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**Strictly confidential**

# UBS Commodities

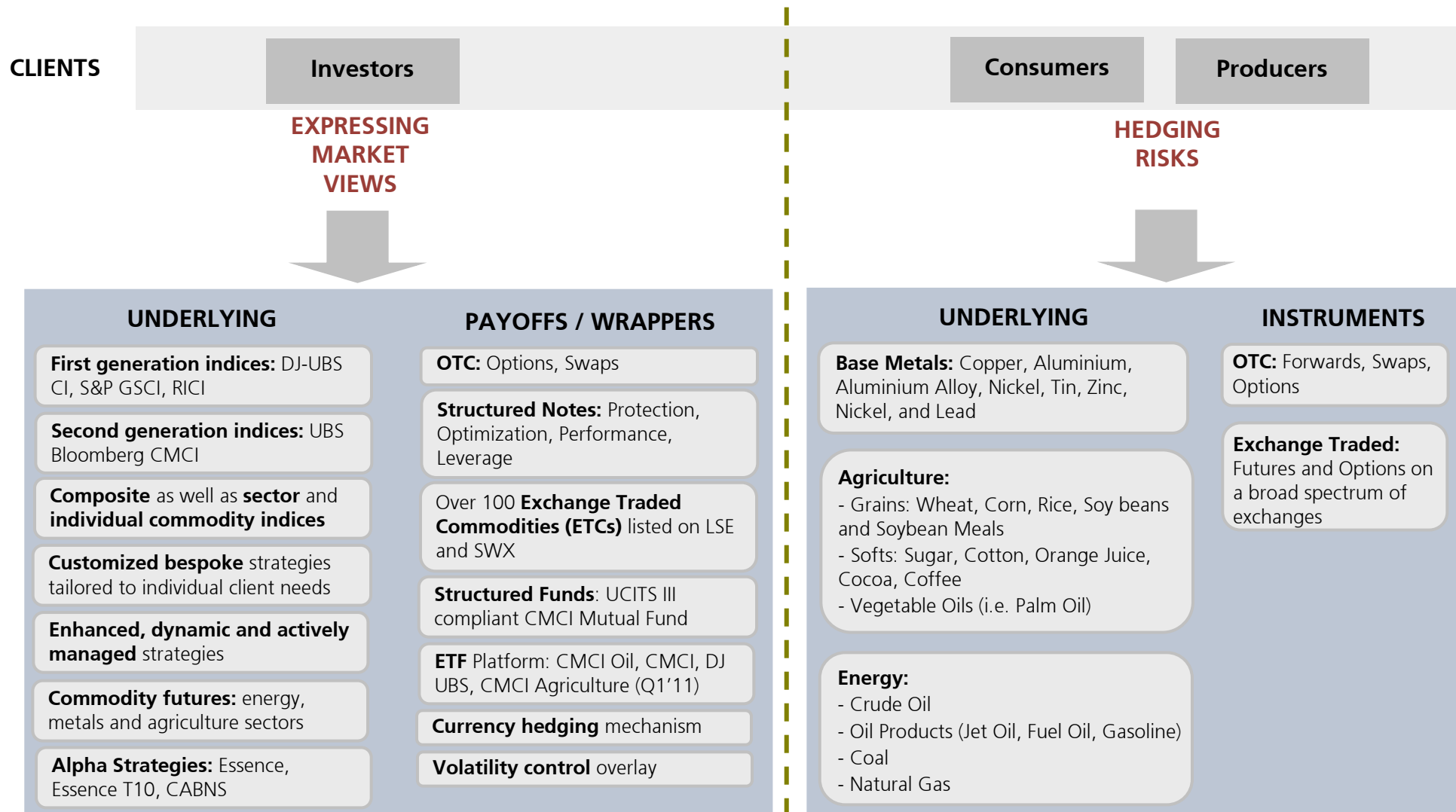
UBS Bloomberg CMCI

*July 2011*



# A Leader in Commodities Space

UBS offers services to a broad spectrum of investor profiles, through **Risk Management** on one side, allowing its clients to either reduce or convert their exposure, and through **Direct or Structured Investment** on the other side, allowing any counterparty the possibility to express their view or to position themselves in the markets for which they have a particular view



## Section 1

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# Roll Yield Concept

# The Concept of Roll Yield

Commodity investors are often limited to the use of commodities futures to gain exposure to the commodity space due to high costs of carry associated with holding a physical commodity.

- One can invest in futures either by taking a long-dated futures position and holding until future contract's maturity or by taking a position on a short-dated maturity and "rolling" the contract until the desired date in order to avoid physical delivery but still maintain exposure to the market
- **Traditional commodity indices** have been a popular investment vehicles that use the second approach to gain commodity exposure
  - **Fundamentals:** traditional commodity indices represent long only positions in a basket of exchange-traded commodity futures, referencing the first 2-3 nearby futures contracts
  - **Index Rolling Mechanism:** in order to avoid physical delivery yet maintain positions in the futures market, index investments require continuous replacement of the expiring front-month contract with a further-out contract (roll process)
  - **Punctual Roll:** Indices are rules-based, so the exact days of rolls are known (typically 5th to 9th business day of the month) for each index and are transparent to the market
- As a result of the above construction method, **commodity index returns typically have two drivers behind them:**

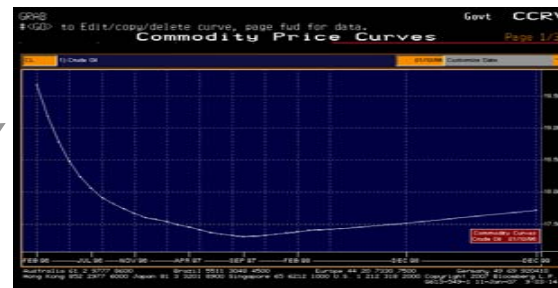
**Price returns:** have commodity futures prices increased or decreased?

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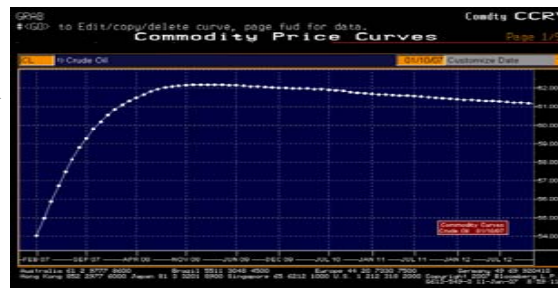
**Roll returns:** Can be either positive or negative (**depending on the shape of the futures curve**) and result from replacing an expiring contract with a further-out contract

Backwardation

Contango



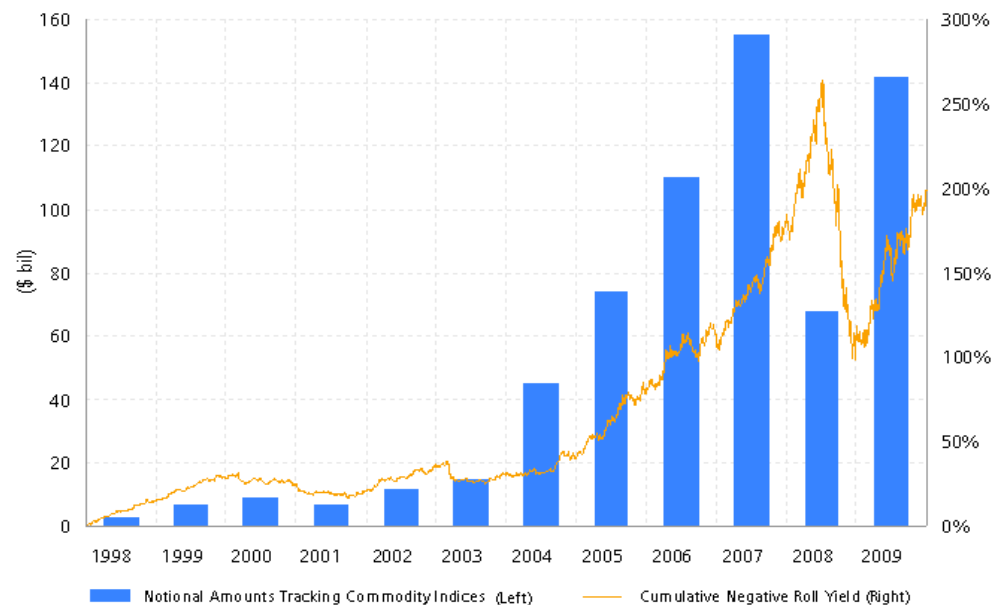
If deferred futures prices are below spot futures prices, the curve is in **backwardation** and roll returns will be positive



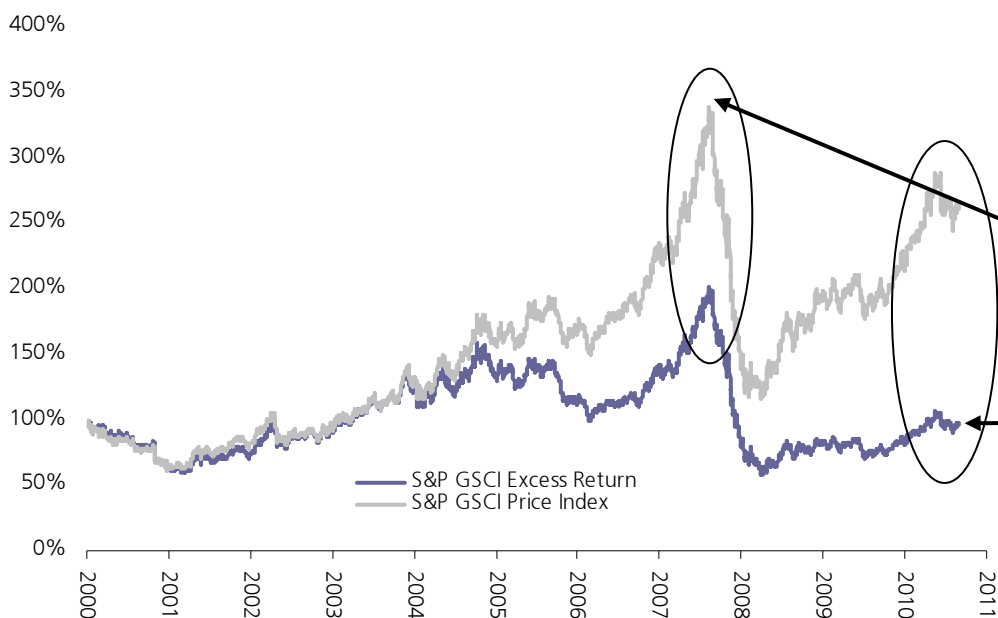
If deferred futures prices are higher than spot futures prices, the curve is in **contango** and roll returns will be negative

# Negative Roll Yield and Traditional Commodity Indices

- Traditional commodity indices have been a popular vehicle for investors during the commodity markets expansion phase (2002-2005)
- However, when commodities became a recognized asset class and the market saw the AUM rise from USD15bn to more than USD150bn, the nature of commodity forward curves across the entire commodity spectrum has altered
- This has meant that traditional commodity indices have started experiencing a **significant negative roll yield**, resulting in performance that is worse than the underlying commodities prices



Source : Bloomberg / UBS analysis

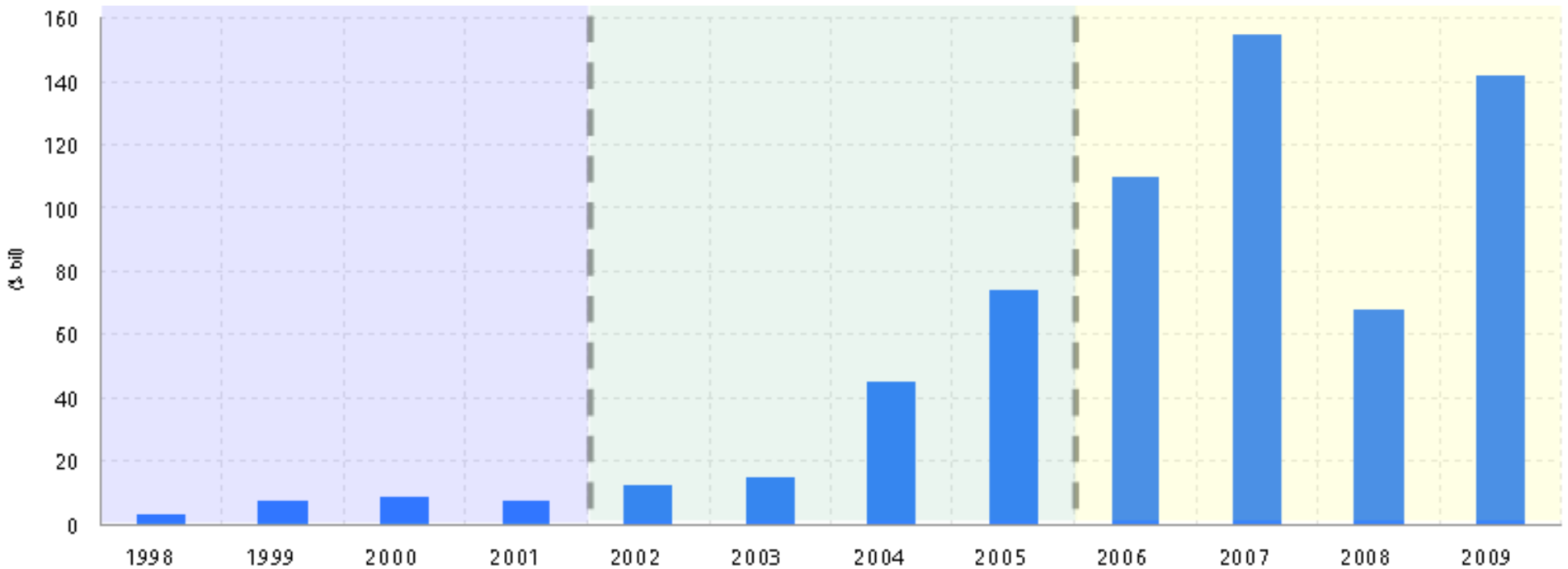
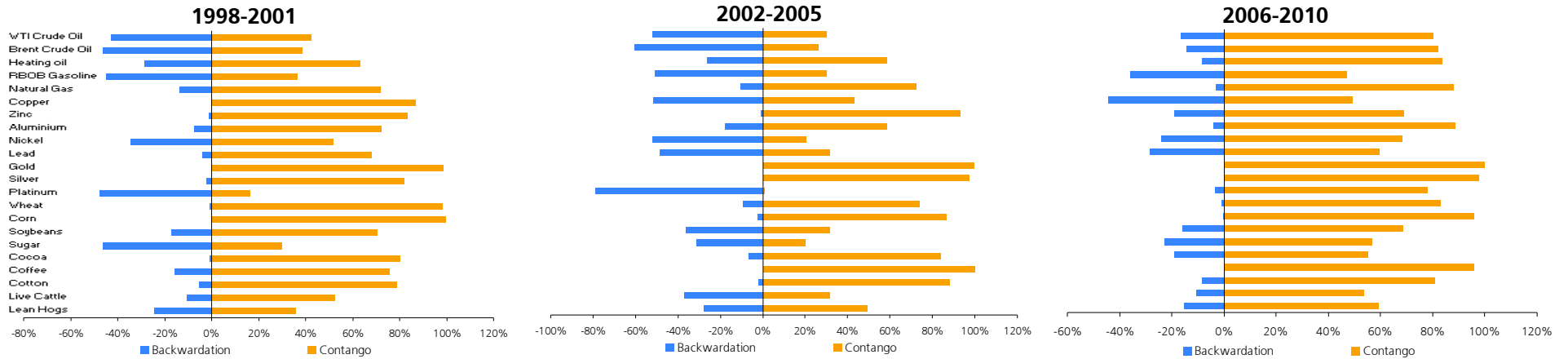


Futures index return has lagged price index return. This decoupling of performance has been a source of frustration for index investors

Daily closing return data for S&P GSCI from 29 April 2001 until 15 July 2011; Source Bloomberg  
Important disclaimer: Past performance is not indicative of future performance.

# Curve Asymmetries – Contango Prevails

## High Correlation between Notional Amounts Tracking Commodity Indices and Contango



Notional Amounts Tracking Commodity Indices (\*Estimate)

Source : Bloomberg, UBS

Note: Comparison using first 3 contracts

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



## Section 2

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# UBS Bloomberg CMCI

# UBS Bloomberg CMCI - Summary

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The UBS Bloomberg CMCI ("CMCI") is a unique index that has been live since January 2007 and demonstrates:

- **Constant and stable outperformance with REAL track record**

As a result of the methodology that minimises the impact of roll yield on returns, **the CMCI has outperformed S&P GSCI by close to 45% since CMCI went live in January 2007** (in a backtest, the outperformance has been almost 300% since 31 November 1997)

(Source: Bloomberg, UBS IB, Total Return Indices, 15 July 2011).

- **Close tracking of commodity spot prices**

The innovative calculation methodology of the CMCI, that involves daily rolling to comply with the Constant Maturity concept, not only ensures that the tracking error of the investment vehicle vs. actual performance of commodity markets is minimised, but also avoids the problems of having to roll large notionals over the short punctual roll period.

- **Broad market coverage not only in terms of commodities but also tenors**

CMCI not only covers a broad range of commodities, but also introduces a time dimension to commodity investment. Diversification not only among commodities, but also maturities for each individual commodity ranging from 3 months to 3 years allows for a high level of flexibility in making investment allocation decisions.

- **Highly transparent and operationally stable**

To ensure the stability of the CMCI, it is overseen by a committee (the CMCI Governance Committee, composed of UBS, Bloomberg and external members) established by the two Index Sponsors, which ensures the validation, determinations, changes to the composition and communication regarding the CMCI. The feature of a co-sponsor makes the index transparent and operationally stable.

- **Highly liquid**

As a result of selecting highly liquid futures contracts diversified along the forward curve, as well as the Constant Maturity methodology that involves daily rolling, CMCI avoids the potential problem of punctual roll (when high volumes are traded in announced transactions) and trades smaller volumes on a daily basis, having less impact on the market and hence not adversely affecting the performance that the index investor receives.

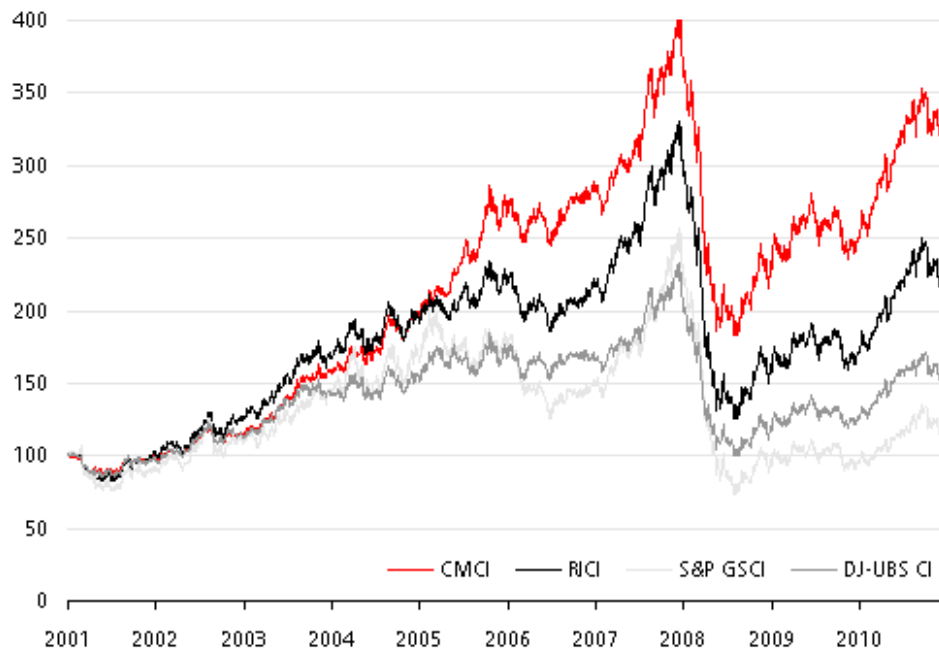
Important disclaimer: Past performance is not indicative of future performance.

# UBS Bloomberg CMCI

Second generation commodity indices, like the UBS Bloomberg CMCI, can show better performance at lower volatility, compared to traditional commodity indices as a result of

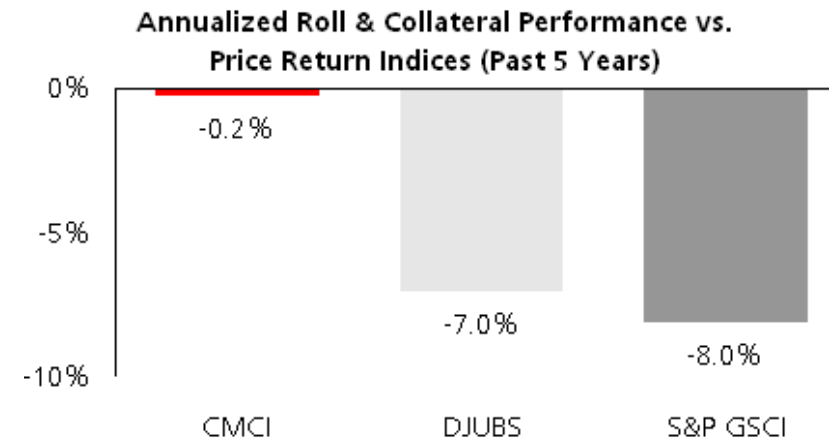
- Balanced and diversified index composition, not only in terms of commodities represented, but also in terms of expiries
- Recognising the changing shape of commodity forward curves and the rolling mechanism aimed at avoiding roll risks
- Recognising potential problems of punctual roll

For example, as a result of the methodology that minimizes the impact of roll yield on returns, the UBS Bloomberg CMCI shows close tracking of commodity prices and has outperformed S&P GSCI by more than 40% since CMCI went live in January 2007, while exhibiting much lower volatility levels



	CMCI	S&P GSCI	DJ-UBS CI	RICI
Performance p.a	13.1%	2.2%	4.9%	8.7%
Volatility p.a.	17.0%	25.7%	18.3%	20.6%
Sharpe Ratio	0.77	0.09	0.27	0.42

Based on daily returns from 27-Apr-01 to 20-Jul-11



Daily closing return data from 27 April 2001 until 24 July 2011; Source Bloomberg. Back-tested CMCI performance data to Jan 2007 and live thereafter  
Important disclaimer: Past performance is not indicative of future performance.

FOR ILLUSTRATIVE PURPOSE ONLY

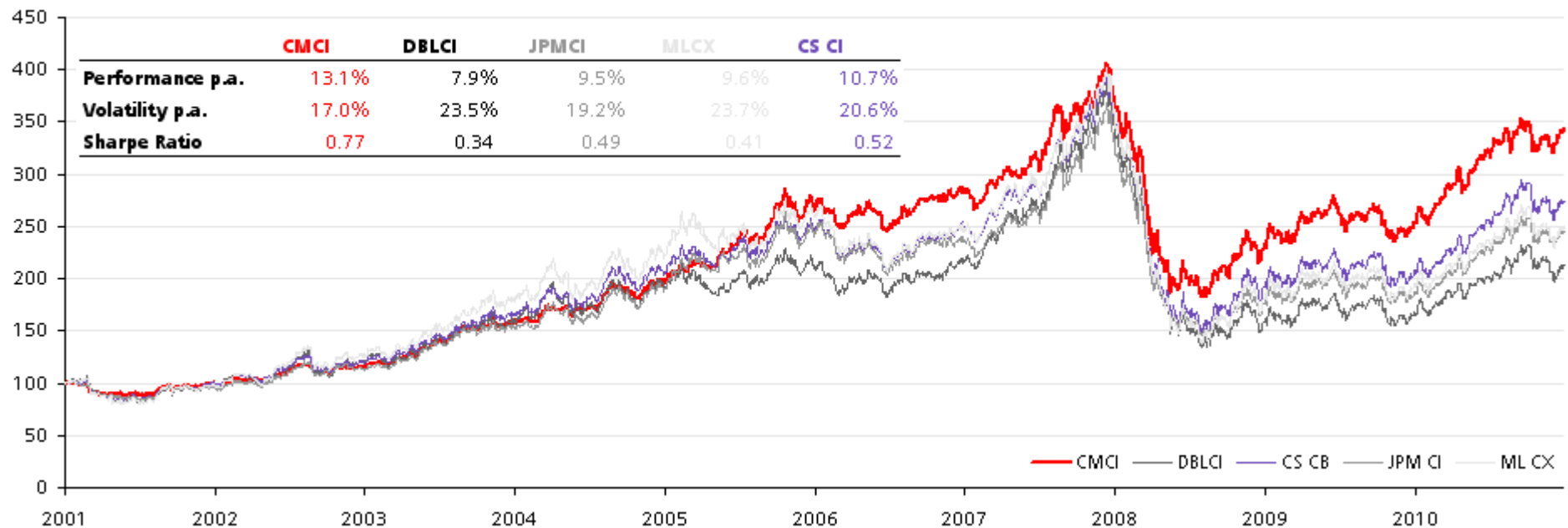
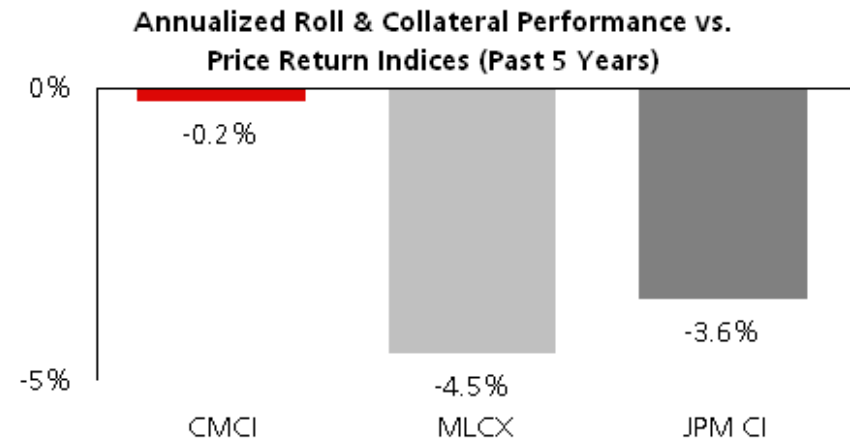


# UBS Bloomberg CMCI

Even compared to second generation commodity indices, that have exposure to longer dated commodity futures, CMCI shows stronger returns at lower volatility levels

## Performance drivers

- Minimum exposure to negative effects of roll yield as a result of Constant Maturity approach
- Lower volatility by minimising exposure to the most volatile front-month futures
- Outperformance thanks to the exposure to longer dated commodity futures



## Section 3

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# CMCI Methodology

# CMCI Investment Universe

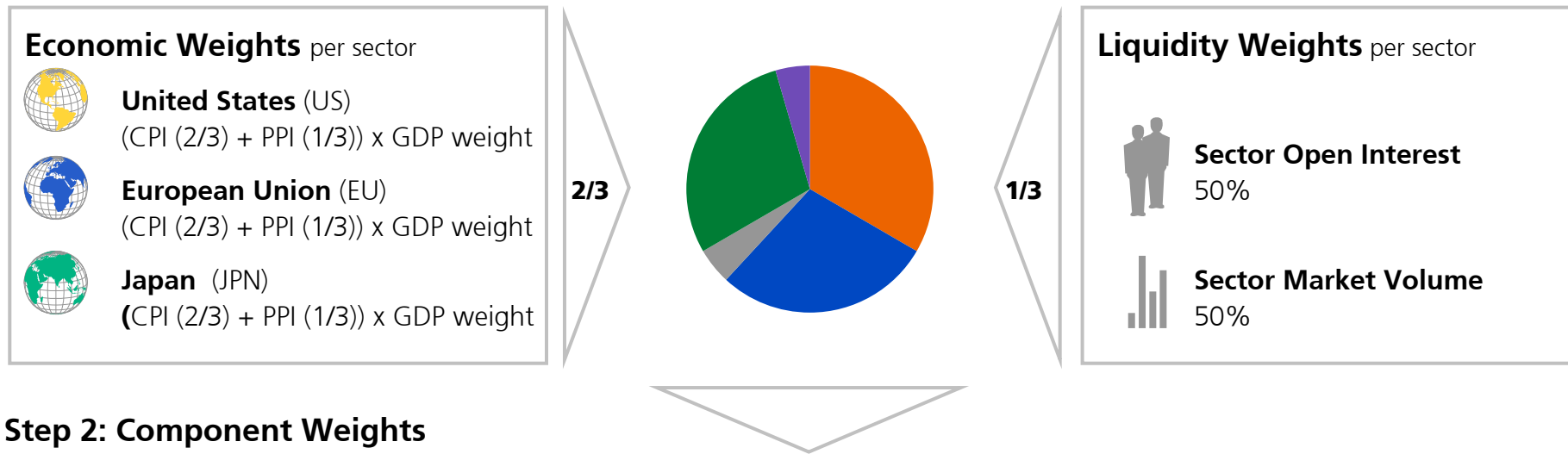
Each of the below bullets can be treated as a separate investable index. As such, investor has the ability to invest not only into a **composite index**, but also **commodity sectors** (i.e. agriculture) and **individual commodities** (i.e. crude oil)

Sector	Weight	Avg Tenor	Commodity	Code	Overall Weight	Weight in Sector	Average Tenor	Weights of Constant Maturities per Commodity				
								3M	6M	1Y	2Y	3Y
Energy	35.3%	8.27	WTI Crude Oil (Nymex)	CL	9.08%	25.76%	9.88	51.85%	13.94%	14.58%	11.05%	8.57%
			WTI Crude Oil (ICE)	EN	3.84%	10.90%	10.14	49.18%	14.54%	15.91%	12.07%	8.30%
			Brent Crude Oil	CO	6.73%	19.10%	9.31	53.15%	14.83%	14.26%	10.65%	7.10%
			Heating oil	HO	3.12%	8.85%	5.25	61.36%	20.45%	18.19%	-	-
			Gasoil	QS	3.83%	10.87%	5.93	50.73%	25.01%	24.26%	-	-
			RBOB Gasoline	XB	3.76%	10.65%	3.75	74.84%	25.16%	-	-	-
			Natural Gas	NG	4.89%	13.87%	9.64	48.61%	17.14%	16.46%	10.23%	7.55%
Industrial Metals	26.5%	10.59	LME Copper	LP	9.30%	35.16%	14.38	22.85%	20.61%	22.79%	20.20%	13.55%
			High Grade Copper	HG	3.28%	12.39%	3.74	75.39%	24.61%	-	-	-
			LME Zinc	LX	2.55%	9.65%	6.52	42.03%	28.27%	29.70%	-	-
			LME Aluminium	LA	7.45%	28.18%	12.62	30.28%	21.88%	20.67%	15.57%	11.60%
			LME Nickel	LN	2.63%	9.94%	6.01	50.09%	24.66%	25.26%	-	-
			LME Lead	LL	1.24%	4.69%	6.13	48.20%	25.48%	26.33%	-	-
Precious Metals	5.9%	6.90	Gold	GC	5.00%	84.22%	6.89	60.00%	16.40%	12.97%	10.63%	-
			Silver	SI	0.94%	15.78%	6.92	59.50%	16.27%	13.77%	10.47%	-
Agriculture	28.4%	4.96	SRW Wheat	W_	3.62%	12.75%	5.11	61.58%	22.52%	15.90%	-	-
			Corn	C_	5.13%	18.06%	5.52	53.87%	27.12%	19.01%	-	-
			Soybeans	S_	5.48%	19.29%	5.29	56.30%	27.38%	16.32%	-	-
			Soybean Meal	SM	1.50%	5.28%	3.90	69.97%	30.03%	-	-	-
			Soybean Oil	BO	1.56%	5.48%	3.88	70.75%	29.25%	-	-	-
			Sugar #11	SB	5.21%	18.32%	5.39	58.72%	22.06%	19.23%	-	-
			Sugar #5	QW	2.20%	7.74%	3.92	69.46%	30.54%	-	-	-
			Cocoa	QC	0.83%	2.93%	3.99	67.10%	32.90%	-	-	-
			Coffee "C" Arabica	KC	1.30%	4.58%	5.08	60.25%	24.95%	14.81%	-	-
			Cotton	CT	1.58%	5.56%	4.21	59.75%	40.25%	-	-	-
Livestock	3.9%	3.99	Live Cattle	LC	2.29%	58.34%	4.00	66.75%	33.25%	-	-	-
			Lean Hogs	LH	1.64%	41.66%	3.98	67.38%	32.62%	-	-	-

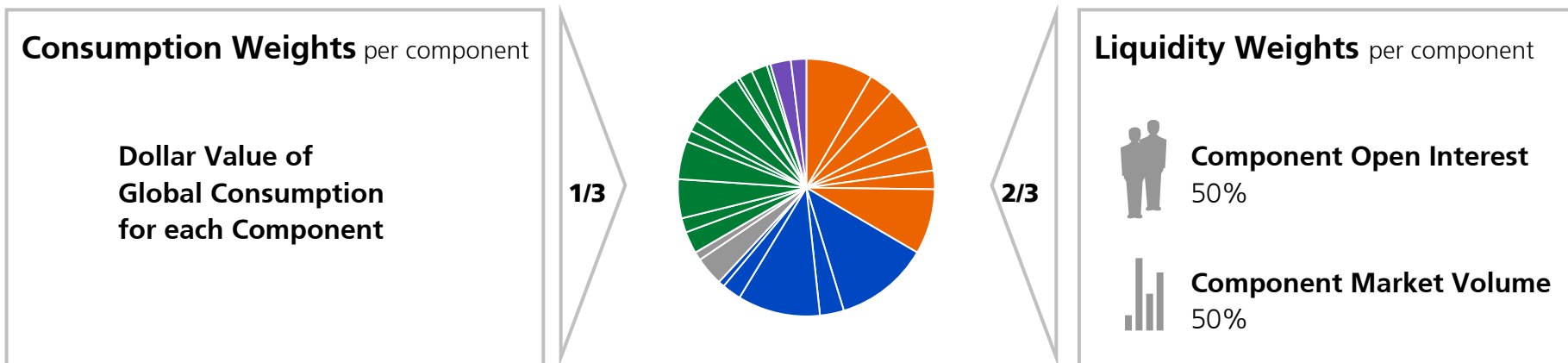
# CMCI Weighting Engine

CMCI engine designed to reflect the economic significance and market liquidity for each commodity

## Step 1: Sector Weights



## Step 2: Component Weights



- **Individual component weight cap (20%) and floor (0.60%)** ensure diversification
- **Weightings are revisited twice a year** in October and April and the index re-balances on a monthly basis

# CMCI Methodology

UBS Bloomberg CMCI has been developed in order to deal with this problem of negative roll yield:

- **Exposure to the whole commodity curve**, which not only provides diversification, but also access to a less volatile part of the forward curve
- **Index Rolling Mechanism** that is based on the Constant Maturity approach, which involves daily rolling of a small proportion of underlying futures, **avoids the problem of punctual roll and minimises the impact of roll yield on Index performance**

**Traditional Indices**

- **Front month futures only**  
*Problem:* congestion, risk to be positioned on the most volatile part of the curve, which historically exhibits more contango and less backwardation
- **Punctual roll**  
*Problem:* high volumes, "announced" transactions

**UBS Bloomberg CMCI**

- **Diversified along entire curve**  
*Advantage:* diversified exposure, no congestion
- **Continuous roll**  
*Advantage:* lower volumes, less influence, no "announced" transactions
- **5 constant maturities:** 3 months, 6 months, 1 year, 2 years and 3 years

**AND: Longer dated futures are generally less volatile!**

	Avg Monthly Roll Yield in %			
	S&P GSCI	CMCI 3 Month	CMCI 6 Month	CMCI 1 Year
<b>Energy</b>				
Crude Oil	-0.7%	-0.1%	0.3%	0.3%
Heating Oil	-0.6%	-0.2%	0.0%	0.2%
Natural Gas	-3.1%	-1.5%	-0.7%	0.1%
Gas Oil*	-0.1%	0.1%	0.2%	0.3%
Brent Oil*	-0.1%	0.1%	0.4%	
<b>Agriculture</b>				
Corn	-1.5%	-1.2%	-0.9%	-0.6%
Wheat	-1.6%	-1.1%	-0.6%	-0.5%
Soybean	-0.1%	0.0%	0.1%	
Cotton	-1.2%	-0.8%	-0.6%	-0.4%
Sugar	-0.4%	0.0%	0.1%	0.0%
Coffee	-1.1%	-1.0%	-0.9%	-0.7%
Cocoa	-0.5%	-0.5%	-0.4%	-0.4%
<b>Metals</b>				
Aluminum	-0.4%	-0.3%	-0.1%	0.0%
Copper	0.0%	0.1%	0.2%	0.2%
Lead	-0.1%	0.1%	0.1%	0.1%
Nickel	0.1%	0.3%	0.4%	0.5%
Zinc	-0.4%	-0.3%	-0.1%	0.1%
<b>Precious Metals</b>				
Gold	-0.3%	-0.3%	-0.2%	-0.2%
Silver	-0.2%	-0.2%	-0.2%	-0.1%
<b>Livestock</b>				
Live Cattle	-0.6%	-0.4%	-0.2%	
Lean Hogs	-1.8%	-0.9%	0.0%	

Monthly Tracking error!



# The Constant Maturity Approach

The “constant maturity” concept is achieved by a continuous rolling process, where a weighted percentage of contracts are swapped for longer dated contracts on a daily basis. This not only gives more continuous exposure to the asset class, but also can minimise exposure to the negative effects of roll yield, making the index more representative of the underlying market price movements

## Objective

- Hold a constant maturity (time to physical delivery) through time such that the index rolls smoothly through markets

## Mechanics

- Hold two contracts surrounding the time of delivery in changing proportions such that average equals the desired constant maturity
- As time (a day) passes, the weights for the surrounding contracts shift in order to keep the average time constant



Source: UBS AG

## Section 4

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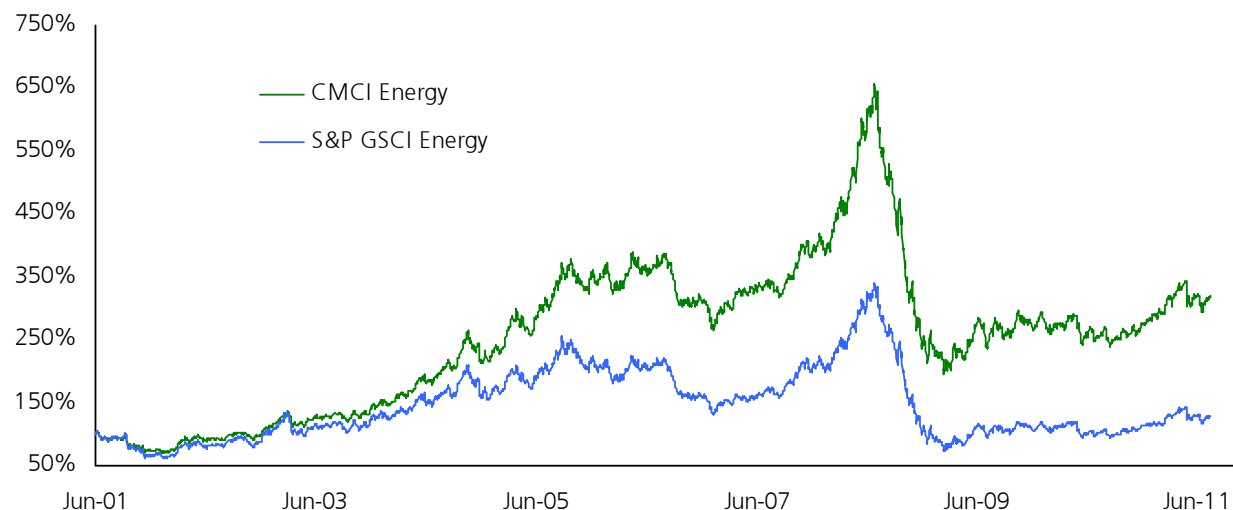
# CMCI Energy Index

# CMCI Energy

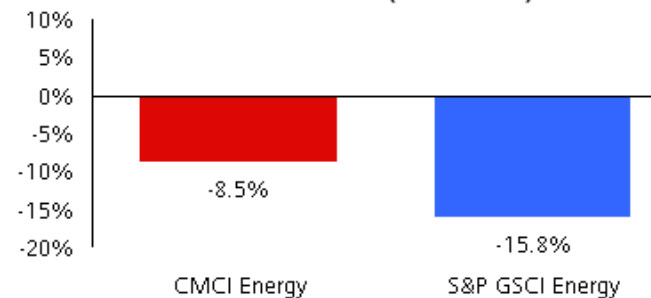
**UBS Bloomberg CMCI Energy shows lower tracking error of realized returns when compared with movements in the underlying commodity spot prices market as a result of**

- Balanced and diversified index composition, not only in terms of commodities represented, but also in terms of expiries
- Recognising the changing shape of commodity forward curves and the rolling mechanism aimed at avoiding roll risks
- Recognising potential problems of punctual roll

**As a result of the methodology that minimizes the impact of roll yield on returns, the CMCI Energy shows close tracking of commodity prices and has **outperformed S&P GSCI Energy by almost 20% since CMCI went live in January 2007**, while exhibiting much lower volatility levels.**



**Annualized Roll & Collateral Performance vs. Price Return Indices (Past 5 Years)**



	<b>CMCI Energy TR</b>	<b>S&amp;P GSCI Energy TR</b>
<b>Performance p.a.</b>	11.5%	1.0%
<b>Volatility p.a.</b>	26.5%	33.5%
<b>Sharpe Ratio</b>	0.43	0.03

Daily closing return data from 31 January 2001 until 21 July 2011; Source Bloomberg. Back-tested CMCI performance data to Jan 2007 and live thereafter  
Important disclaimer: Past performance is not indicative of future performance.

# CMCI Energy - Index Composition

Sector	Weight	Avg Tenor	Commodity	Code	Overall Weight	Weight in Sector	Average Tenor	Weights of Constant Maturities per Commodity				
								3M	6M	1Y	2Y	3Y
Energy	35.3%	8.27	WTI Crude Oil (Nymex)	CL	9.08%	25.76%	9.88	51.85%	13.94%	14.58%	11.05%	8.57%
			WTI Crude Oil (ICE)	EN	3.84%	10.90%	10.14	49.18%	14.54%	15.91%	12.07%	8.30%
			Brent Crude Oil	CO	6.73%	19.10%	9.31	53.15%	14.83%	14.26%	10.65%	7.10%
			Heating oil	HO	3.12%	8.85%	5.25	61.36%	20.45%	18.19%	-	-
			Gasoil	QS	3.83%	10.87%	5.93	50.73%	25.01%	24.26%	-	-
			RBOB Gasoline	XB	3.76%	10.65%	3.75	74.84%	25.16%	-	-	-
			Natural Gas	NG	4.89%	13.87%	9.64	48.61%	17.14%	16.46%	10.23%	7.55%

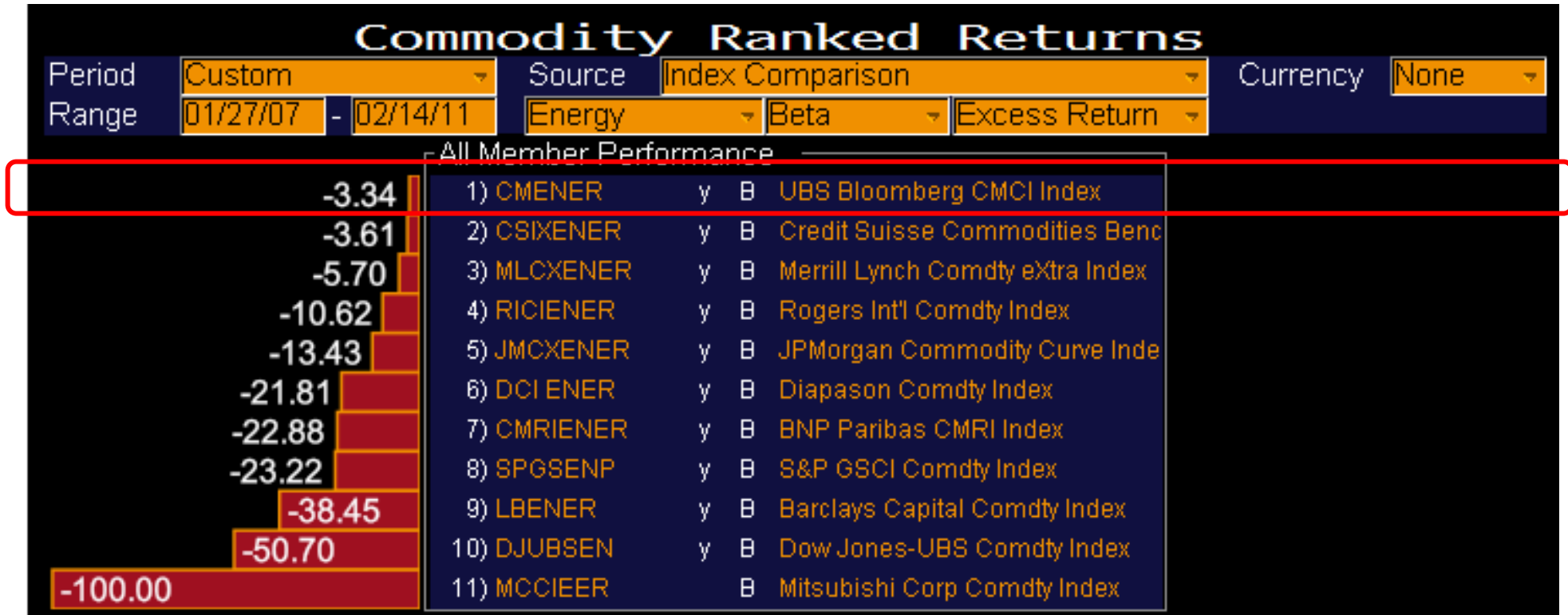
Diversification among commodities

Diversification along the forward curve

Source: UBS AG; Correct as of 1 August 2011  
Average Tenor refers to the average maturity of the CMCI Benchmark Index that includes all the available maturities from 3 months to 3 years

# CMCI Energy – Best Performing Index since 2007 launch

CMCI Energy index shows strong returns compared to other indices giving exposure to energy sector, delivering the strongest performance among all the commodity beta offerings since its launch in January 2007



## Section 5

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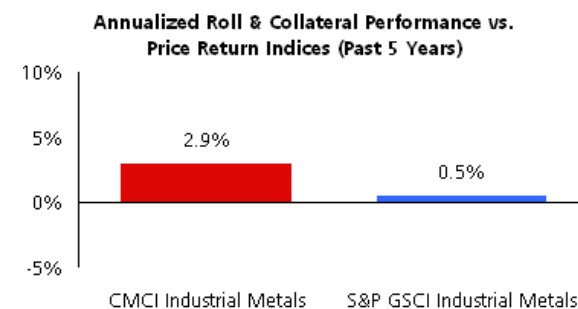
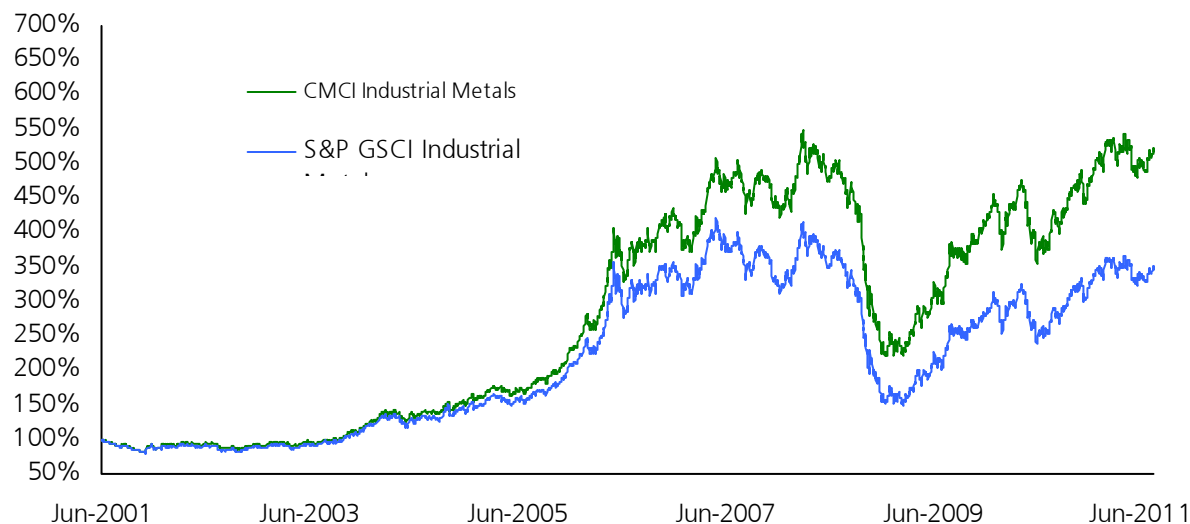
# CMCI Industrial Metals Index

# CMCI Industrial Metals

**UBS Bloomberg CMCI Industrial Metals shows lower tracking error of realized returns when compared with movements in the underlying commodity spot prices market as a result of**

- Balanced and diversified index composition, not only in terms of commodities represented, but also in terms of expiries
- Recognising the changing shape of commodity forward curves and the rolling mechanism aimed at avoiding roll risks
- Recognising potential problems of punctual roll

**As a result of the methodology that minimizes the impact of roll yield on returns, the CMCI Industrial Metals shows close tracking of commodity prices and has **outperformed S&P GSCI Industrial Metals by more than 24% since CMCI went live in January 2007**, while exhibiting much lower volatility levels.**



	<b>CMCI Industrial Metals TR</b>	<b>S&amp;P GSCI Industrial Metals TR</b>
<b>Performance p.a.</b>	17.5%	12.7%
<b>Volatility p.a.</b>	23.8%	25.4%
<b>Sharpe Ratio</b>	0.73	0.50

Daily closing return data from 31 January 2001 until 21 July 2011; Source Bloomberg. Back-tested CMCI performance data to Jan 2007 and ;live thereafter  
Important disclaimer: Past performance is not indicative of future performance.

# CMCI Industrial Metals (IM) - Index Composition

Sector	Weight	Avg Tenor	Commodity	Code	Overall Weight	Weight in Sector	Average Tenor	Weights of Constant Maturities per Commodity				
								3M	6M	1Y	2Y	3Y
Industrial Metals	26.5%	10.59	LME Copper	LP	9.30%	35.16%	14.38	22.85%	20.61%	22.79%	20.20%	13.55%
			High Grade Copper	HG	3.28%	12.39%	3.74	75.39%	24.61%	-	-	-
			LME Zinc	LX	2.55%	9.65%	6.52	42.03%	28.27%	29.70%	-	-
			LME Aluminium	LA	7.45%	28.18%	12.62	30.28%	21.88%	20.67%	15.57%	11.60%
			LME Nickel	LN	2.63%	9.94%	6.01	50.09%	24.66%	25.26%	-	-
			LME Lead	LL	1.24%	4.69%	6.13	48.20%	25.48%	26.33%	-	-

Diversification among commodities

Diversification along the forward curve

Source: UBS AG; Correct as of 1 August 2011  
Average Tenor refers to the average maturity of the CMCI Benchmark Index that includes all the available maturities from 3 months to 3 years

# CMCI IM – Best Performing Index since 2007 launch

CMCI Industrial Metals index shows strong returns compared to other industrial metals indices, delivering the strongest performance among all the commodity beta offerings since its launch in January 2007



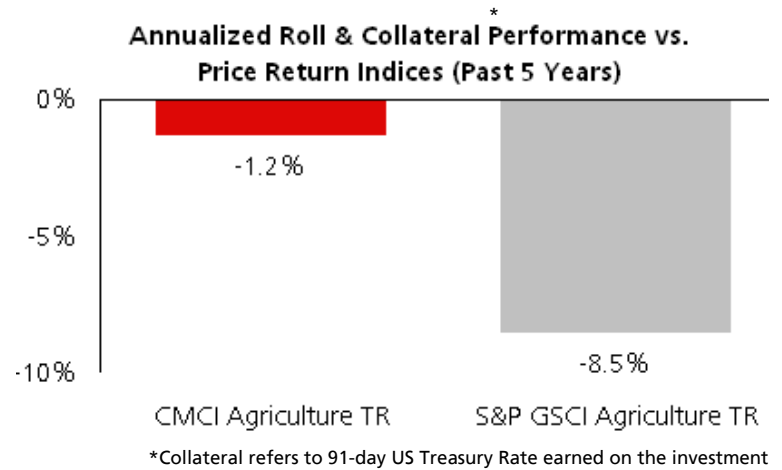
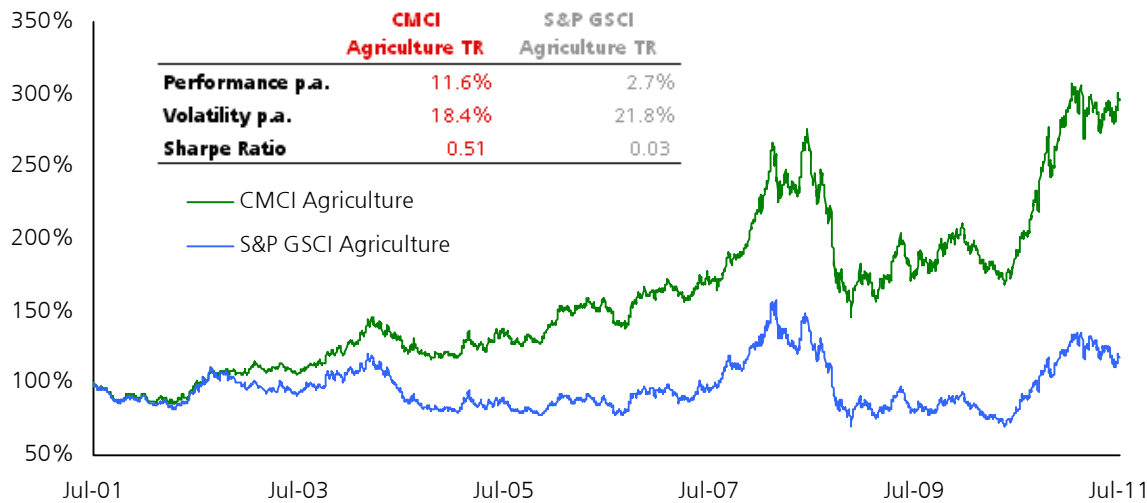
## Section 6

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# CMCI Agriculture Index

# CMCI Agriculture

As a result of the innovative methodology, CMCI Agriculture has **outperformed S&P GSCI Agriculture by more than 40% since CMCI went live in January 2007**, while exhibiting much lower volatility levels (Source: Bloomberg, UBS IB, Total Return Indices, 31 May 2011).



Source: Daily closing return data from 19 June 2001 until 20 July 2011; Source Bloomberg. Back-tested CMCI performance data to Jan 2007 and live thereafter  
 Note that Performance and Volatility are calculated for Total Return Indices, while Sharpe Ratio is calculated for Excess Return Indices

Commodity Ranked Returns					
Period Range	Source	Index Comparison			
Custom	01/27/07 - 06/20/11	Agriculture	Beta	Excess Return	
All Member Performance					
1)	CMAGER	y	B	UBS Bloomberg CMCI Index	63.79
2)	CSIXAGER		B	CSCB Index	51.48
3)	JMCXAGER	y	B	JPMorgan Commodity Curve In	48.17
4)	LBAGER	y	B	Barclays Capital Comdty Index	46.29
5)	DJUBSAG	y	B	Dow Jones-UBS Comdty Index	37.34
6)	SPGSAGP	y	B	S&P GSCI Comdty Index	17.63
7)	MLCXAGER	y	B	Merrill Lynch Comdty eXtra Inde	15.01
8)	RICIAGER	y	B	Rogers Int'l Comdty Index	13.48
9)	DCI AGER	y	B	Diapason Comdty Index	11.09
10)	CMRIAGER	y	B	BNP Paribas CMRI Index	10.24

UBS Bloomberg CMCI Agriculture has been one of the best performing passive agriculture indices in the market since its launch in 2007



# CMCI Agriculture - Index Composition

Sector	Weight	Avg Tenor	Commodity	Code	Overall Weight	Weight in Sector	Average Tenor	Weights of Constant Maturities per Commodity				
								3M	6M	1Y	2Y	3Y
Agriculture	28.4%	4.96	SRW Wheat	W_	3.62%	12.75%	5.11	61.58%	22.52%	15.90%	-	-
			Corn	C_	5.13%	18.06%	5.52	53.87%	27.12%	19.01%	-	-
			Soybeans	S_	5.48%	19.29%	5.29	56.30%	27.38%	16.32%	-	-
			Soybean Meal	SM	1.50%	5.28%	3.90	69.97%	30.03%	-	-	-
			Soybean Oil	BO	1.56%	5.48%	3.88	70.75%	29.25%	-	-	-
			Sugar #11	SB	5.21%	18.32%	5.39	58.72%	22.06%	19.23%	-	-
			Sugar #5	QW	2.20%	7.74%	3.92	69.46%	30.54%	-	-	-
			Cocoa	QC	0.83%	2.93%	3.99	67.10%	32.90%	-	-	-
			Coffee "C" Arabica	KC	1.30%	4.58%	5.08	60.25%	24.95%	14.81%	-	-
			Cotton	CT	1.58%	5.56%	4.21	59.75%	40.25%	-	-	-

Diversification among commodities

Diversification along the forward curve

Source: UBS AG; Correct as of 1 August 2011  
Average Tenor refers to the average maturity of the CMCI Benchmark Index that includes all the available maturities from 3 months to 3 years

Appendix

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## Other Information

# CMCI Website: [www.ubs.com/cmci](http://www.ubs.com/cmci)

UBS Bloomberg CMCI

UBS Bloomberg CMCI Home

UBS Bloomberg CMCI

- Evolution of Commodity Investment
- CMCI Methodology
- CMCI Universe
- Investment Products

ETCs on CMCI

- Switzerland
- UK

ETFs on CMCI

- NEW** Switzerland

Private Investors

UBS Bloomberg CMCI

UBS Homepage > UBS Bloomberg CMCI

## UBS Bloomberg CMCI Constant Maturity Commodity Index

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.

**Contact**

- Your contact

**Product info**

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

**Quick Link**

- UBS Keyinvest
- UBS-ETTs
- UBS-ETFs

**Performance info**

- CMCI Indices performance data

### Wide range of CMCI documents available for download:

- CMCI Manual
- Presentation
- Factsheets
- Index comparison
- Performance Date
- etc.

### Educational materials on:

- History of Commodity Indices
- CMCI Methodology
- Marketing Materials
- Products

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