



MACQUARIE

# Macquarie Bank Limited

Coping with Volatility in the Coffee Value Chain

AGRICULTURAL COMMODITIES



- Coffee markets:
- Volatile supply + stable demand + speculator trading = volatile prices



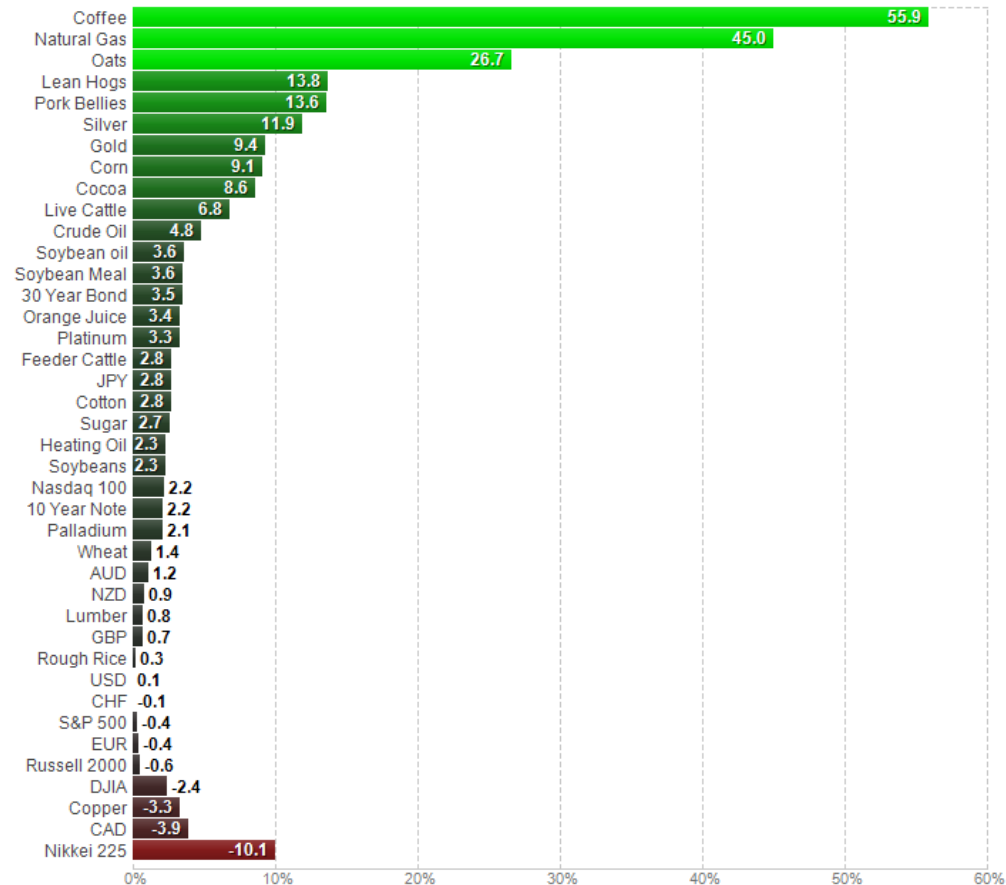
# The best performing commodity this year so far



## YEAR TO DATE RELATIVE PERFORMANCE

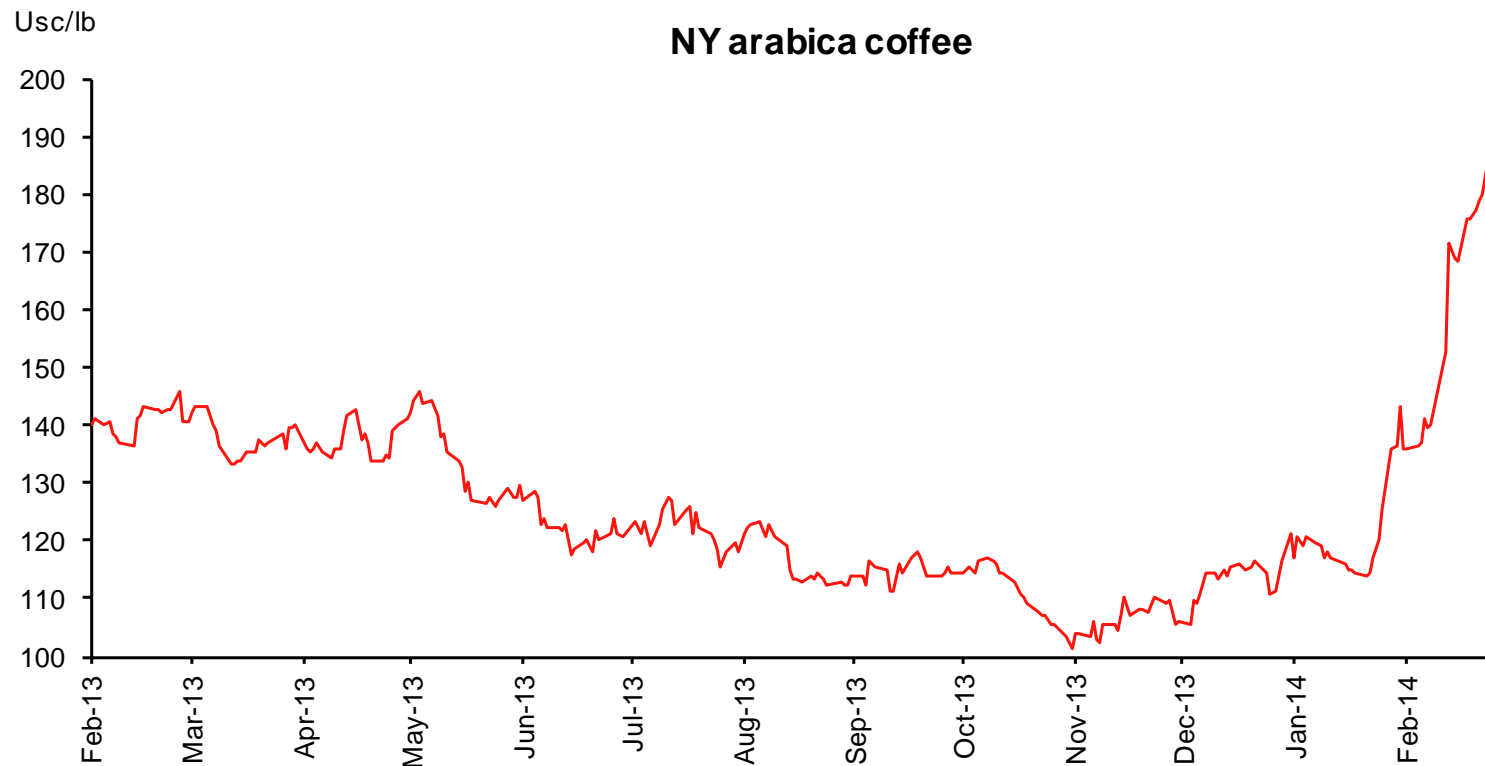
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# Huge price movements this year so far

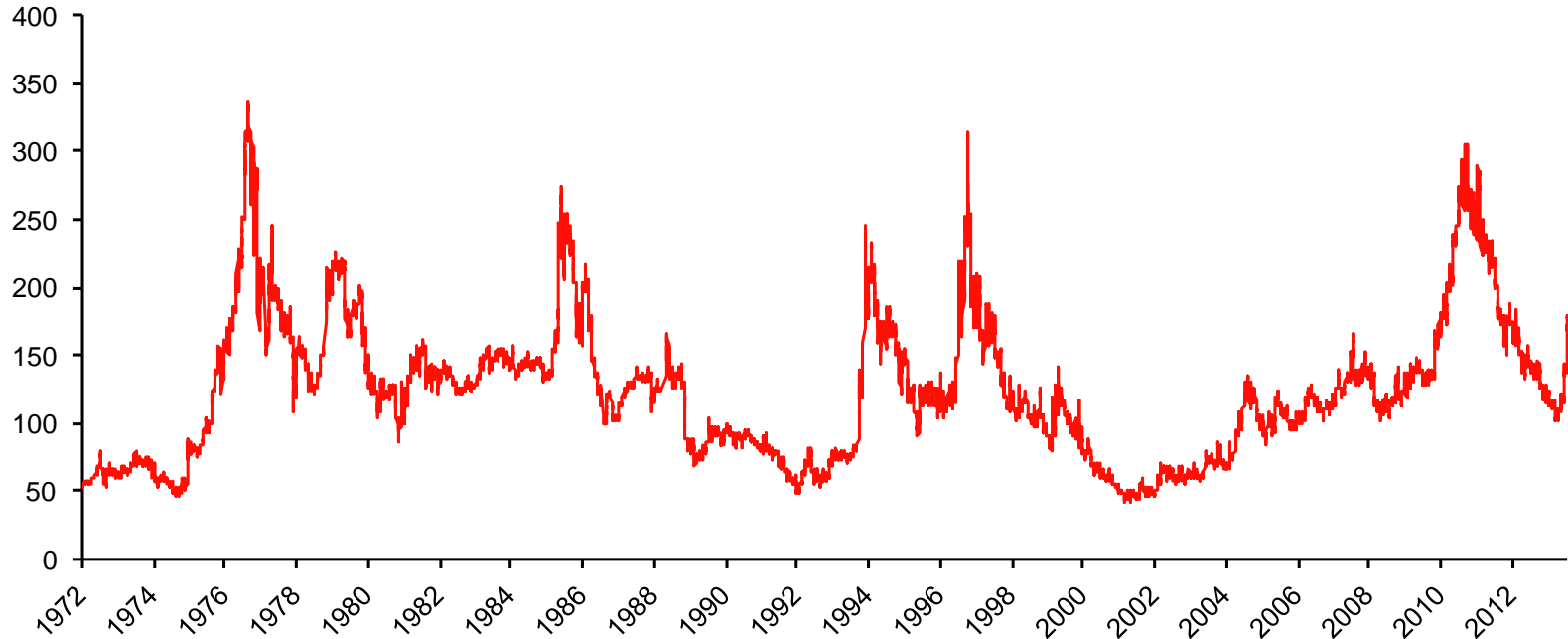




But we have been here before too, coffee markets are notoriously volatile

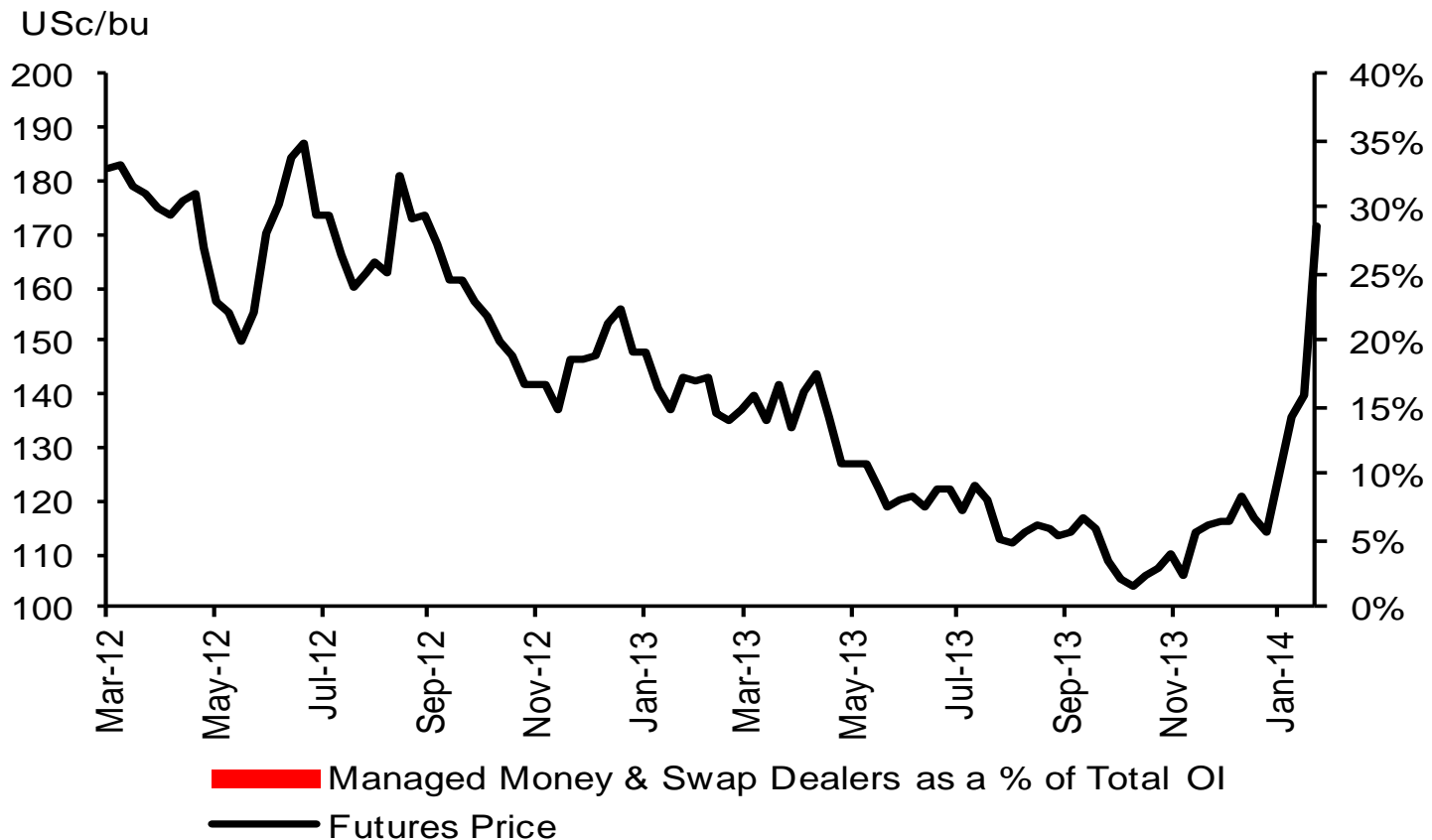


USc/lb



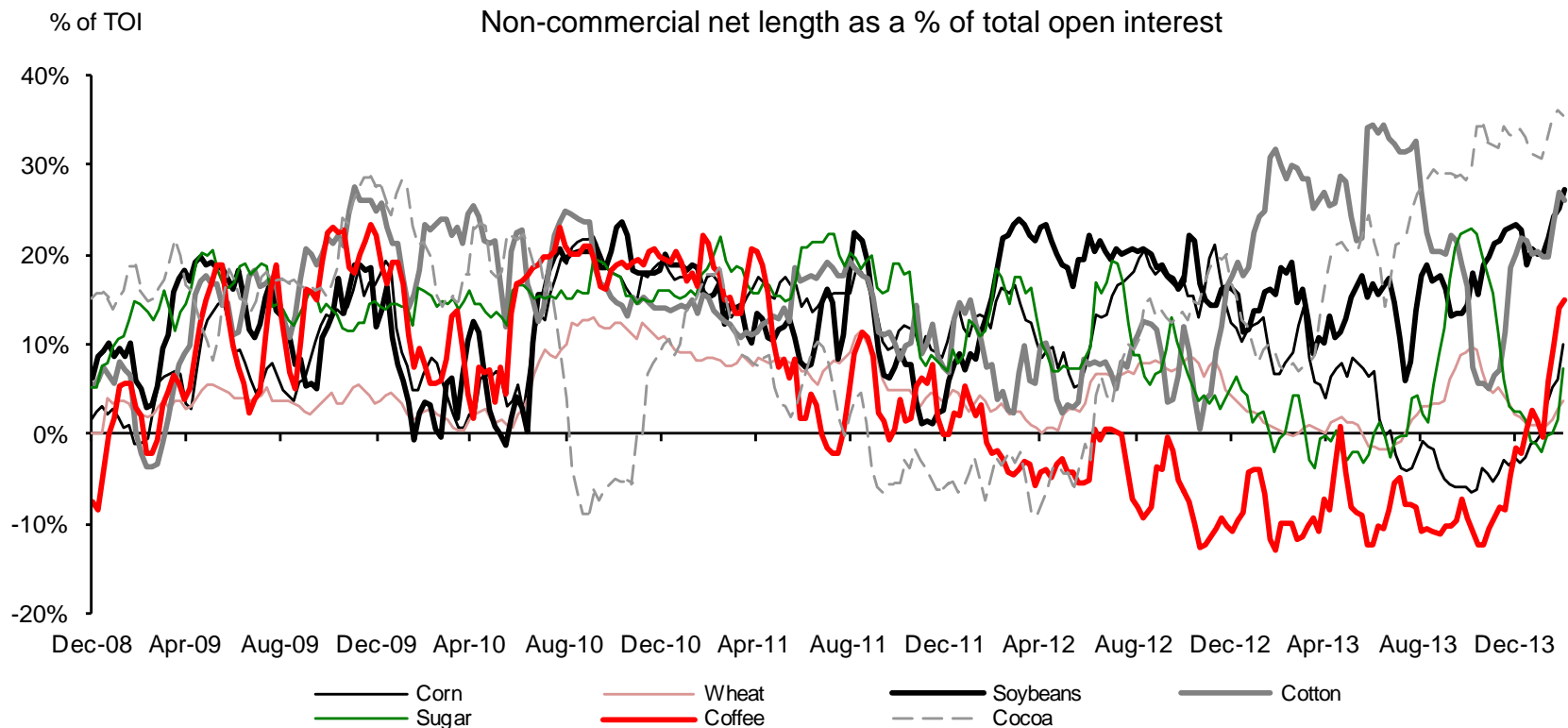


# How much of this has been driven by the speculators ?





# They are an active bunch, and are influenced by macro as well as fundamentals

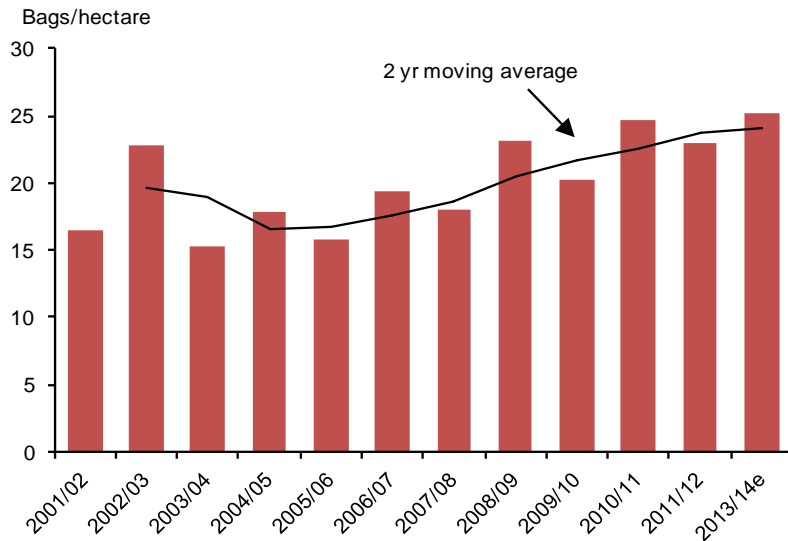




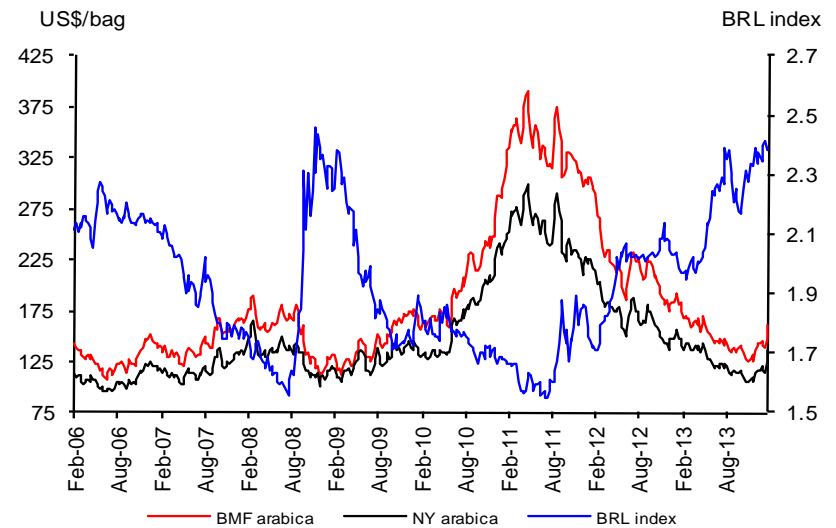
# For coffee, Brazil's cyclical yield patterns as well as currency influence prices



### Brazil's on/off cycle



### BRL vs USD



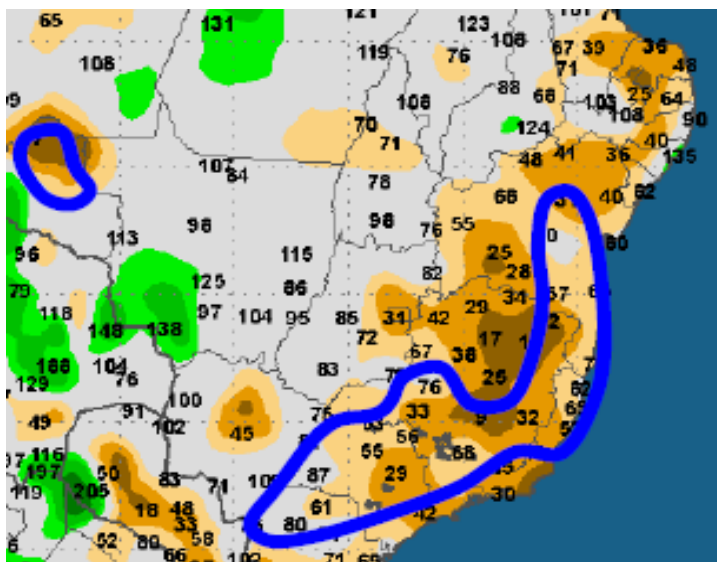




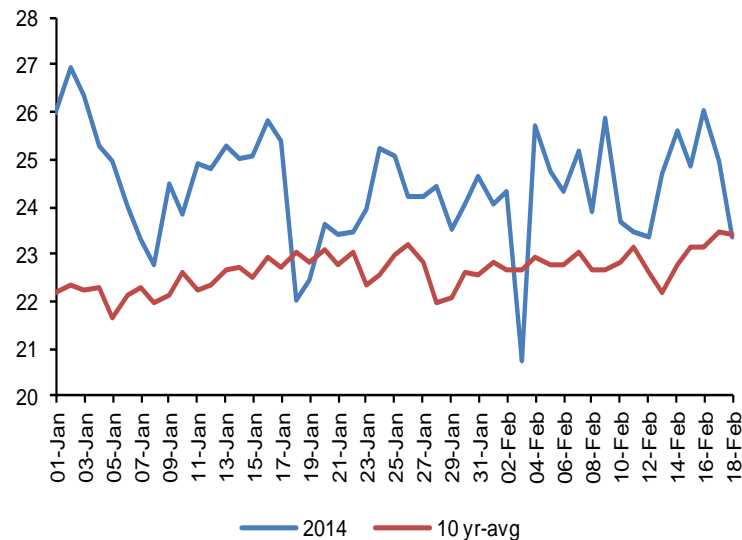
# Hot and dry weather has led to sharp losses in Brazil's Arabica crop



Precipitation as % of normal past 45 days



Temperatures have been well above average too





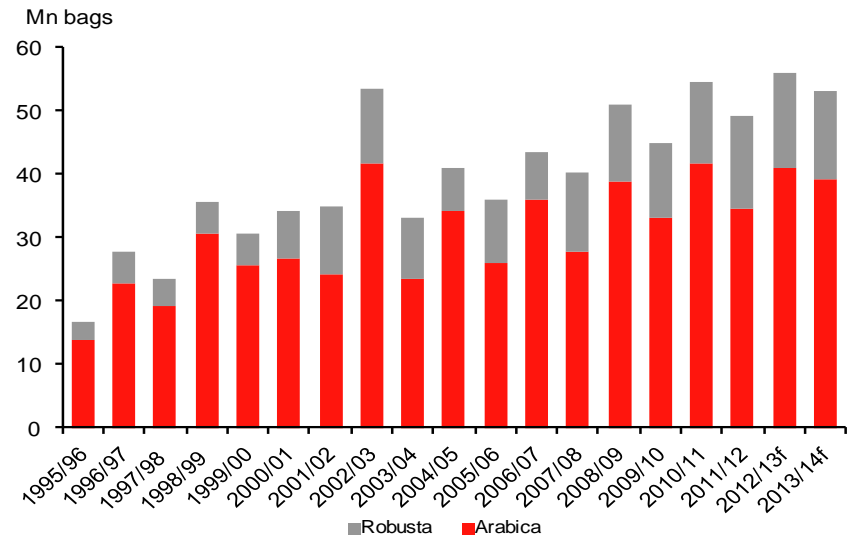
# The final yield loss will only really be known at the de-husking or harvest stage



The beans may not have formed inside the cherries



We expect Brazil's crop to fall to 50-53m bags this year

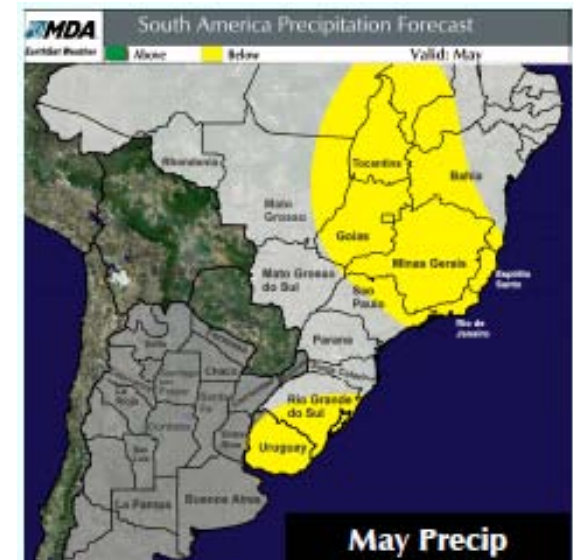
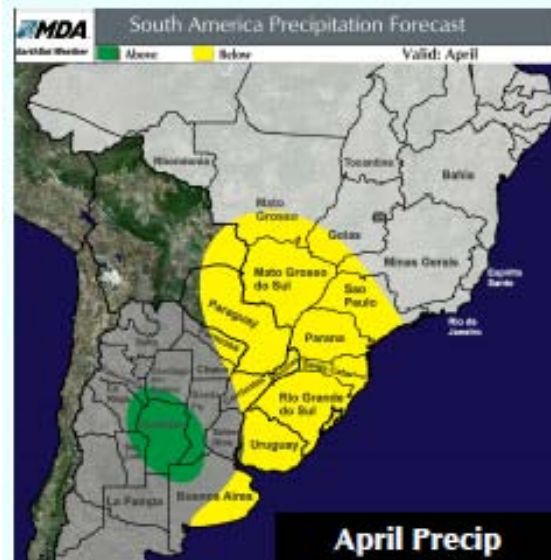




# Until then, it's a weather market, so expect volatility to continue



The longer term weather forecasts are pointing to drier than normal weather through to May

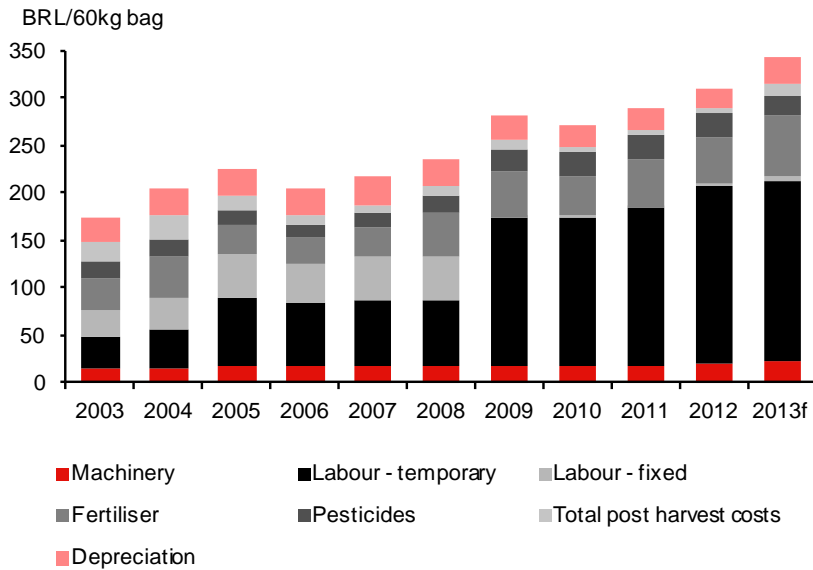




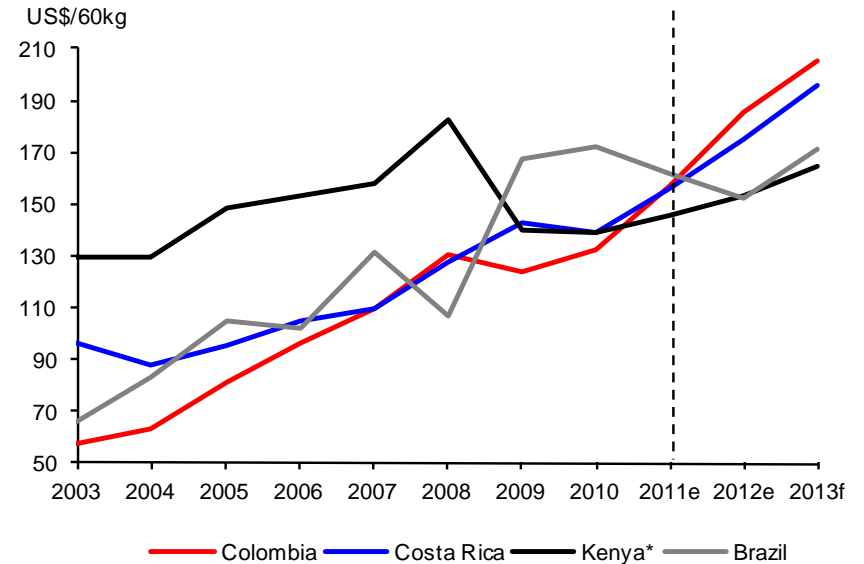
# Costs of production of coffee have been rising steadily



### Production costs breakdown in Brazil

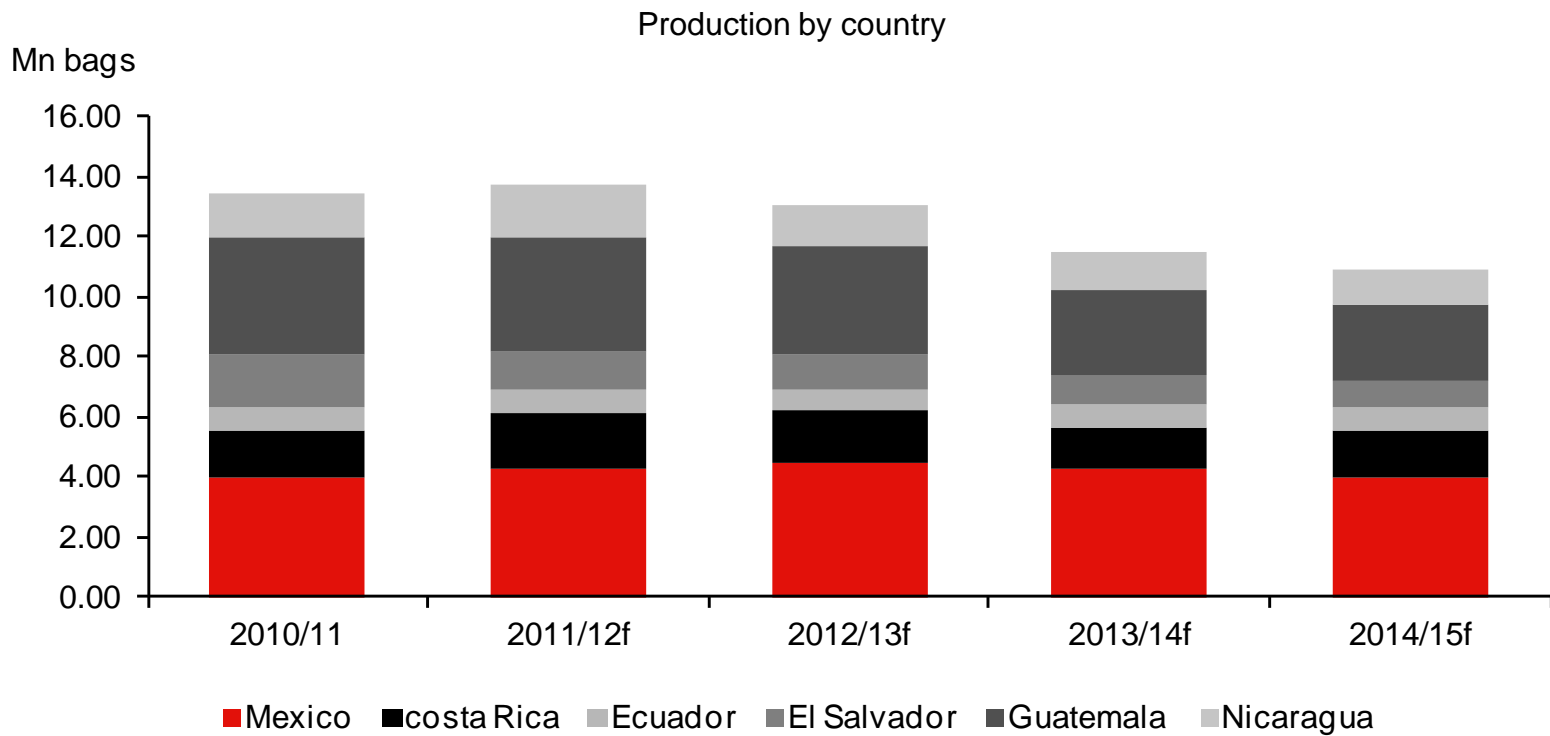


### Costs by region





# The roya fungus issue has plagued Central American coffee production

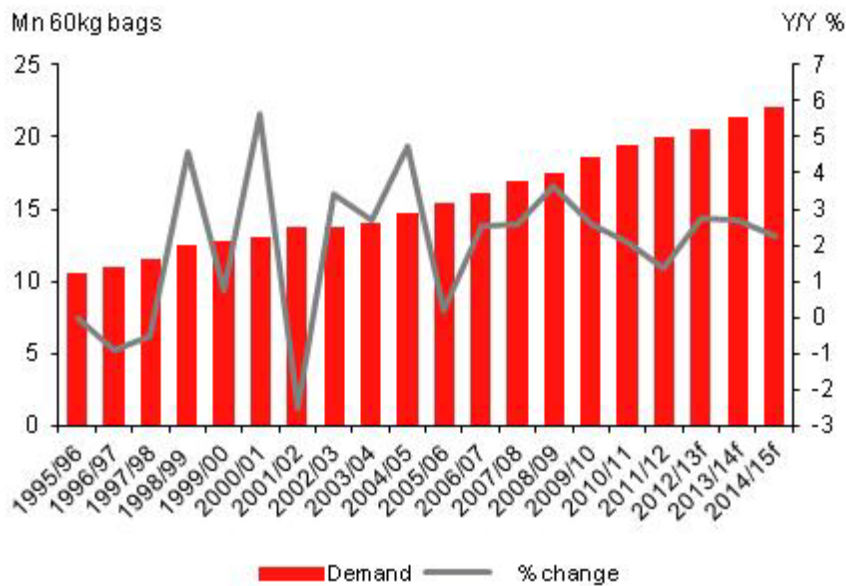




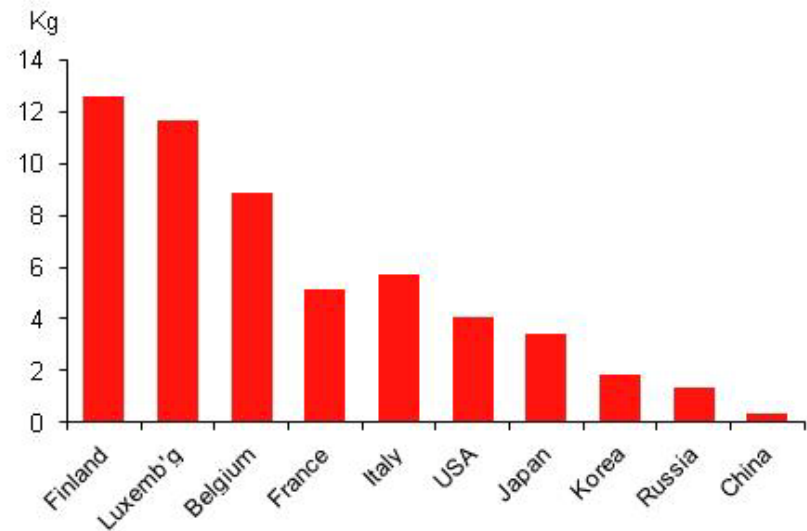
# Demand tends to be fairly stable, although the potential upside is huge



### Global coffee demand vs growth

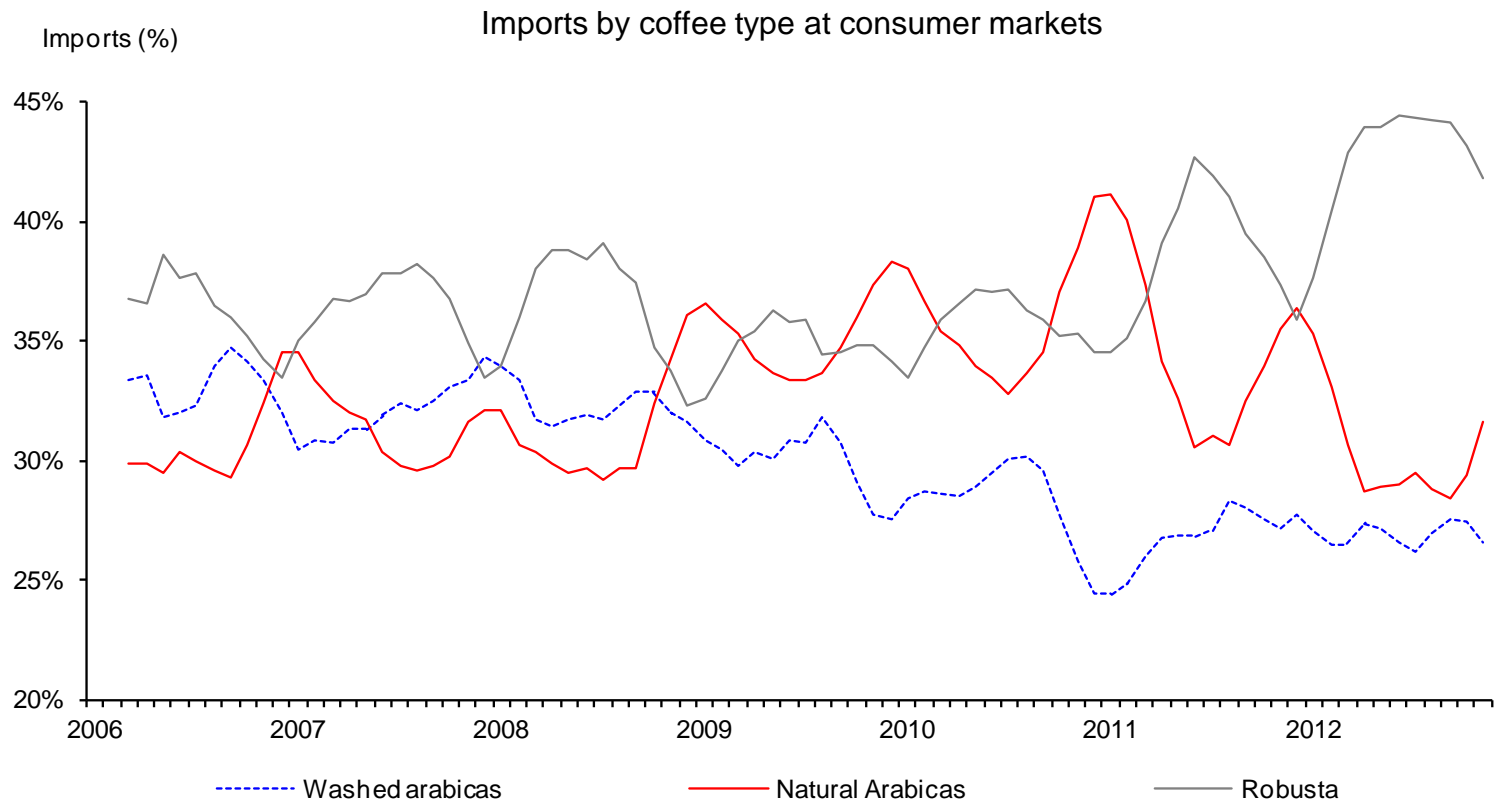


### Per capital consumption by country





# Price movements can prompt some consumer switching between coffee types

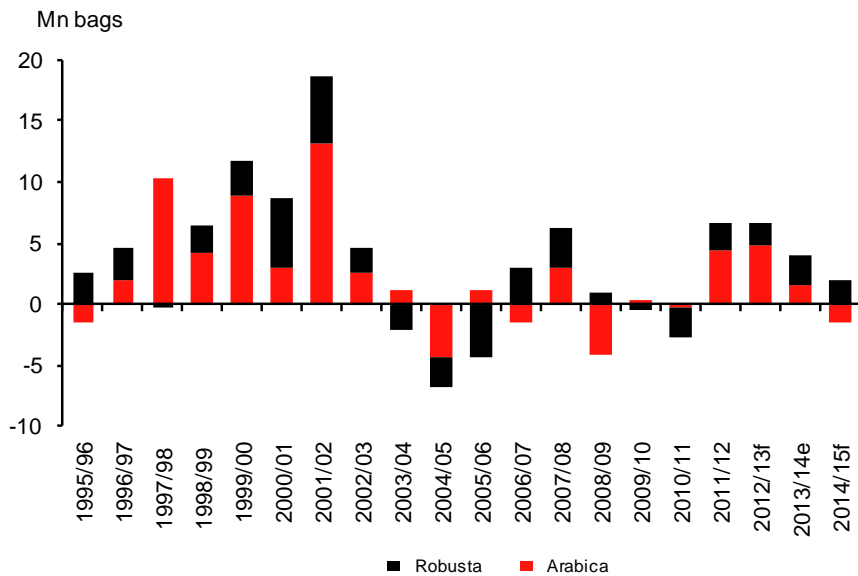




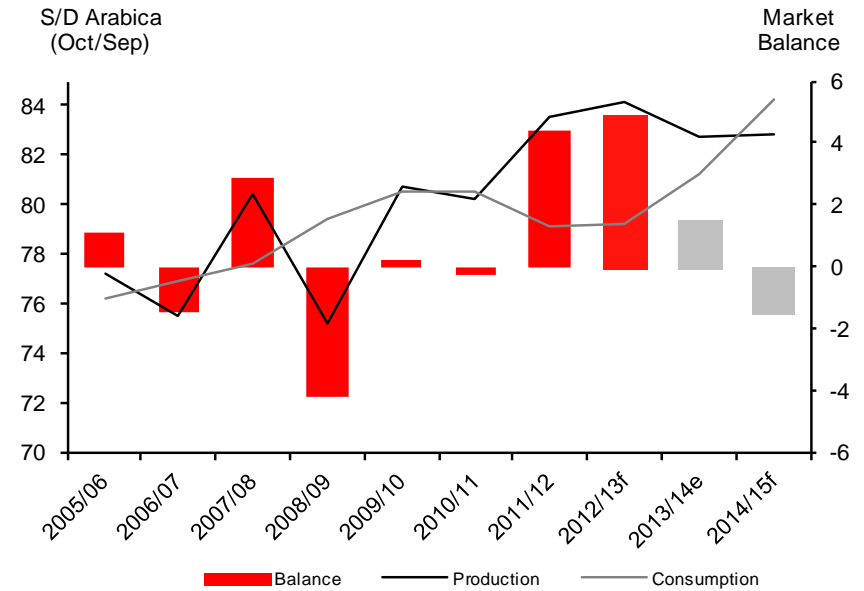
# World coffee supply/demand balance



### Combined coffee S/D balances



### Arabica coffee S/D balance



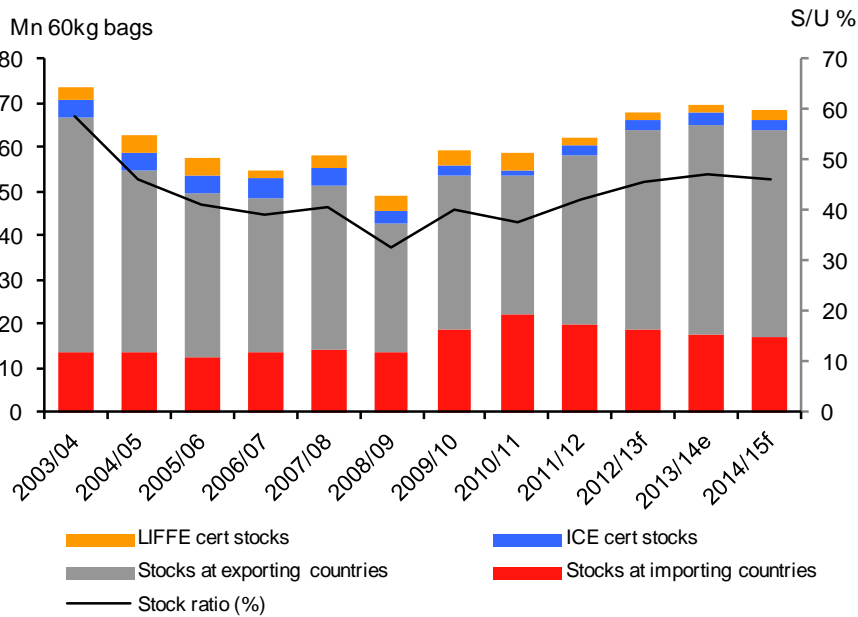




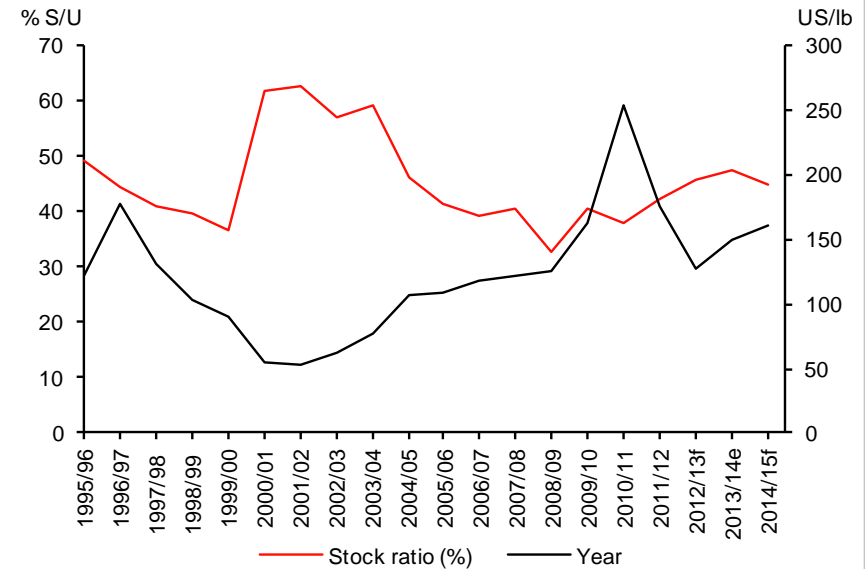
# As we potentially move to a deficit, stocks will draw down, causing prices to rise higher



### World coffee stocks



### Coffee stocks vs prices





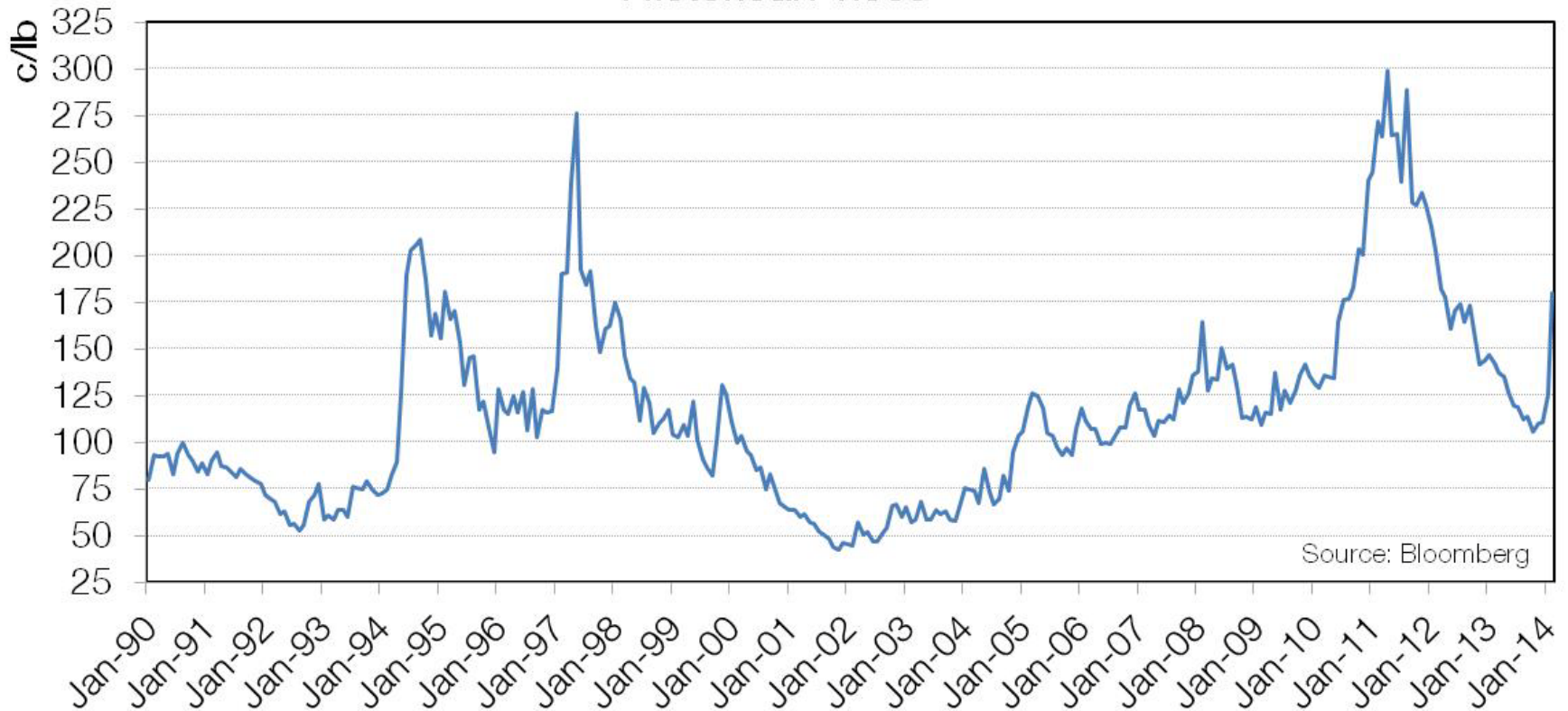
- So how do we cope with such uncertainty and volatility?



# Where we are now



## ICE "C" Coffee - First Contract Historical Prices

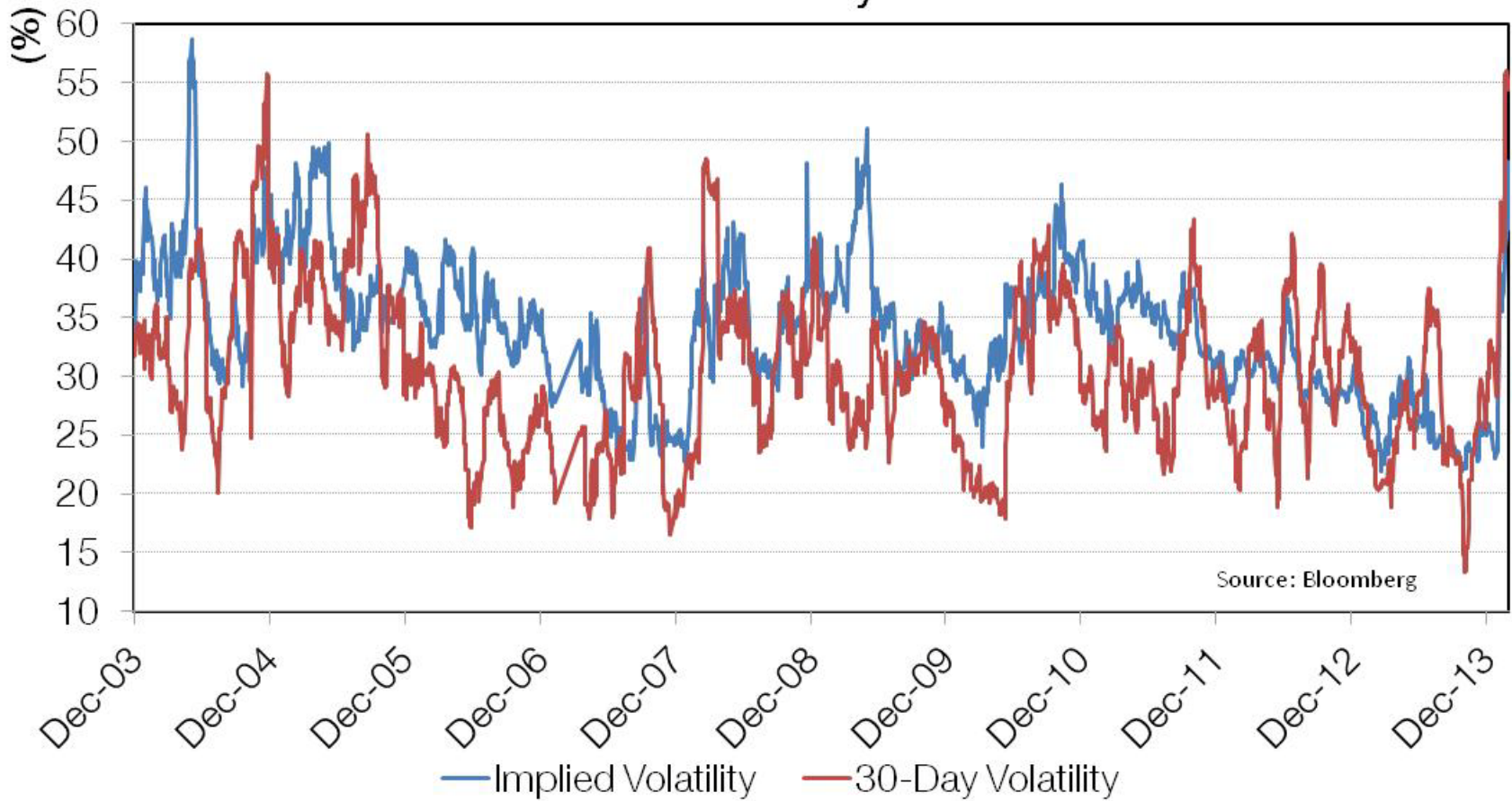




# What Do We Mean By Volatility?



## ICE "C" Coffee - Second Contract Volatility

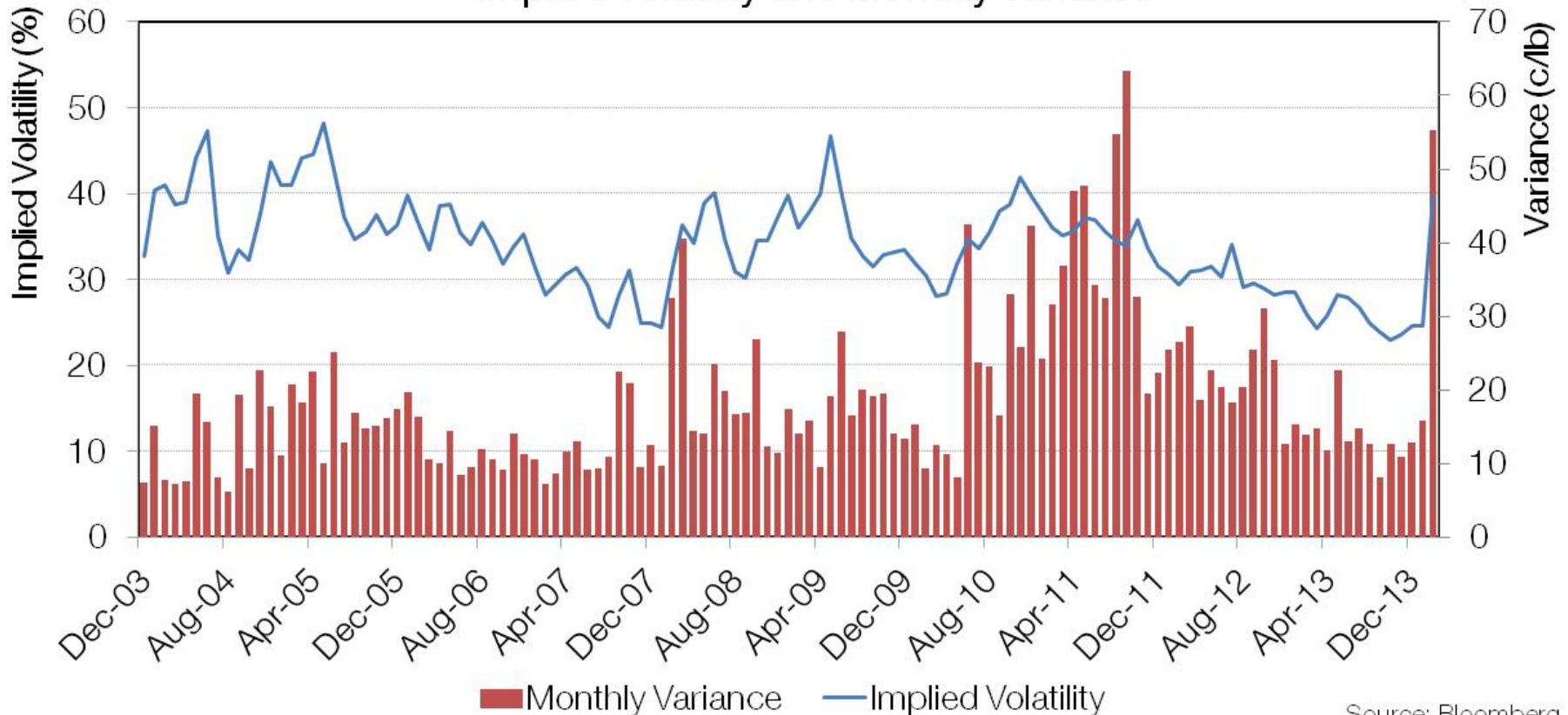




# Variance Versus Volatility



### ICE "C" Coffee - First Contract Implied Volatility and Monthly Variance



Source: Bloomberg



# Ways to Cope With Price Volatility



- **Do nothing and hope for the best.**
- **Punt – try to pick the bottom of the top.**
- **Let consumers, producers, or the tax payer bear the risk.**
- **Understand your enterprises profit drivers.**
- **Create an overarching risk management policy and strategy**
- **Buy volatility**
- **Use structures.**
- **Diversify**



# Buying Volatility Vanilla Call Option



## ICE "C" Coffee - December 2014 Historical Prices



Source: Macquarie, Bloomberg



# Buying Volatility Vanilla Put Option



## ICE "C" Coffee - December 2014 Historical Prices



Source: Macquarie, Bloomberg



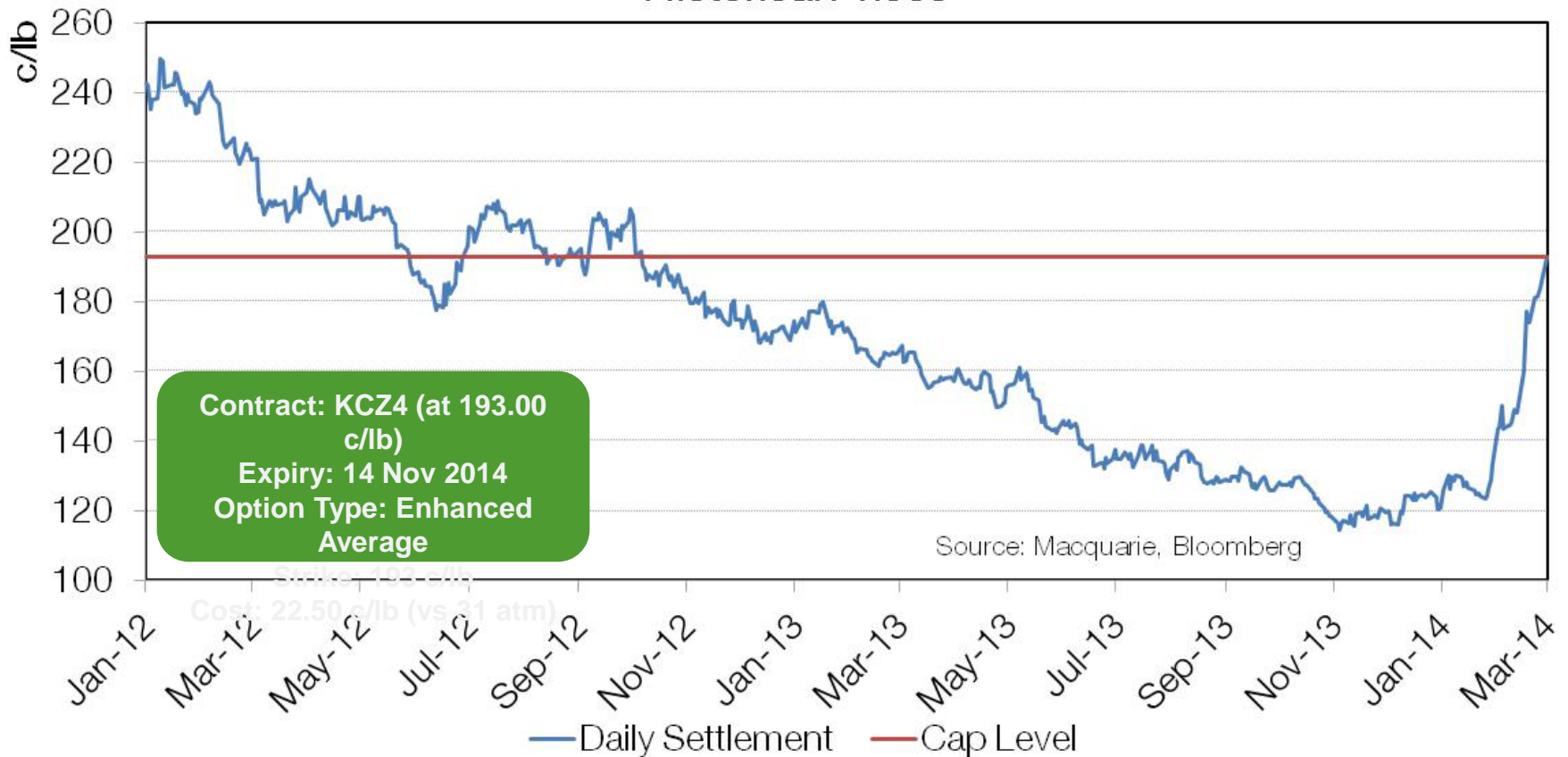


# Buying Volatility

Reducing premium to be paid



## ICE "C" Coffee - December 2014 Historical Prices

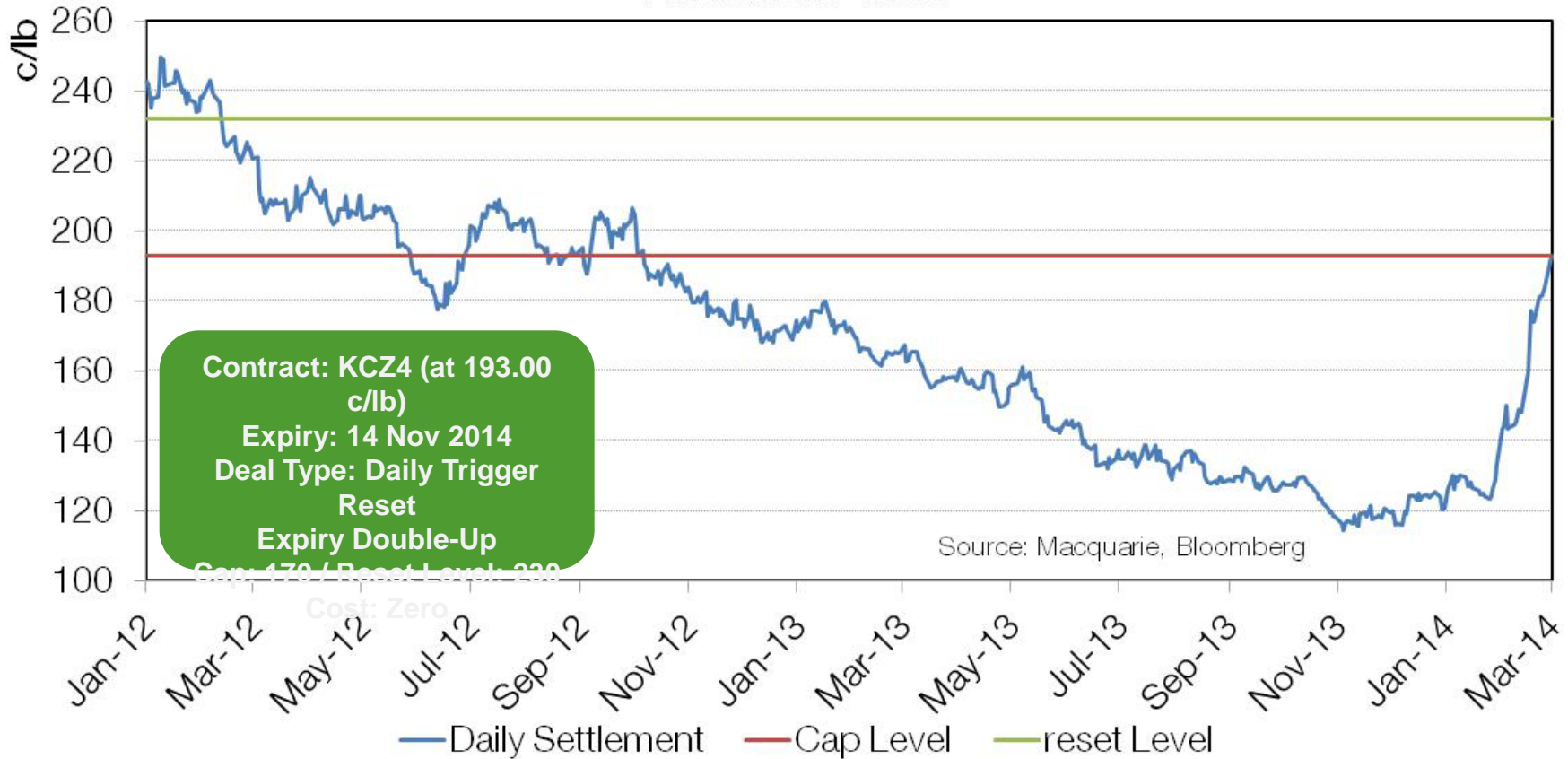




# Producer Structure Trigger Reset



## ICE "C" Coffee - December 2014 Historical Prices





# Contacts / Disclaimer

## Graham TRASK

*graham.trask@macquarie.com*

*Tel: +41 22 560 61 99*

*Mob: +41 78 742 01 69*

## Romulo SILVA

*romulo.silva@macquarie.com*

*Tel: +41 22 560 6190*

*Mob: +41 78 607 2116*

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# Contacts / Disclaimer

## **Graham TRASK (sales)**

*graham.trask@macquarie.com*

*Tel: +41 22 560 61 99*

*Mob: +41 78 742 01 69*

## **Kona HAQUE (research)**

*Kona.haque@macquarie.com*

*Tel: +44 203 037 4334*

*Mob: +44 7917 847830*

## **Romulo SILVA (sales)**

*romulo.silva@macquarie.com*

*Tel: +41 22 560 6190*

*Mob: +41 78 607 2116*

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