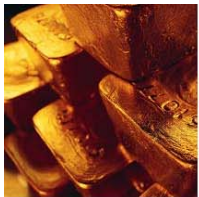
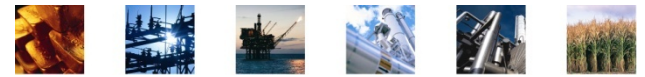


# Investing in Commodities for a Diversified Portfolio

Portfolio Construction Conference – August 2009

Jeremy McElrea:  
Director, Barclays Capital

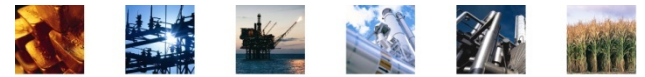




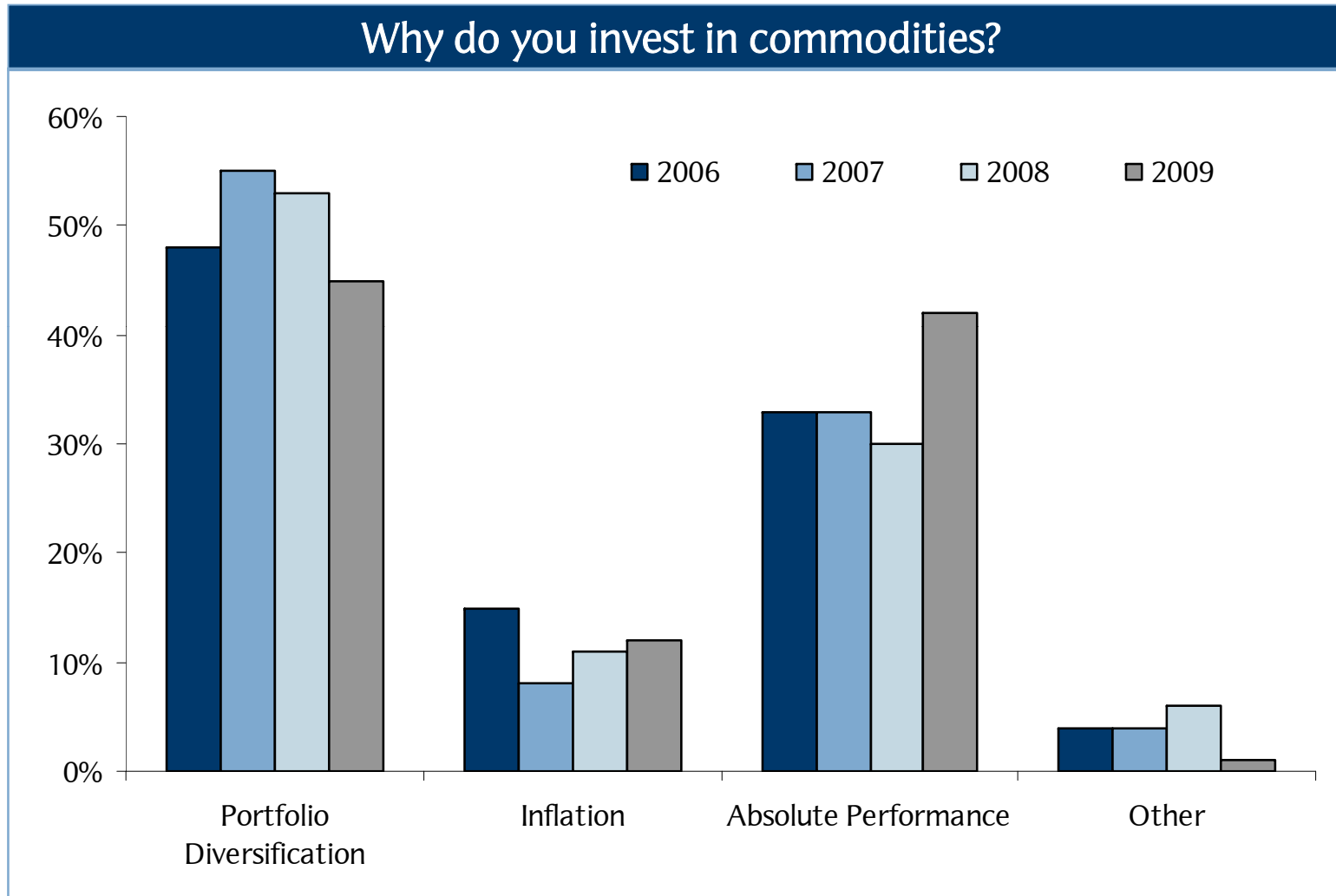
# Agenda

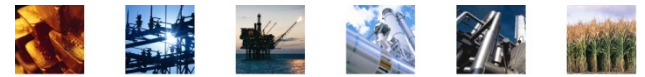
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- **Why Invest in Commodities?**
  
- **Benefits of Commodity Investing**
  - ▶ Returns, Volatility and Correlation!
  - ▶ Source of Diversification
  - ▶ Resource Equity  $\neq$  Pure Commodity Investing
  - ▶ Intra-Commodity Diversification
  
- **Who? How? & What to invest in?**
  - ▶ Commodity Index Benchmarks
  - ▶ Enhancing Commodity Beta
  - ▶ CORALS Commodity Fund (Australian)

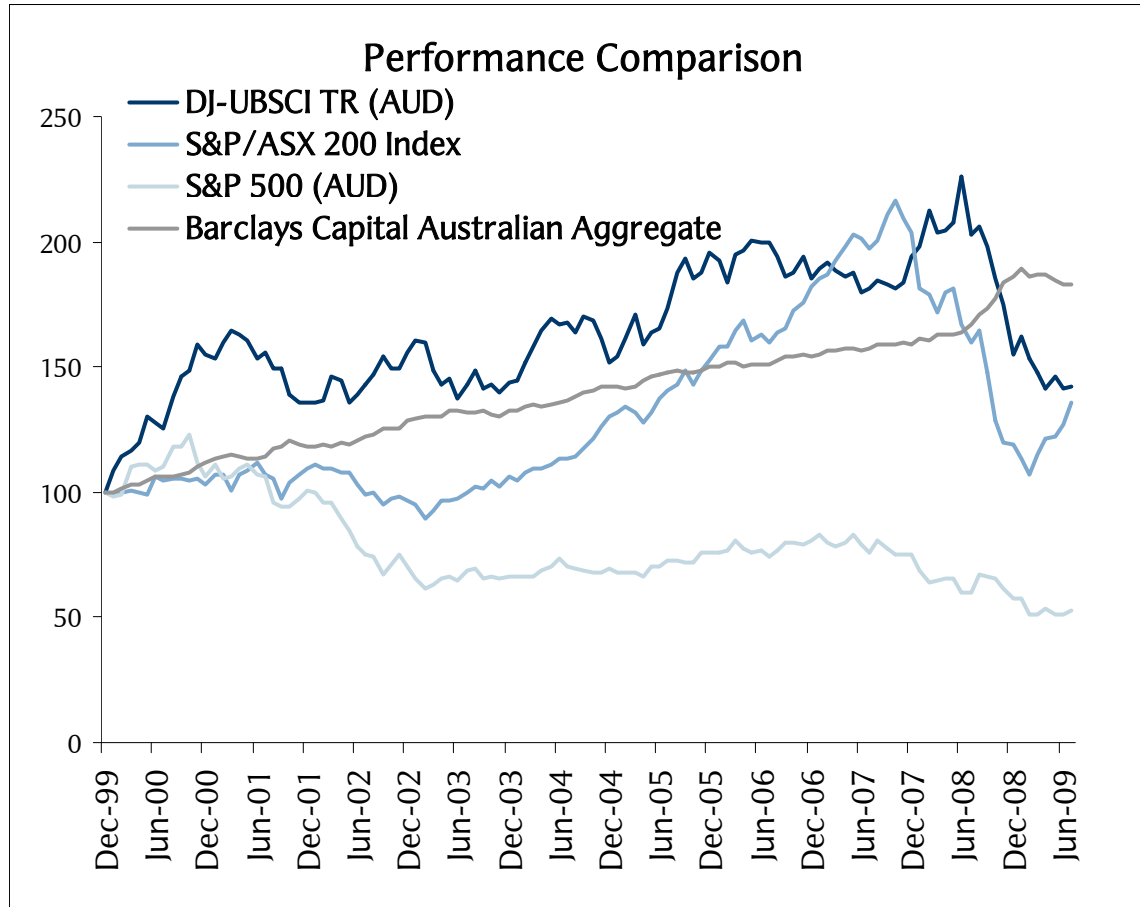


# Why Invest in Commodities?



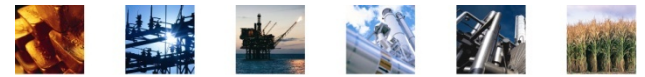


# Commodities performance has been comparable to Australian equities...

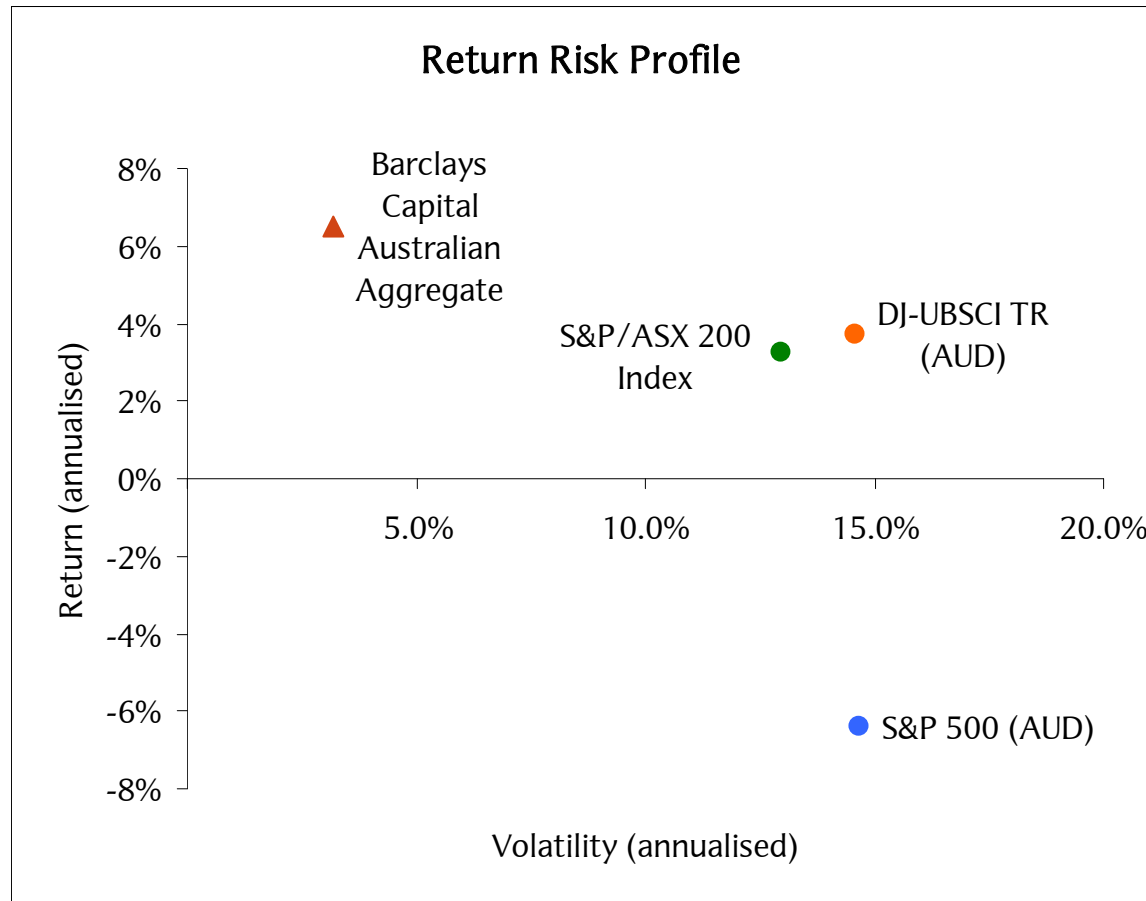


Risk & Return 2000 – 2009	Return	Volatility
DJ UBSCI TR (AUD) (Commodities)	3.7%	14.6%
S&P / ASX 200 (Equities)	3.3%	13.0%
S&P 500 TR (Equities)	-6.4%	14.7%
Barclays Capital Australian Aggregate <sup>1</sup> (Bonds)	6.5%	3.2%

Source: Bloomberg & Barclays Capital as of 31 July 2009  
 Calculated based on monthly data with AUD compo adjustment

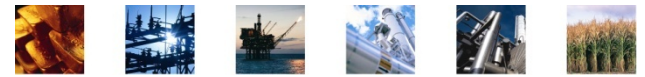


## ... with similar levels of volatility...

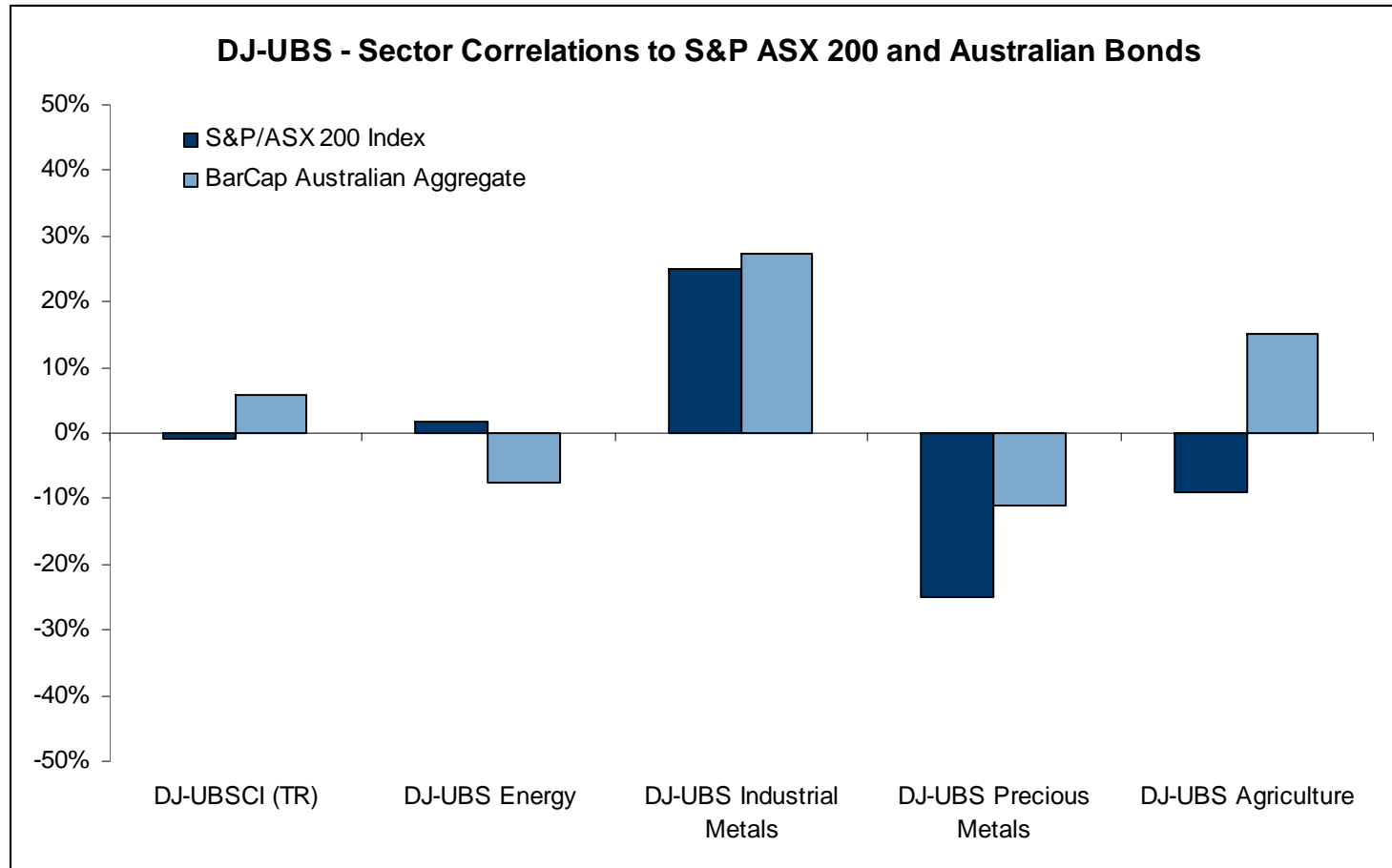


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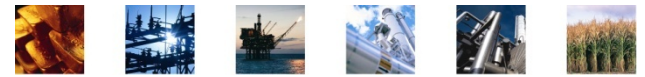
# ... and low correlation to Australian equities and bonds ...



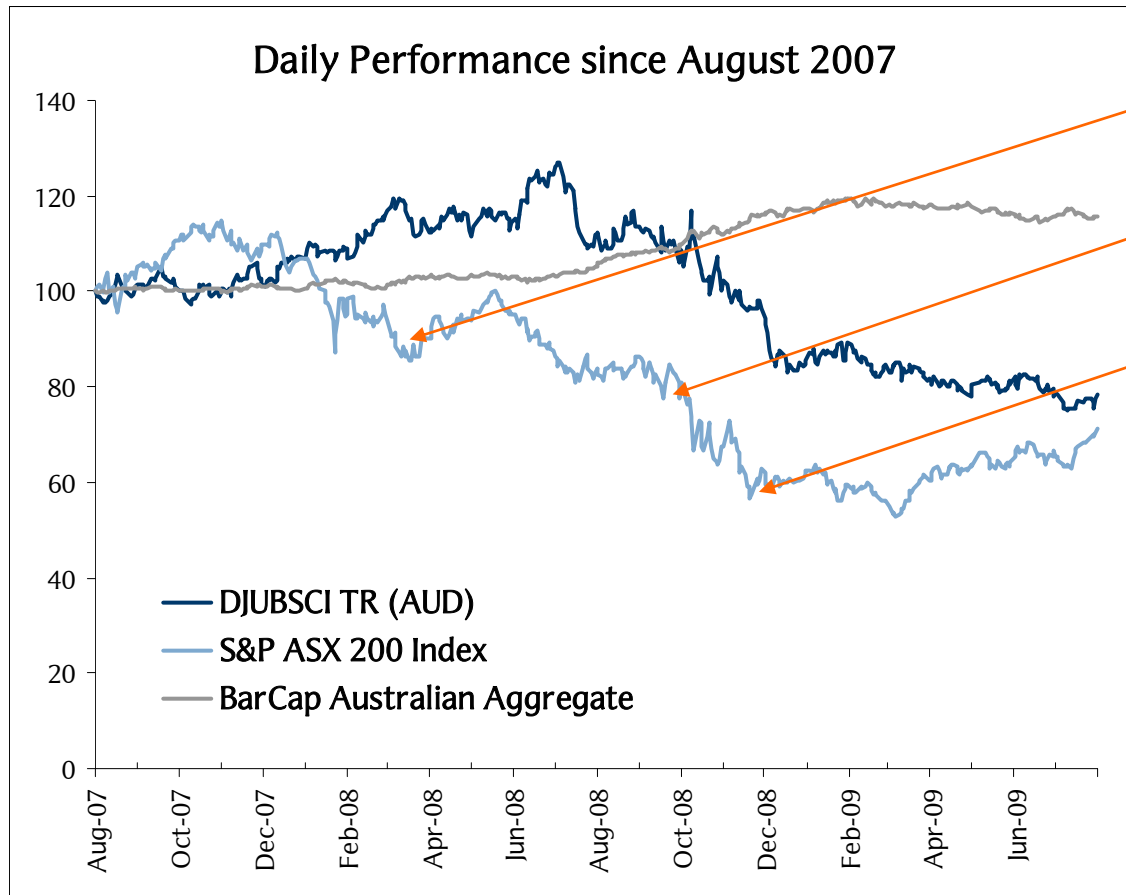
Source: Bloomberg & Barclays Capital as of 31 July 2009  
 Calculated based on monthly data with AUD compo adjustment

<sup>1</sup> Barclays Capital Australian Aggregate Bond Index from May 2004 to July 2009, UBS Warburg Composite Bond Index from Dec 1999 to May 2004

DJ-UBSCF<sup>SM</sup> is a service mark of Dow Jones & Company, Inc. and UBS AG



# ... all the way through the Credit Crunch!



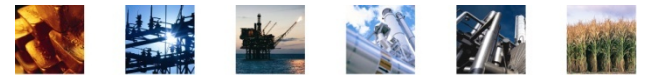
Mar '08: Bear Stearns Collapse

Sep '08: Lehman Bankruptcy

Nov '08: VIX Index peaks at 80.86

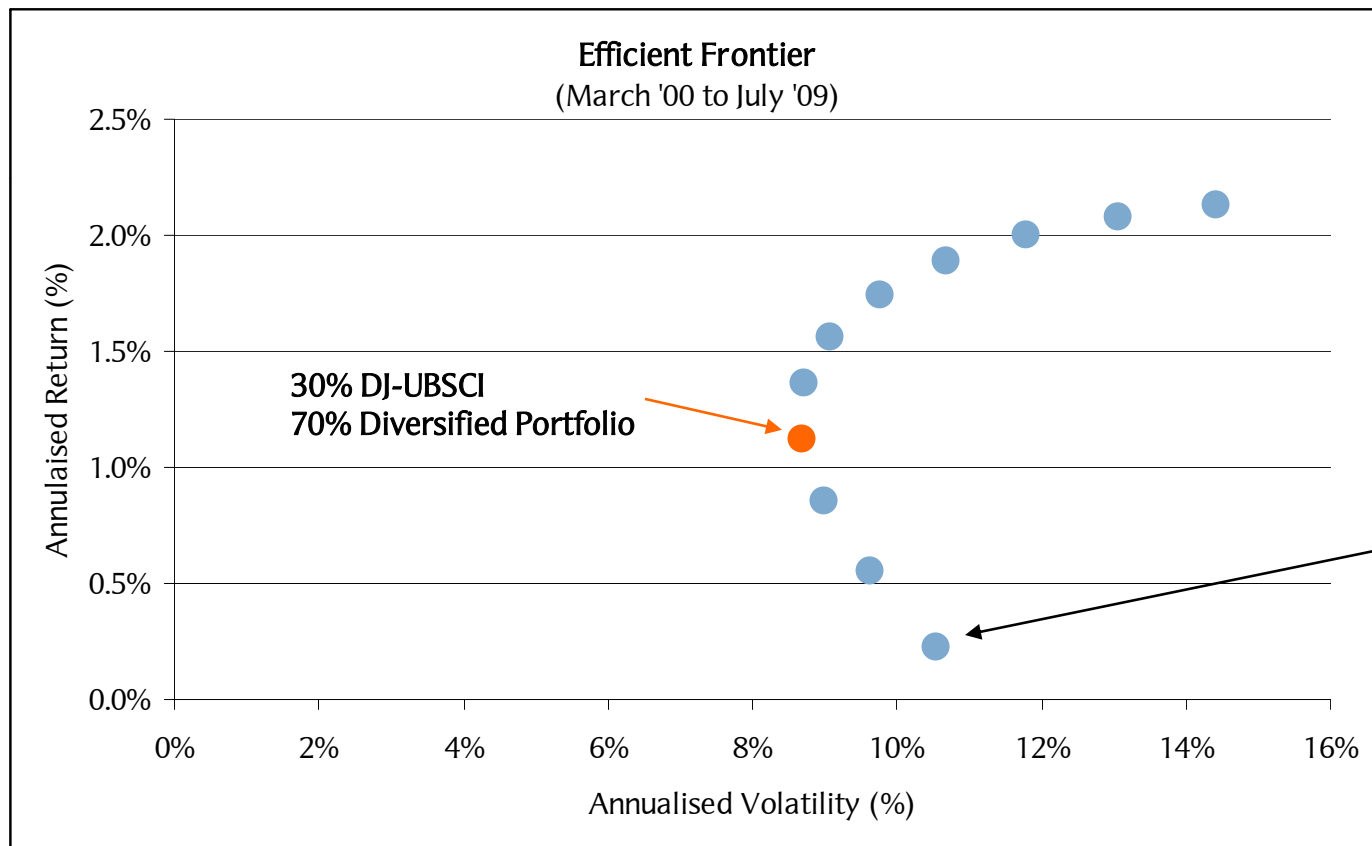
Correlations of Daily Log Returns	DJ-UBSCI TR (AUD)
S&P / ASX 200	-0.19
Barclays Capital Australian Aggregate	0.12

Source: Bloomberg & Barclays Capital as of 31 July 2009  
 Calculated based on monthly data with AUD compo adjustment



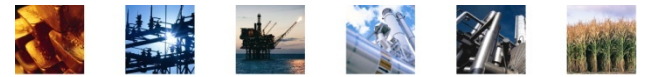
# Commodity exposure might increase portfolio efficiency

- ▶ Adding a diverse commodity exposure to a “traditional” diversified portfolio might
  - Increase overall returns;
  - Reduce Risk;
  - Improve Sharpe ratios



- “Diversified Portfolio“
- 45% Aust Equities,
  - 25% World Equities,
  - 20% Aust Property,
  - 10% Aust Bonds





# Resource equities ≠ pure commodity exposure!

- It is a fallacy that commodity linked equities provide your portfolio with the “commodity” diversification benefit
  - ▶ Commodity linked companies, such as BHP and Rio Tinto, tend to have higher correlation to equity markets rather than commodity prices

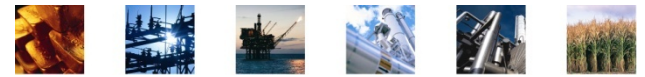
## Correlation analysis (31 December 1999 to 31 July 2009)

	BHP	Rio Tinto	S&P/ASX 200 Index	S&P 500 (AUD)	Barclays Capital Australian Aggregate <sup>1</sup>	DJ-UBSCI TR (AUD)
BHP	1.00					
Rio Tinto	0.58	1.00				
S&P/ASX 200 Index	0.61	0.51	1.00			
S&P 500 (AUD)	0.19	0.22	0.45	1.00		
Barclays Capital Australian Aggregate <sup>1</sup>	-0.27	-0.38	-0.33	-0.12	1.00	
DJ-UBSCI TR (AUD)	0.16	0.18	-0.01	0.06	-0.07	1.00

Source: Bloomberg, Barclays Capital as at 31 July 09  
 Calculated based on monthly data with AUD compo adjustment for the S&P 500 and the DJ-UBSCI TR

<sup>1</sup> Barclays Capital Australian Aggregate Bond Index from May 2004 to July 2009, UBS Warburg Composite Bond Index from Dec 1999 to May 2004

DJ-UBSCIFM is a service mark of Dow Jones & Company, Inc. and UBS AG



## What is driving the diversification benefit?

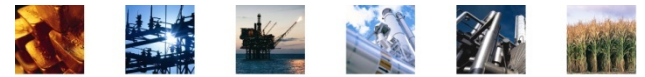
- ▶ Individual commodities are driven by distinctly different demand and supply characteristics
- ▶ Diversification cannot be achieved by participating in the Crude Oil or Gold markets alone

### Correlation analysis between individual commodities (31 December 1999 to 31 July 2009)

	WTI Crude	Natural Gas	Heating Oil	Wheat	Corn	Copper	Aluminium	Gold	Silver
WTI Crude	1.00								
Natural Gas	0.41	1.00							
Heating Oil	0.89	0.57	1.00						
Wheat	0.16	0.10	0.10	1.00					
Corn	0.13	0.12	0.06	0.53	1.00				
Copper	0.35	0.12	0.32	0.20	0.15	1.00			
Aluminium	0.30	0.11	0.23	0.12	0.17	0.67	1.00		
Gold	0.22	0.16	0.21	0.29	0.18	0.31	0.17	1.00	
Silver	0.23	0.08	0.19	0.28	0.26	0.39	0.22	0.71	1.00

Average Pair-wise correlation = 0.27

*Source: Barclays Capital as of 31 July 2009  
Correlations based on monthly return data (USD) of Barclays Capital Nearby Single Commodity Indices*

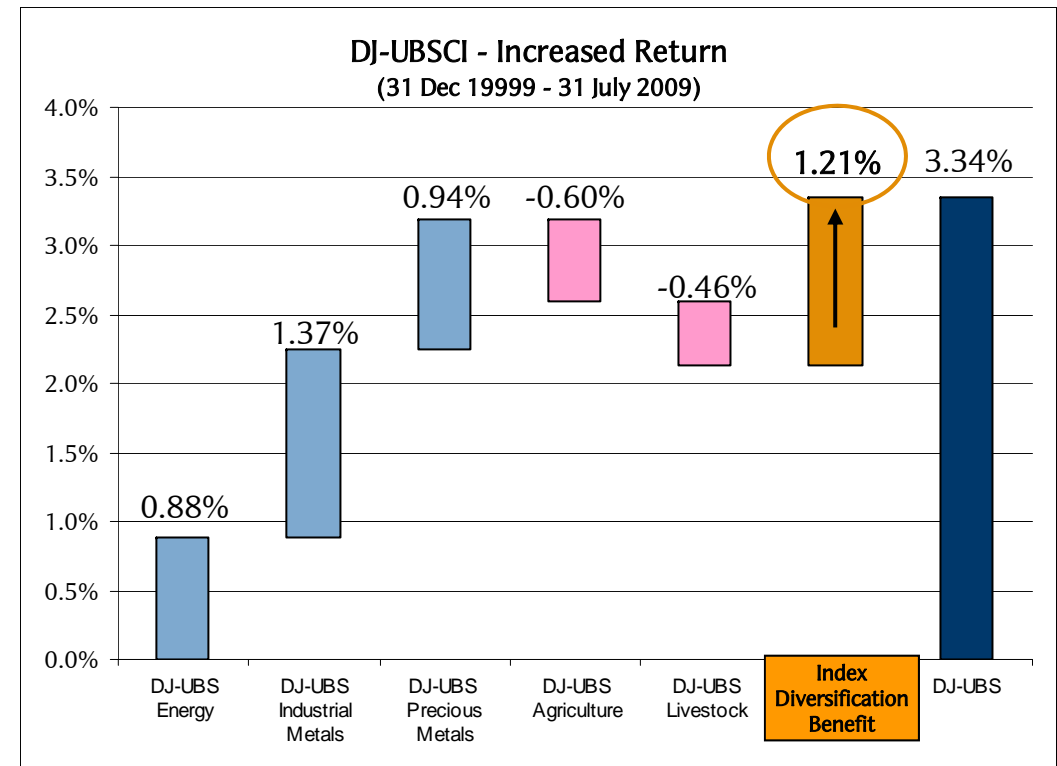
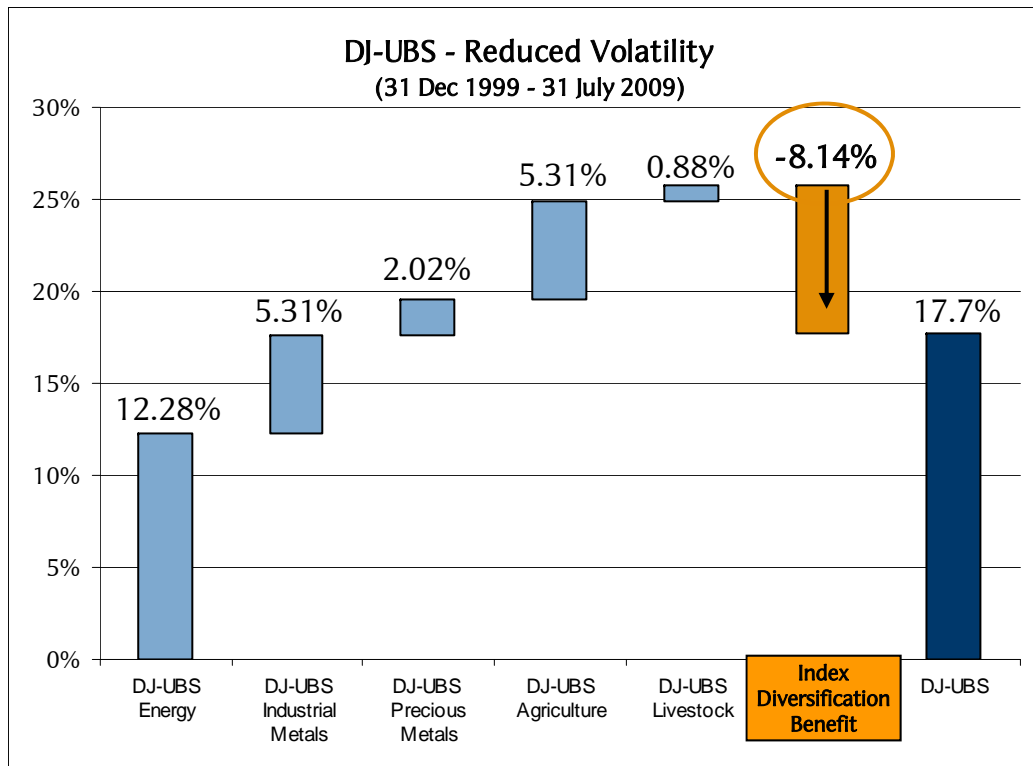


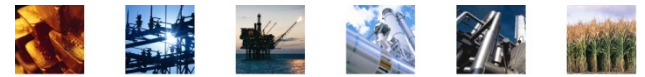
# Intra commodity diversification provides real benefits

- Access commodity exposure via Long Only Commodity Benchmark Indices
  - ▶ Inherent benefits from having an intra commodity diversification
  - ▶ Lower risk than betting on Crude Oil or Gold alone

## Sector Weightings

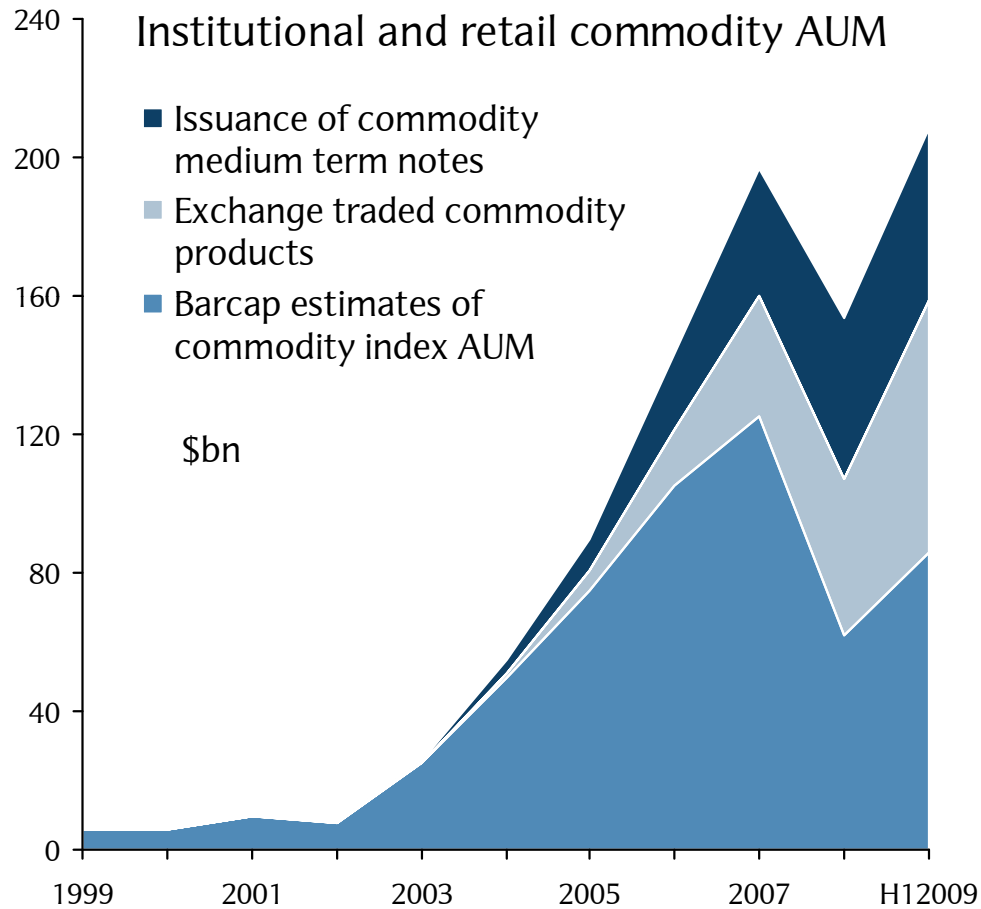
- 35% Energy
- 22% Industrial Metals
- 11% Precious Metals
- 26% Agriculture
- 6% Livestock





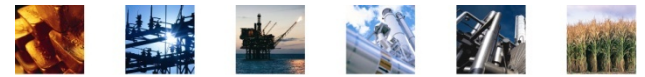
# Global Investor Flows and Attitudes

## ▶ Commodity Investments assets under management (\$bn)



Source: Bloomberg, ETF Securities, MTN-I, Barclays Capital

- ▶ Growth of investor flows has been substantial
- ▶ Estimated US \$210+ billion invested in Commodities
  - Peaked US \$275+ billion (June 2008)
- ▶ Investors have gained confidence in the asset class



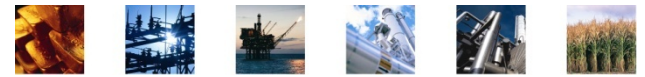
# Spectrum from Beta to Alpha

Category	Standard Beta Commodity Indices	Static Enhanced Beta Commodity Indices	Dynamic Enhanced Beta Commodity Indices	Quantitative Investment Strategies	Alpha Generation
Products	S&P GSCI™ DJ-UBSCISM RICI®	Modified Roll Forward Indices Seasonal Roll	Pure Beta ARCS - Roll Yield	CORALS <sup>1</sup> S&P CTI <sup>2</sup>	ComBATS <sup>3</sup>
Exposure	Long Only	Long Only	Long Only	Long Short	Hedged Long Short
Rationale	Portfolio Diversification	Outperform Standard Beta	Dynamic Optimisation Outperform Standard Beta	Fundamental Forecasts Technical Signals	Market Neutral Isolate Term Structure Alpha

<sup>1</sup> Barclays Capital: Commodities Out-performance Roll Adjusted Liquid Strategy Index

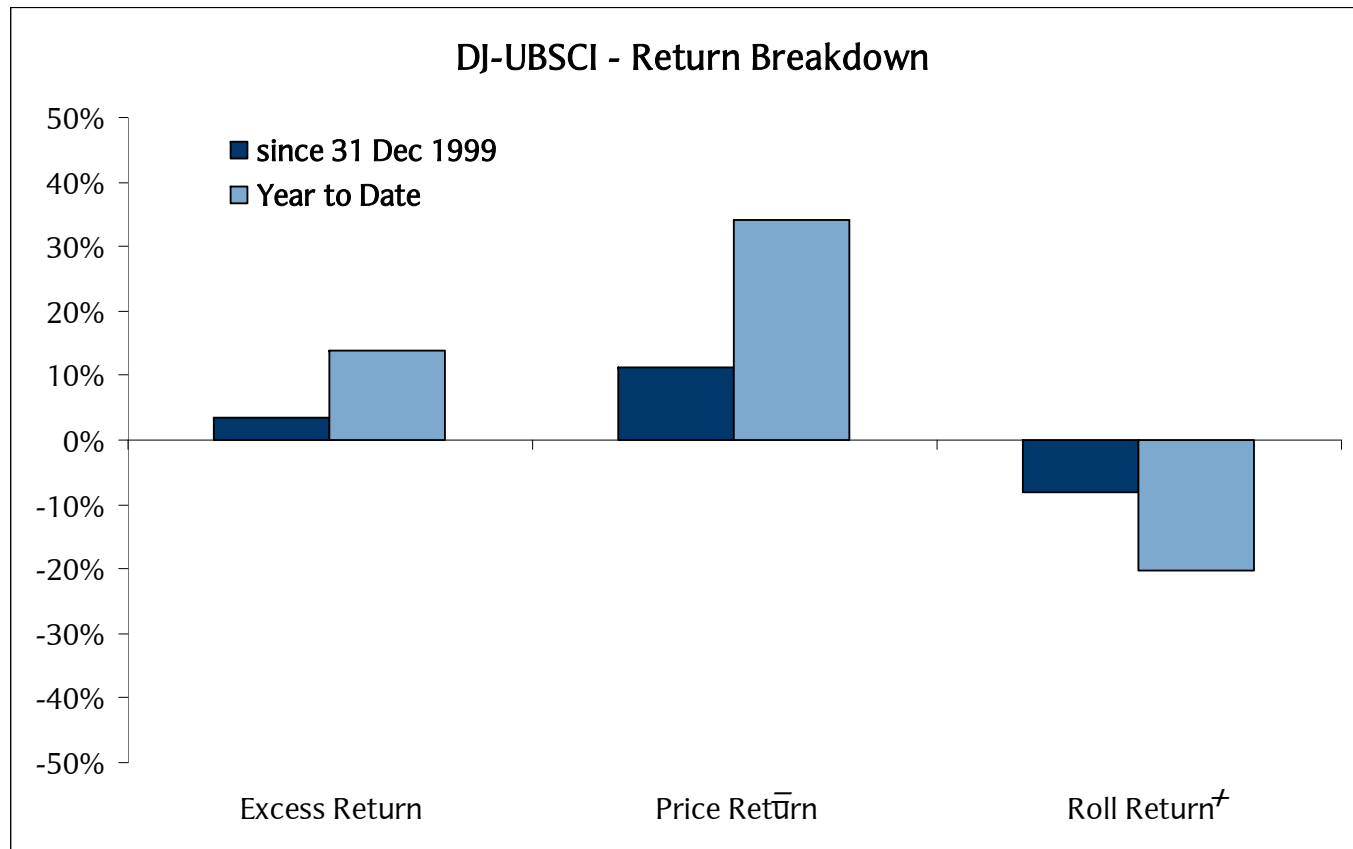
<sup>2</sup> S&P CTI = Standard & Poor's Commodity Trends Indicator

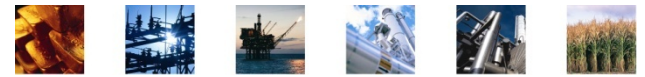
<sup>3</sup> Barclays Capital Commodity Based Alpha Trading Strategy



# Limitations of Benchmark Commodity Indices

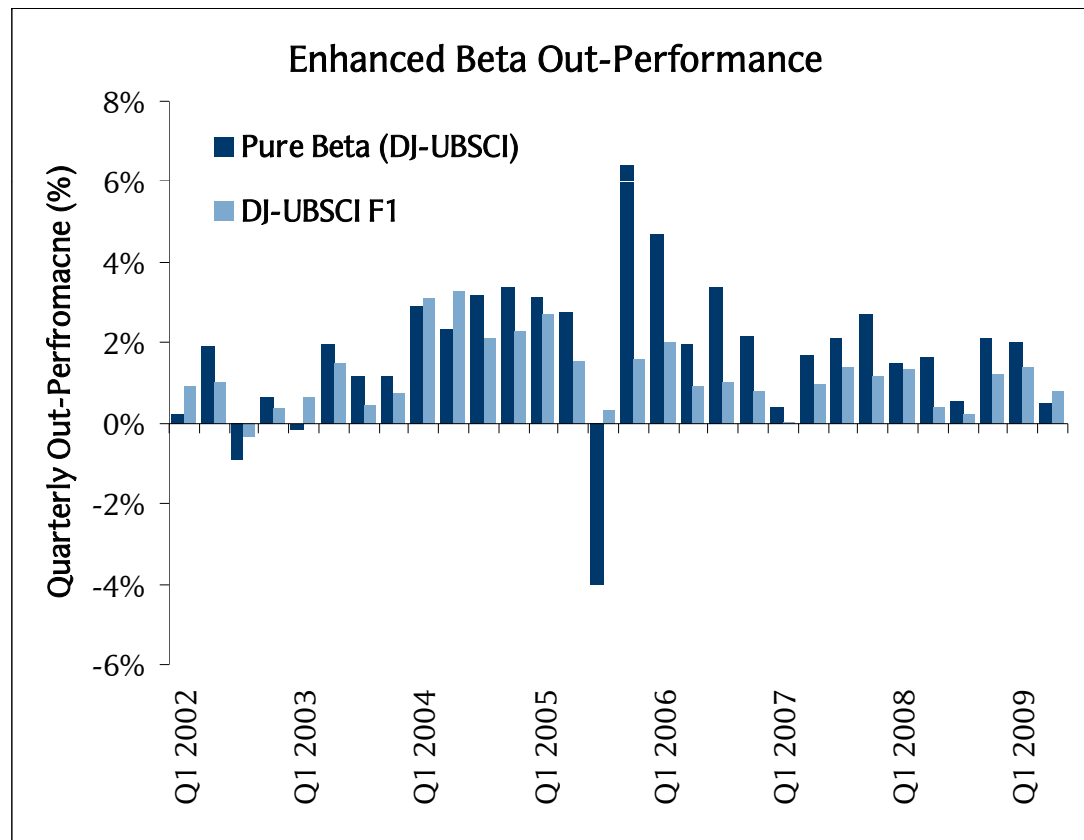
- They are “stuck” in the front of the curve:
  - ▶ Where most of the liquidity is
  - ▶ But “Super Contango” has caused significant negative roll return





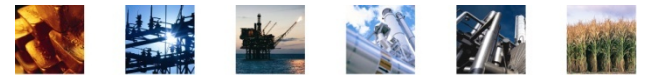
# Enhanced Beta Out-Performance

- Enhanced Beta has consistently out-performed Standard Beta, in a backward looking sense
  - ▶ DJ-UBSCI F1 = the 1 month forward DJ-UBSCI (Static Enhanced)
  - ▶ Barclays Pure Beta (DJ-UBSCI) (Dynamic Enhanced)



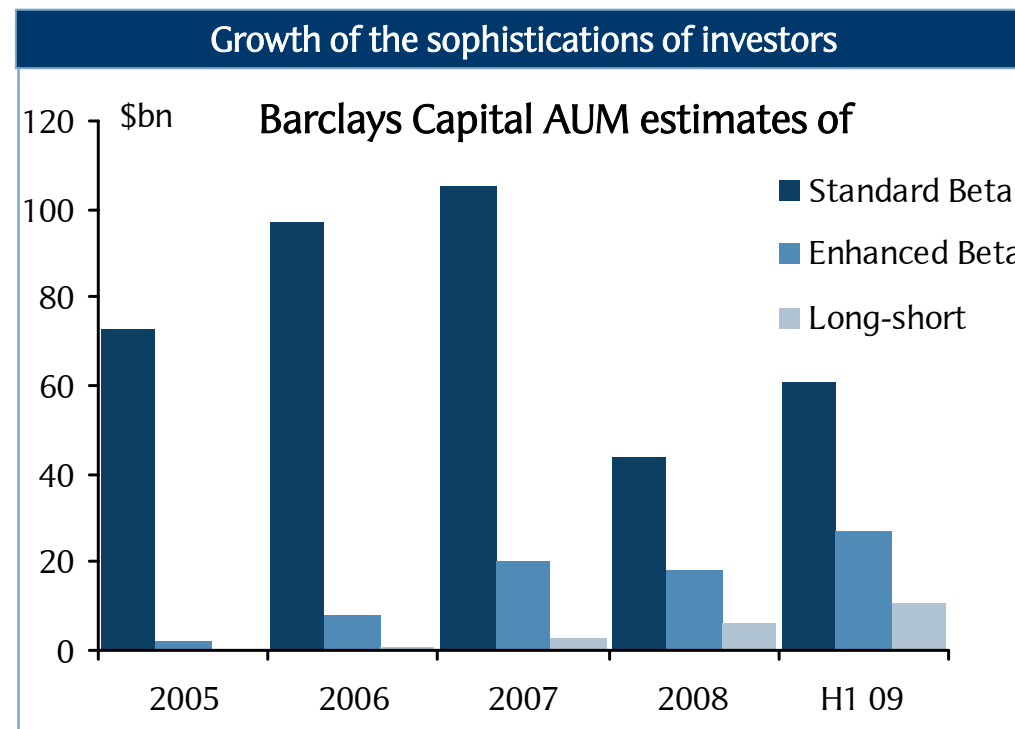
Dec 01 – Jul 09	DJ-UBSCI	DJ-UBSCI F1	Pure Beta
Category	Static Enhanced	Static Enhanced	Dynamic Enhanced
Return (p.a.)	4.7%	9.8%	12.5%
Sharpe Ratio	0.26	0.54	0.72
Tracking Error (to DJ-UBSCI)	-	1.46%	3.09%

Source: Bloomberg & Barclays Capital as of 31 July 2009  
 Calculated based on monthly data for December 2001 to July 2009



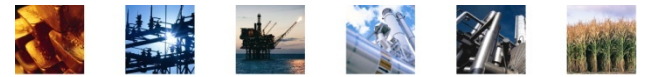
## Commodity index offering has grown with the investor sophistication

- “YTD Standard Beta returns have been harmed by the rolling costs, placing traditional methods of investment via commodity indices and structured products under increasing pressure.”<sup>1</sup>
- “The differentiation of the commodity indexes offering has grown in parallel with the appetite and sophistication of investors. Commodity indexes have gone from ‘passive’ [Standard Beta] to ‘passive-enhanced’ [Enhanced Beta] to ‘active’ [Alpha] in less than five years.”<sup>1</sup>



Source: Barclays Capital Research, June 2009

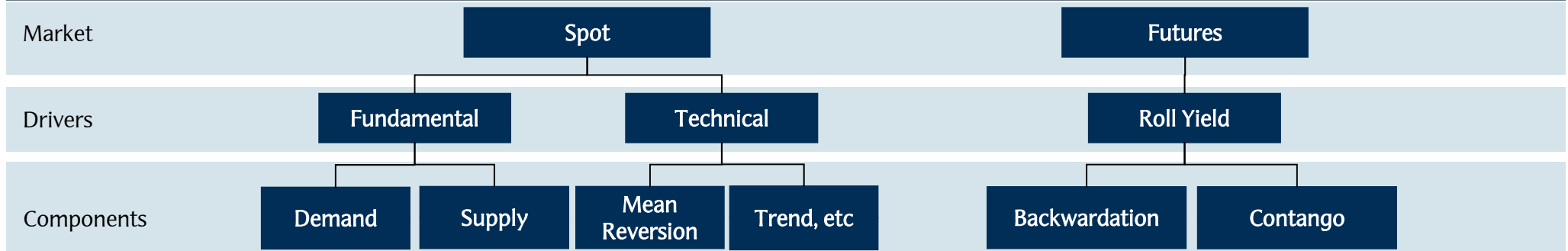




# CORALS Commodities Fund

## CORALS Investment Process

### Step 1 - Determining the Forecast

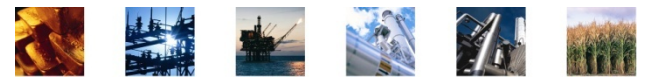


### Step 2 - Forecast Validation



### Step 3 - Optimization Model





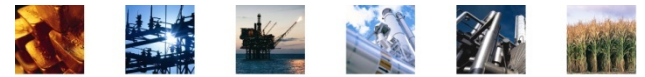
# CORALS Commodities Fund

## Criteria and Constraints

- The underlying commodities are selected based on liquidity and diversification
- The minimum and maximum weights per commodity ensure diversification
- The strategy is always invested in all the 12 commodities either in long or short positions
- Maximum allocation to any sector is capped at 50%
- Total market exposure is capped at 100%
- The index invests in the underlying commodities using the S&P GSCI single commodity indices

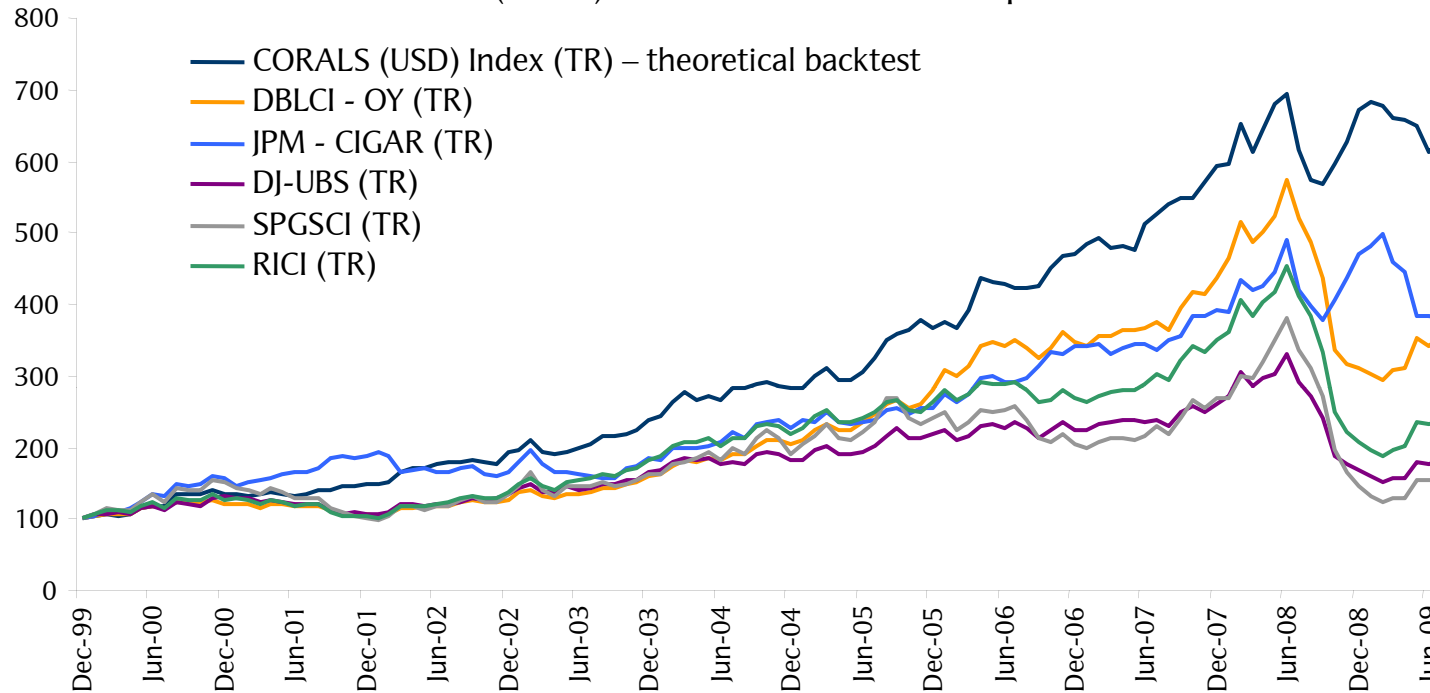
## Underlying Assets

Commodities	Sector	Max Short	Max Long
Aluminium	Industrial Metals	-10%	20%
Copper	Industrial Metals	-10%	20%
Total Industrial Metals		-20%	40%
Silver	Precious Metals	-10%	20%
Gold	Precious Metals	-10%	20%
Total Precious Metals		-20%	40%
Heating Oil	Energy	-10%	20%
Crude Oil	Energy	-10%	20%
Natural Gas	Energy	-10%	20%
Gas Oil	Energy	-10%	20%
Gasoline	Energy	-10%	20%
Total Energy		-50%	50%
Wheat	Agriculture	-10%	20%
Soybean	Agriculture	-10%	20%
Corn	Agriculture	-10%	20%
Total Agriculture		-30%	50%



# CORALS Commodities Fund - Comparative Performance

CORALS (USD) Index Performance Comparison



**FinanceAsia**

Structured Product Awards

Best Commodities Structured Product  
CORALS

February 2009

**commodity risk**

Deal of the Year  
CORALS - Commodities Out-performance Roll Adjusted Liquid Strategy Index

Summer 2008

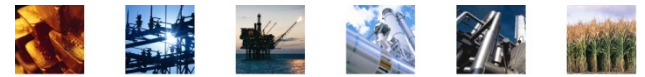
	CORALS (TR) (Long / Short)	JPM C-IGAR (Long / Short)	DBLCI -OY (Enhanced Long Only)	DJ-UBSCI (TR) (Std Beta)	S&P GSCI (TR) (Std Beta)	RIC1 (TR) (Std Beta)
Annualised Total Return	20.6%	15.2%	14.2%	6.3%	4.57%	9.4%
Annualised Volatility	13.5%	17.4%	17.7%	17.6%	25.6%	19.5%
Sharpe Ratio	1.23	0.67	0.65	0.19	0.06	0.34

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 DJ-UBSCI™ is a service mark of Dow Jones & Company, Inc. and UBS AG  
 RIC1® is a registered service mark of Beeland Interests, Inc

Source: Bloomberg & Barclays Capital as of 31 July 2009  
 Calculated based on monthly data December 1999 to July 2009

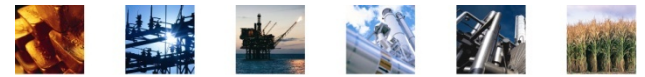


PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS



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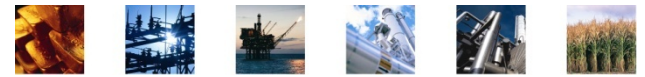
# Q&A



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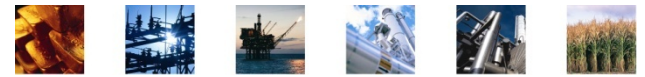
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The Fund was launched on the 2nd June 2008 and the PDS of the Fund is now available from the Responsible Entity or through the Investor Directed Portfolio, Macquarie Wrap and NetWealth.



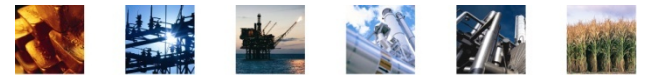
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