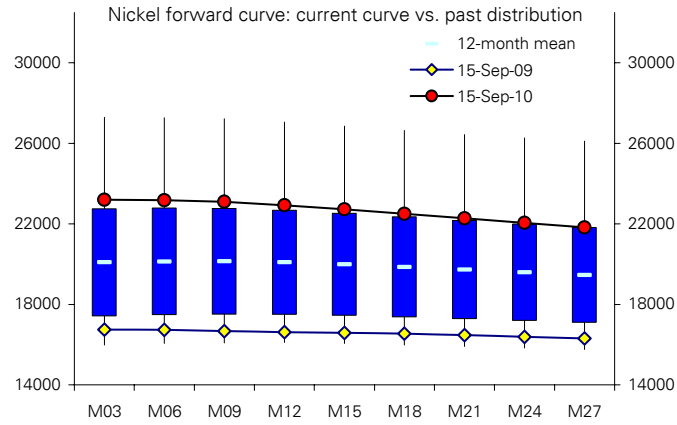
Source: Deutsche Bank

Figure 2: Aluminium forward curve



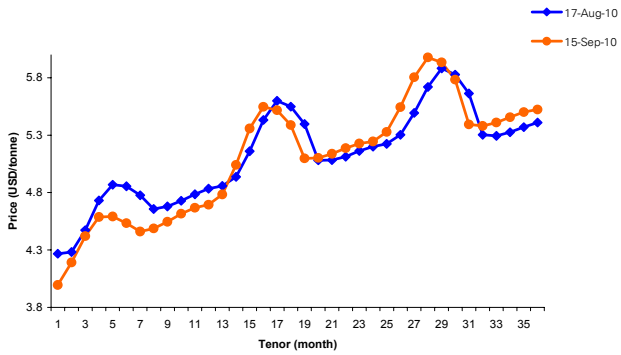
Source: Deutsche Bank

Figure 3: Nickel forward curve



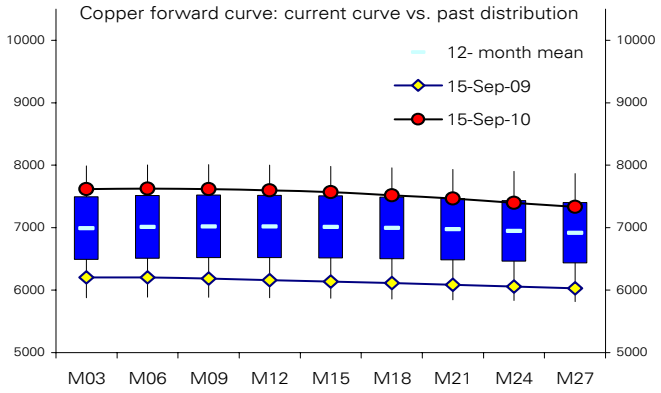
Source: Deutsche Bank

Figure 4: US natural gas forward curve



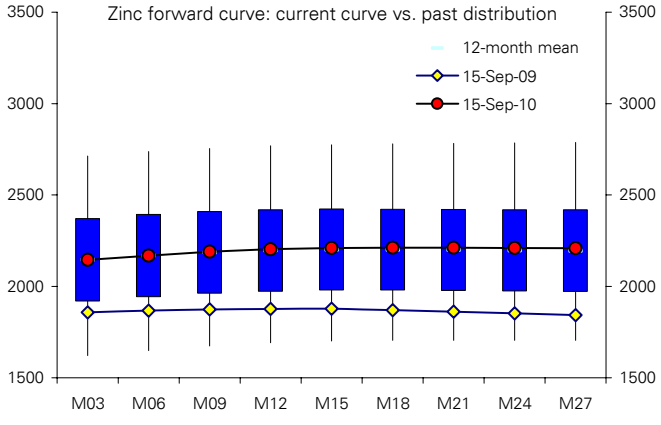
Source: Deutsche Bank

Figure 5: Copper forward curve



Source: Deutsche Bank

Figure 6: Zinc forward curve

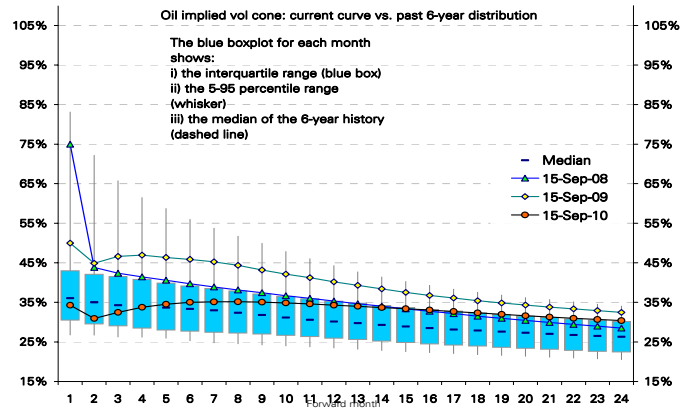


Source: Deutsche Bank

Chartbook

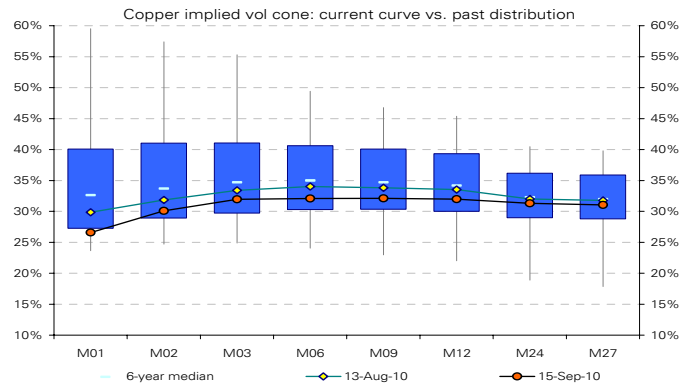
Commodity Volatility Levels

Figure 1: WTI crude oil volatility



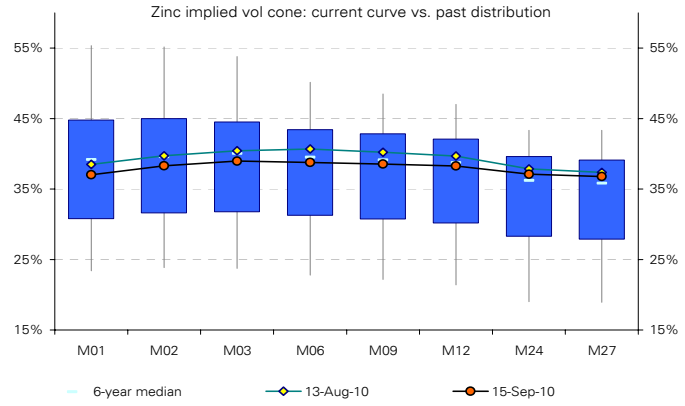
Source: Deutsche Bank

Figure 2: Copper volatility



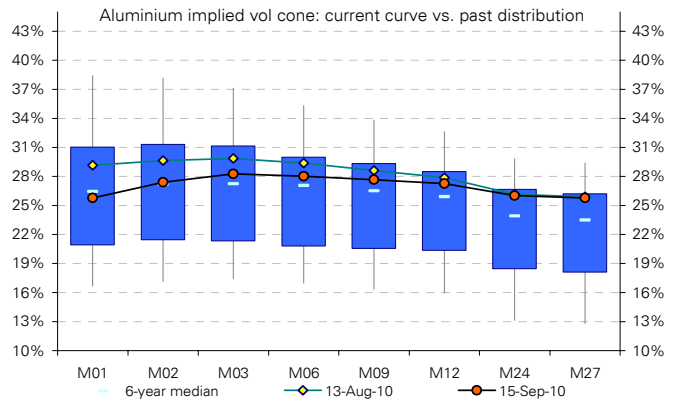
Source: Deutsche Bank

Figure 3: Zinc volatility



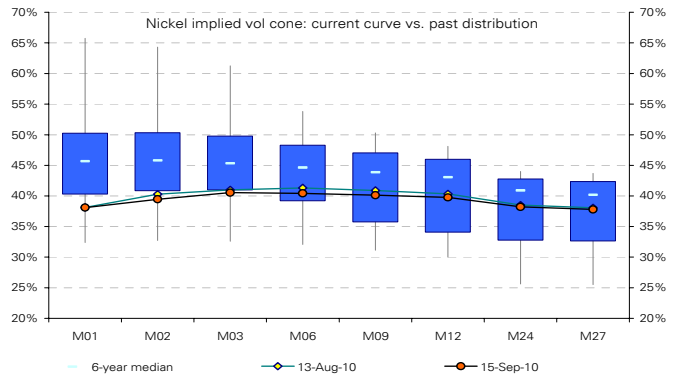
Source: Deutsche Bank

Figure 4: Aluminium volatility



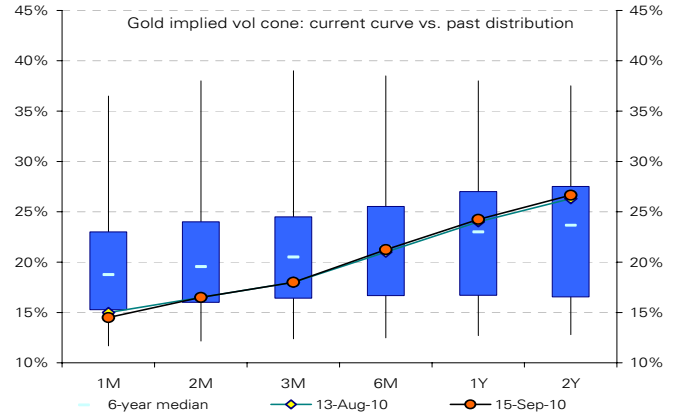
Source: Deutsche Bank

Figure 5: Nickel volatility



Source: Deutsche Bank

Figure 6: Gold volatility

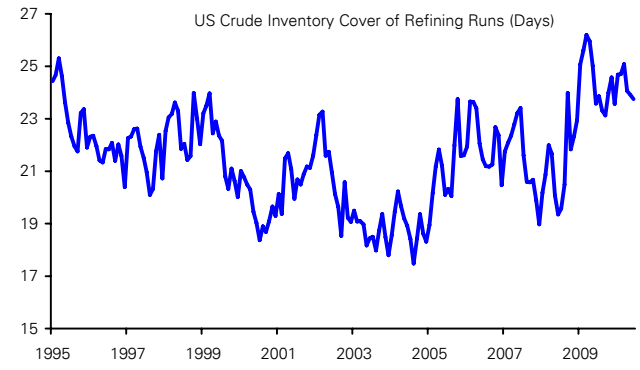


Source: Deutsche Bank

Chartbook

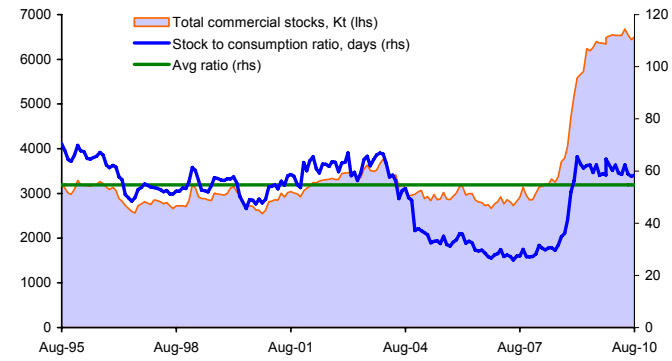
Commodity Inventory-To-Use-Ratios

Figure 1: US oil inventory-to-use ratio



Source: DOE/EIA, Deutsche Bank

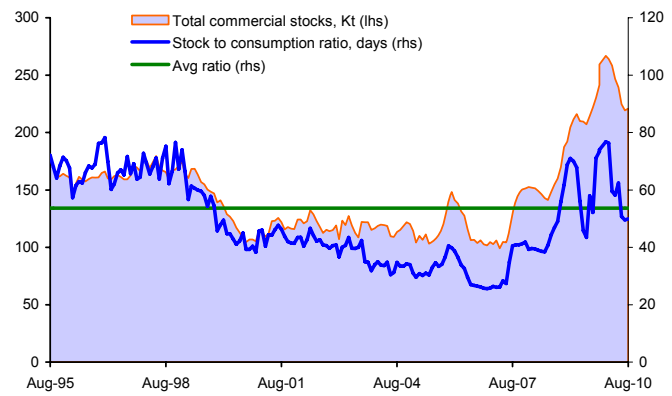
Figure 2: Aluminium monthly stock-to-consumption ratio*



Source: WBMS, Deutsche Bank

*Note: Jul-Aug consumption data is estimated at 0% month-on-month growth

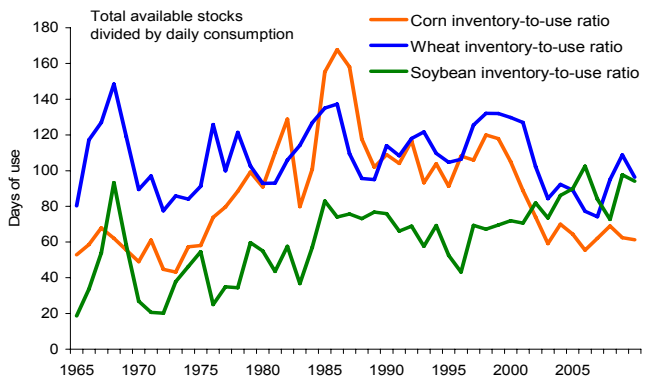
Figure 3: Nickel monthly stock-to-consumption ratio



Source: INSG, WBMS, Deutsche Bank

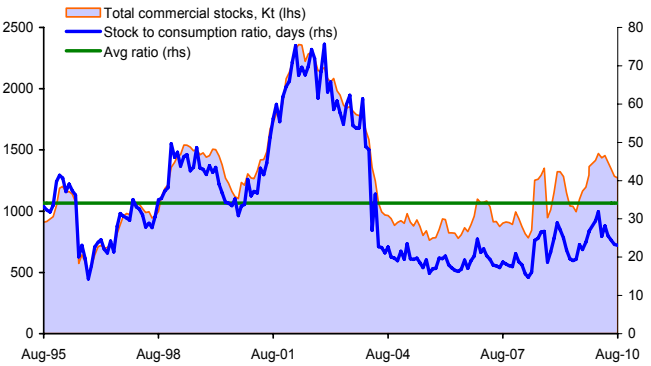
*Note: Jul-Aug consumption data is estimated at 0% month-on-month growth

Figure 4: Corn, soybeans & wheat stock-to-consumption



Source: USDA, Deutsche Bank

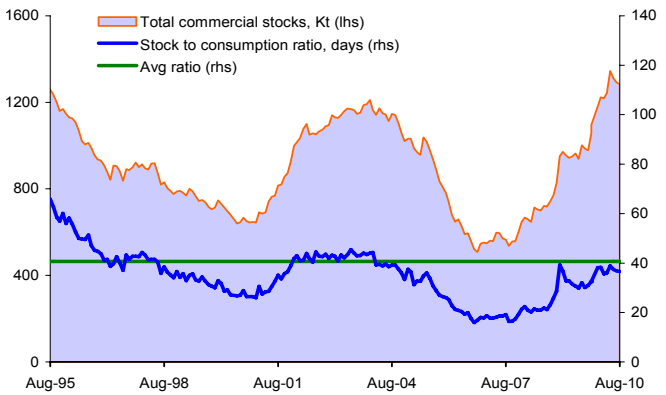
Figure 5: Copper monthly stock-to-consumption ratio*



Source: WBMS, ICSG, Deutsche Bank

*Note: Jul-Aug consumption data is estimated at 0% month-on-month growth

Figure 6: Zinc monthly stock-to-consumption ratio*



Source: ILZSG, Deutsche Bank

*Note: Jul-Aug consumption data is estimated at 0% month-on-month growth

Commodity Price Forecasts

Energy Commodities Price Forecasts

USD	Q1 10	Q2 10	Q3 10	Q4 10	Q1 11	Q2 11	Q3 11	Q4 11	2010	2011	2012	2013
WTI (bbl)	78.85	78.00	65.00	70.00	75.00	80.00	80.00	85.00	72.96	80.00	85.00	90.00
% Change from previous forecast			*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*2.8%*	*0.0%*	*0.0%*	*0.0%*
Brent (bbl)	77.00	79.50	65.00	70.00	75.00	80.00	80.00	85.00	72.88	80.00	85.00	90.00
% Change from previous forecast			*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*3.4%*	*0.0%*	*0.0%*	*0.0%*
RBOB gasoline (g)	2.11	2.17	2.00	2.00	2.00	2.15	2.15	2.25	2.08	2.14	2.20	2.35
% Change from previous forecast			*11.1%*	*2.6%*	*-2.4%*	*0.0%*	*0.0%*	*0.0%*	*5.6%*	*-0.6%*	*-2.2%*	*-2.1%*
Heating oil (g)	2.05	2.12	2.00	2.10	2.15	2.25	2.25	2.40	2.07	2.26	2.40	2.55
% Change from previous forecast			*11.1%*	*7.7%*	*4.9%*	*2.3%*	*2.3%*	*2.1%*	*6.6%*	*2.8%*	*2.1%*	*4.1%*
IPE gasoil (t)	634	675	650	650	680	725	725	770	652	725	738	745
% Change from previous forecast			*11.1%*	*3.2%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*5.4%*	*0.0%*	*-4.2%*	*-8.6%*
Singapore Jet (bbl)	86	91	80	85	90	95	95	105	85	96	100	100
% Change from previous forecast			*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*1.6%*	*0.0%*	*-4.8%*	*-9.1%*
US Natural Gas (mmBtu)	4.99	4.35	5.25	6.00	6.20	6.20	5.60	6.00	5.15	6.00	6.25	6.50
% Change from previous forecast			*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*-2.0%*	*0.0%*	*0.0%*	*0.0%*
Thermal Coal Jap. Guide Price (t)	71	98	98	98	98	110	110	110	98	110	120	100
% Chg from previous forecast			*15.3%*	*15.3%*	*-2.0%*	*10.0%*	*10.0%*	*10.0%*	*15.3%*	*10.0%*	*26.3%*	*11.1%*
Uranium (U3O8) (lb) [term]	60	58	60	65	65	65	65	65	61	65	60	60
% Change from previous forecast			*-7.7%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*-3.6%*	*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	Q1 11	Q2 11	Q3 11	Q4 11	2010	2011	2012	2013
Aluminium												
USc/lb	99.4	97.1	90.0	100.0	110.0	130.0	120.0	120.0	96.6	120.0	130.0	100.0
USD/t	2192	2142	1984	2205	2425	2866	2646	2646	2131	2646	2866	2205
% Chg from previous forecast			*-5.3%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*-2.0%*	*0.0%*	*30.0%*	*0.0%*
Copper												
USc/lb	328.2	321.5	275.0	300.0	325.0	375.0	350.0	350.0	306.2	350.0	400.0	275.0
USD/t	7235	7094	6063	6614	7165	8267	7716	7716	6751	7716	8818	6063
% Chg from previous forecast			*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*2.1%*	*0.0%*	*33.3%*	*-3.5%*
Lead												
USc/lb	102.0	90.4	80.0	90.0	100.0	120.0	110.0	110.0	90.6	110.0	120.0	90.0
USD/t	2248	1994	1764	1984	2205	2646	2425	2425	1998	2425	2646	1984
% Chg from previous forecast			*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*-2.6%*	*0.0%*	*50.0%*	*50.0%*
Nickel												
USc/lb	896.7	1033.0	800.0	900.0	1000.0	1100.0	1200.0	1300.0	907.4	1150.0	1200.0	800.0
USD/t	19769	22791	17637	19842	22046	24251	26455	28660	20005	25353	26455	17637
% Chg from previous forecast			*6.7%*	*0.0%*	*0.0%*	*0.0%*	*33.3%*	*62.5%*	*8.5%*	*21.1%*	*50.0%*	*6.7%*
Tin												
USc/lb	780.2	809.6	750.0	800.0	800.0	850.0	850.0	850.0	784.9	837.5	900.0	750.0
USD/t	17199	17863	16535	17637	17637	18739	18739	18739	17308	18464	19842	16535
% Chg from previous forecast			*25.0%*	*23.1%*	*14.3%*	*6.3%*	*13.3%*	*13.3%*	*17.2%*	*11.7%*	*28.6%*	*10.3%*
Zinc												
USc/lb	104.7	94.3	80.0	95.0	105.0	120.0	110.0	110.0	93.5	111.3	130.0	100.0
USD/t	2309	2081	1764	2094	2315	2646	2425	2425	2062	2453	2866	2205
% Chg from previous forecast			*-11.1%*	*-5.0%*	*-4.5%*	*-20.0%*	*-15.4%*	*-15.4%*	*-7.6%*	*-14.4%*	*44.4%*	*25.0%*

Source: Deutsche Bank, Figures are period averages

Commodity Price Forecasts

Precious Metals Price Forecasts

USD/oz	Q1 10	Q2 10	Q3 10	Q4 10	Q1 11	Q2 11	Q3 11	Q4 11	2010	2011	2012	2013
Gold	1111	1193	1275	1400	1450	1400	1450	1500	1245	1450	1600	1200
% Chg from previous forecast			*10.9%*	*19.1%*	*16.0%*	*0.0%*	*11.5%*	*42.9%*	*8.5%*	*16.0%*	*60.0%*	*50.0%*
Silver	16.91	18.28	19.00	20.00	22.00	20.00	22.00	24.00	18.55	22.00	25.00	20.00
% Chg from previous forecast			*0.0%*	*0.0%*	*0.0%*	*-20.0%*	*4.8%*	*20.0%*	*-1.0%*	*0.0%*	*47.1%*	*33.3%*
Platinum	1558	1635	1600	1720	1750	1750	1750	1750	1628	1750	1850	1400
% Chg from previous forecast			*-3.0%*	*-1.7%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*-1.4%*	*0.0%*	*19.4%*	*-9.7%*
Palladium	439	497	480	510	525	525	525	525	482	525	575	375
% Chg from previous forecast			*0.0%*	*2.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*2.5%*	*0.0%*	*35.3%*	*-25.0%*
Rhodium	2556	2691	2500	2700	3000	3000	3000	3000	2612	3000	3200	2800
% Chg from previous forecast			*-7.4%*	*-3.6%*	*-6.3%*	*-6.3%*	*-6.3%*	*-6.3%*	*-2.4%*	*-6.3%*	*6.7%*	*-15.2%*

Source: Deutsche Bank, Figures are period averages

Minor Metals Price Forecasts

	Q1 10	Q2 10	Q3 10	Q4 10	Q1 11	Q2 11	Q3 11	Q4 11	2010	2011	2012	2013
Molybdenum (USD/lb)	15.79	16.93	18.00	20.00	22.00	27.00	26.00	25.00	17.68	25.00	20.00	15.00
% Chg from previous forecast			*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*-1.5%*	*0.0%*	*0.0%*	*0.0%*
Zircon (USD/t)	875	850	850	850	800	800	800	800	856	800	800	825
% Chg from previous forecast			*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*

Source: Deutsche Bank, Figures are period averages

Bulk Materials Price Forecasts

	Q1 10	Q2 10	Q3 10	Q4 10	Q1 11	Q2 11	Q3 11	Q4 11	2010	2011	2012	2013
Australian Lump to Asia (t)	73	150	194	160	141	127	127	153	144	137	166	127
% Chg year-on-year									*25%*	*14%*	*37%*	*41%*
Australian Fines to Asia (t)	60	120	149	128	113	98	98	118	114	107	128	98
% Chg year-on-year									*27%*	*15%*	*37%*	*44%*
Premium Hard Coking Coal JFY (t)	129	200	225	210	175	200	225	250	203	238	250	200
% Chg year-on-year									*1%*	*25%*	*32%*	*33%*
Low-volatile PCI JFY (t)	90	170	185	175	160	170	185	205	173	190	210	160
% Chg year-on-year									*1%*	*23%*	*35%*	*39%*
Chrome Ore (t)	200	230	240	250	260	260	260	260	230	260	250	240
% 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	125	130	140	150	150	150	150	124	150	140	130
% Chg from previous forecast			*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0%*	*0%*	*0%*	*0%*
Manganese ore (USc/dmtu)	6.00	7.00	8.00	8.00	8.00	9.00	9.00	9.00	7.25	8.75	7.00	6.00
% Chg from previous forecast			*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0.0%*	*0%*	*0%*	*0%*	*0%*
Ferro-manganese (t)	1350	1475	1700	1800	2000	2000	2000	2000	1581	2000	1800	1500
% Chg 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

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Glossary

API#2 – TFS API#2 ® average price index for coal delivered CIF ARA.

API#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.

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; under-weights those commodities amongst the six which are expensive relative to their long-term average, and over-weights those which are relatively cheap.

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.

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.

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

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		0.93	0.96	0.92	0.66	-0.17	0.44	0.50	0.55	0.59	0.48	0.21	0.38	0.38	0.11	-0.03	0.86	0.84	0.95	0.35	0.20	-0.44	-0.25	0.45	0.03	0.19	-0.12	0.11	0.69	-0.30
Brent	0.93		0.95	0.95	0.77	-0.19	0.49	0.56	0.59	0.63	0.55	0.29	0.44	0.45	0.07	-0.00	0.84	0.82	0.94	0.40	0.27	-0.48	-0.31	0.49	-0.00	0.15	-0.16	0.06	0.66	-0.19
Unleaded Petrol	0.96	0.95		0.93	0.67	-0.12	0.46	0.52	0.57	0.61	0.51	0.24	0.40	0.39	0.14	0.06	0.87	0.85	0.95	0.34	0.18	-0.43	-0.26	0.40	0.04	0.21	-0.13	0.07	0.65	-0.23
Heating Oil	0.92	0.95	0.93		0.74	-0.14	0.39	0.47	0.51	0.54	0.48	0.20	0.44	0.40	0.10	-0.05	0.81	0.79	0.91	0.39	0.24	-0.45	-0.27	0.44	0.01	0.15	-0.19	0.03	0.67	-0.18
Gas Oil	0.66	0.77	0.67	0.74		-0.25	0.48	0.58	0.56	0.60	0.58	0.23	0.44	0.40	0.00	-0.13	0.62	0.60	0.71	0.32	0.24	-0.40	-0.30	0.51	0.05	0.10	-0.07	0.06	0.49	-0.16
Natural Gas	-0.17	-0.19	-0.12	-0.14	-0.25		0.12	-0.03	0.07	-0.07	-0.10	-0.05	0.07	-0.02	0.26	0.36	0.02	0.03	-0.02	0.02	-0.24	0.07	0.11	-0.17	0.03	0.05	0.09	-0.17	0.01	-0.03
LME Al	0.44	0.49	0.46	0.39	0.48	0.12		0.81	0.77	0.73	0.75	0.32	0.57	0.44	0.20	0.17	0.63	0.65	0.59	0.21	0.21	-0.39	-0.28	0.38	0.04	0.08	-0.05	-0.07	0.40	-0.07
LME Cu	0.50	0.56	0.52	0.47	0.58	-0.03	0.81		0.94	0.75	0.88	0.29	0.56	0.42	0.07	0.06	0.59	0.59	0.62	0.24	0.30	-0.38	-0.32	0.45	0.10	0.17	-0.14	-0.09	0.51	-0.17
High Grade Copper	0.55	0.59	0.57	0.51	0.56	0.07	0.77	0.94		0.70	0.83	0.30	0.54	0.44	0.15	0.12	0.64	0.65	0.67	0.26	0.19	-0.38	-0.29	0.45	0.13	0.19	-0.12	-0.04	0.56	-0.24
LME Nickel	0.59	0.63	0.61	0.54	0.60	-0.07	0.73	0.75	0.70		0.77	0.24	0.42	0.31	0.10	0.14	0.65	0.66	0.69	0.24	0.25	-0.42	-0.43	0.54	0.06	0.09	-0.15	0.13	0.55	-0.10
LME Zinc	0.48	0.55	0.51	0.48	0.58	-0.10	0.75	0.88	0.83	0.77		0.29	0.49	0.32	0.05	0.15	0.58	0.59	0.60	0.23	0.24	-0.31	-0.31	0.42	-0.00	0.11	-0.03	-0.06	0.42	-0.09
Comex Gold Future	0.21	0.29	0.24	0.20	0.23	-0.05	0.32	0.29	0.30	0.24	0.29		0.52	0.77	-0.07	0.02	0.32	0.23	0.29	-0.26	-0.04	0.11	-0.08	-0.04	-0.10	-0.37	-0.32	-0.08	0.04	0.14
NYMEX Platinum	0.38	0.44	0.40	0.44	0.44	0.07	0.57	0.56	0.54	0.42	0.49	0.52		0.65	0.03	-0.02	0.45	0.42	0.48	0.04	0.23	-0.23	-0.23	0.22	0.08	-0.31	-0.16	-0.17	0.42	-0.16
Comex Silver	0.38	0.45	0.39	0.40	0.40	-0.02	0.44	0.42	0.44	0.31	0.32	0.77	0.65		-0.11	-0.05	0.40	0.33	0.42	-0.04	0.05	-0.15	-0.16	0.15	0.10	-0.23	-0.27	-0.04	0.29	-0.06
Wheat CBOT	0.11	0.07	0.14	0.10	0.00	0.26	0.20	0.07	0.15	0.10	0.05	-0.07	0.03	-0.11		0.57	0.50	0.54	0.28	0.16	0.07	-0.28	-0.29	0.19	0.17	0.03	0.10	0.07	0.22	-0.16
Corn	-0.03	-0.00	0.06	-0.05	-0.13	0.36	0.17	0.06	0.12	0.14	0.15	0.02	-0.02	-0.05	0.57		0.33	0.35	0.16	0.20	0.05	-0.15	-0.10	0.07	0.14	-0.10	0.06	-0.04	0.05	-0.16
DBLCI	0.86	0.84	0.87	0.81	0.62	0.02	0.63	0.59	0.64	0.65	0.58	0.32	0.45	0.40	0.50	0.33		0.99	0.96	0.35	0.20	-0.48	-0.37	0.47	0.05	0.10	-0.13	0.06	0.65	-0.24
DBLCI-MR	0.84	0.82	0.85	0.79	0.60	0.03	0.65	0.59	0.65	0.66	0.59	0.23	0.42	0.33	0.54	0.35	0.99		0.94	0.38	0.23	-0.51	-0.38	0.49	0.06	0.12	-0.08	0.06	0.65	-0.25
GSCI-TR	0.95	0.94	0.95	0.91	0.71	-0.02	0.59	0.62	0.67	0.69	0.60	0.29	0.48	0.42	0.28	0.16	0.96	0.94		0.38	0.21	-0.48	-0.32	0.48	0.04	0.14	-0.14	0.06	0.71	-0.28
EUR	0.35	0.40	0.34	0.39	0.32	0.02	0.21	0.24	0.26	0.24	0.23	-0.26	0.04	-0.04	0.16	0.20	0.35	0.38	0.38		0.58	-0.74	-0.20	0.48	0.08	0.18	0.24	0.10	0.32	-0.32
GBP	0.20	0.27	0.18	0.24	0.24	-0.24	0.21	0.30	0.19	0.25	0.24	-0.04	0.23	0.05	0.07	0.05	0.20	0.23	0.21	0.58		-0.59	-0.29	0.43	0.06	-0.04	0.01	-0.03	0.08	-0.17
NOK	-0.44	-0.48	-0.43	-0.45	-0.40	0.07	-0.39	-0.38	-0.38	-0.42	-0.31	0.11	-0.23	-0.15	-0.28	-0.15	-0.48	-0.51	-0.48	-0.74	-0.59		0.54	-0.75	-0.26	-0.17	-0.02	-0.15	-0.45	0.26
CAD	-0.25	-0.31	-0.26	-0.27	-0.30	0.11	-0.28	-0.32	-0.29	-0.43	-0.31	-0.08	-0.23	-0.16	-0.29	-0.10	-0.37	-0.38	-0.32	-0.20	-0.29	0.54		-0.69	-0.33	-0.07	0.14	-0.26	-0.29	-0.00
AUD	0.45	0.49	0.40	0.44	0.51	-0.17	0.38	0.45	0.45	0.54	0.42	-0.04	0.22	0.15	0.19	0.07	0.47	0.49	0.48	0.48	0.43	-0.75	-0.69		0.27	0.18	-0.10	0.48	0.50	-0.23
JPY	0.03	-0.00	0.04	0.01	0.05	0.03	0.04	0.10	0.13	0.06	-0.00	-0.10	0.08	0.10	0.17	0.14	0.05	0.06	0.04	0.08	0.06	-0.26	-0.33	0.27		0.18	0.01	0.17	0.27	-0.41
ED	0.19	0.15	0.21	0.15	0.10	0.05	0.08	0.17	0.19	0.09	0.11	-0.37	-0.31	-0.23	0.03	-0.10	0.10	0.12	0.14	0.18	-0.04	-0.17	-0.07	0.18	0.18		0.22	0.03	0.12	-0.13
ECU 3m	-0.12	-0.16	-0.13	-0.19	-0.07	0.09	-0.05	-0.14	-0.12	-0.15	-0.03	-0.32	-0.16	-0.27	0.10	0.06	-0.13	-0.08	-0.14	0.24	0.01	-0.02	0.14	-0.10	0.01	0.22		0.11	-0.15	-0.16
AUD 3m	0.11	0.06	0.07	0.03	0.06	-0.17	-0.07	-0.09	-0.04	0.13	-0.06	-0.08	-0.17	-0.04	0.07	-0.04	0.06	0.06	0.06	0.10	-0.03	-0.15	-0.26	0.48	0.17	0.03	0.11		0.15	-0.16
SPX	0.69	0.66	0.65	0.67	0.49	0.01	0.40	0.51	0.56	0.55	0.42	0.04	0.42	0.29	0.22	0.05	0.65	0.65	0.71	0.32	0.08	-0.45	-0.29	0.50	0.27	0.12	-0.15	0.15		-0.46
iBOXX Euro Corp All	-0.30	-0.19	-0.23	-0.18	-0.16	-0.03	-0.07	-0.17	-0.24	-0.10	-0.09	0.14	-0.16	-0.06	-0.16	-0.16	-0.24	-0.25	-0.28	-0.32	-0.17	0.26	-0.00	-0.23	-0.41	-0.13	-0.16	-0.16	-0.46	

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

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Appendix 1

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