

# CMCI Food Index

## Drivers behind Food Prices

*January 2011*



# Commodities and Inflation

**Asian and EM inflation risks are rising as a result of a combination of over a third of Asian CPI (Consumer Price Index) being derived from food and negative interest rates. As a result, there is an increasing trend in looking at commodities as inflation hedges**

- The impact of rising food prices on inflation varies significantly by region. In the US and Europe, food typically represents 10-15% of a family's regular shopping and therefore its weight on measures such as the consumer price index (CPI) is relatively small. On the contrary, in countries such as India, Russia and China, food spending may comprise up to 50%, and may exceed 75% in poor African nations

Source: Financial Times, "Inflation: A high price to pay", January 10 2011

- With over a third of Asian CPI derived from food related items**, it is a key concern for EM policy makers faced with Indian food price inflation reaching 18.32% and China 11.7% in December 2010

Source: BBC News, "Indian PM unveils steps to curb food price inflation", 14 Jan 2011

- According to UBS Research, the greatest potential short and medium term risk to EM economies is the food inflation risk, which, contrary to headline inflation, can not be fixed by QE or monetary policy, as it is a structural problem related population increase, urbanisation programs and hence improved diets, weather and crop yield expectation

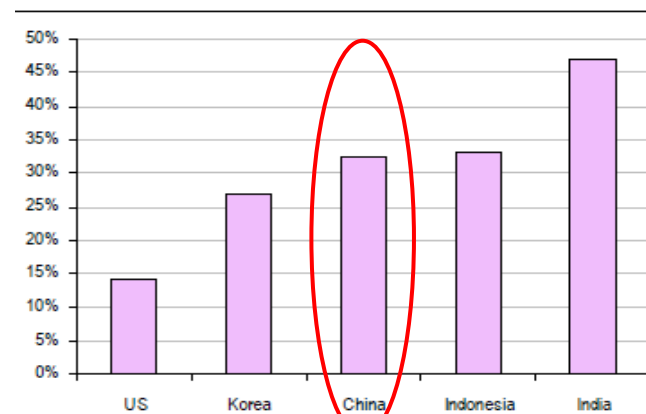
- USDA confirmed increasing tightness in corn and soybean markets and the prospects of further big food price rises, which support the views of food inflation risk to economies

Source: UBS Investment Research, Global Materials Scorecard, 17 January 2011

- According to R.J.O'Brien's Metals Weekly Report, evidence of inflation risk can be seen from China's October 2010 CPI, which was reported at 4.4% y/y and is likely to be over 5% going forward (largely driven by increasing prices of agricultural commodities)

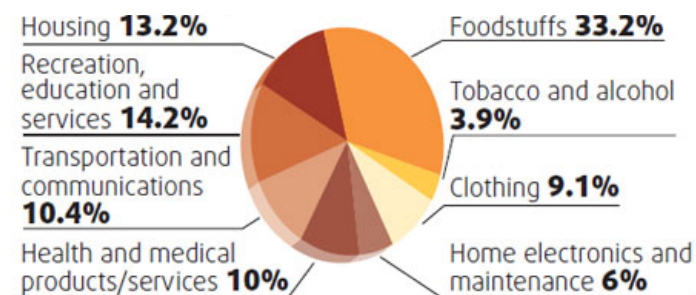
Source: R.J.O'Brien, Metals Weekly Report, 29 November 2010

Food % of CPI



Source: UBS Investment Research, Commodity Connections – Q1 11, 15 December 2010

China CPI Composition



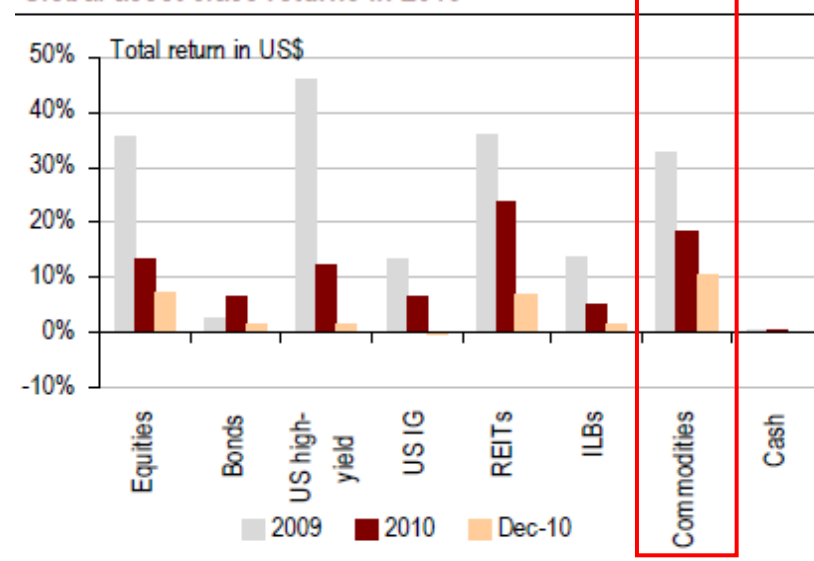
Source: National Bureau of statistics of China, China Daily, March 2009

# A Year in Review - 2010

Last six months of 2010 have seen strong returns in commodities, particularly agricultural space, influenced by a variety of drivers ranging from increasingly tight supply, weather disruptions, rising Chinese and broad EM demand, data shocks etc.

- 2010 commodity price rises have been mainly about **supply tightness and disappointments**. Constraints in global commodity supply have included volatile weather, disruptions from operational, industrial and social problems, rising capital and operating costs, diminishing access to natural resources due to competing environmental needs, growing geopolitical risk and Asian resource competition
- **Weather disruption** has been one of the big surprises in 2010. The weather disruptions in agriculture (which have caused **agricultural commodities to rise ~60% in H2 2010**) have been mirrored in other non-agricultural commodities (such as copper, aluminium and coal)
- On the demand side, it has been about the emerging world. **Chinese consumption, in particular, remains the dominant story in many commodities** – such as soybeans and copper, and more recently corn and sugar - and **India is becoming another global driver**, both from its rising demand, such as for coal and copper, and in marginal supply, such as for sugar

Global asset class returns in 2010



Source: UBS Investment Research, Weekly Weight Watcher, "Where We Stand", 6 January 2011

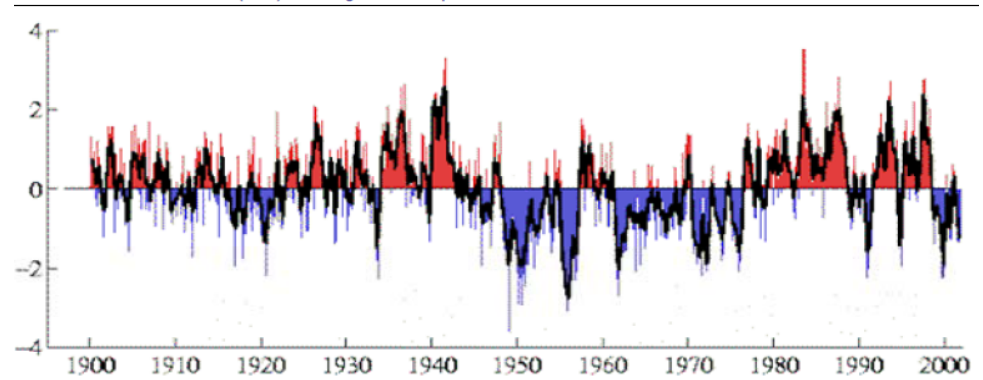
- **Crude oil has been the only real underperformer in 2010**, remaining 40% below its 2008 peaks. Part of the differentiation between oil and other commodities is that crude oil supply has seen pressures ease – with little new Middle East tension, rising Russian supply and technology advances, while demand growth has been modest with subdued developed world growth

# Weather – the Biggest Surprise of 2010

Weather disruption has been one of the big surprises in 2010, impacting not only the agriculture sector (weather impacts have seen agricultural commodities rally in the past six months), but also other non-agricultural commodities (i.e. copper, coal)

- For commodities, the most important weather patterns are the Pacific Decadal Oscillator (PDO) & the Southern Oscillator (SOI)
- PDO is a long lasting weather pattern that swings from warm surface temperatures to cold over a 10-20 year cycle in Pacific Ocean. Typically the difference between a warm and cold phase is a switch from 1-2% above average to 1-2% below
- The cycle is currently in the cold cycle, which is **characterised by prevalence of La Niña** (or cold water) SOI\* weather patterns in the North Pacific, and the consensus amongst climatologists is that this **cold cycle will last until around 2016**

Pacific Decadal Oscillation (PDO) – moving into a cold phase until 2016?

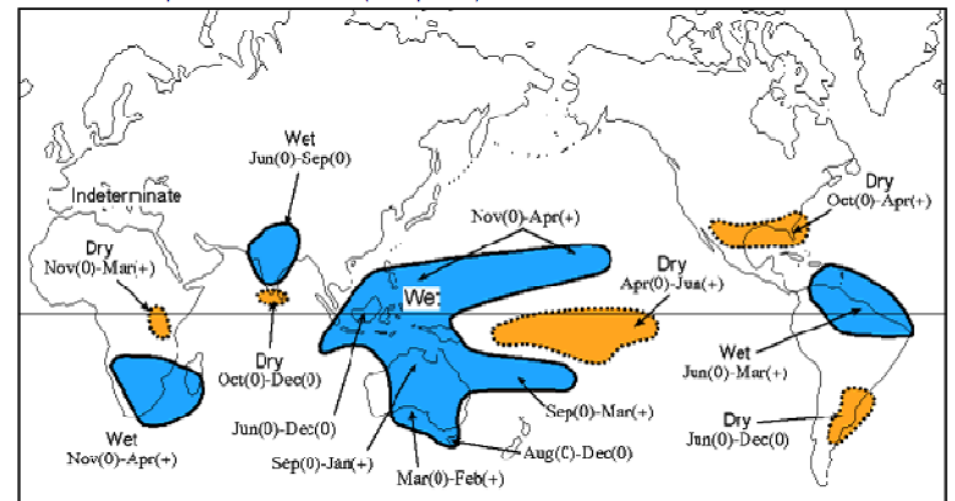


Source: US National Weather forecasting service

\*SOI is one measure of the large-scale fluctuations in air pressure occurring between the western and eastern tropical Pacific (i.e., the state of the Southern Oscillation) during El Niño and La Niña episodes. Traditionally, this index has been calculated based on the differences in air pressure anomaly between Tahiti and Darwin, Australia.

- The **Australian Bureau of Meteorology confirmed that the SOI value was +25 for Sep, its highest monthly value since 1973**
- There is no certainty that a cold PDO phase will trigger a La Niña event in any given year, but **in 2010, it is clear that we had a moderate to strong La Niña. 2011 is also starting with clear indications of prevailing La Niña**
- On a global basis, La Niña has a **profound impact on rainfall** – leading to much heavier rains in Indonesia, Australia, Columbia, South Africa and India. **La Niña rainfall patterns has obvious impacts on coal and agriculture** because the increased rainfall occurs in all the main coal exporting regions (Indonesia, Australia, South Africa make up over 60% of globally traded thermal coal) and grain/sugar/cotton areas of Australia and South East Asia (rice) while **dry areas also have had an adverse impact on grain production** (drought in West Australia and Argentina).

Potential Rainfall Impacts from La Niña Events (Cold Episodes)



(0) = Year of La Niña Onset (+) – Year Following La Niña Onset

Source: USDA

Source: UBS Investment Research, Compelling Analogy: Global commodities, 6 December 2010

# Weather Disruptions

Weather or climate change related production losses have been significant in 2010 and ranged from severe droughts (Russia, China and US) to floods and storm damage in Asia, Indonesia and Australia

Commodity	Country	Event	Impact	Source
Corn	US	Floods	Western Midwest harvest delays with very wet planting conditions and local flooding	Bloomberg
Corn	China	Cold Oct-Nov	Northeast China premature freezing conditions, potentially hurting maturing soybeans and com	Bloomberg
Cotton	China	Aug-Sep heavy rains	Cotton production lowered 1.5% to 32.5mbales	USDA
Rice	Viet-Thailand	Sep-Oct floods/storms	world 2010/11 lowered 2.5% to 450mt	IRRI
Rice	Indonesia	Wet weather and pests	2009/10 harvest down 4% to 37mt, 2010/11 down 5% to 38mt	IRRI
Rice	US	Hot weather	curbed yields and lowered milling rates by 10% for 2010/11	USDA
Rice/sugar	Pakistan	Jul-Aug floods	rice production -22% to 5mt; lost 2mt rice, 10mt of sugarcane	Pak Farm Minister
Rubber	India	Unprecedented rains Sep-Oct	Oct production down 15%/y/y with Q4 impact	Rubber India
Sugar	Brazil	4mth drought in central area	3% reduction to 639mt 2010-11 (Apr end ) crop	USDA
Wheat	Russia	Jul-Aug Drought	2010/11 wheat expectations fall 31%/y/y to 42.5mt	USDA
Wheat	W Australia	Drought	crop down 56% y/y to 3.5mt, lowest in 40 years	GIAWA
Wheat/corn	EU	Aug rains	2% revision down to 135mt wheat and 55mt corn	USDA

Source: USDA, Bloomberg, UBS

- Agricultural commodities have been the best performers in 2009 up more than 40%, led by c60% surges in wheat, corn and sugar
- Other agricultural commodities that advanced to record levels include cotton driven higher with a possible 15% decline in 2009/10 harvest in China (China Cotton Association) due to adverse weather and lower global inventories
- **The current cold Pacific Decadal Oscillator (PDO) cycle, which is characterised by a prevalence of La Niña (or cold water) SOI weather patterns, has had a profound impact on rainfall globally and hence may impact coal, metals and agriculture, is expected to last until around 2016**

Source: UBS Investment Research, Compelling Analogy: Global commodities, 6 December 2010

# Grains Outlook Remains Positive

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Recent weather induced agricultural shortages contributed to tight world grain balances, implying that any further shocks to supply may have a significant effect on prices

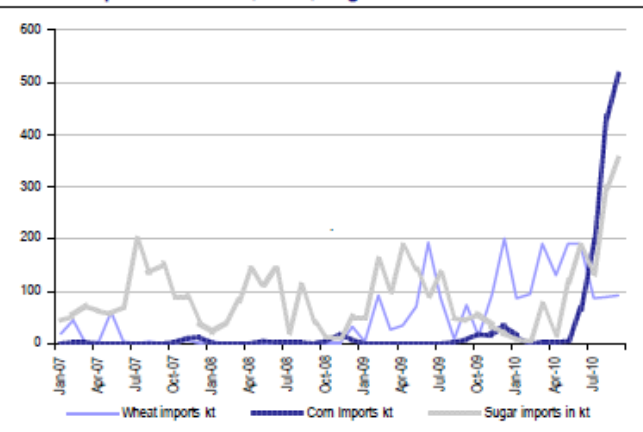
- 2010 is likely to rank in the top 3 warmest years on record according to the World Meteorological Organisation<sup>1</sup> and saw droughts in Eastern Europe, Brazil and China, which contributed to a tight world grain balances
- The Russian wheat crisis and lower than expected corn yields will potentially leave the world with a **small grain carry-over**, especially in corn, where some form of **rationing** might be expected
- 2011 is starting with further weather disruptions –ranging from floods in Australia and Brazil to droughts in Argentina - which are a cause for further concerns on potential yield disappointment
- The common perception is that higher demand for grains from population growth, increased wealth and biofuels could be matched by scientific advances that boost agricultural yields. However, recent price action has shown how little buffer there is between increased yield expectations and yield disappointments - unlike the oil market where supply disruption can at least be partially absorbed by increased production, **lost supply in the agricultural market is final and any further cuts will have a significant effect on price discovery in these markets**
- Furthermore, to achieve higher yields farmers around the world require higher income, and therefore usually expressed by higher grain prices, to invest in fertilizers and better seeds (GMO, Genetically Modified Organism). Higher income is also required to invest in better transport infrastructure to move grains around the world (railway and port capacity)

# China and Agricultural Commodities

Many of the agricultural commodities have similar market structures in that China's large imports, underpinned by China's poor domestic resource base, are increasingly dominating global markets and pricing

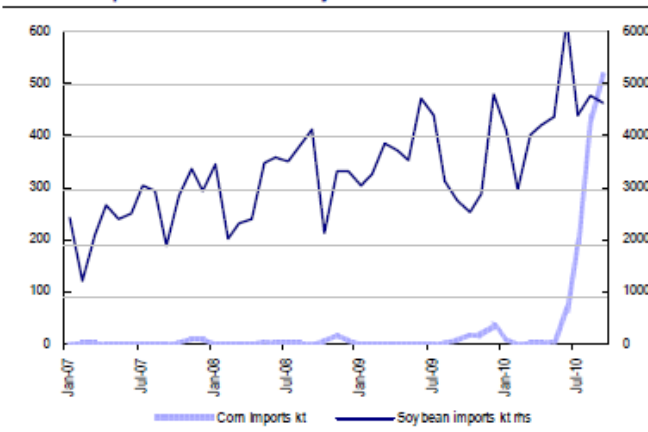
- **Chinese soybean imports** have been the dominant import of the last 10 years, rising from 2mt/month rate in early 2006 to averaging 4.7mt in the last 6 months of 2010. Chinese soybean restocking may have been prompted by supply concerns associated with the soybean crop negatively impacted by the dry conditions of the La Niña pattern
- China may be seeing the start of '**new era**' of **corn imports**, where corn imports have surged from, effectively, zero to 5mt/y rate in the last 3 months of 2010. Corn imports are likely to grow from approx. 2mt in 2010 to approx/ 6mt in 2011 and then to approx. 15mt in 2014-15 as China's potential demand for corn, used largely as livestock feed, outstrips domestic corn production. Rising incomes are expected to drive meat consumption that in turn drives corn consumption

China imports of wheat, corn, sugar in kt from Jan07



Source: Chinese Customs Statistics, UBS Corn No.2 Yellow

China imports of corn and soybean in kt from Jan07



Source: Chinese Customs Statistics, UBS

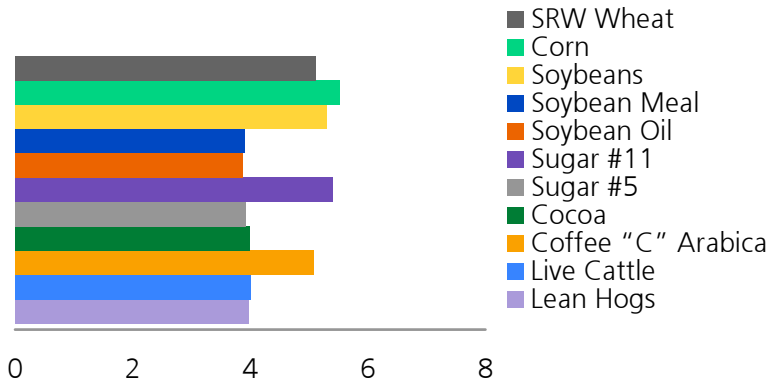
- The rising trend of Chinese agricultural imports is not only a reflection of the GDP growth and rising intensity of use of meat and food but also due to **declining capacity of China's agricultural resources**. In order to be self-sufficient in grain production, the Chinese government estimates that it needs to maintain 120m hectares for crop production. Current amount of arable land is c122m hectares and the estimates are that between 1997 and 2007 755k hectares were lost each year to development, erosion, and desertification

# CMCI Food Index

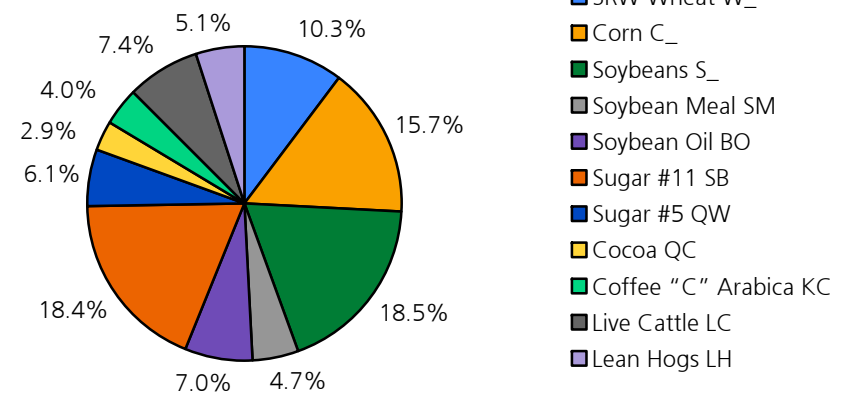


Sector	Commodity	Code	Weight	Average	3M	6M	1Y	2Y	3Y
Food	SRW Wheat	W_	10.27%	5.11	✓	✓	✓		
	Corn	C_	15.69%	5.52	✓	✓	✓		
	Soybeans	S_	18.53%	5.29	✓	✓	✓		
	Soybean Meal	SM	4.72%	3.90	✓	✓			
	Soybean Oil	BO	7.00%	3.88	✓	✓			
	Sugar #11	SB	18.40%	5.39	✓	✓	✓		
	Sugar #5	QW	6.07%	3.92	✓	✓			
	Cocoa	QC	2.90%	3.99	✓	✓			
	Coffee "C" Arabica	KC	3.97%	5.08	✓	✓	✓		
	Live Cattle	LC	7.36%	4.00	✓	✓			
	Lean Hogs	LH	5.09%	3.98	✓	✓			

Avg. Tenor (M)

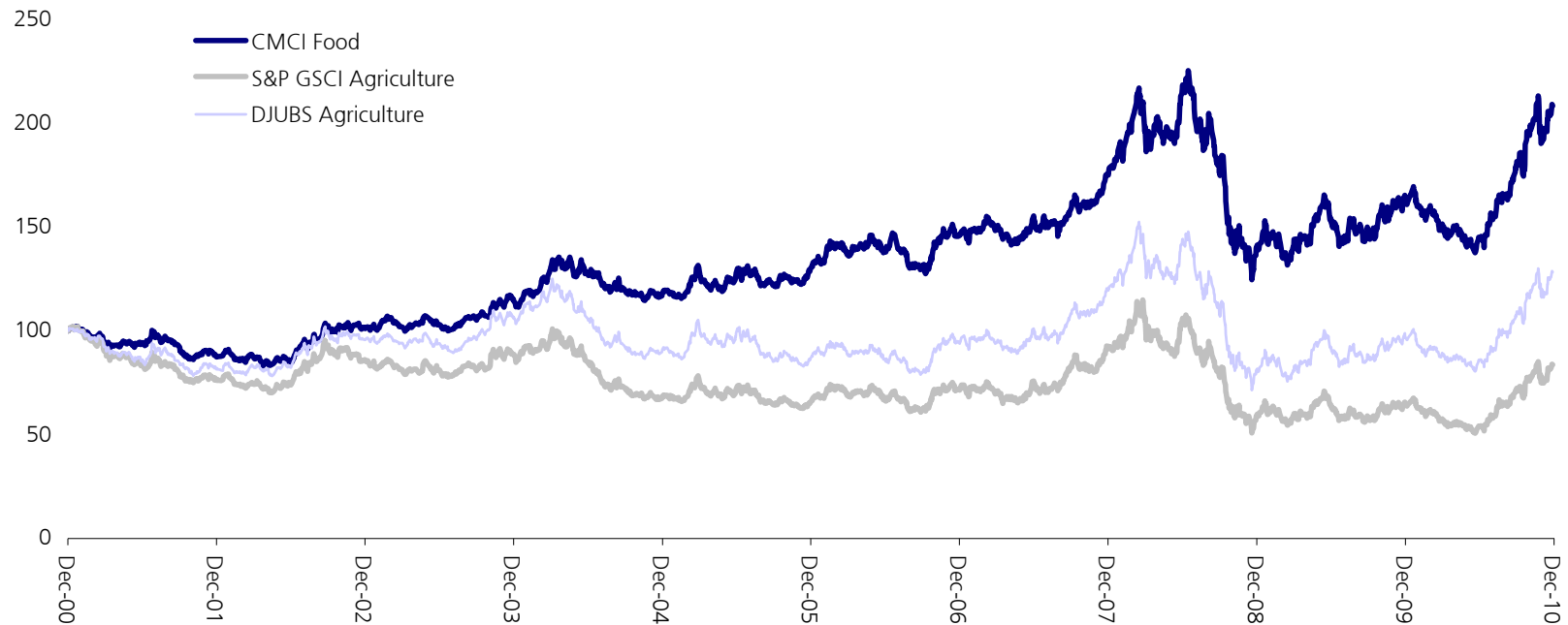


Weight



Source: UBS IB. Valid for H1-2011

# CMCI Food Index



Source: UBS IB, Bloomberg Data from 16 December 2000 to 16 December 2010.  
Data back –tested up to Q1 2008 and live thereafter



	CMCI Food	S&P GSCI Agriculture	DJUBS Agriculture
<b>Performance p.a.</b>	7.6%	-1.8%	2.5%
<b>Volatility p.a.</b>	16.3%	21.2%	19.8%
<b>Sharpe Ratio</b>	0.47	-0.08	0.13

Source: UBS IB, Bloomberg Data from 16 December 2000 to 16 December 2010.  
Data back –tested up to Q1 2008 and live thereafter

Important disclaimer: Past performance is not indicative of future performance.

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- Industry leading research and trading platform
- Supporting operations and risk management infrastructure

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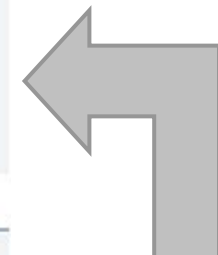
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Product info

- Investment Manual
- Special Announcement
- Presentation of index
- Factsheet
- Technical documentation
- Chartbook
- Trading Hours Guide
- Superior Benchmark

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### Educational materials on:

- Commodity Index development
- CMCI Methodology
- Products
- etc.

Together with Bloomberg, UBS has created a highly innovative concept for commodity investors: the UBS Bloomberg CMCI (Constant Maturity Commodity Index). This global index not only covers a broad range of commodities, but also introduces a time dimension to commodity investment. With a series of investment maturities for each individual commodity and a revolutionary new calculation methodology, the CMCI opens up a new era for commodity investors.

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- CMCI Manual
- Presentation
- Factsheets
- Chart book (index comparison)
- etc.

# UBS Commodities – Contacts

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**Jean Bourlot** joined UBS in August 2010 as a Managing Director, Global Head of Commodities.

From 1995 to 2007 he was trading options on Oil and Refined products, joint-head of the Options book at Morgan Stanley from 2002. In 2007 he set up an Agricultural trading team, transforming it into an industry leader.

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