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

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Why Technical Analysis?

- Identifies and follows trends.
- Risk Control process.

Trend Following

Risk/Reward
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.
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

- ‘News is getting better, I am going long.’
- ‘More good news, I am doubling my longs.’
- ‘Still buying on dips.’
- ‘Only a squeeze pullback, news still good.’
- ‘News gets worse, I better exit longs.’
- ‘News is getting better, I am going long.’
- ‘Some good news, maybe I shall cover short.’
- ‘I told you before, I am still short.’
- ‘Nothing changed, price will go back down.’
- ‘All news is bad, price will go a lot lower.’

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

**CREDIT SUISSE**
What is the Macro Backdrop? Risk On, Risk Off etc…

CS Global Risk Appetite

“risky” assets outperform

“safe” assets outperform

“euphoria”

“panic”

Source: Updata, Credit Suisse
Can we mix Technicals and Fundamentals?

In certain circumstances, we believe we can combine with fundamentals.

We have decent success identifying lows in Global Risk Appetite, which itself has a decent relationship with ISM New Orders, and with turns in Global IP Momentum.

Source: Updata, Credit Suisse
Equities or Bonds?

G5 Equity/Bond Ratio

Source: Updata, Credit Suisse
Safe or Risky Equities. EM or Developed?

EM outperforms Developed

“risky” equities do well
“safe” equities do well

Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse
How does Credit look? ABS, CMBS, Funding….

Source: CQG, Credit Suisse
A rising or falling yield environment?

Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse
And Inflation. Is Draghi a Chartist?

We look at various Breakeven measures.

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.
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 may 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?” ¹

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

¹Mario Livio, The Golden Ratio
$\Phi$

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

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

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

\[
1.618 \times 0.618 = 1
\]

\[
1.618 \times 1.618 = 1.618 + 1 = 2.618
\]

\[
1 / 1.618 = 1.618 - 1 = 0.618
\]

\[
\frac{1}{\Phi} = 0.618
\]

\[
\frac{1}{\Phi^2} = 0.382
\]

\[
\frac{1}{\Phi^3} = 0.236
\]

\[
\Phi + \Phi^2 = \Phi \times \Phi^2
\]
Φ in geometry

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

C divides the line X into two parts so that \( \frac{X}{(C-A)} = \frac{(C-A)}{(B-C)} = 1.618 \)

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
Φ in geometry

From the “Golden Rectangle” we can construct a spiral – the Φ-spiral:

The spiral is infinite, and has no maximum or in fact minimum point. Its shape remains unchanged, however large or small. The Φ-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)

\[
\begin{align*}
A &= 10 \\
B &= 150 \\
C &= B - A = 140 \\
X &= B - [38.2\% \times C] \\
&= 150 - [(140/100) \times 38.2] \\
&= 150 - [1.4 \times 38.2] \\
&= 96.52
\end{align*}
\]
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.

\[
\begin{align*}
X &= C + 61.8\%(B - A) \\
Y &= C + 100\%(B - A) \\
Z &= C + 161.8\%(B - A)
\end{align*}
\]

Projection target \((X)\)

\[
\begin{align*}
X &= 96.52 + \left[\frac{(150-10)}{100}\right] \times 61.8\% \\
X &= 96.52 + 86.52 \\
X &= 183.04
\end{align*}
\]
Basic Retracements in practice

In a downtrend

A = 4.450 ; B = 3.417
C = A – B = 1.033
X = B + 38.2%(C)
X = 3.417 + 0.394606 = 3.811606
Actual high = 3.811

Source: CQG, Credit Suisse
We apply retracements over any timeframe

10yr US T-Note - Hourly

A

B

38.2%

Source: CQG, Credit Suisse
But the key is to apply multiple retracements

5yr US Yield - Weekly

Highlights a potentially stronger support zone

Source: CQG, Credit Suisse
Multiple retracements and over different timeframes
Fibonacci projections

A = 0.4776 ; B = 0.5391 ; C = 0.4820

161.8% Projection (D)
D = C + 161.8%(B-A)
D = 0.4820 + 1.618(0.5391-0.4776)
D = 0.5815

Actual high = 0.5795

Source: CQG, Credit Suisse
Fibonacci projections

AUD/USD - Weekly

Source: CQG, Credit Suisse
Fibonacci projections

AUD/USD - Weekly

Source: CQG, Credit Suisse
In practice, multiple ratios over multiple price swings

<table>
<thead>
<tr>
<th>RETRACEMENTS</th>
<th>EXTENTIONS</th>
</tr>
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<tbody>
<tr>
<td>HIGH</td>
<td>21.0000</td>
</tr>
<tr>
<td>LOW</td>
<td>4.4900</td>
</tr>
<tr>
<td>RANGE</td>
<td>165100</td>
</tr>
<tr>
<td>From Low</td>
<td>From High</td>
</tr>
<tr>
<td>0.236</td>
<td>38,964</td>
</tr>
<tr>
<td>0.382</td>
<td>63,068</td>
</tr>
<tr>
<td>0.500</td>
<td>82,550</td>
</tr>
<tr>
<td>0.618</td>
<td>102,032</td>
</tr>
<tr>
<td>0.786</td>
<td>129,769</td>
</tr>
</tbody>
</table>

Source: Credit Suisse
Multiple projections

WTI Crude Oil (Dec) - Daily

Look for ‘clusters’ of projection targets

Source: CQG, Credit Suisse
Layering

Overlay with other resistance/support, momentum etc. to define targets, take-profit zones, entry zones.

S&P 500 - Weekly

50% retracement @ 1161
200% projection @ 1160
Base target @ 1130
Key highs @ 1173/77

RSI Divergence in overbought zone

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: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse
We often have different options as to how to express the trade, especially in FX

In FX, what to be short CAD against? USDCAD then highlights a major base.

Our initial working target is where we see a cluster of levels.
Position management then takes over

Our goal is to identify clusters.

The more reasons we have for a resistance level to be a level, the greater the likelihood the market may stop there.
Also identify levels across timeframes.

Daily chart of USDCAD shows a key Fibonacci projection from the 1.1280 recent high.
We then overlay DeMark, Momentum, Volume, etc…

USDCAD posted a DeMark Combo 13 at the low on the 3rd of July at the 1.0650/1.0557 support cluster.

3rd July 2014

MACD crossed higher not long after

Source: the BLOOMBERG PROFESSIONAL™ service, Credit Suisse
A recent classic pattern example has been the JPY

A classic “double top” for the JPY TWI warns of a significant and importantly broad-based phase of JPY weakness.

We also removed a cluster of key Fibonacci retracement supports, and saw a bearish “dead cross”, adding weight to the scenario for a significant reversal.

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.
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….

….there should also be some positive sector patterns

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?

The end of 2013 saw our Duration Risk Appetite mode warn of falling yields.

Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse
What is the core trend, and where are we in that trend?

30yr US Yields were testing their secular downtrend heading in to the end of 2013.

They made their peak on the 2nd January 2014.
What are the key patterns. Where are the key resistance and support levels
Follow the trend, not the data. How, not Why

5yr5yr US completed a classic “double top” in March. Red Circles are Non-Farm Payroll Data releases.

“Positive” economic data did not affect the trend.
Patterns from related markets can often give a lead.
AUD TWI – a broad measure

Source: Updata, the BLOOMBERG PROFESSIONAL™ service, Credit Suisse
AUDUSD completes a top in May
We look for “clusters” for our target
Other factors to support the case for a low?

This is where DeMark really adds value.
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.

And this time, the US$ TWI has completed an important base and bullish continuation pattern.

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

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<th>Global Recommendation Distribution**</th>
<th>Buy</th>
<th>Outperform</th>
<th>Market Perform</th>
<th>Underperform</th>
<th>Sell</th>
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<tr>
<td><strong>Percentages do not include securities on the firm’s Restricted List and might not total 100% as a result of rounding.</strong></td>
<td>11%</td>
<td>20%</td>
<td>42%</td>
<td>25%</td>
<td>2%</td>
</tr>
<tr>
<td><em>(of which 20% are banking clients)</em></td>
<td><em>(of which 60% are banking clients)</em></td>
<td><em>(of which 61% are banking clients)</em></td>
<td><em>(of which 73% are banking clients)</em></td>
<td><em>(of which 100% are banking clients)</em></td>
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