

# De-Cyphering Market Trends: Practical Applications of Pattern & Ratio Analysis

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# Why Technical Analysis ?

- Identifies and follows trends.
- Risk Control process.

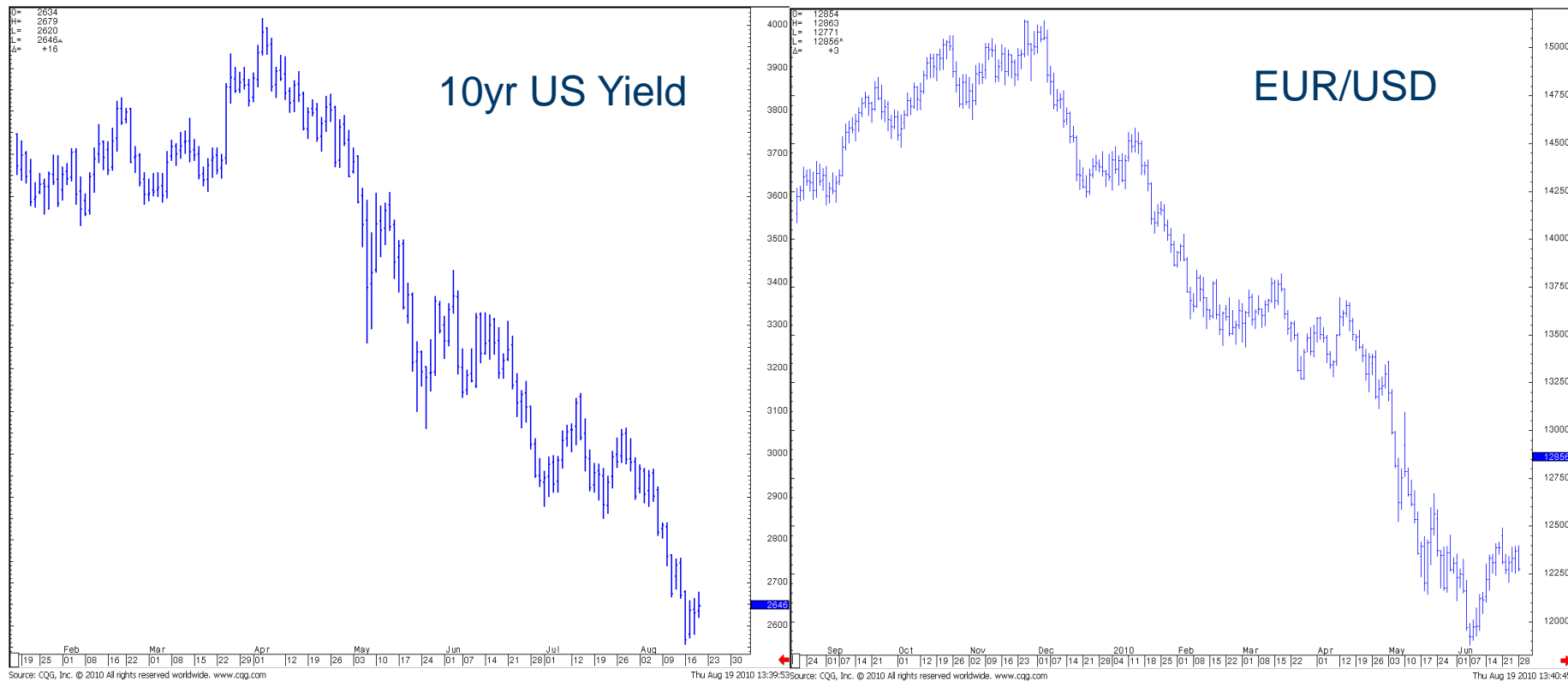


Source: CQG, Credit Suisse

# Mathematical & Psychological Analysis

Trends exist, and in our view, a *major* trend can only exist if the fundamentals are in place to support it. However, technicians stay cold and neutral to the fundamental data, because we are concerned with **How**, and *not Why*.

Trends across different markets, asset classes and timeframes share similar characteristics. We use a combination of Mathematical and Psychological/Behavioral techniques to trade these trends.



Source: CQG, Credit Suisse

# An Efficient Market ?

Efficient Market Hypothesis – “prices fully reflect all available information”

But, various behavioural tendencies, or “biases” can all have a significant impact:

- Risk aversion,
- Loss aversion,
- Probability matching,
- Selective attention,
- Gamblers fallacy,
- to name but a few.

Stress in all its forms can have a significant impact on our ability to make rational decisions – greed, fear, “fight or flight” etc....

# Psychology underscores everything we do



Source: Credit Suisse

# Pattern Analysis – Human Psychology in Motion

Human psychology/crowd behaviour repeats through trends and cycles, and causes patterns to exist and repeat.

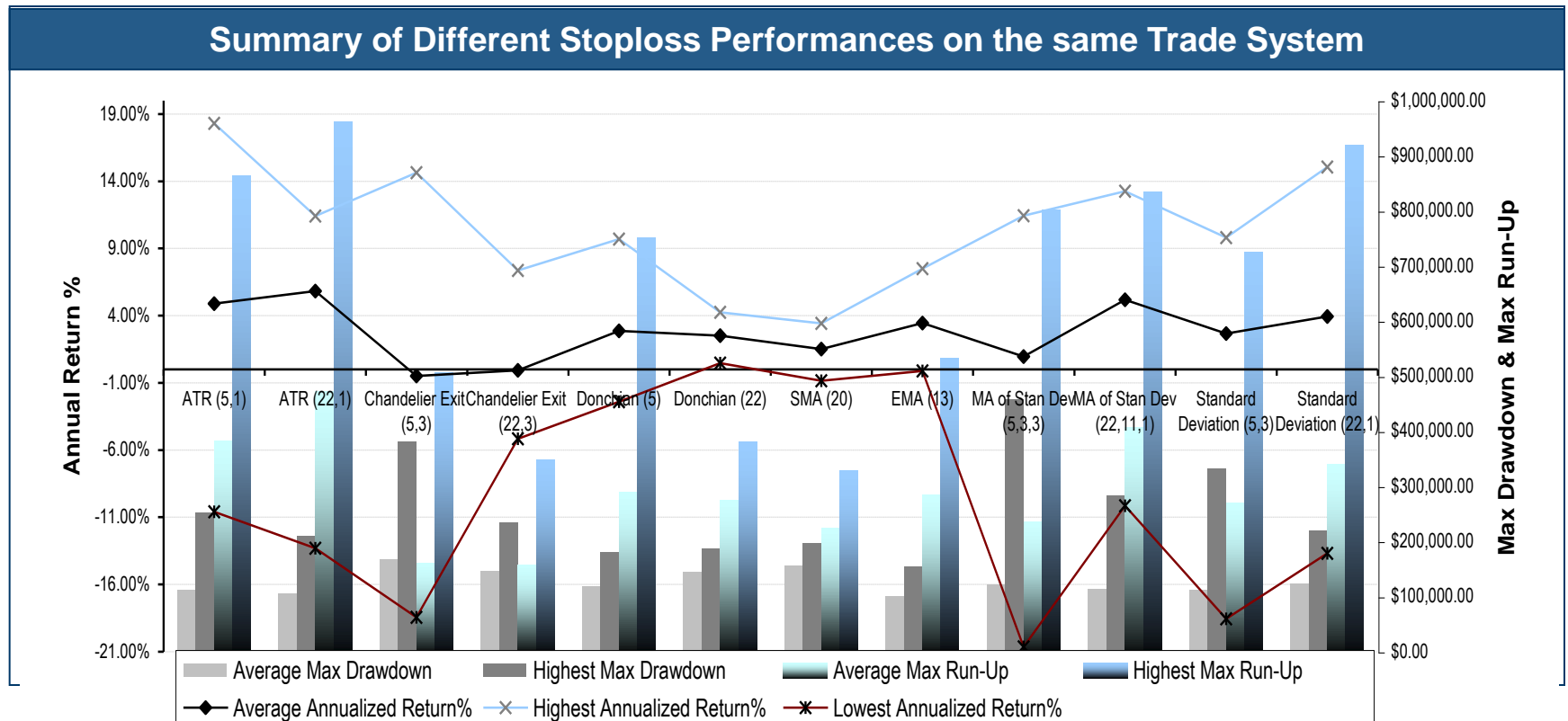
Human psychology tends not to change over time.

Different patterns reflect different states of bullish or bearish psychology.

A “Head & Shoulders” is a repetition of a specific state of human psychology, as is an Elliott Wave fractal.

In our view, there is no method yet that can identify in advance what pattern we will see at a top or bottom.

# Money Management plays a huge impact on P/L



**Indeed, there are two distinct phases of evolution to a trade.**

**Entry, and Position Management - which can often require different skill sets.**

In practice



# Set a disciplined framework

A mixture of Objective and Subjective techniques. Nothing is used in isolation.

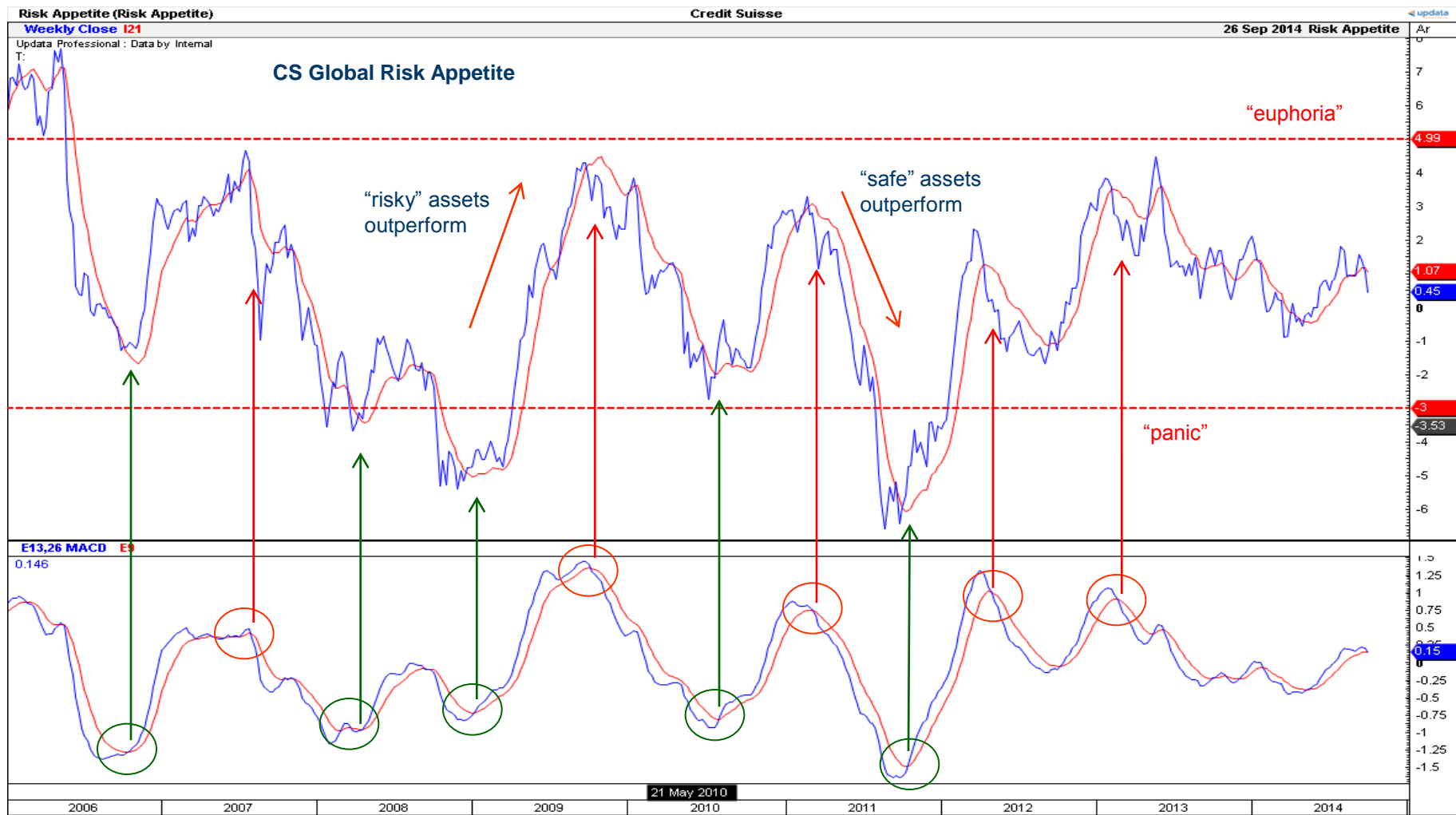
- Trend Analysis
    - Moving Averages, Trendlines, Channels, Envelopes etc
  - Pattern Analysis
  - Resistance and Support
  - Momentum
  - Exhaustion
  - Volume
  - Volatility
  - Market Breadth
  - Positioning
  - Sentiment
- 
- We also take a technical view of the Marco environment via Risk Appetite
  - Apply Cross-Asset analysis

**LAYER**

**RANK**

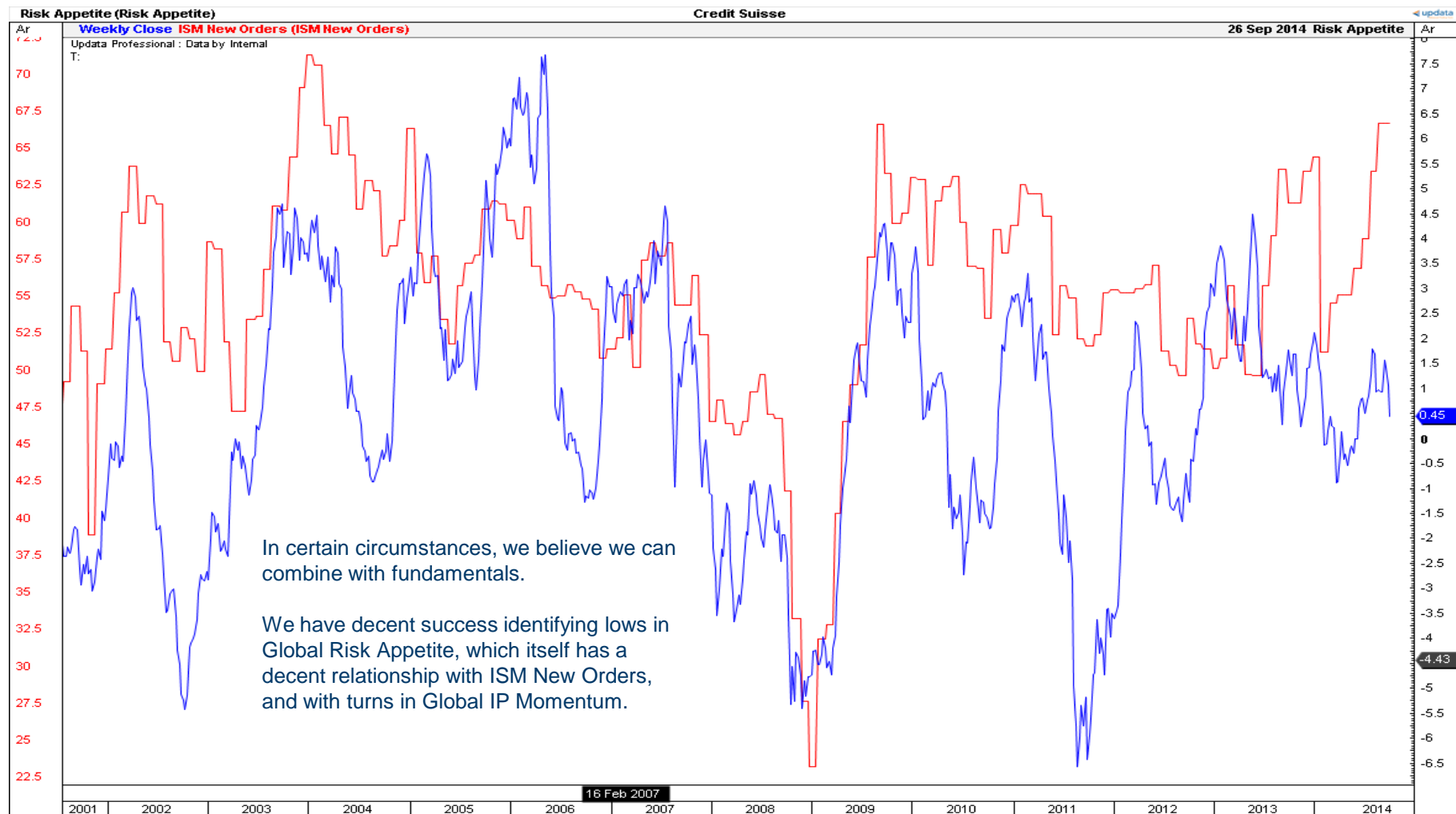
**FILTER**

# What is the Macro Backdrop ? Risk On, Risk Off etc...



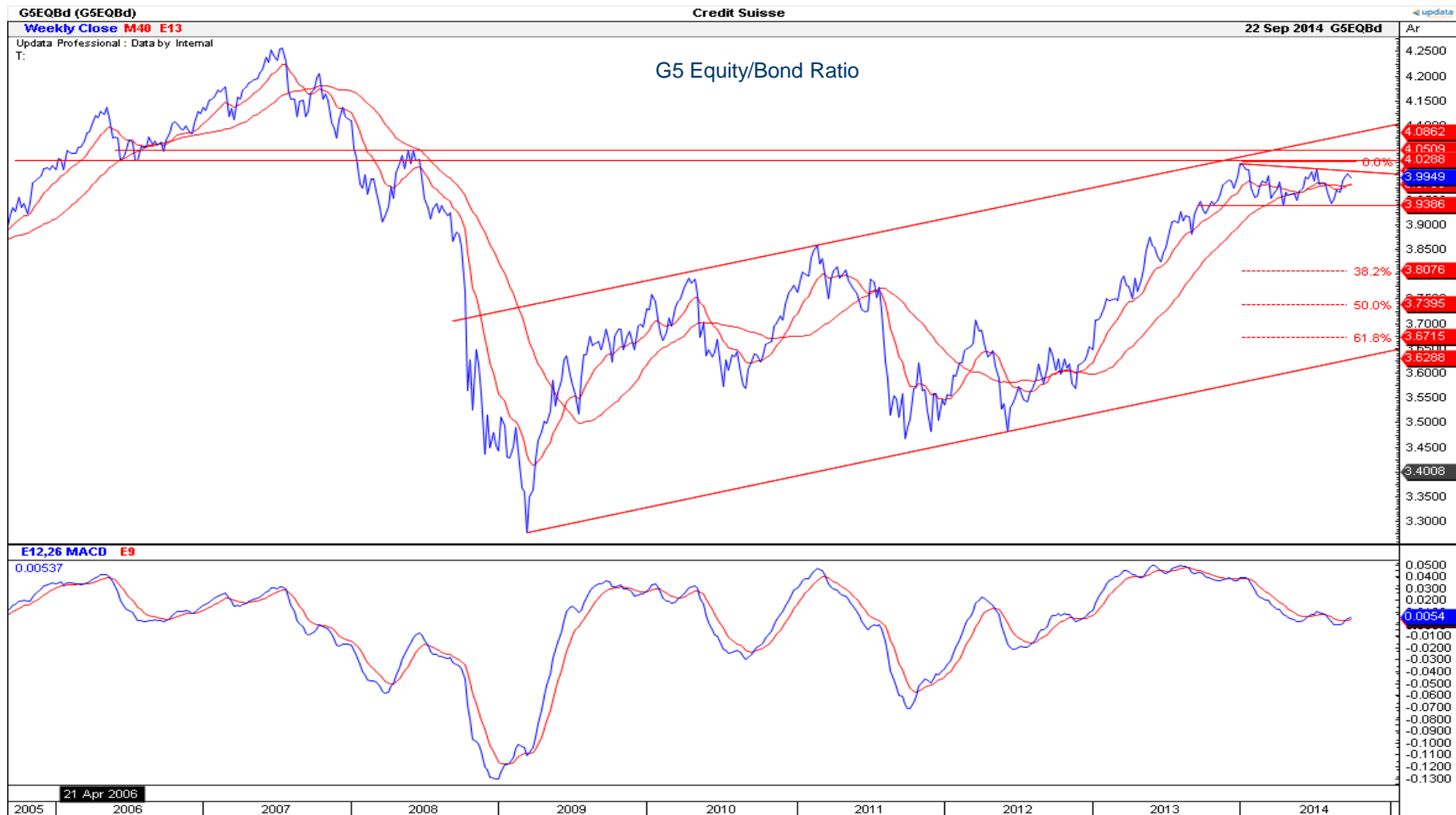
Source: Update, Credit Suisse

# Can we mix Technicals and Fundamentals ?



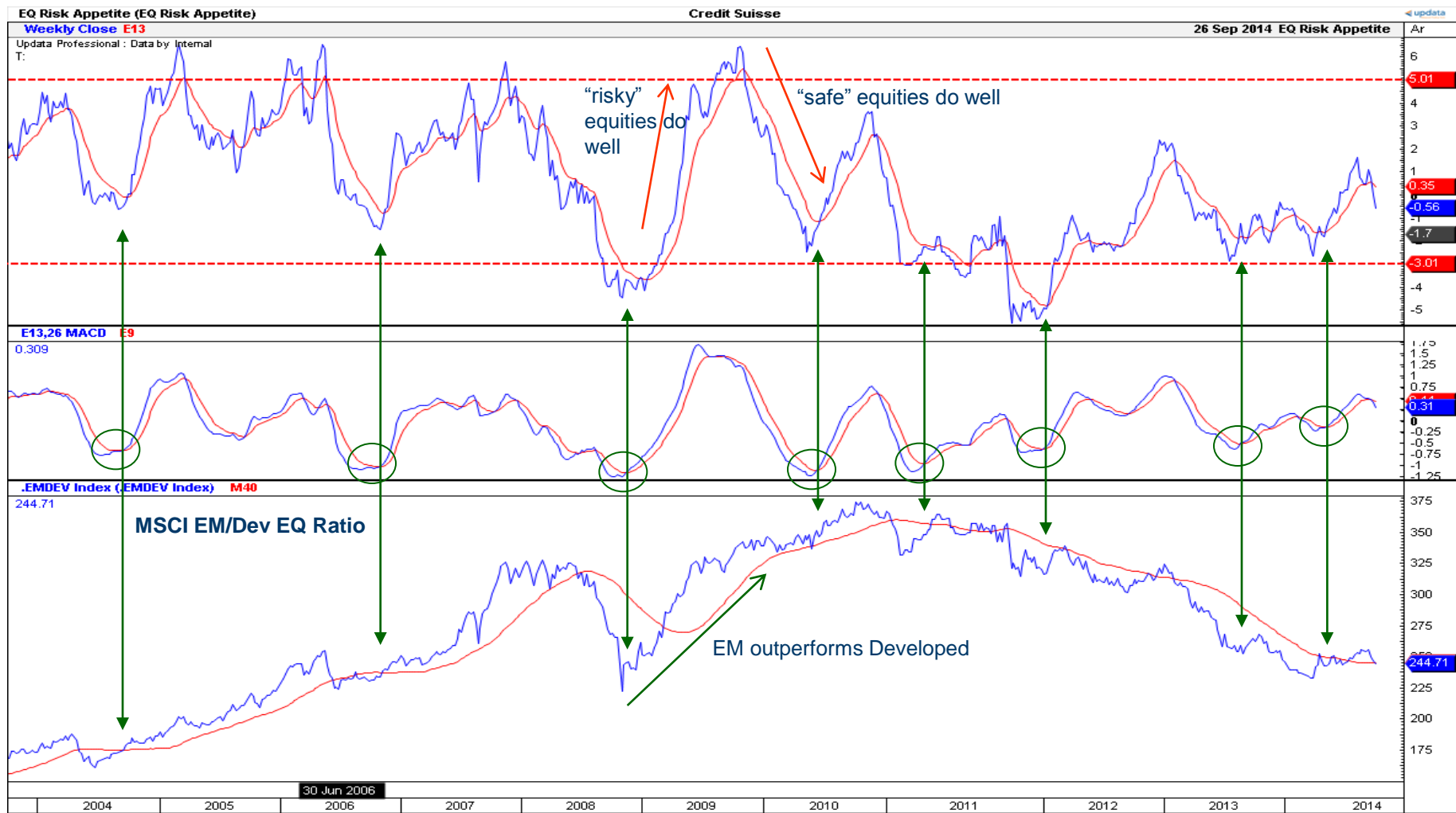
Source: Uputa, Credit Suisse

# Equities or Bonds ?



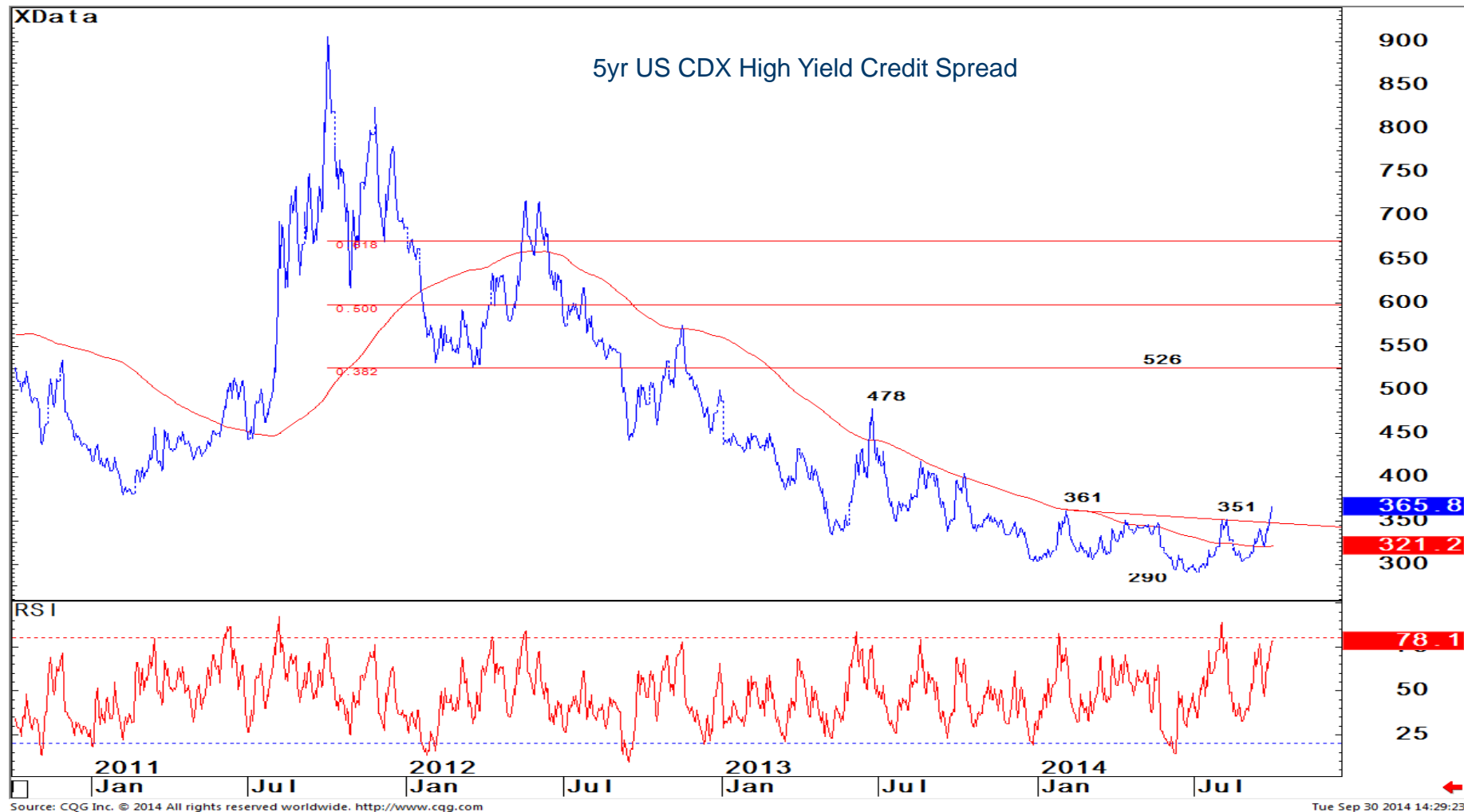
Source: Update, Credit Suisse

# Safe or Risky Equities. EM or Developed ?

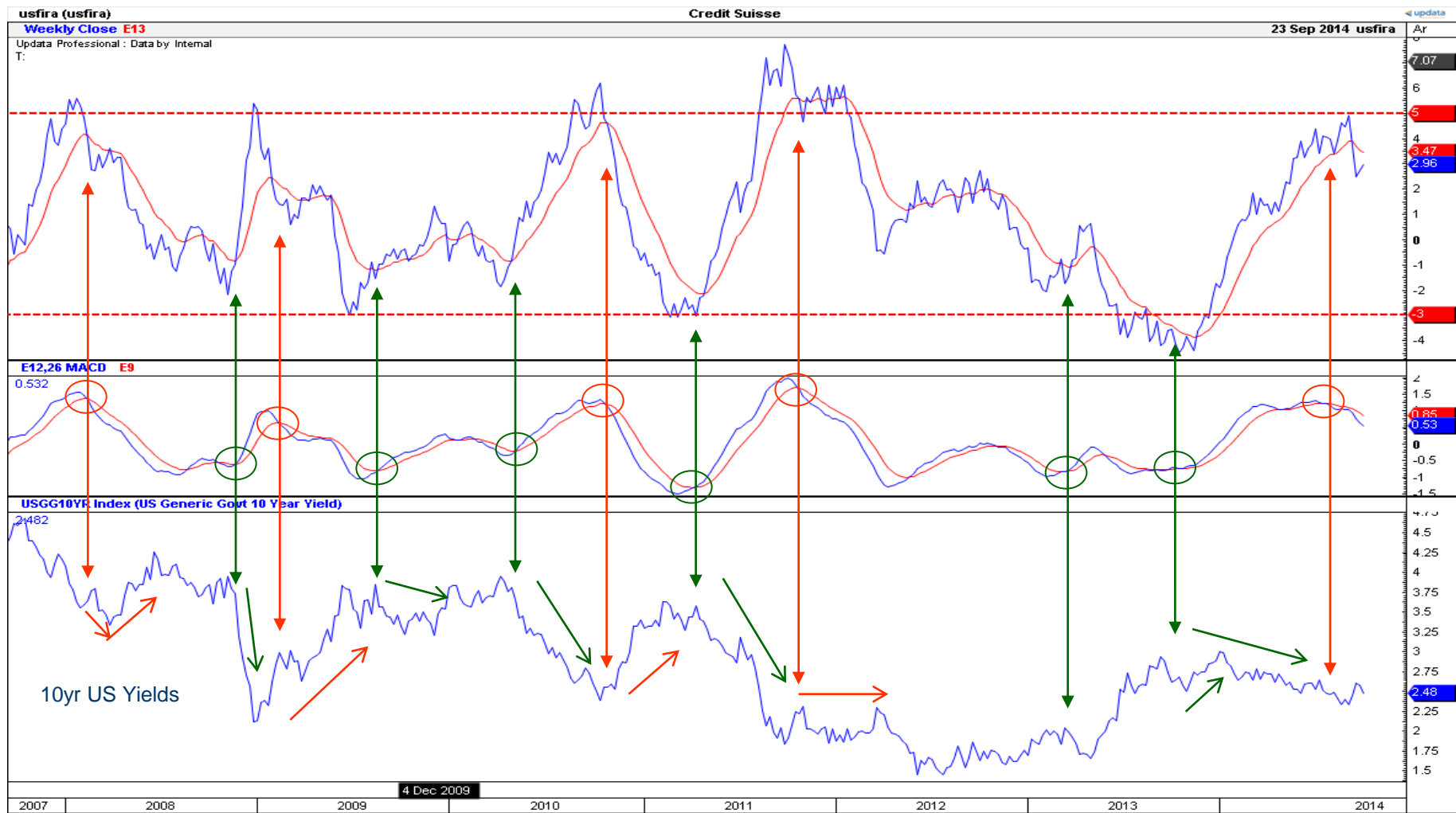


Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

# How does Credit look ? ABS, CMBS, Funding....

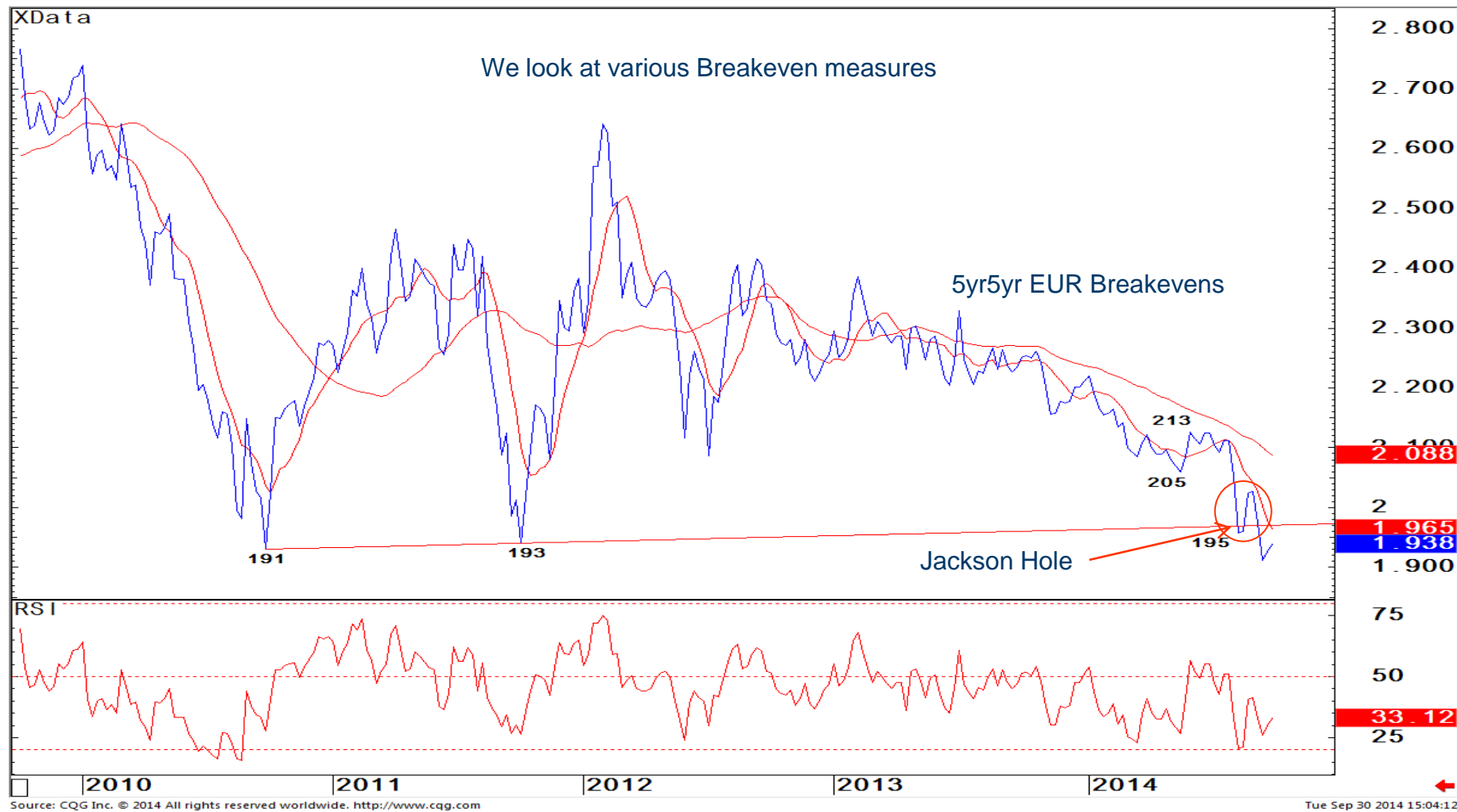


# A rising or falling yield environment ?



Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

# And Inflation. Is Draghi a Chartist ?



Source: CQG, Credit Suisse



# Resistance & Support – Trader Psychology

A pattern completes, a trend breaks when a key resistance or support level breaks. Found from many sources including:

- Old highs
- Old lows
- Inclined resistance (trendlines)
- Moving averages
- Fibonacci/Ratio levels
- Pivot points
- Pattern objectives
- Gaps, and many more ...

The most important resistance or supports are where we see a “cluster”. The more reason there is for a level to be a level, the more likely it is the market may stop there.

# Fibonacci Ratios – another source of support/resistance

Leonardo of Pisa, also known as Leonardo Fibonacci, Born circa 1170's.  
One of the most famous mathematicians of his time.

Major work – *Liber Abaci* (Book of the Abacus). Published in 1202.  
Introduced the Hindu-Arabic numeric system to Europe.

One of his most famous problems was:

“A certain man put a pair of rabbits in a place surrounded on all sides by a wall. How many pairs of rabbits can be produced from that pair in a year if it is supposed that every month each pair begets a new pair which from the second month on becomes productive?” <sup>1</sup>

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, .....

<sup>1</sup>Mario Livio, The Golden Ratio

# $\Phi$

$$N_V/N_{V+1} = 0.618, \text{ as } V \rightarrow \infty$$

$$N_V/N_{V-1} = 1.618 (\Phi) \text{ as } V \rightarrow \infty$$

$\Phi$  has many interesting properties, for example:

$$1.618 * 0.618 = 1$$

$$1.618 * 1.618 = 1.618 + 1 = 2.618$$

$$1 / 1.618 = 1.618 - 1 = 0.618$$

$$\Phi = 1.618$$

$$\Phi^2 = 2.618$$

$$\Phi^3 = 4.236$$

$$\frac{1}{\Phi}$$

$$= 0.618$$

$$\frac{1}{\Phi^2}$$

$$= 0.382$$

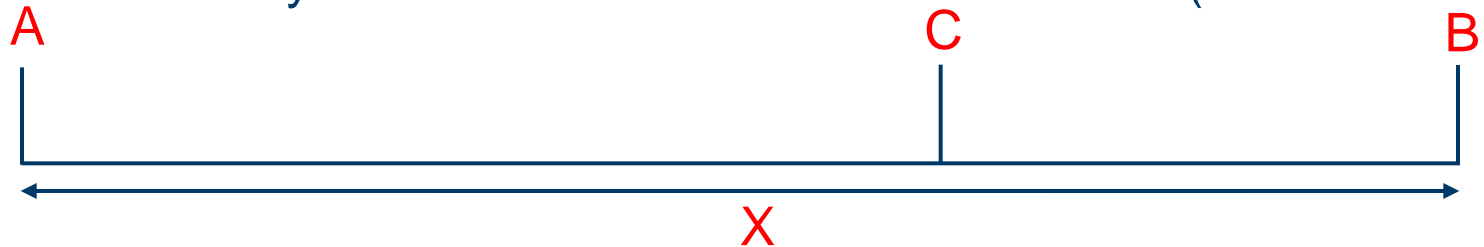
$$\frac{1}{\Phi^3}$$

$$= 0.236$$

$$\Phi + \Phi^2 = \Phi \times \Phi^2$$

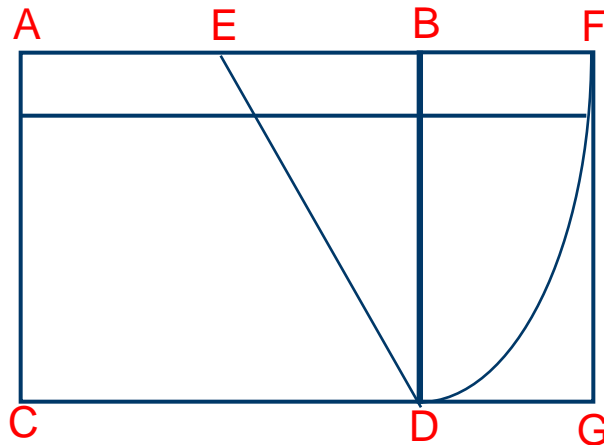
# $\Phi$ in geometry

The “Golden Section” of a line,  
solved by the the Greek mathematician Euclid (450-370 B.C).



C divides the line X into two parts so that  $X/(C-A) = (C-A)/(B-C) = 1.618$

We can expand this to construct the “Golden Rectangle”:



Draw a square – ABCD

Bisect square – E

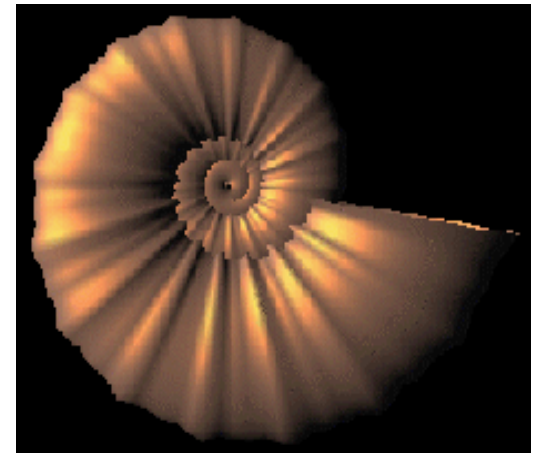
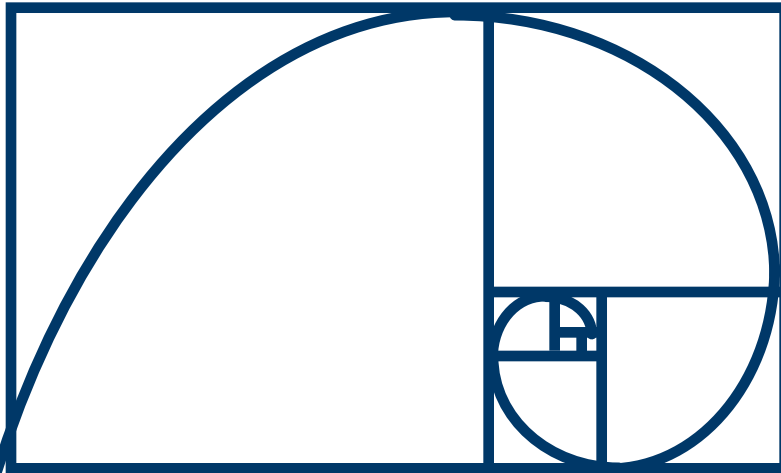
Draw an arc of a circle – centre E; radius ED

Extend AB, to determine F.

Complete Golden Rectangle - AFCG

## $\Phi$ in geometry

From the “Golden Rectangle” we can construct a spiral – the  $\Phi$ -spiral:



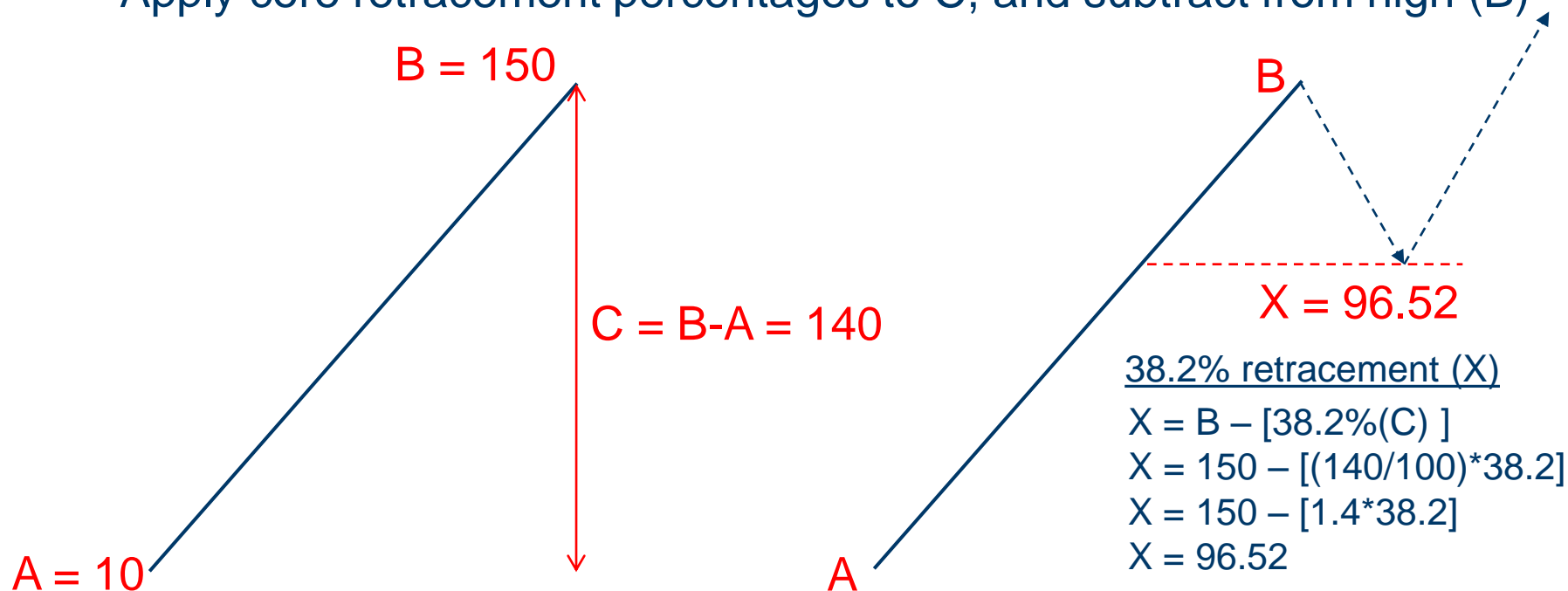
The spiral is infinite, and has no maximum or in fact minimum point. Its shape remains unchanged, however large or small. The  $\Phi$ -spiral appears throughout nature – shells, galaxies, pine cones, animal horns and so on.....

# Basic Fibonacci Retracements

How to determine retracement levels.

In an uptrend:

- Determine low of rally – A
- Determine high of rally – B
- Measure **vertical** distance  $B - A = C$
- Apply core retracement percentages to C, and subtract from high (B)

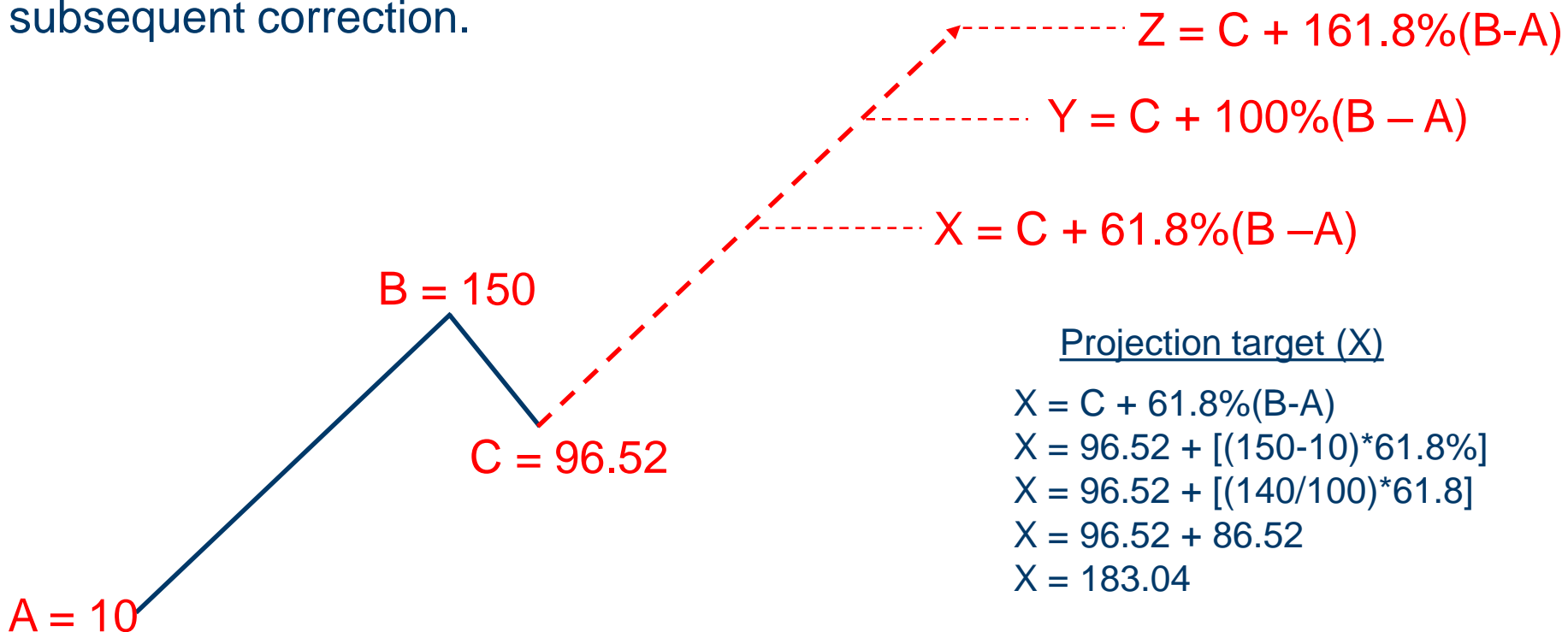


# Basic Fibonacci projections

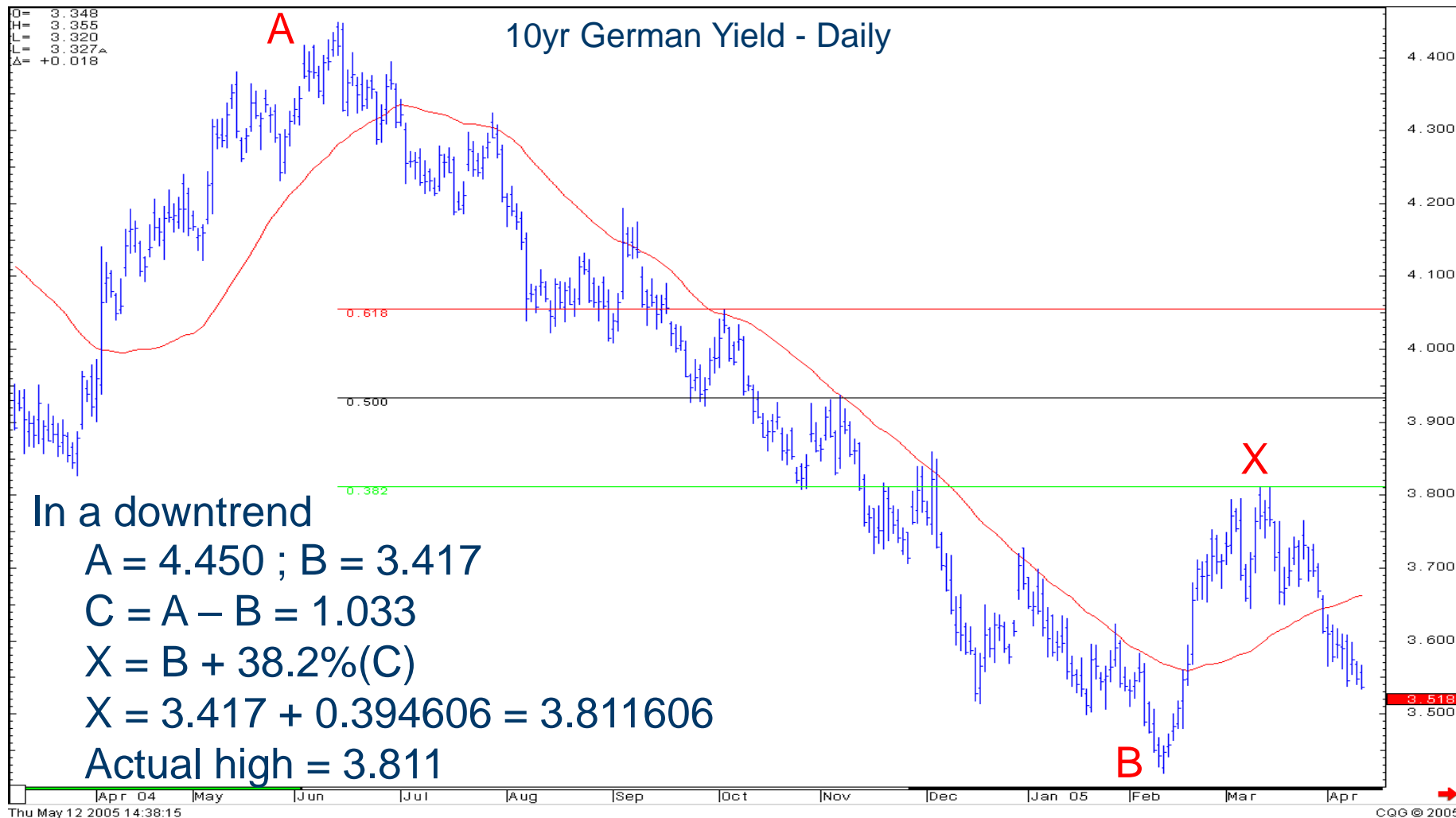
Used to determine targets for an existing trend.

Common Fibonacci projections – 61.8% ; 100% ; 161.8%

Projection levels can only be determined after an initial trend move AND a subsequent correction.

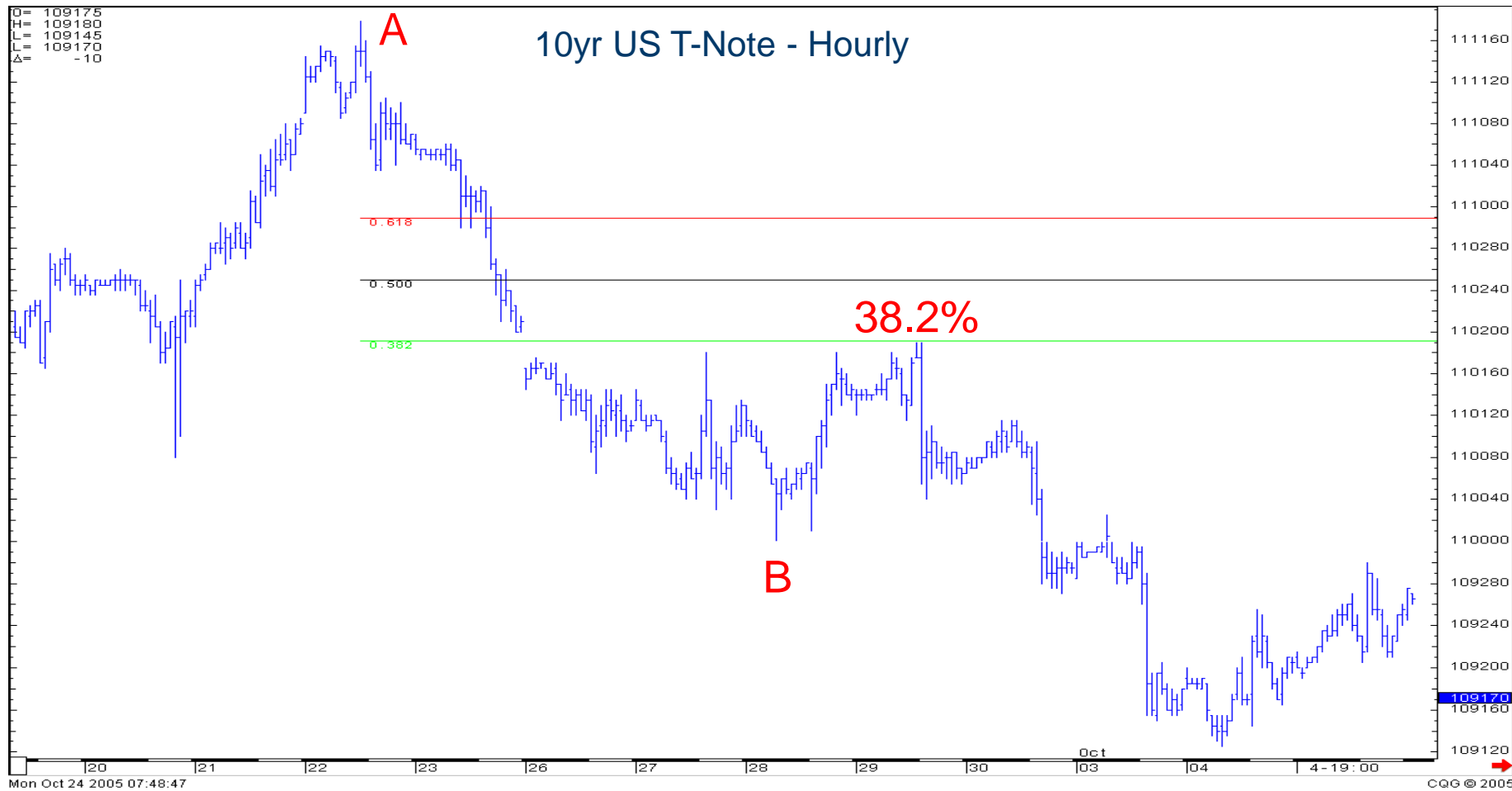


# Basic Retracements in practice



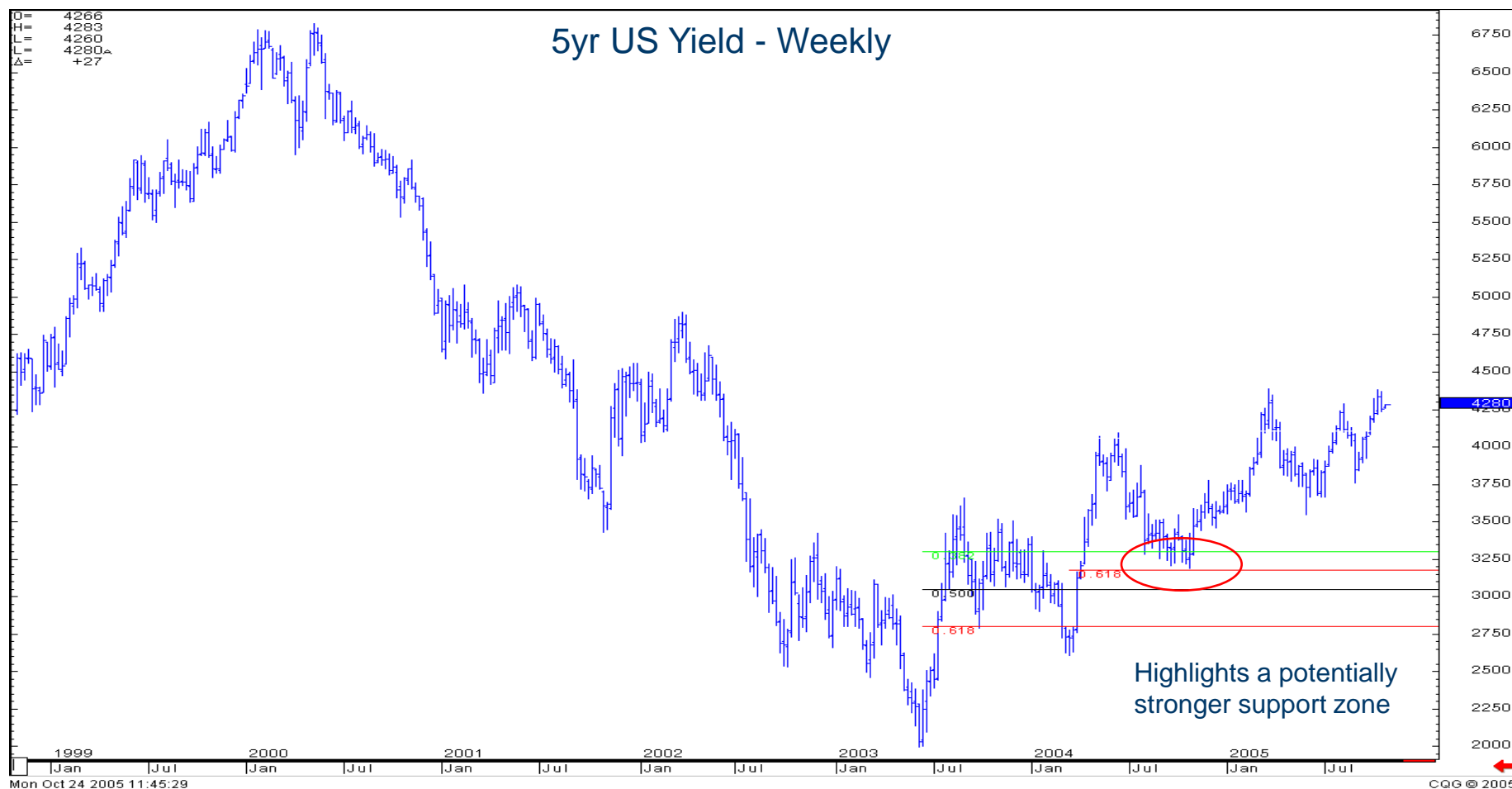


# We apply retracements over any timeframe

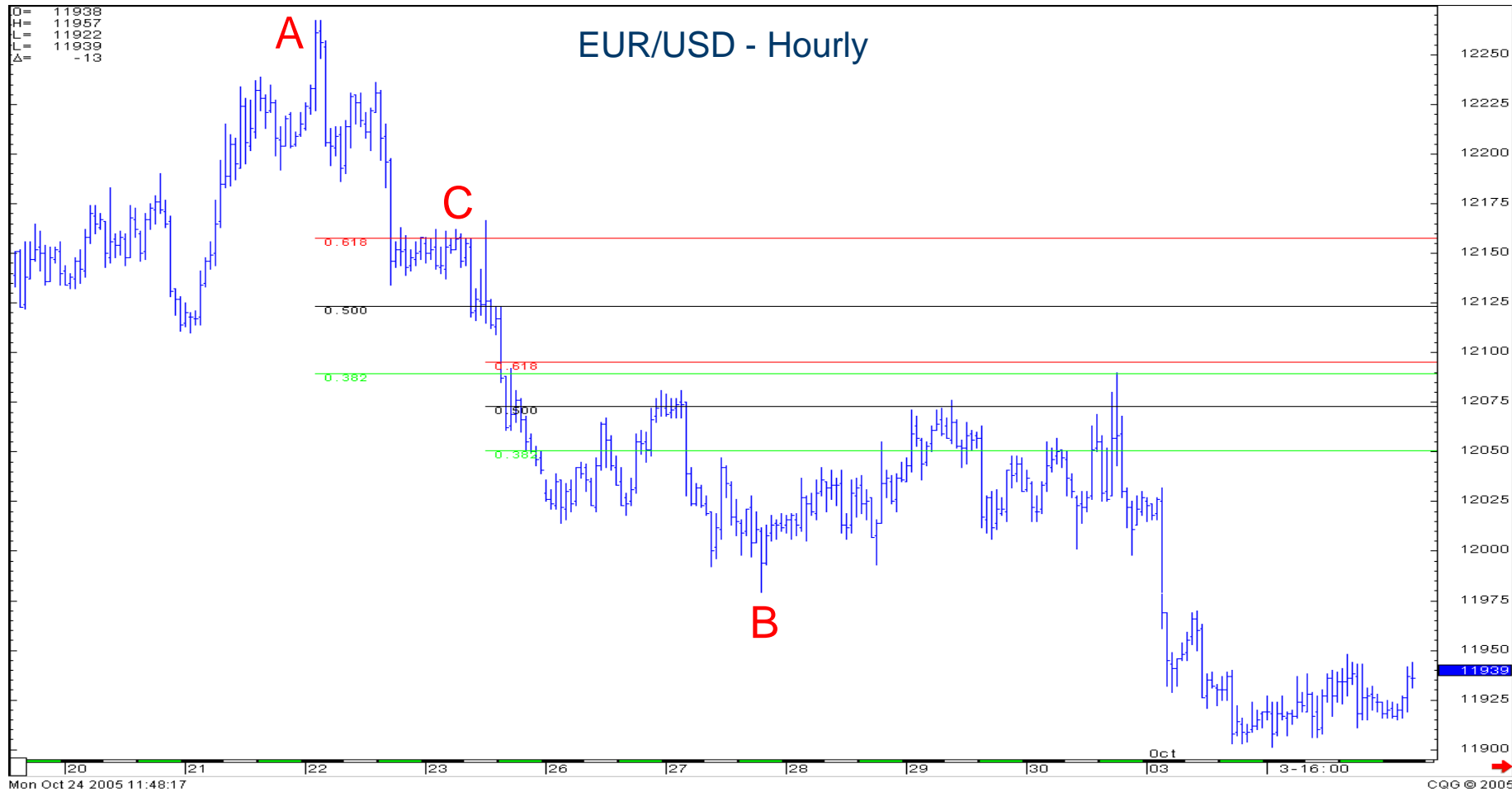


Source: CQG, Credit Suisse

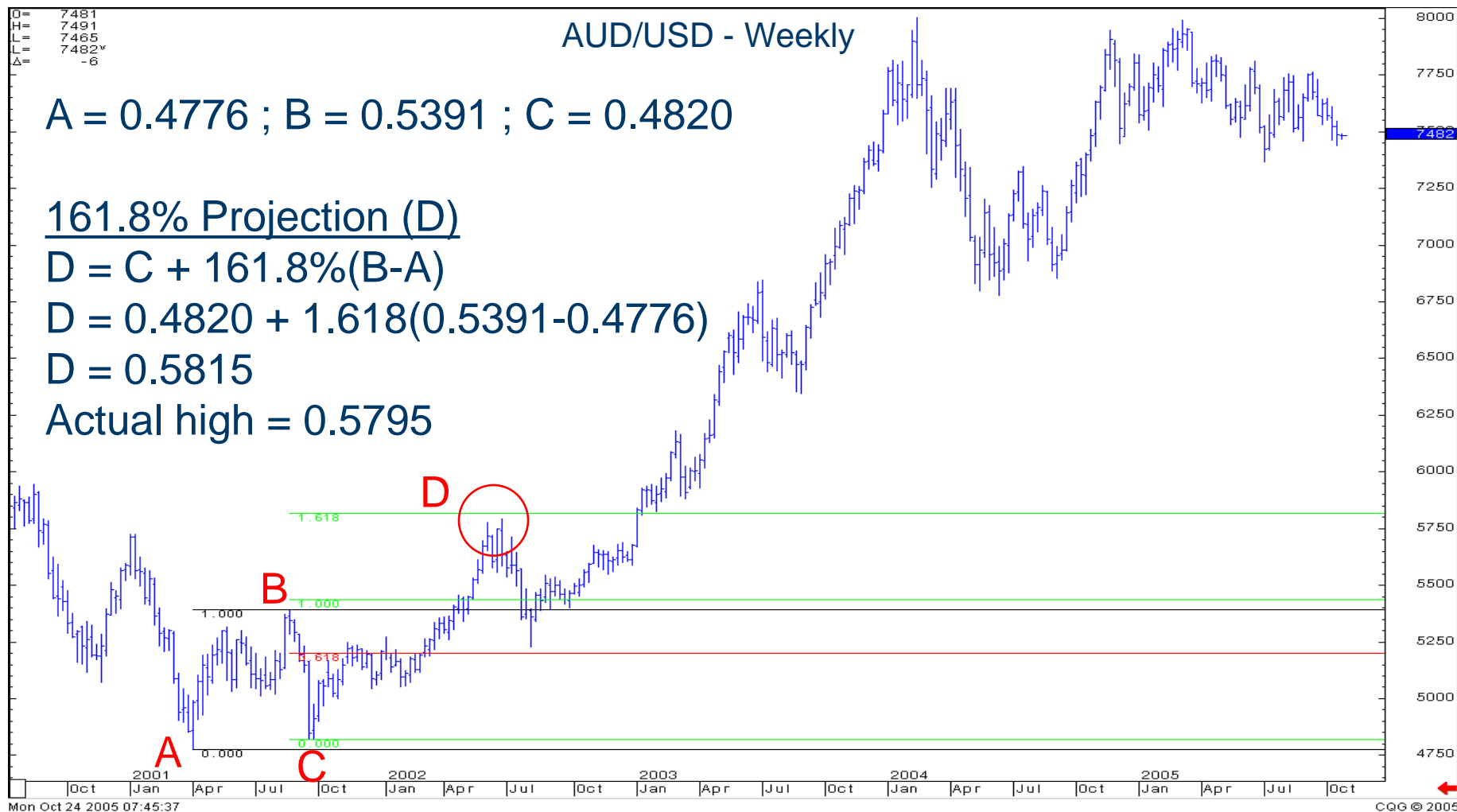
# But the key is to apply multiple retracements



# Multiple retracements and over different timeframes

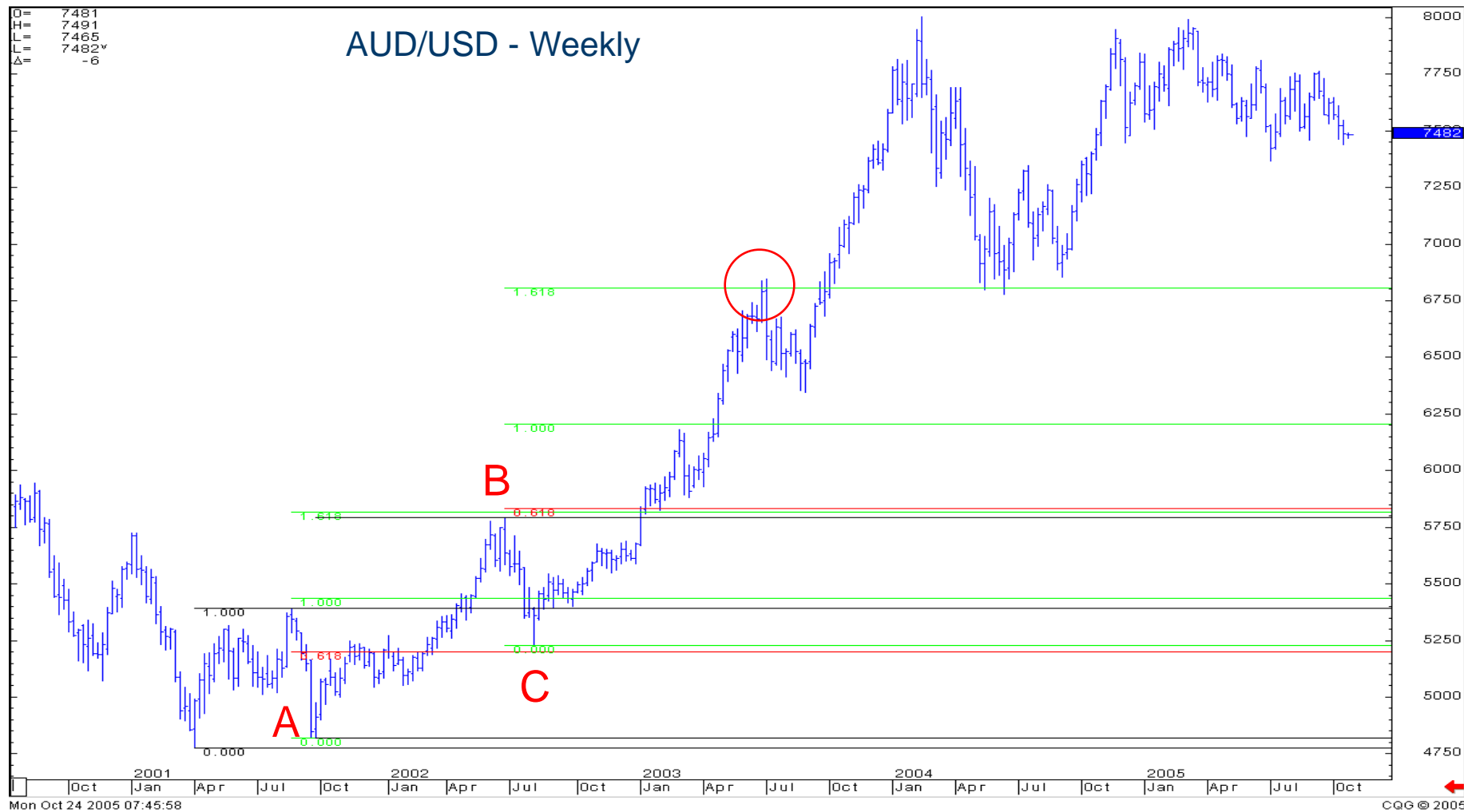


# Fibonacci projections



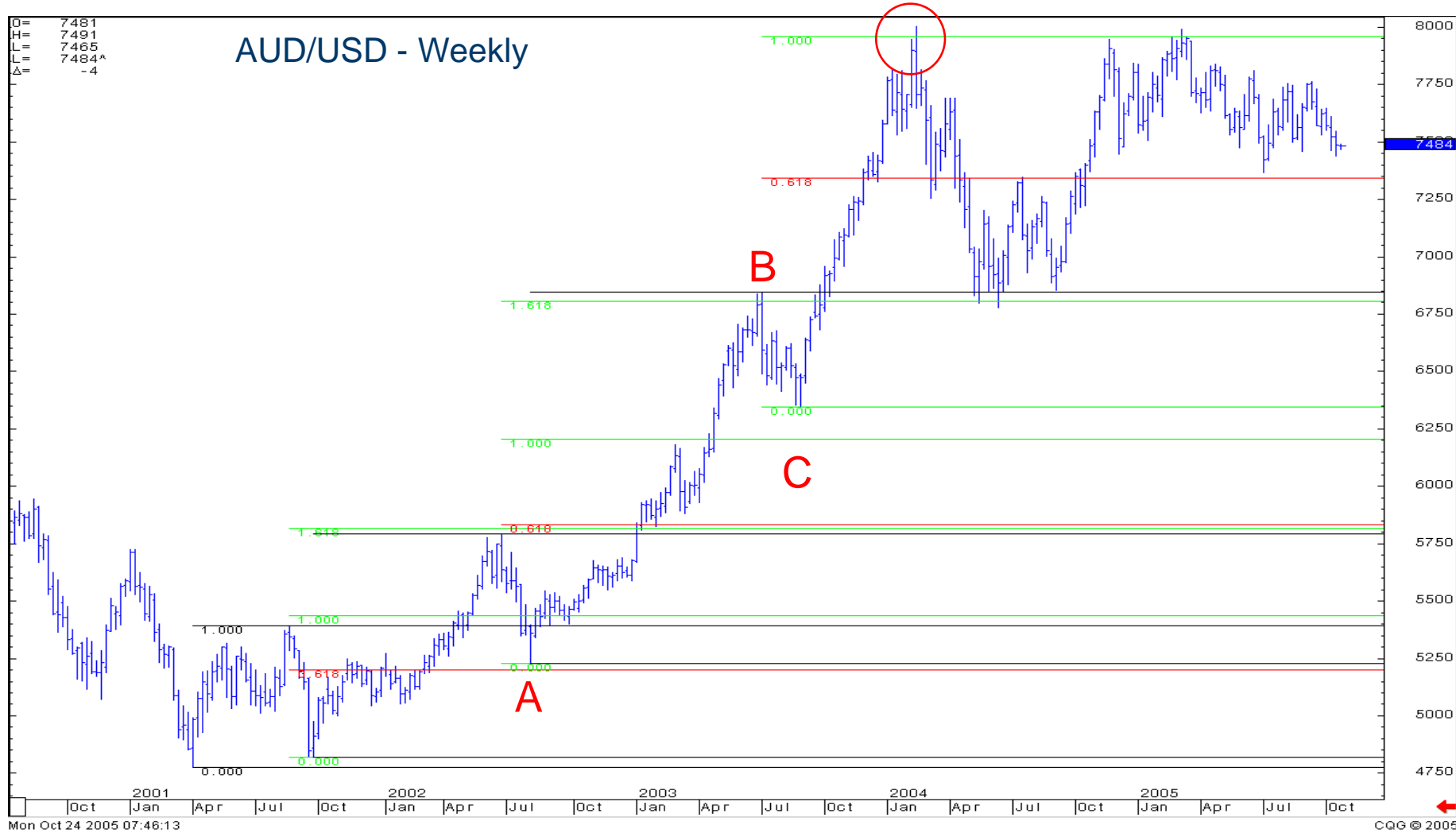
Source: CQG, Credit Suisse

# Fibonacci projections



Source: CQG, Credit Suisse

# Fibonacci projections



Source: CQG, Credit Suisse

# In practice, multiple ratios over multiple price swings

## RETRACEMENTS

<b>HIGH</b>	21.0000
<b>LOW</b>	4.4900
<b>RANGE</b>	165100

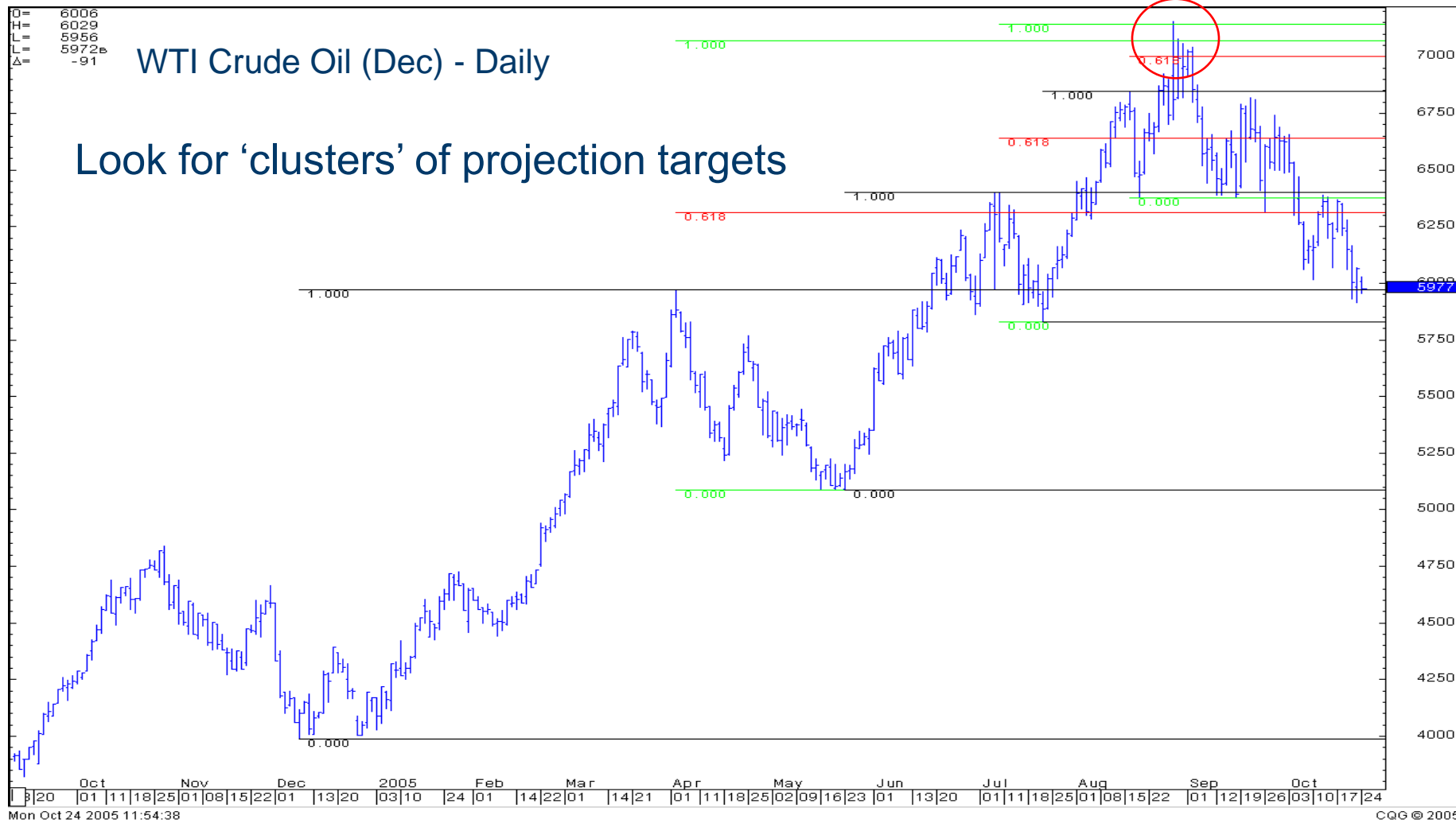
## EXTENTIONS

<b>RATE</b>	13.2500
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						<u>Up from Rate</u>	<u>Down from Rate</u>
		<u>From Low</u>	<u>From High</u>				
0.236	38,964	8.3864	17.1036	0.236	38,964	17.1464	9.3536
0.382	63,068	10.7968	14.6932	0.382	63,068	19.5568	6.9432
0.500	82,550	12.7450	12.7450	0.500	82,550	21.5050	4.9950
0.618	102,032	14.6932	10.7968	0.618	102,032	23.4532	3.0468
0.786	129,769	17.4669	8.0231	0.786	129,769	26.2269	0.2731
				1.000	165,100	29.7600	-3.2600
				1.236	204,064	33.6564	-7.1564
				1.382	228,168	36.0668	-9.5668
				1.500	247,650	38.0150	-11.5150
				1.618	267,132	39.9632	-13.4632
				2.000	330,200	46.2700	-19.7700
				2.236	369,164	50.1664	-23.6664
				2.382	393,268	52.5768	-26.0768
				2.500	412,750	54.5250	-28.0250
				2.618	432,232	56.4732	-29.9732

Source: Credit Suisse

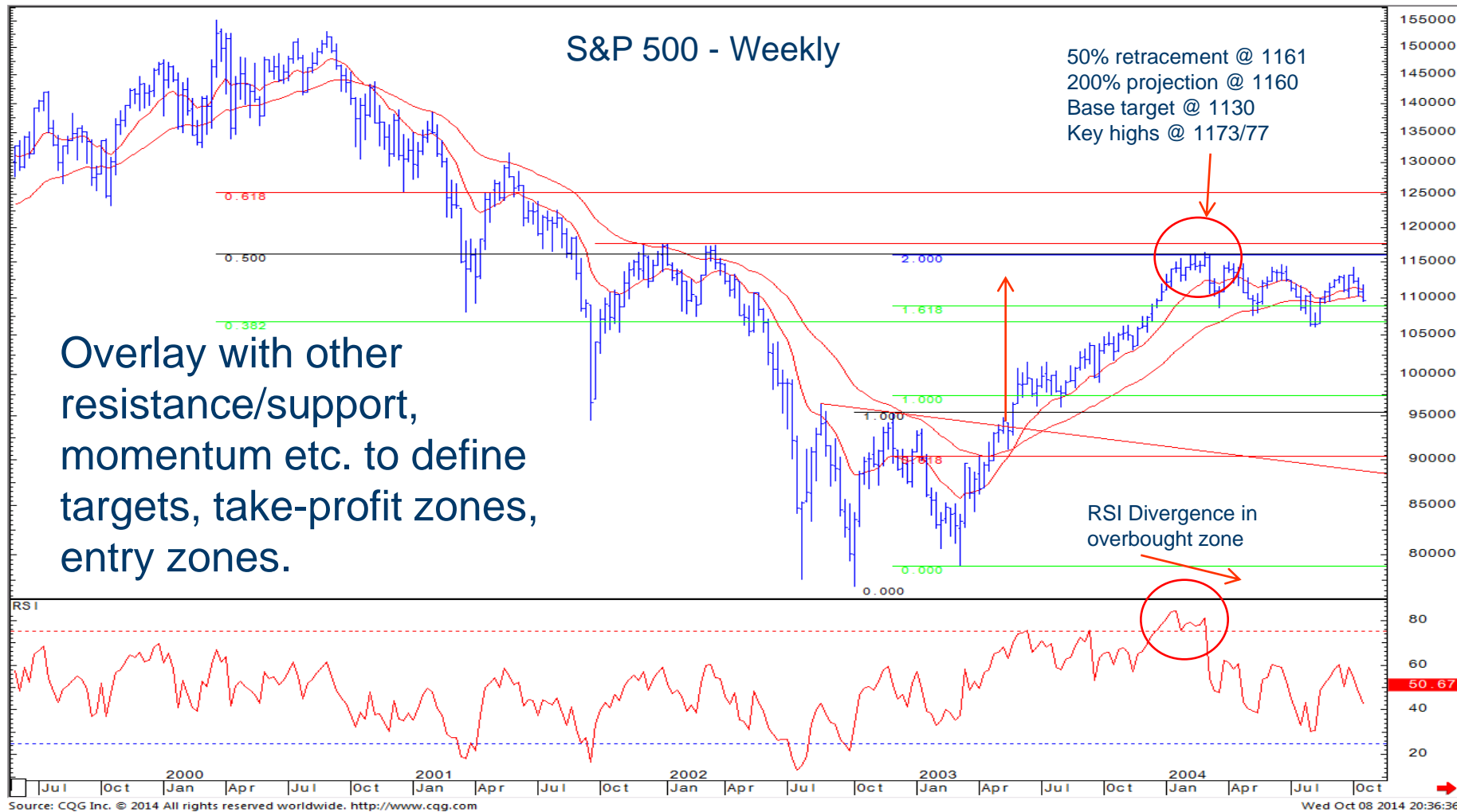
# Multiple projections



Source: CQG, Credit Suisse



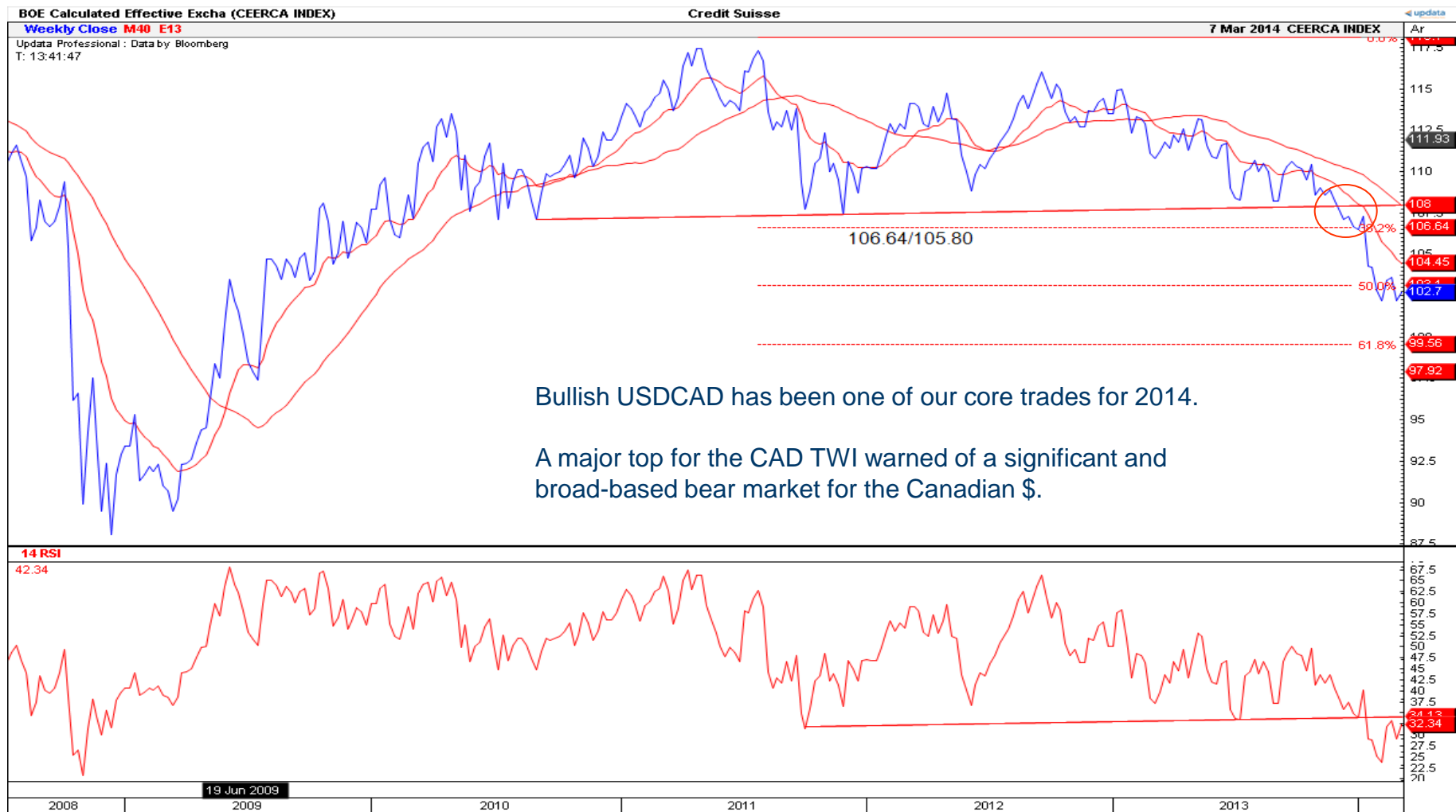
# Layering



Source: CQG, Credit Suisse

## De-Cyphering Trends – Practical Examples

# Pattern completion is typically the entry point to a new trend

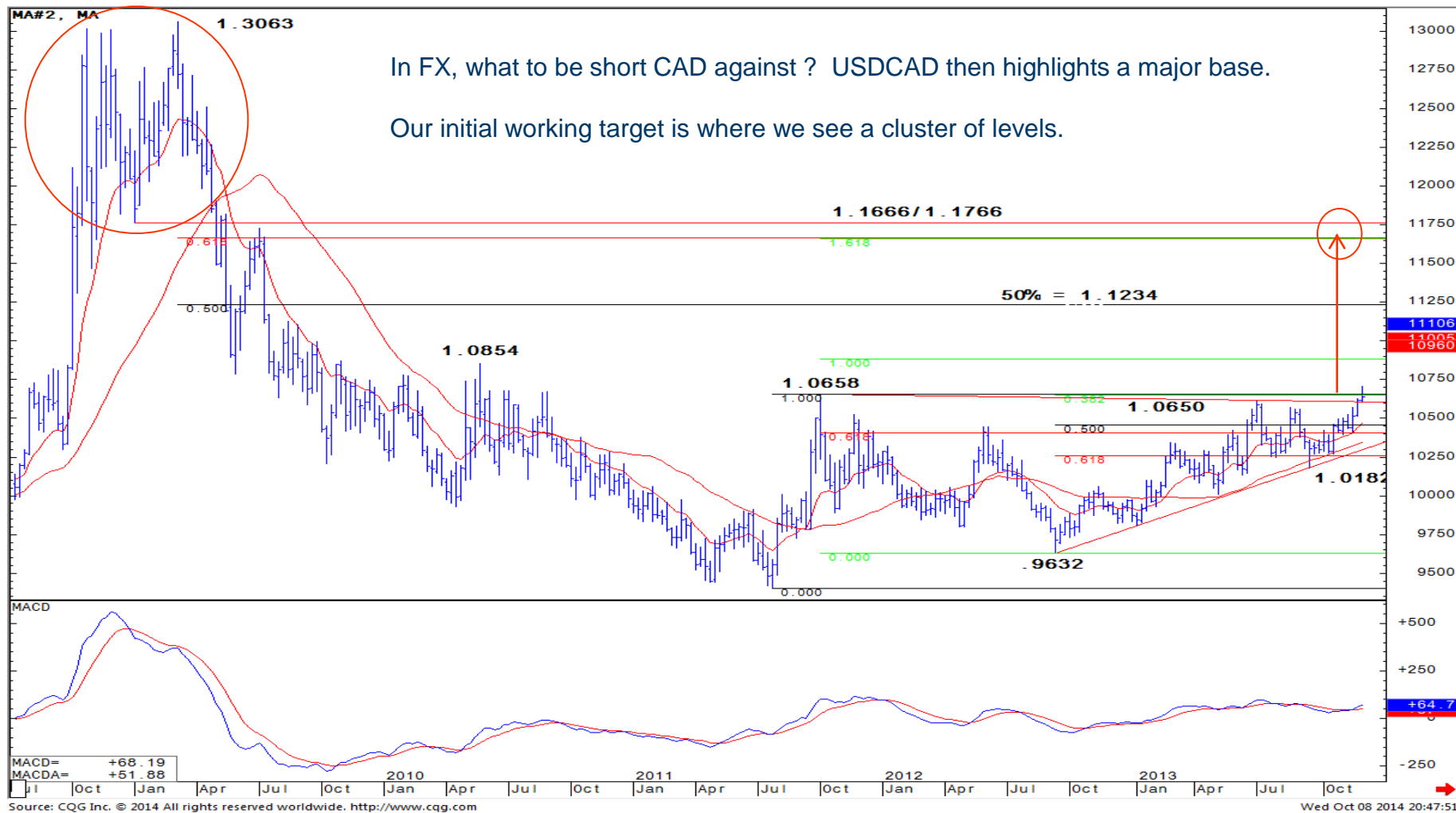


Bullish USDCAD has been one of our core trades for 2014.

A major top for the CAD TWI warned of a significant and broad-based bear market for the Canadian \$.

Source: Udata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

# We often have different options as to how to express the trade, especially in FX



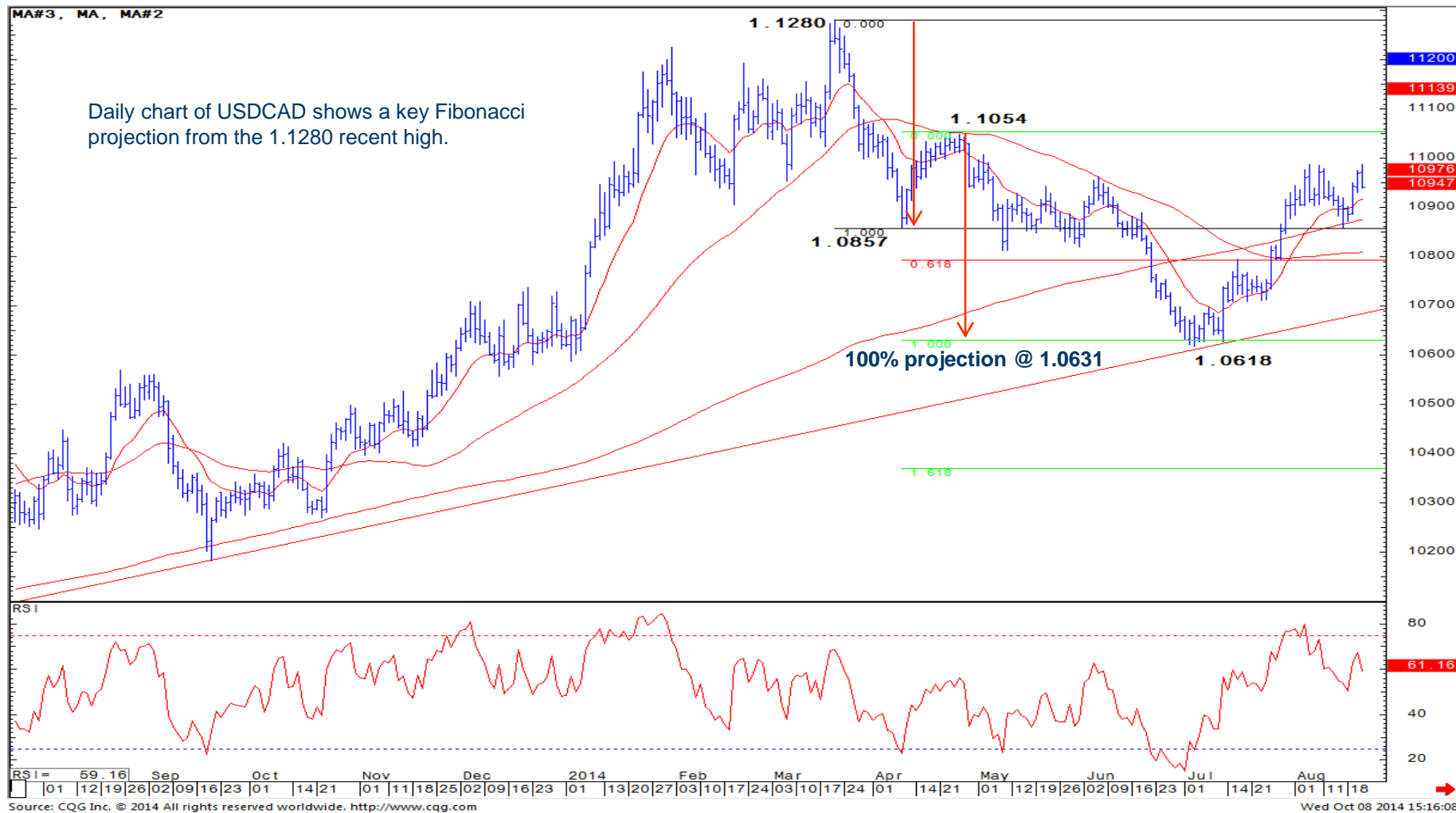
Source: CQG, Credit Suisse

# Position management then takes over



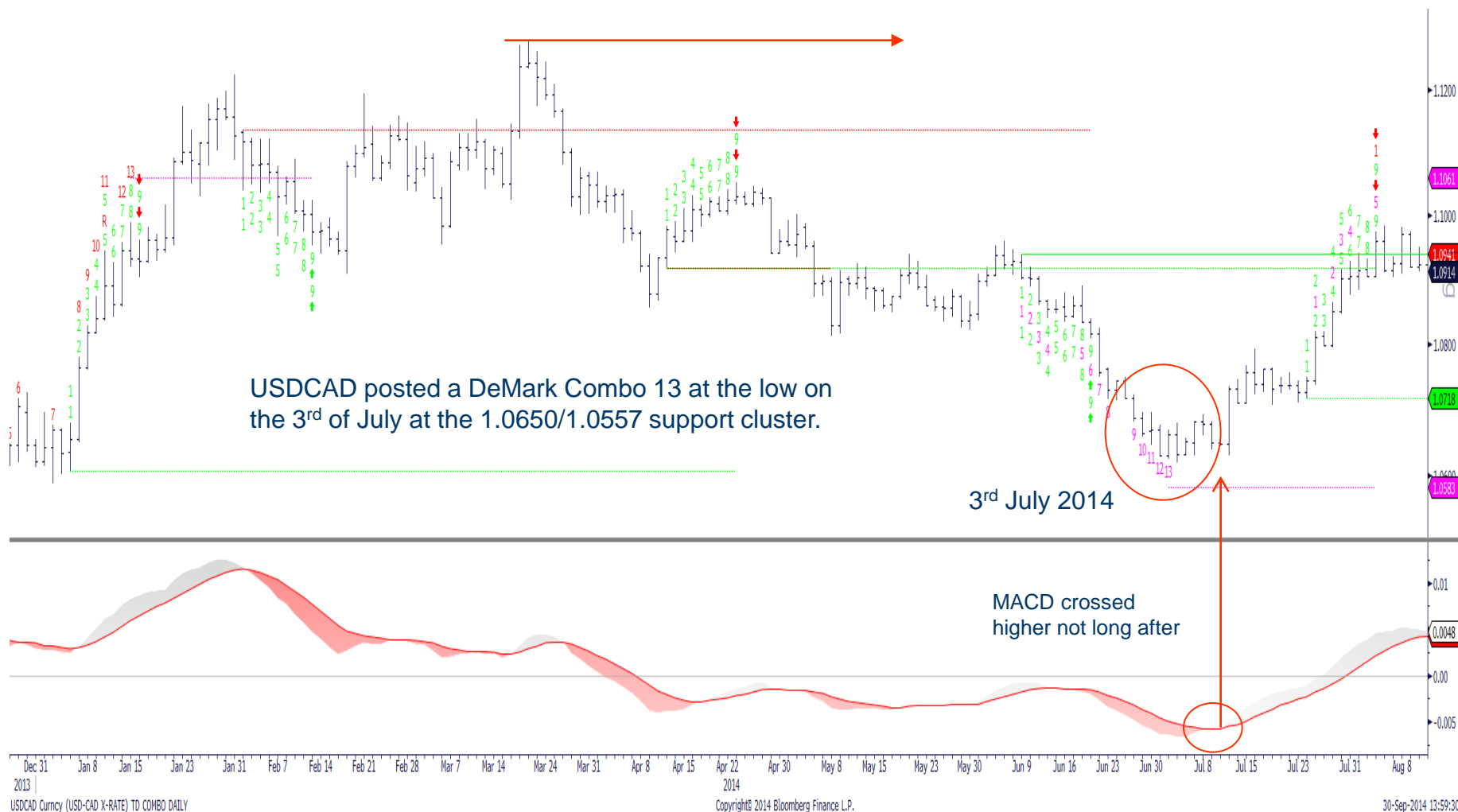
Source: CQG, Credit Suisse

# Also identify levels across timeframes.



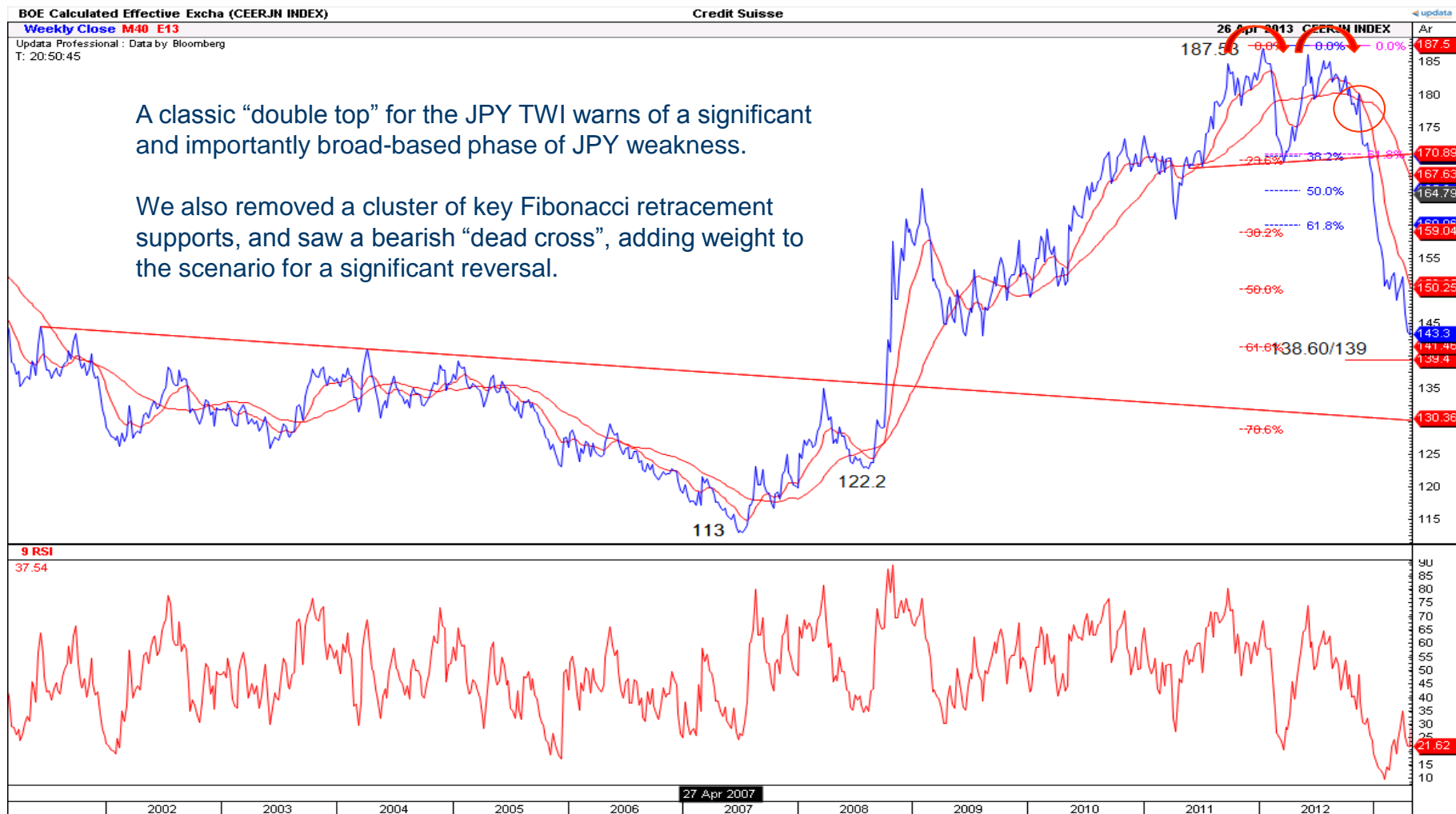
Source: CQG, Credit Suisse

# We then overlay DeMark, Momentum, Volume, etc...



Source: the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

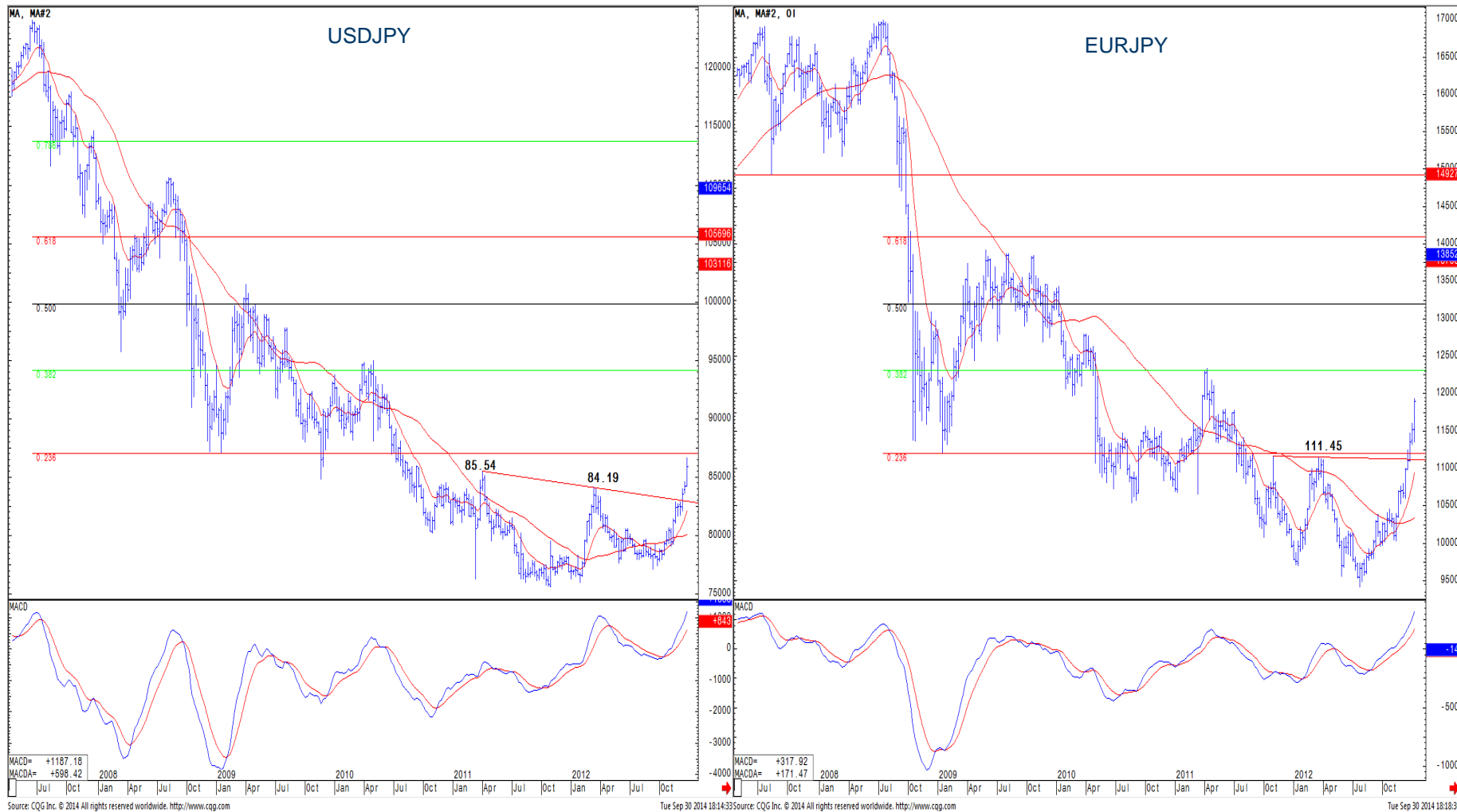
# A recent classic pattern example has been the JPY



Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

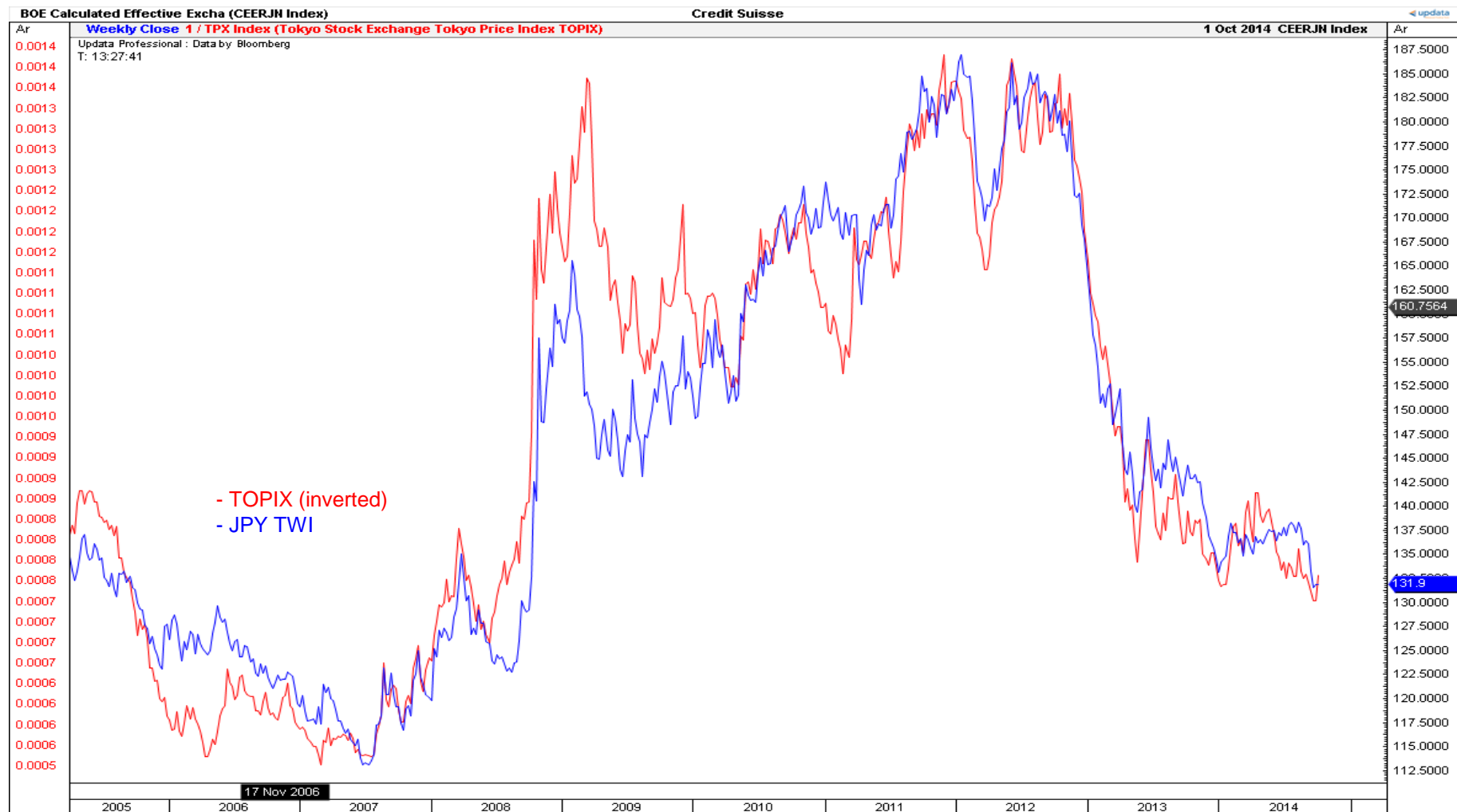


# USDJPY & EURJPY flagged large bases



Source: CQG, Credit Suisse

# But the JPY overlays extremely well with the Equity market



Source: Udata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

# So we look for signs of a Nikkei/TOPIX base also



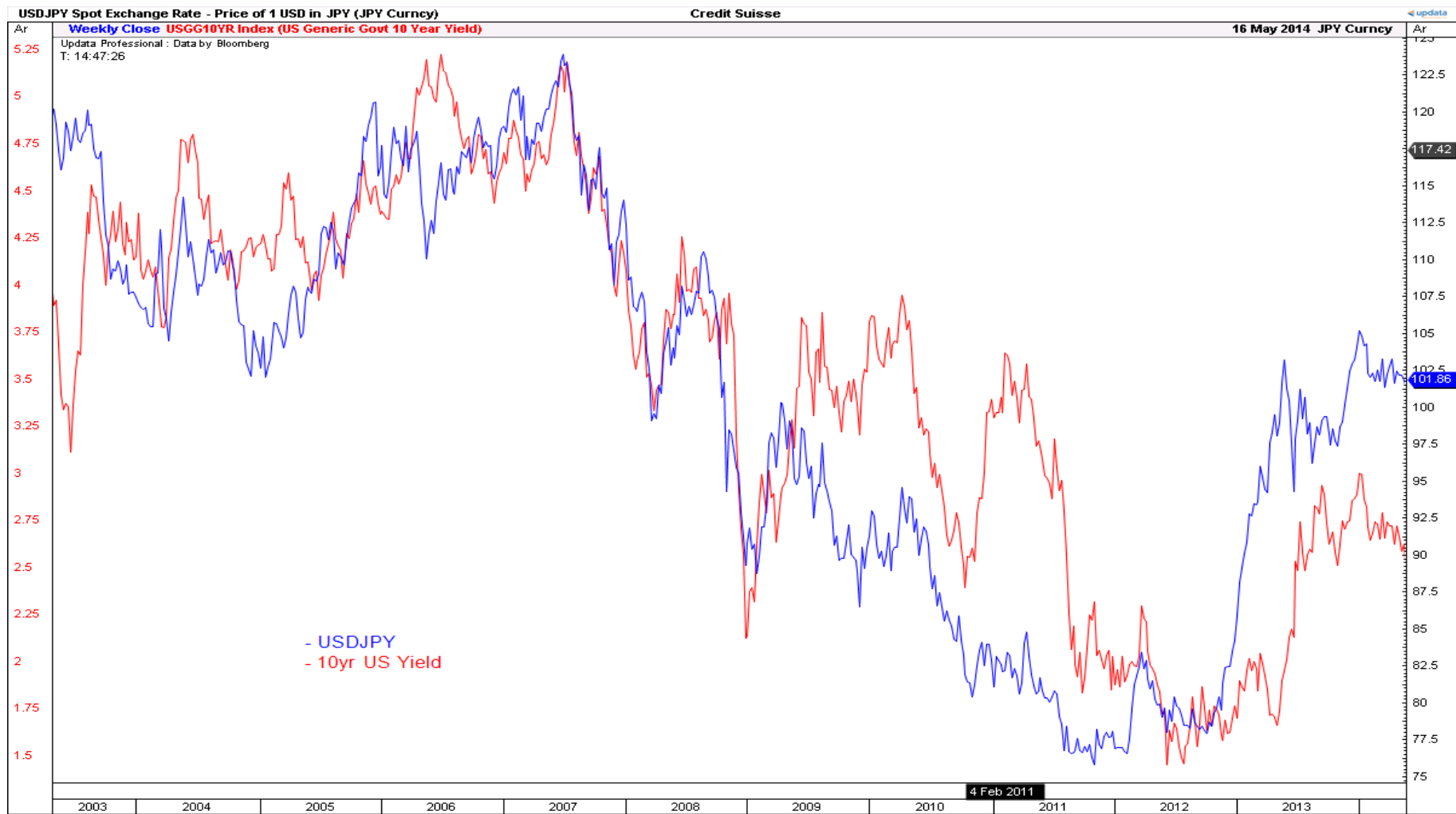
Source: CQG, Credit Suisse

# And if the Equity market as a whole looks good....



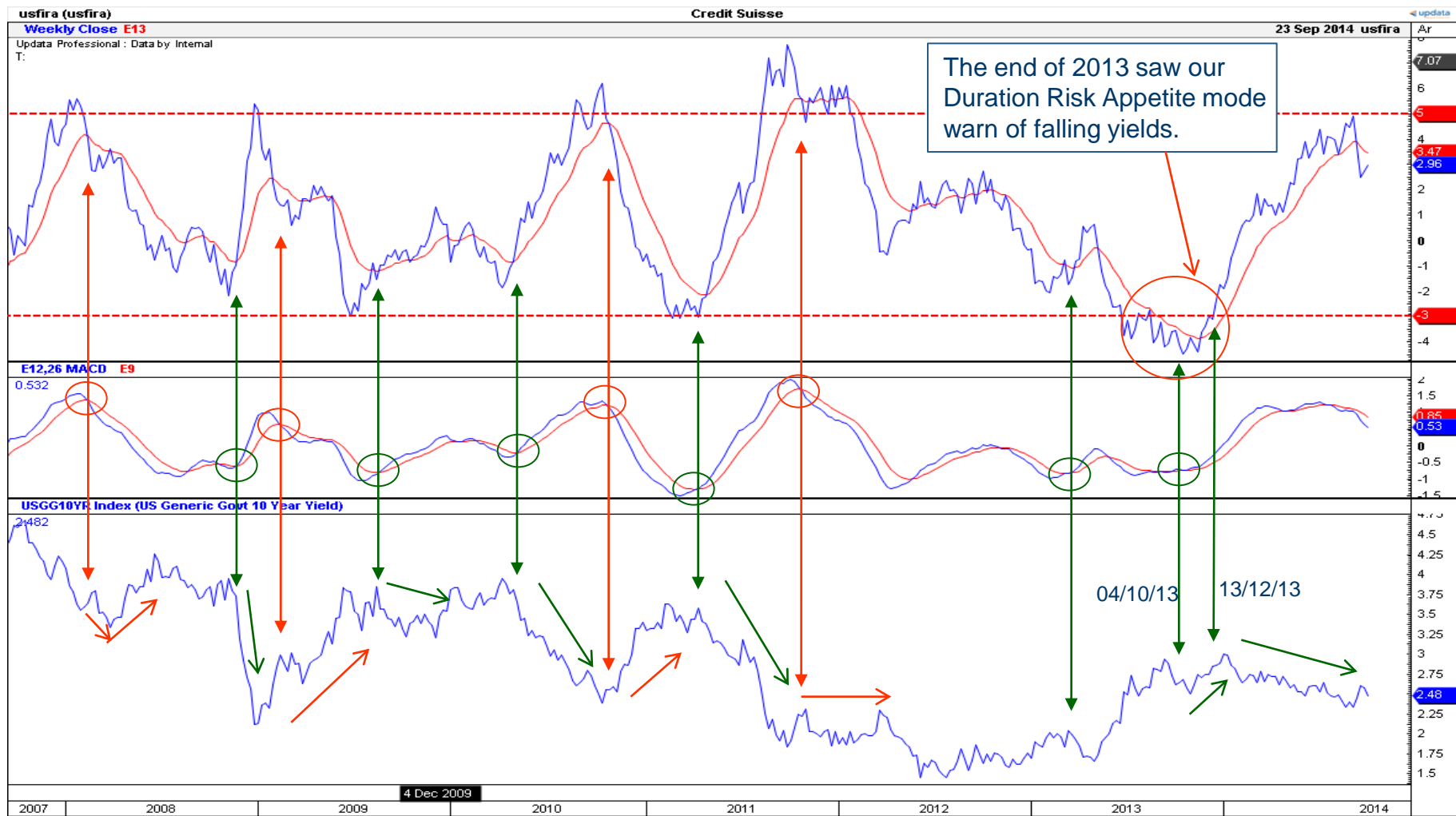
Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

# We also look for patterns from related markets



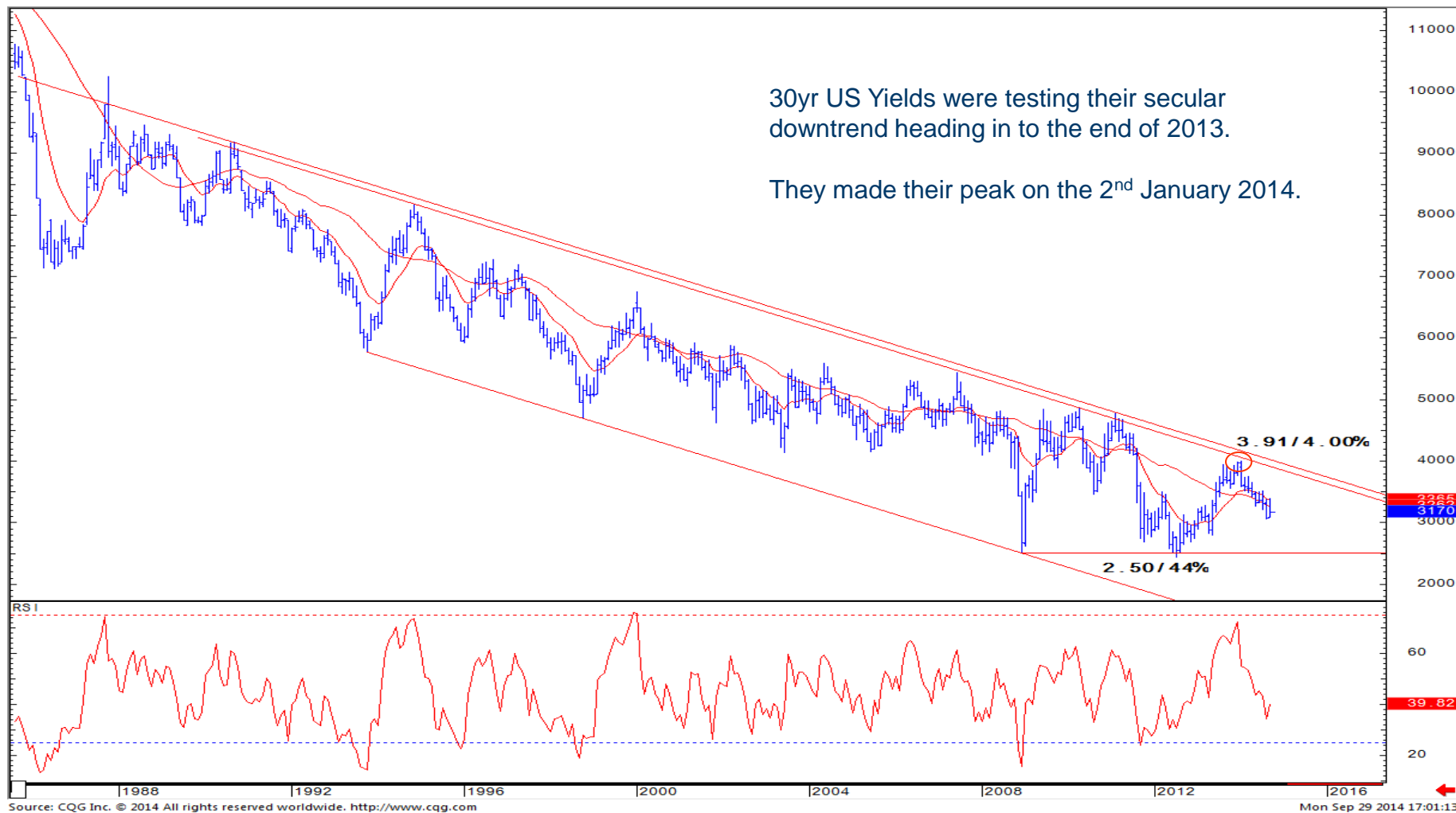
Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

# A rising or falling yield environment ?

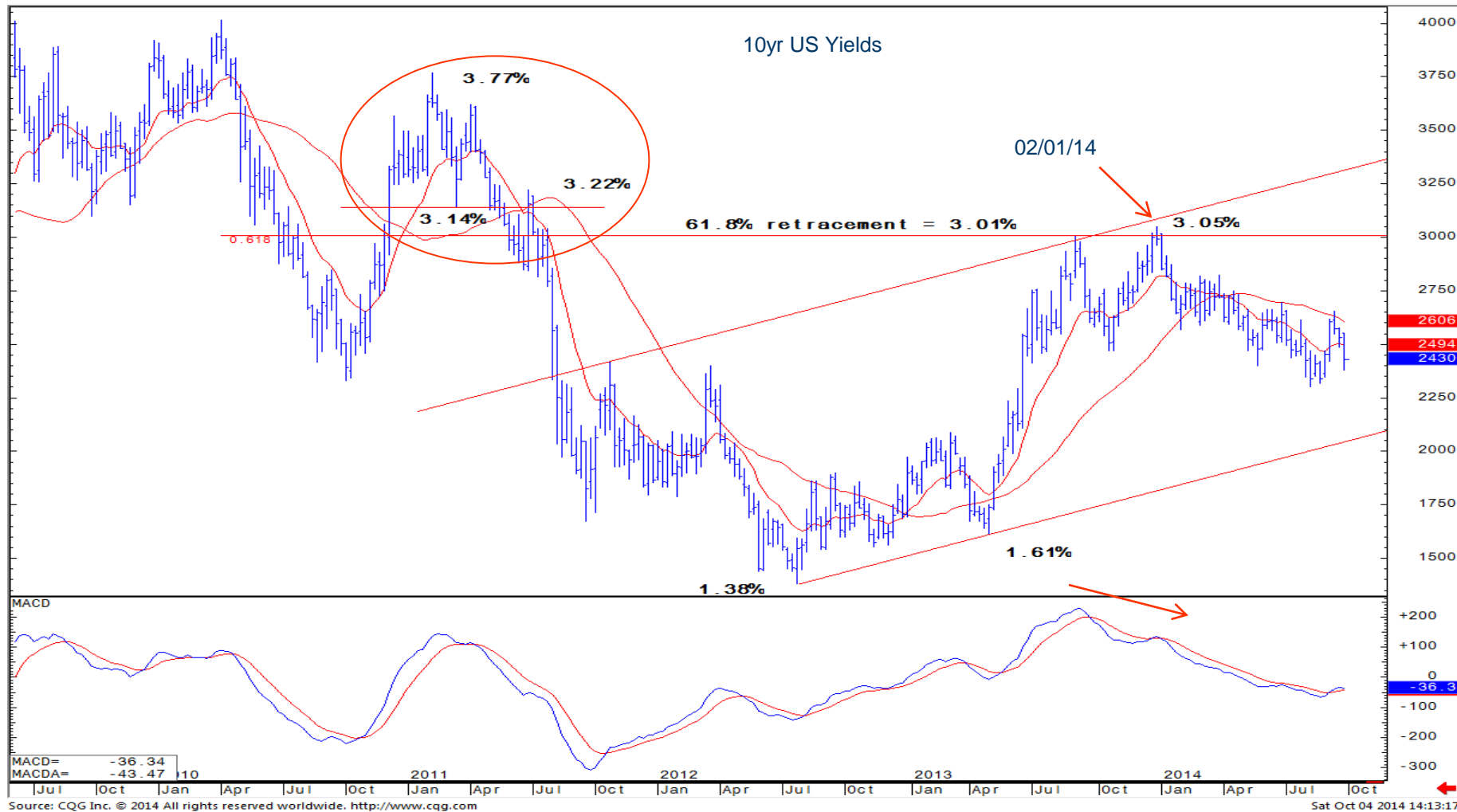


Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

# What is the core trend, and where are we in that trend



# What are the key patterns. Where are the key resistance and support levels



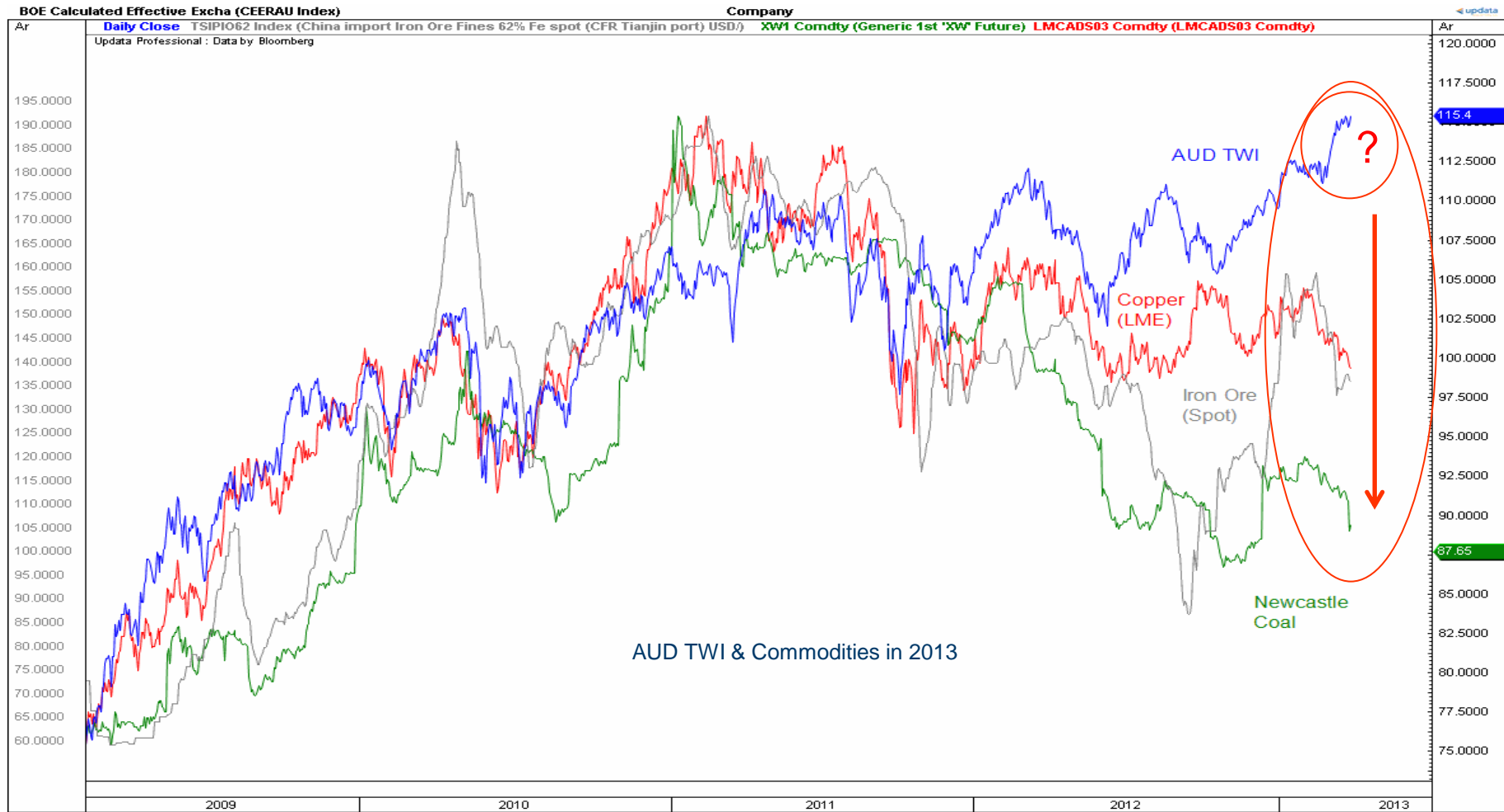


# Follow the trend, not the data. How, not Why



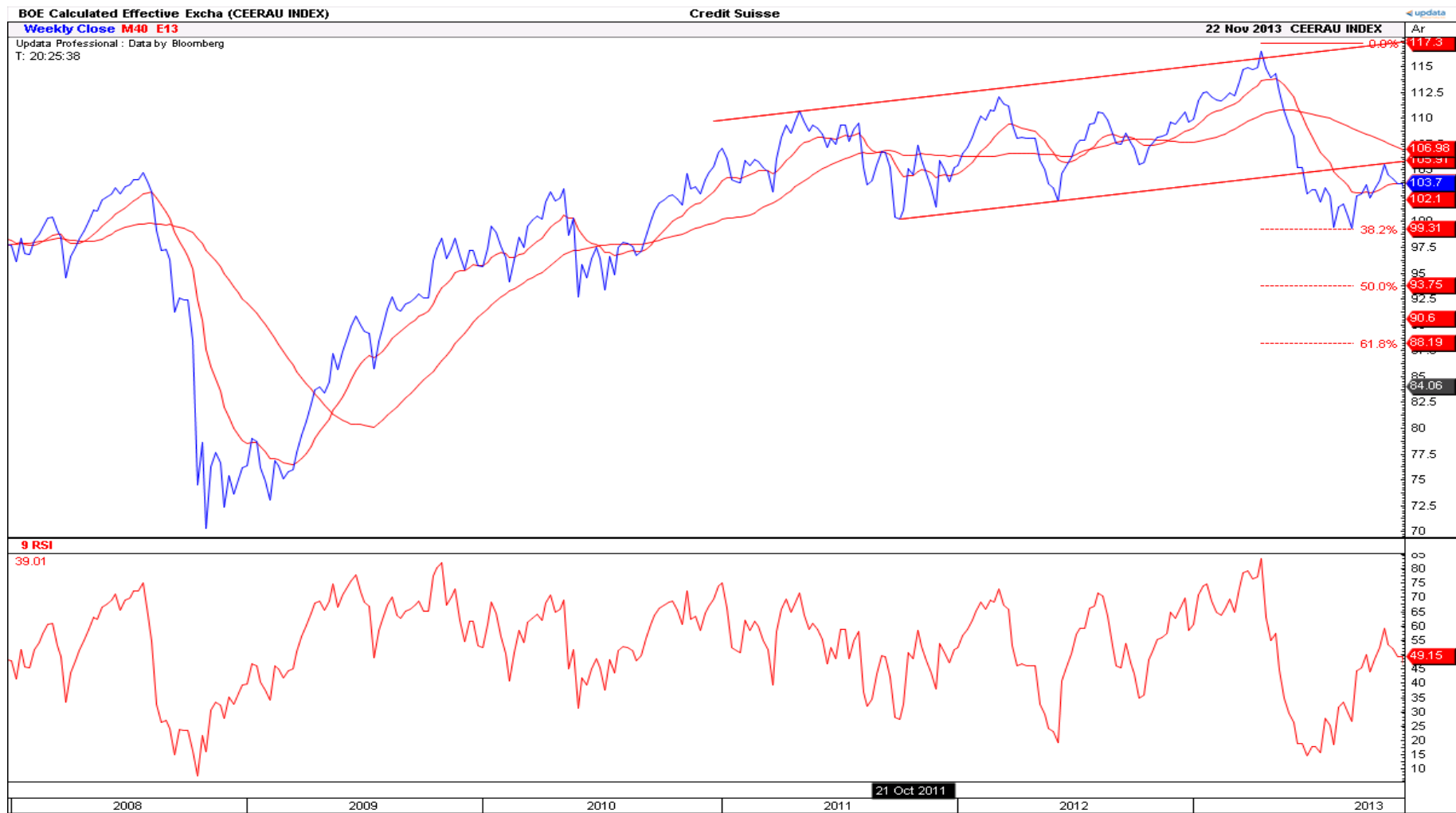
Source: CQG, Credit Suisse

# Patterns from related markets can often give a lead



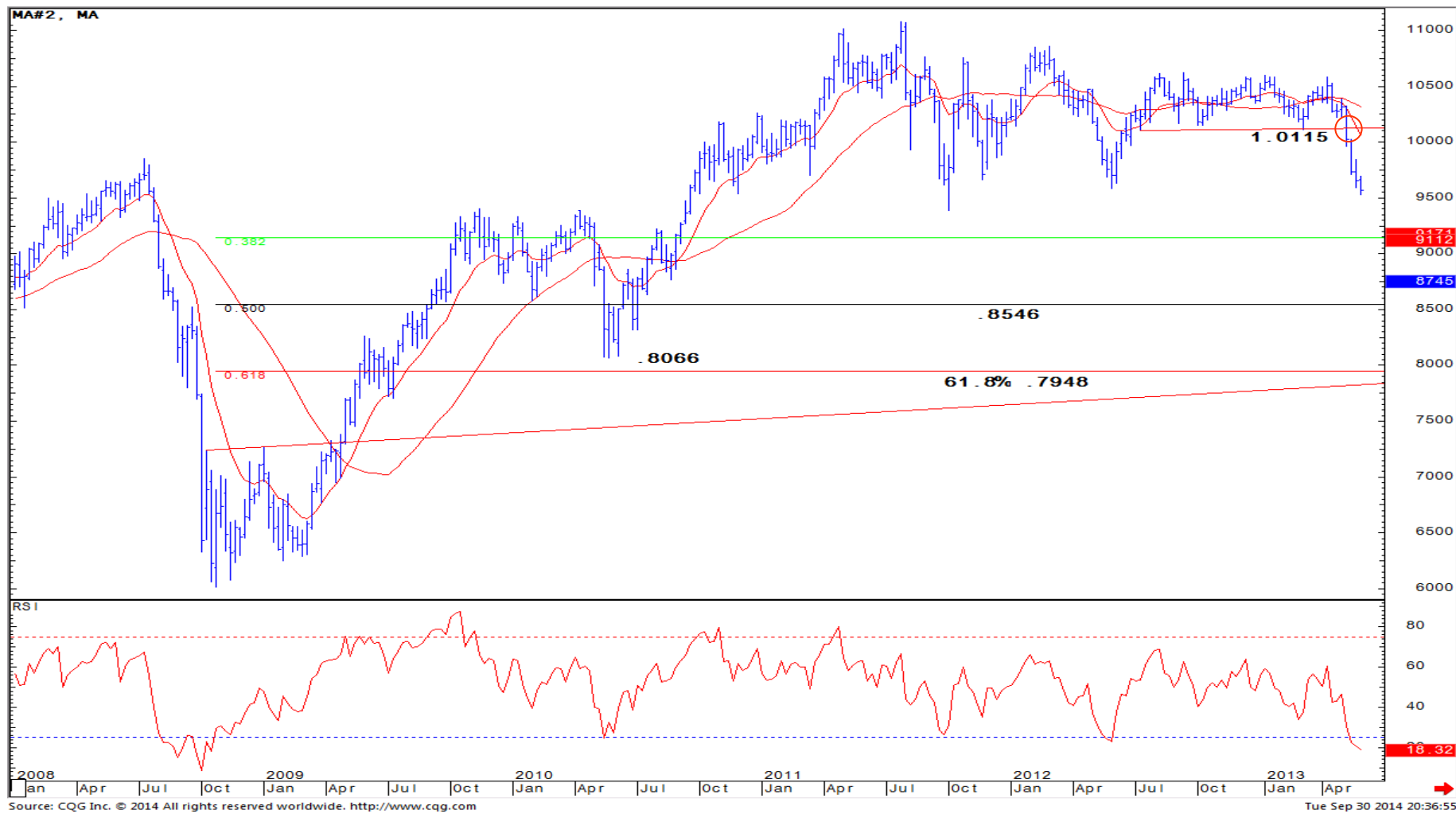
Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

# AUD TWI – a broad measure



Source: Udata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

# AUDUSD completes a top in May



Tue Sep 30 2014 20:36:55

Source: CQG, Credit Suisse

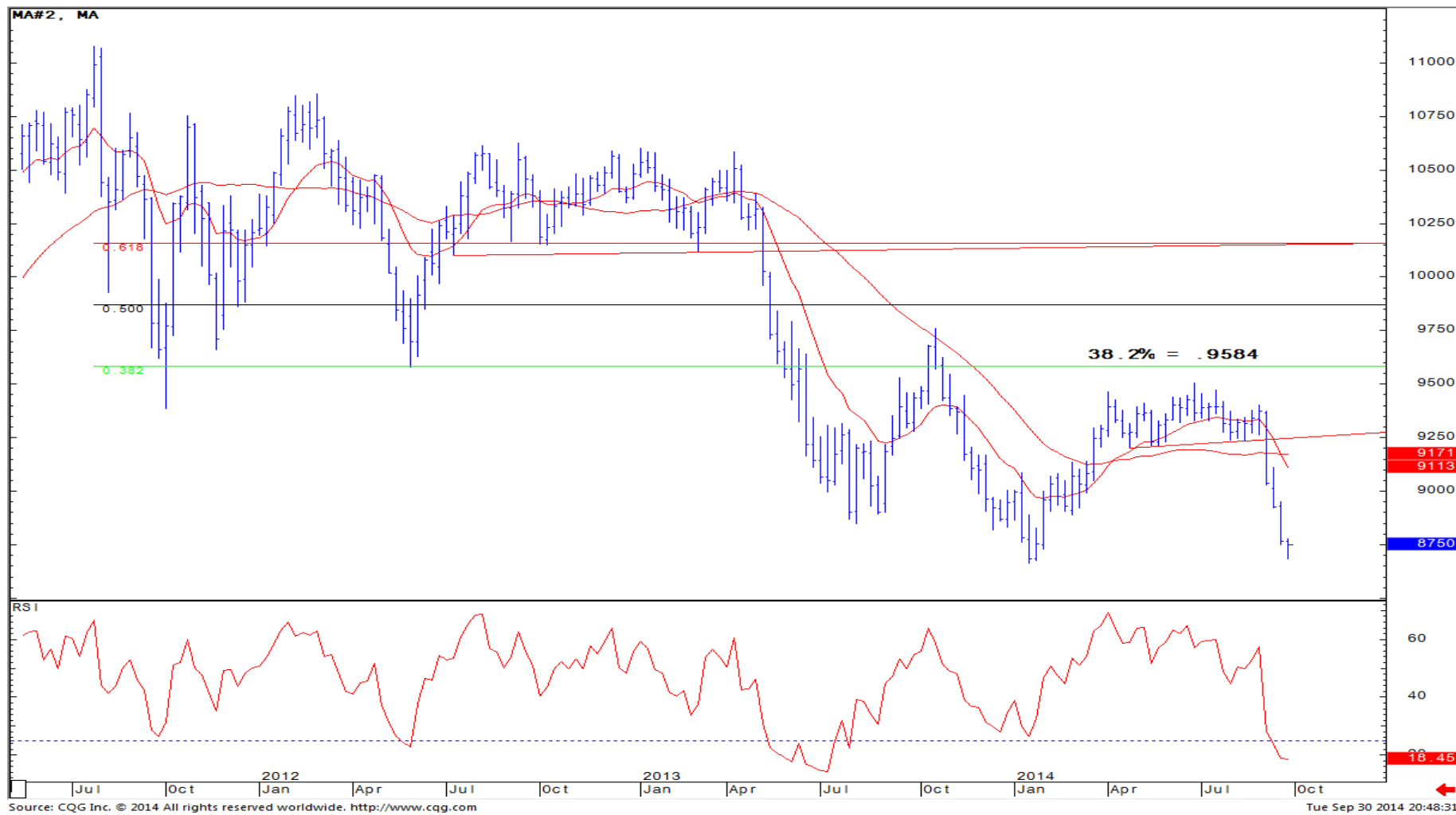
# We look for “clusters” for our target



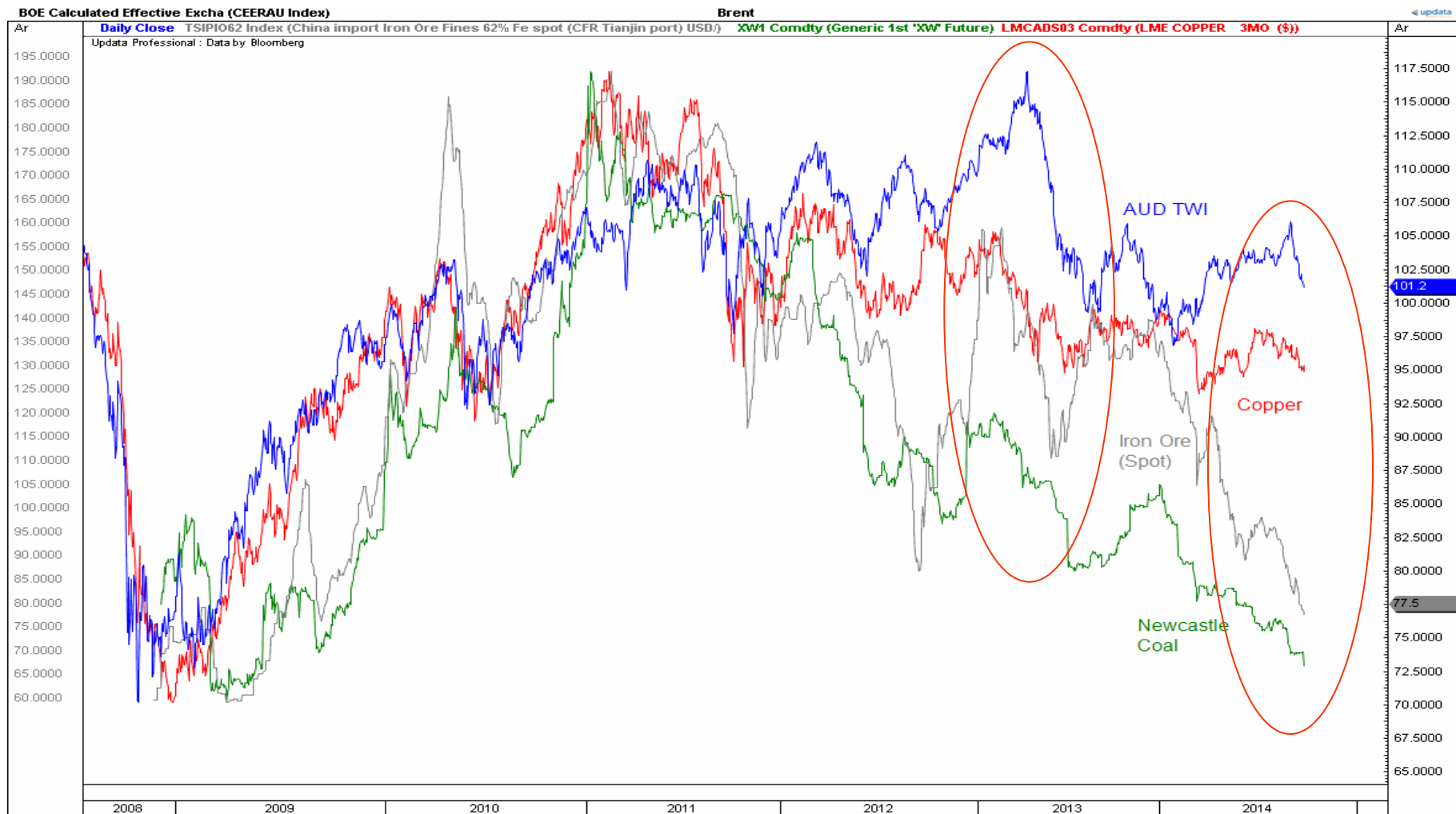
# Other factors to support the case for a low ?



# How far can a correction extend ?



# AUD TWI & Commods in 2014 – Here we go again....



Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse



# The USD is now a driver for the AUD, CAD etc....



Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse

# In Conclusion

- Our aim is to identify trends and risk/reward opportunities
- Mixture of mathematical and psychological techniques
- Trades are typically a combination of “classic” Technical Analysis and Position Management
- Set a disciplined framework
- Layer, Rank, Filter
- All resistance and supports are *potential* levels
- Identifying clusters can help improve the odds in our favour
- Be wary though of looking for the market to fit “my model”
- Stay cold to the data, focus on the trend
- How, not Why

# Disclosure Appendix

## Analyst Certification

David Sneddon, Christopher Hine and James Lim each certify, with respect to the companies or securities that he or she analyzes, that (1) the views expressed in this report accurately reflect his or her personal views about all of the subject companies and securities and (2) no part of his or her compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this report.

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**Buy:** Indicates a recommended buy on our expectation that the issue will deliver a return higher than the risk-free rate.

**Sell:** Indicates a recommended sell on our expectation that the issue will deliver a return lower than the risk-free rate.

## Corporate Bond Fundamental Recommendation Definitions

**Buy:** Indicates a recommended buy on our expectation that the issue will be a top performer in its sector.

**Outperform:** Indicates an above-average total return performer within its sector. Bonds in this category have stable or improving credit profiles and are undervalued, or they may be weaker credits that, we believe, are cheap relative to the sector and are expected to outperform on a total-return basis. These bonds may possess price risk in a volatile environment.

**Market Perform:** Indicates a bond that is expected to return average performance in its sector.

**Underperform:** Indicates a below-average total-return performer within its sector. Bonds in this category have weak or worsening credit trends, or they may be stable credits that, we believe, are overvalued or rich relative to the sector.

**Sell:** Indicates a recommended sell on the expectation that the issue will be among the poor performers in its sector.

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# Disclosure Appendix cont'd

## Corporate Bond Risk Category Definitions

In addition to the recommendation, each issue may have a risk category indicating that it is an appropriate holding for an "average" high yield investor, designated as **Market**, or that it has a higher or lower risk profile, designated as **Speculative** and **Conservative**, respectively.

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	Global Recommendation Distribution**	
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Outperform	20%	(of which 60% are banking clients)
Market Perform	42%	(of which 61% are banking clients)
Underperform	25%	(of which 73% are banking clients)
Sell	2%	(of which 100% are banking clients)

\*Data are as at the end of the previous calendar quarter.

\*\*Percentages do not include securities on the firm's Restricted List and might not total 100% as a result of rounding.

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# Disclosure Appendix cont'd

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