



THE SUN'S INFLUENCE ON THE FINANCIAL MARKETS AND MACRO ECONOMY

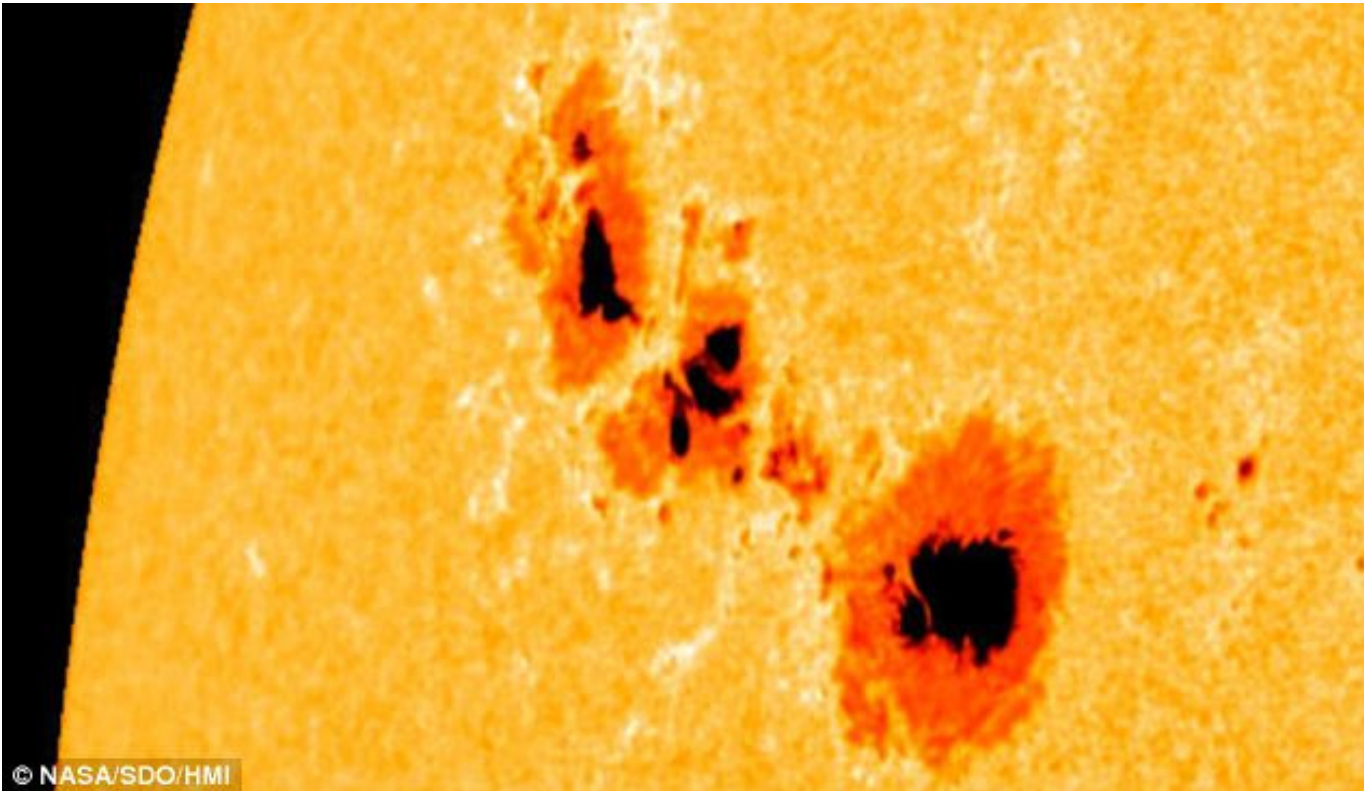
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SUMMARY

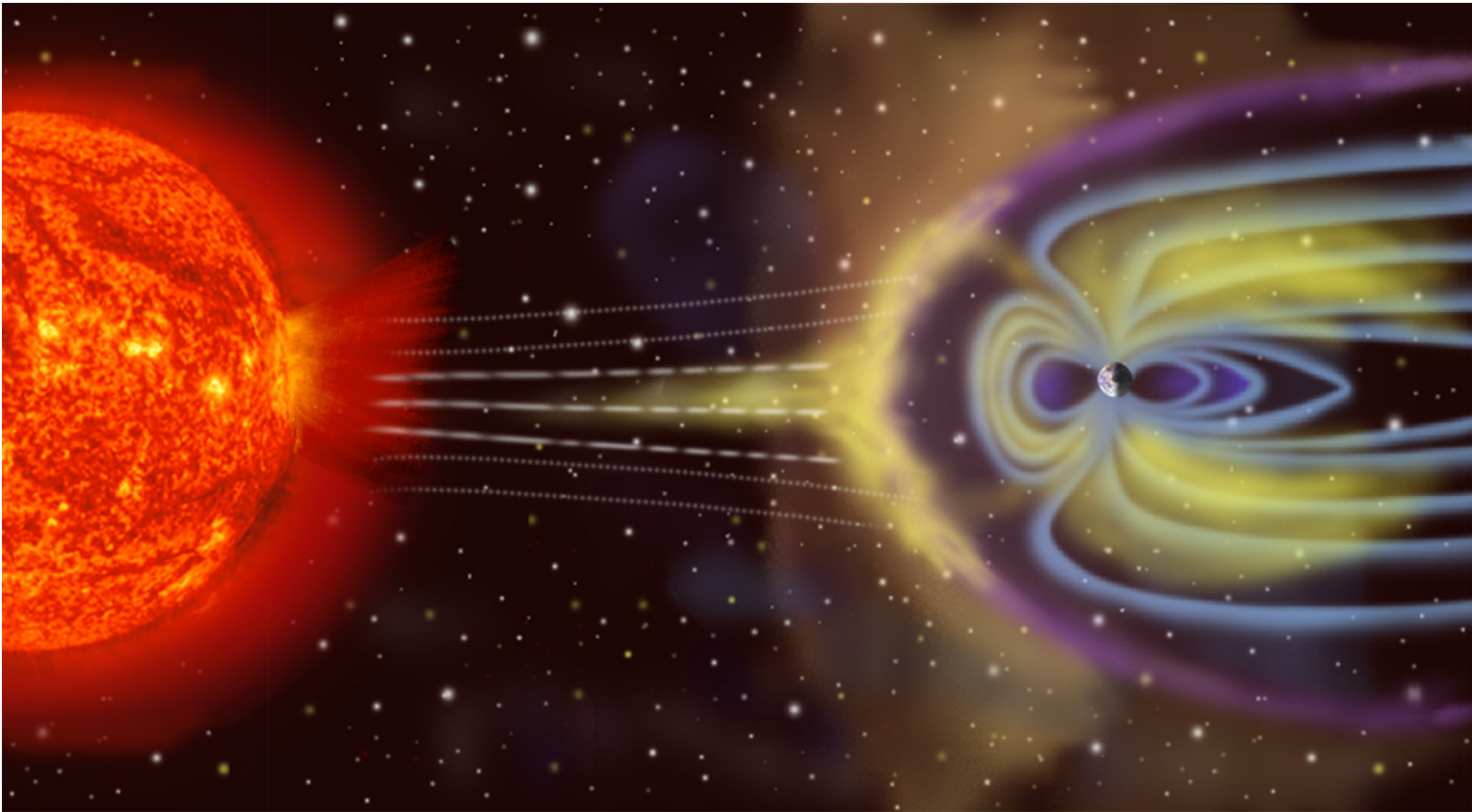
- Sunspots, Geomagnetism, Lunar Phasing
- Psychological and behavioural research links geomagnetism and lunar phasing with human mood, and sunspots with human excitability. Studies link altered moods to behaviour, including in financial decisions.
- Solar cycles drive secular asset cycles.
- Sunspot and geomagnetism cycles are behind economic cycles of growth and inflation.
- Geomagnetism and lunar phasing are key influences of market sentiment.
- Geomagnetism trends and lunar phase oscillation create technical waveform.
- Stock market seasonality corresponds to semi annual geomagnetic seasonality.
- Astro trading is based on planetary alignment which influences solar activity.
- Demographic market models correlate with solar cycle models.
- “Dow sinks on moonlight and Northern Lights”

SUNSPOTS



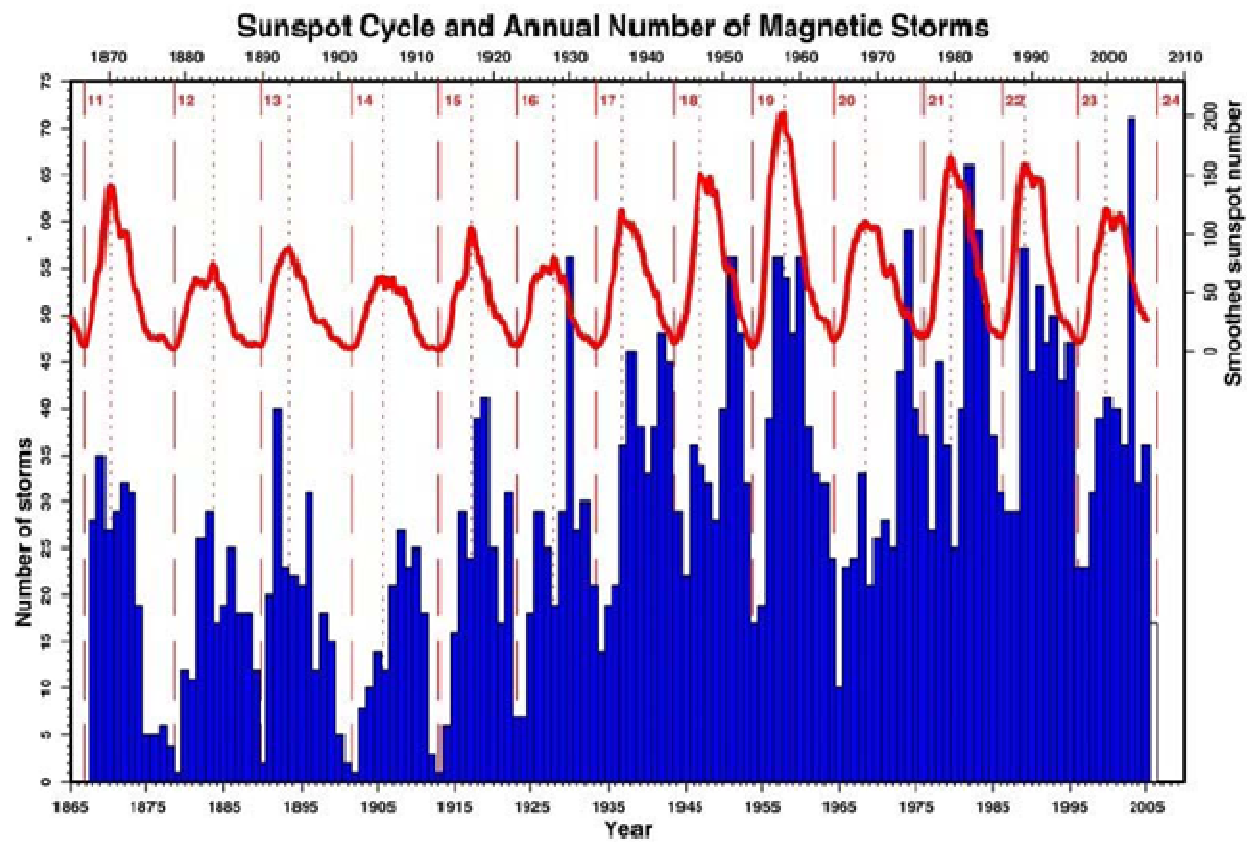
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GEOMAGNETISM

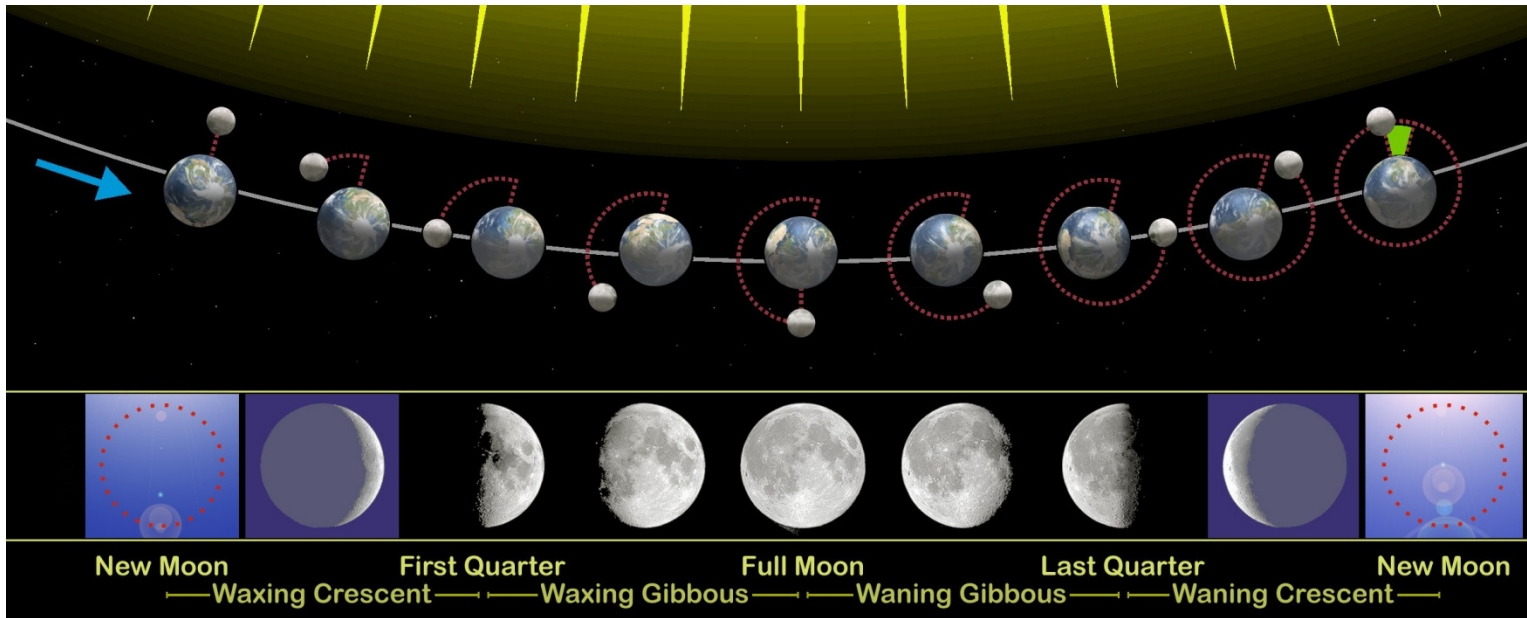


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SUNSPOT CYCLE AND GEOMAGNETISM



LUNAR PHASING



HISTORY OF RESEARCH

- 1843: Solar sunspot cycle discovered (Schwabe)
- 1875: Business cycles related to sunspot cycles (Jevons - flaws in evidence, discredited, but in 1934 Garcia-Mata / Schaffner reworked and found correlation)
- 1924: Sunspot cycle and human excitability (Tschijevsky)
- 1968: Commodity and stock prices fluctuate with solar cycle (Dewey)
- 1993: GNP and CPI correlation with changes in geomagnetic field (Walsh)
- 2003: Geomagnetic storms correlate with lower stock market returns (Krivelyova / Robotti)
- 2001, 2002, 2009: Lunar phases correlate with stock market returns (Dichev/Janes; Yuan/Zheng/Zhu; Hickey)
- 1993-now: Body of work linking solar activity with physical, psychological and behavioural changes in humans and other animals
- Solar Traders: Nenner, Amanita, Sibet, Tarassov

NATURAL CYCLES

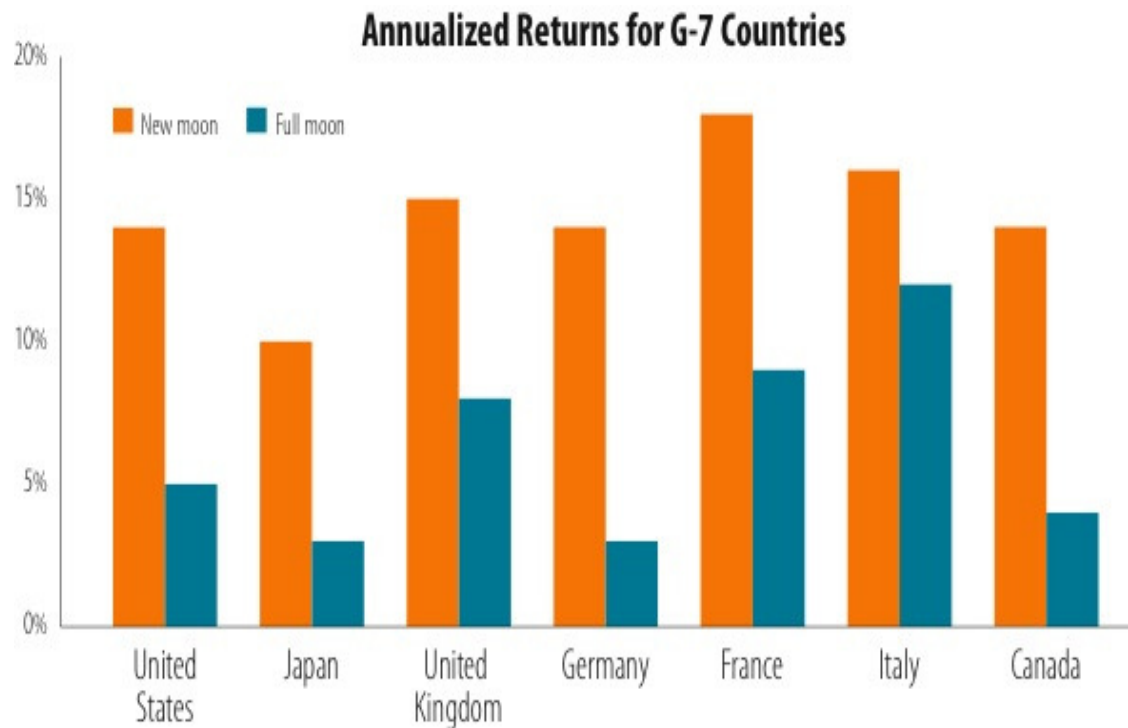
- Nature is dominated by cycles and human life is subservient to and synchronized to these cycles.
- Seasons, tides, geysers, migrations, heart beats, wing beats, menstruation, respiration, births and deaths, sound waves, rotation of galaxies, sleep and Ice Ages are all examples of cycles in nature.
- Day and Night, and the cycles of sleep and activity. Weekdays and Weekend (division of time based on Earth's orbit of the sun), and the cycles of work and play. Seasons, and the cycles of agriculture, animal migration and human activities (traditions, cultural and sporting events that cycle with the Earth's orbit of the sun). Lifetimes and the cycle of reproduction.
- We observe cycles in systems of human construction, which may be abstractions of nature but are still ultimately of nature: business cycles in economics, asset and sentiment cycles in financial markets, war and peace cycles.

LUNAR PHASING

- Nocturnal illumination levels affects plants (photoperiodism - flowering) and animals (around the full moon, day animals can hunt and be hunted by other day animals, sleep deprivation)
- Extensive psychological and biological literature demonstrating that the lunar cycle can heavily influence our moods. A full moon increases our tendency to feel depressed and pessimistic, higher rate of suicide
- Investors may feel more inclined to stay out of the stock market at full moons, or to sell out of positions: emotions trumping objectivity

LUNAR PHASING

- Dichev, Janes (2001) – chart below; Yuan, Zheng, Zhu (2002); Hickey (2009)



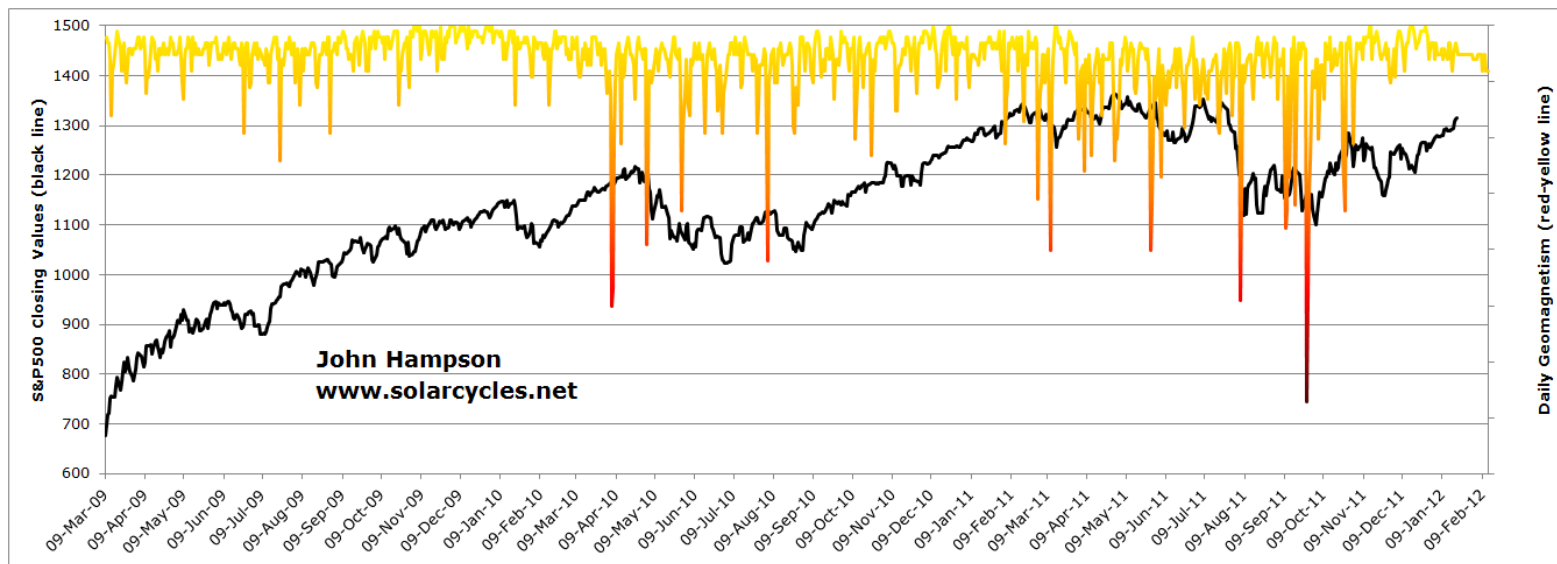
LUNAR PHASING



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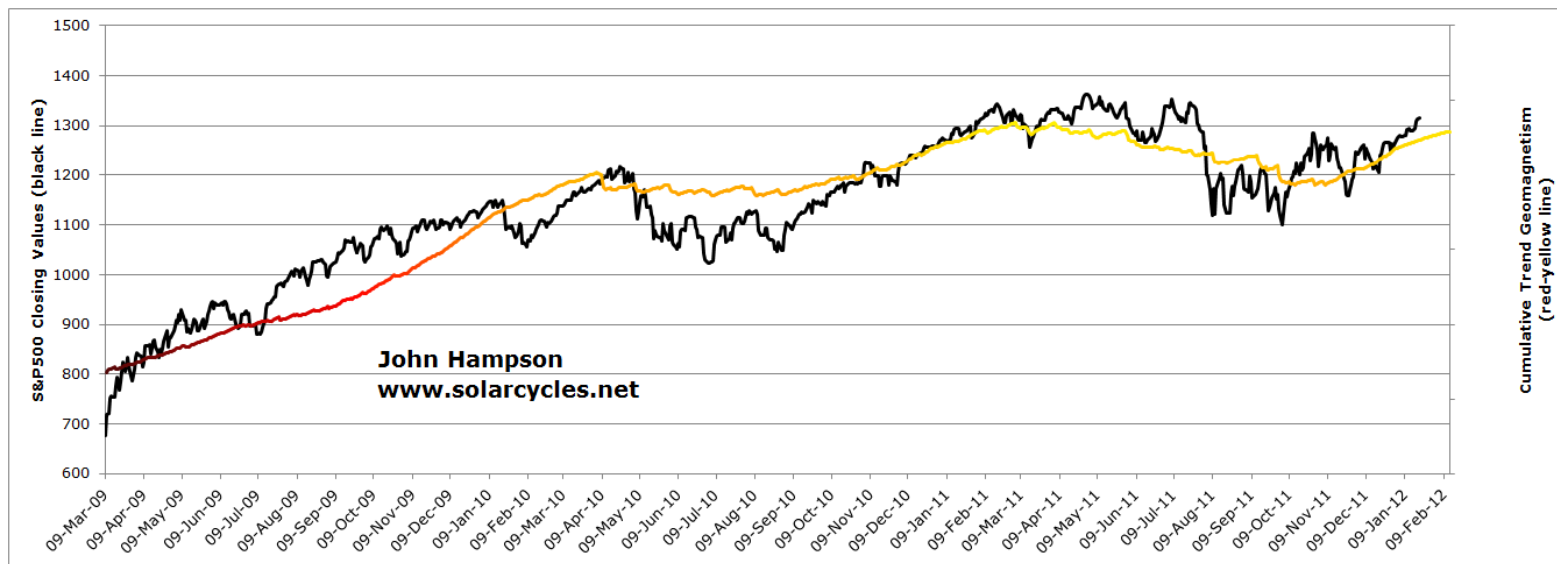
- Solar activity produces geomagnetic storms on Earth which have the potential to disrupt communications, navigation, satellites and power grids
- There is a correlation between geomagnetic storms and depression and suicide in humans, and an increase in psychotic episodes in individuals who already suffer from unstable psychological states. Geomagnetic activity is also shown to make people more irritable and aggressive, and can affect melatonin synthesis, blood pressure, heart disease and light sensitivity.
- Unusually high levels of geomagnetic activity are statistically negative for the subsequent days' stock market performance, and periods of quiet geomagnetic activity typically bolster stock indices around the world (Krivelyova, Robotti, 2003)

GEOMAGNETISM



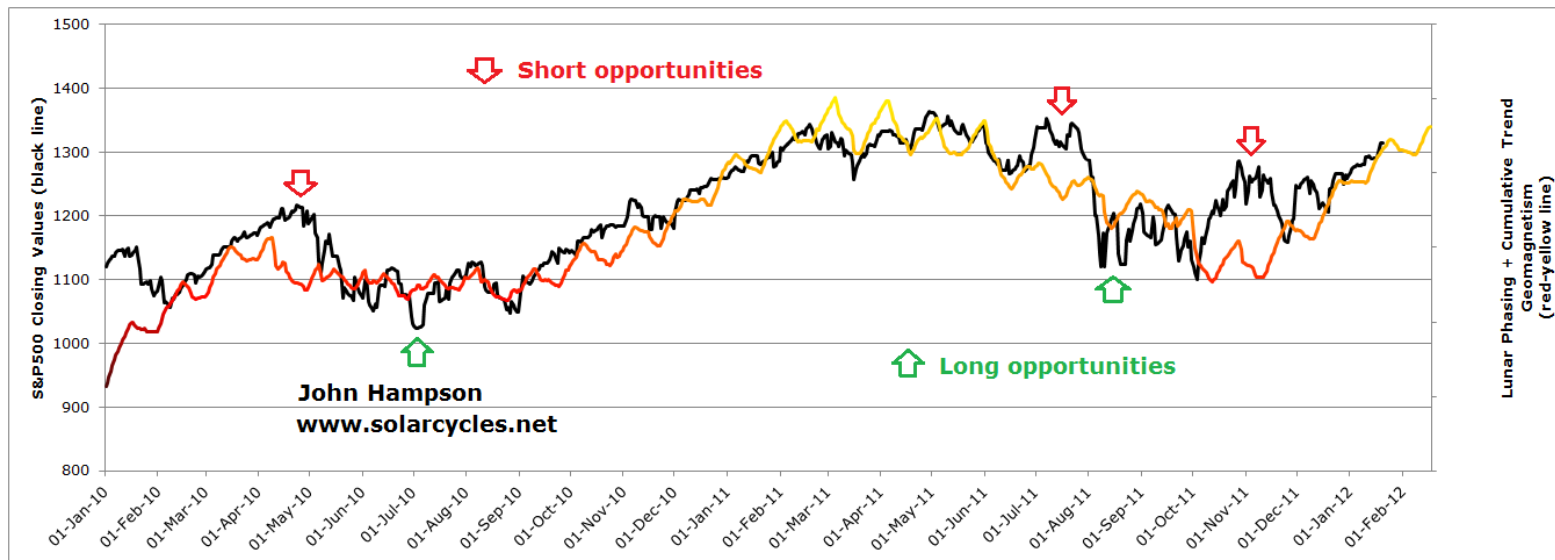
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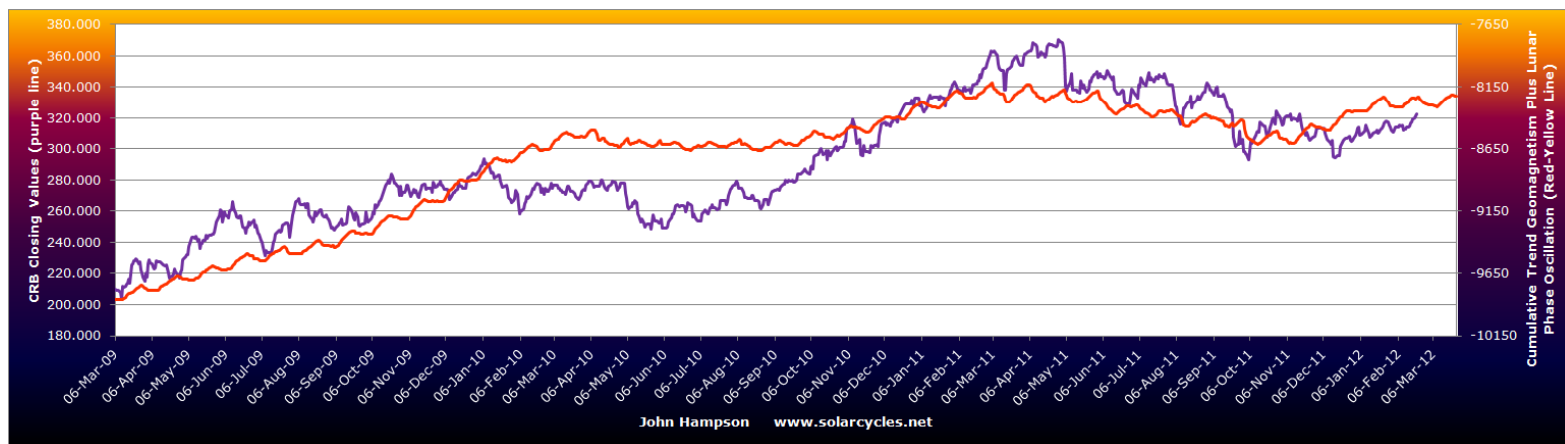


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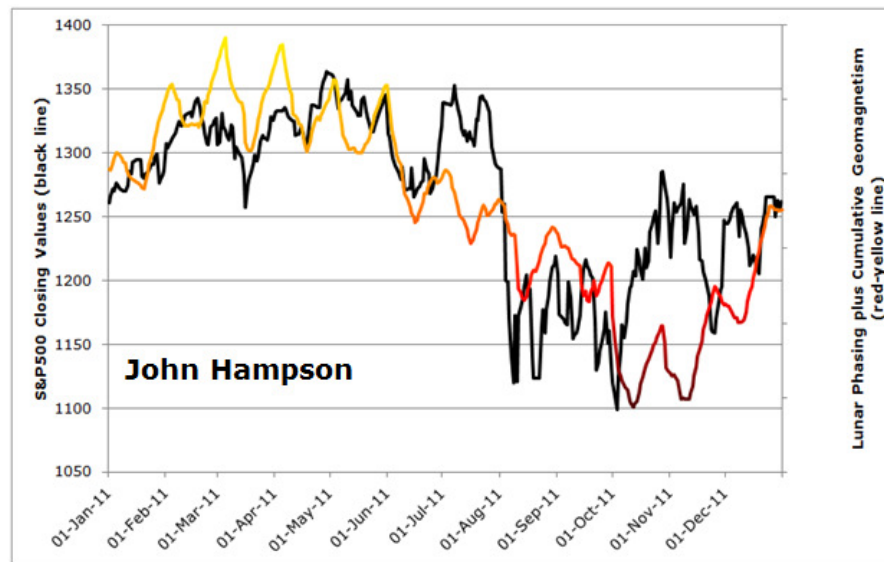
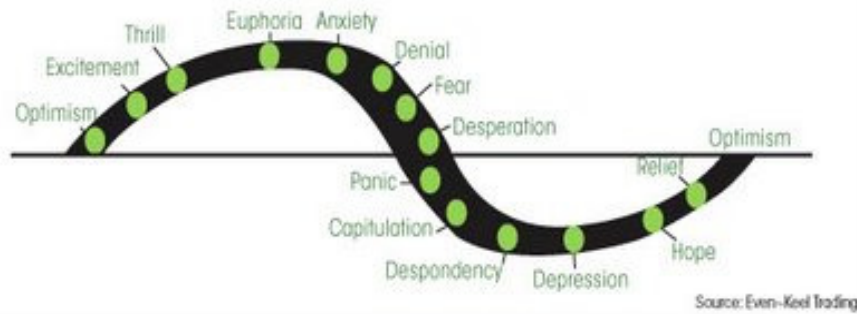
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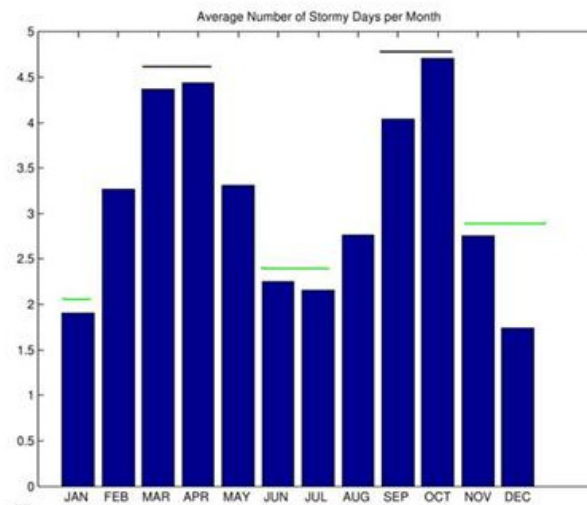
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WAVEFORM

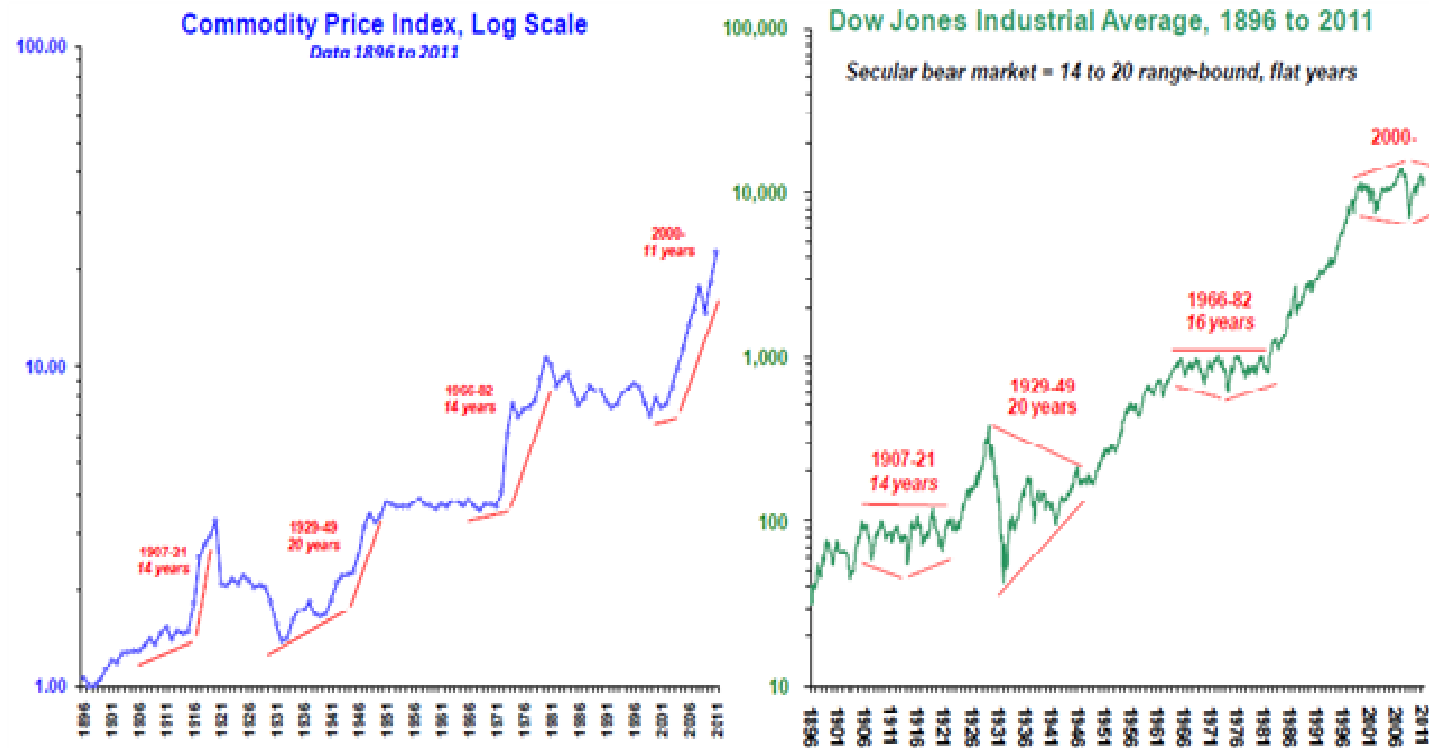
FIGURE 4: Cycle of Market Emotions



SEASONALITY



SUNSPOTS AND SECULAR ASSET CYCLES

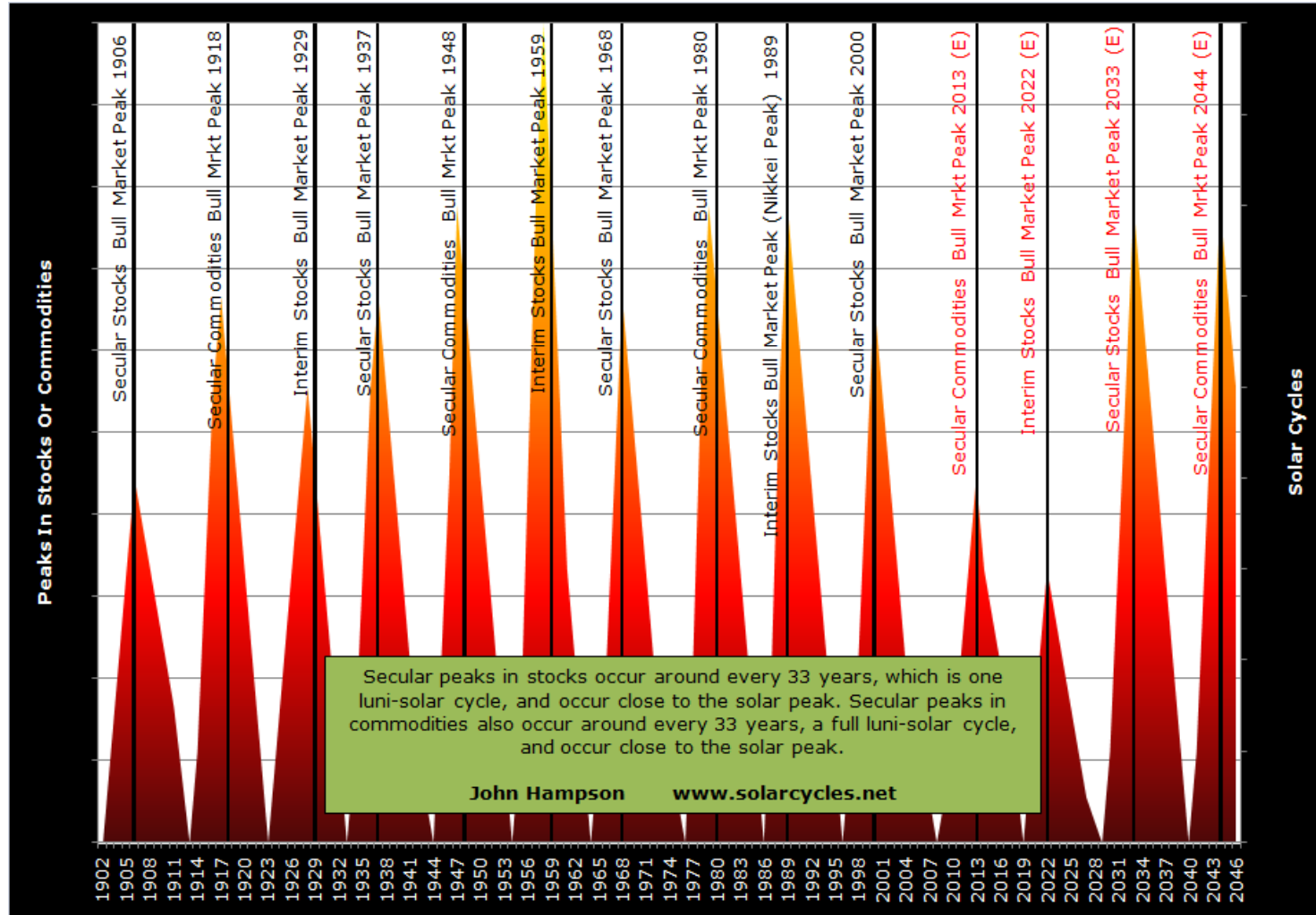


Barry Bannister

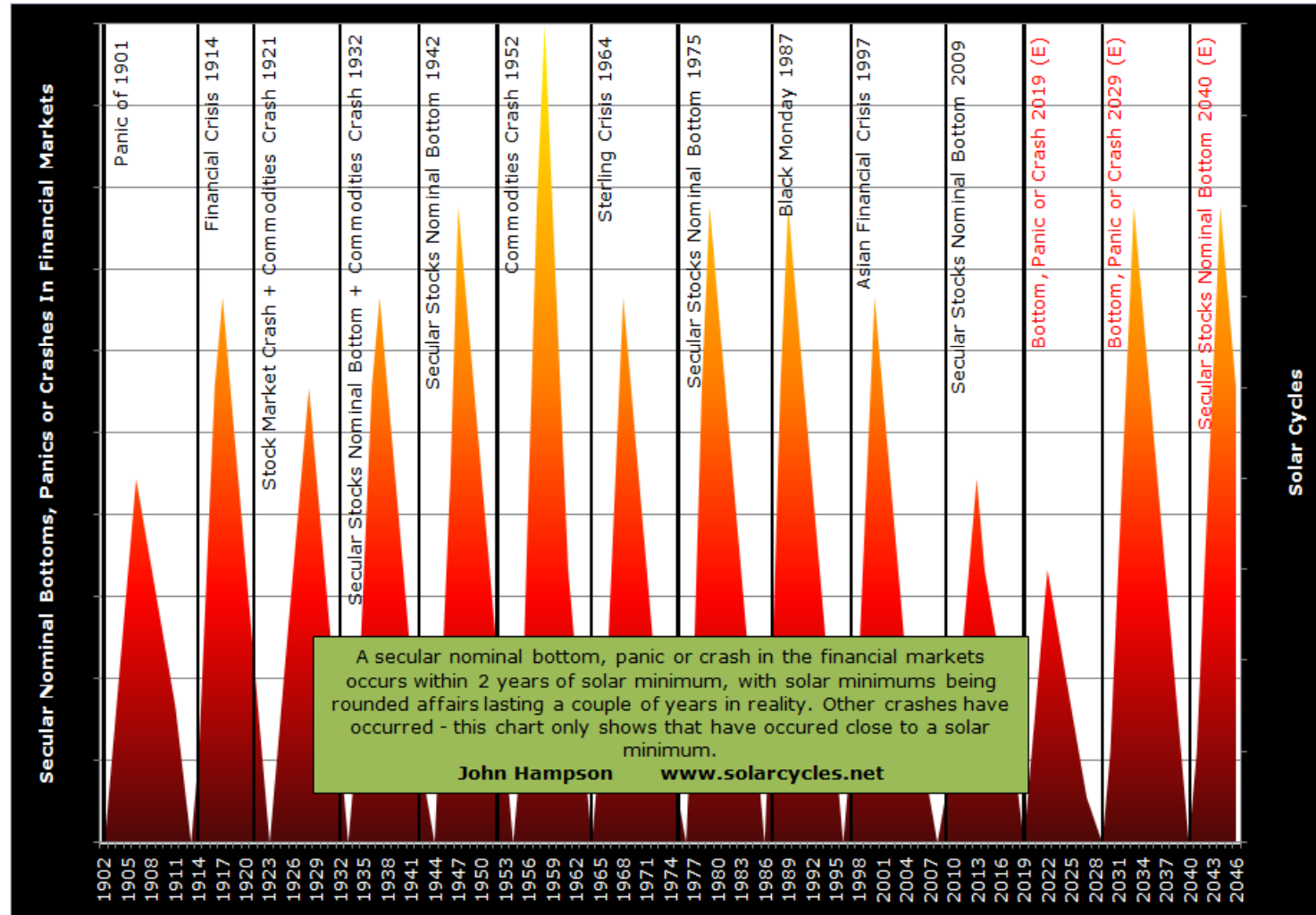
SUNSPOTS AND SECULAR ASSET CYCLES

- Long term swing between paper and hard assets
- Herding into one class until extreme of fear or greed
- Relative expensiveness/cheapness of one asset class versus the other
- Supply lag in commodities
- Alexander Tchijevsky (1924): mass human excitability at solar maximums, apathy at solar minimums
- Risk-taking, speculation and buying into and around solar maximums; conservatism at solar minimums

SUNSPOTS AND SECULAR ASSET CYCLES



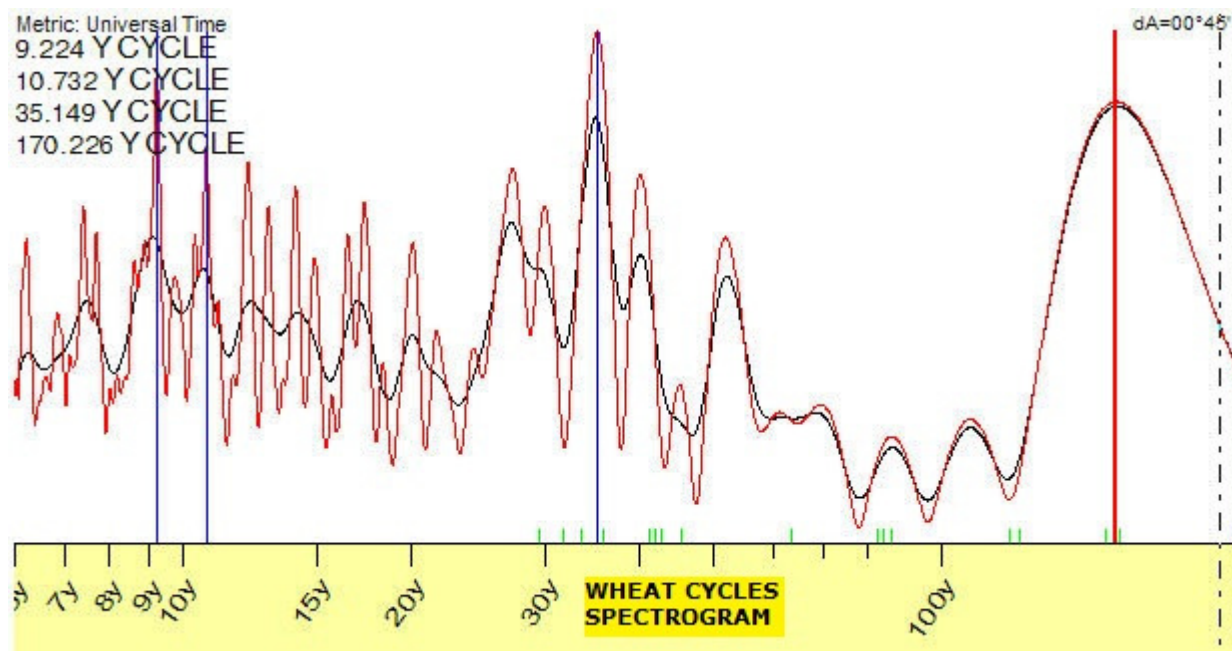
SUNSPOTS AND SECULAR ASSET CYCLES



SUNSPOTS AND SECULAR ASSET CYCLES

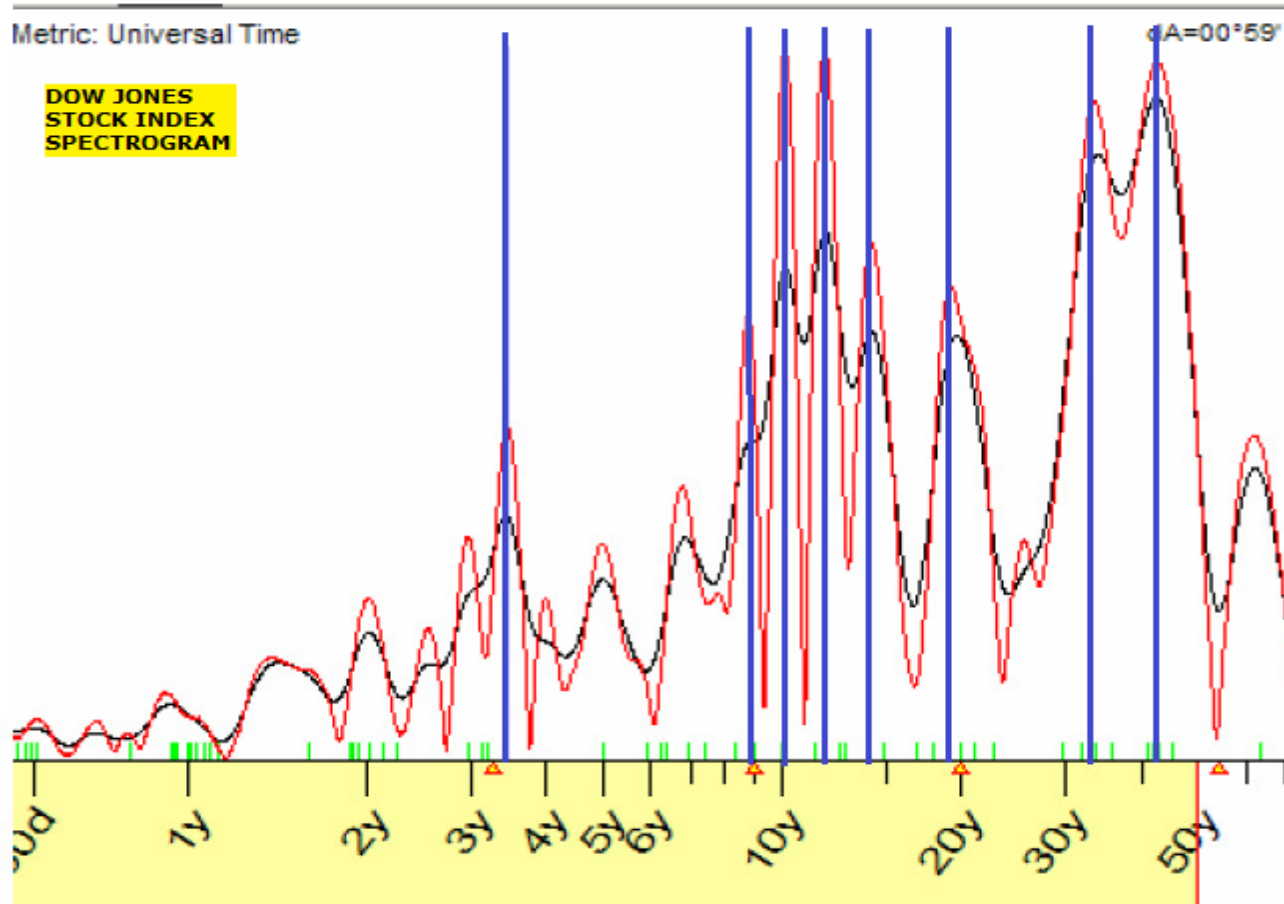
- Secular tops in US stocks were 2000, 1968 and 1937 – 3 solar cycles apart (roughly 33 years). Secular nominal bottoms in stocks were 2009 (expected), 1975, 1944 and 1913 – 3 solar cycles apart (roughly 33 years). Secular tops in commodities were 1980, 1948 and 1918 – 3 solar cycles apart (roughly 33 years). Secular bottoms in commodities were 2000, 1968, 1938 and 1906 – 3 solar cycles apart (roughly 33 years). All these tops and bottoms fell very close to solar peaks and minima.
- Every 33 years the lunar calendar and solar calendar converge. A lunar month isn't quite the same as a solar month, and so new moons and full moons gradually advance through the seasons, returning to where they began every 33 years.

SUNSPOTS AND SECULAR ASSET CYCLES



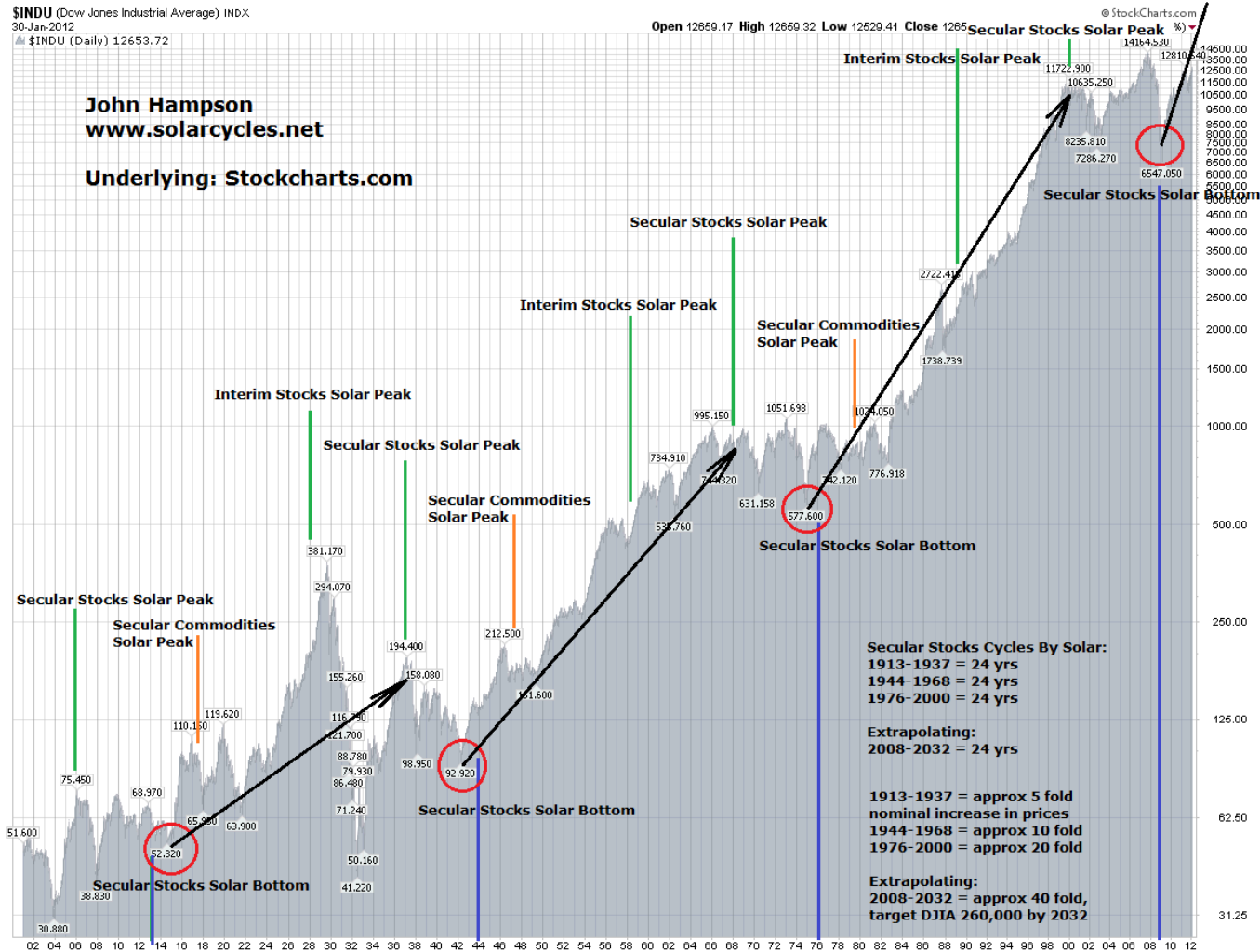
Sergey Tarassov

SUNSPOTS AND SECULAR ASSET CYCLES

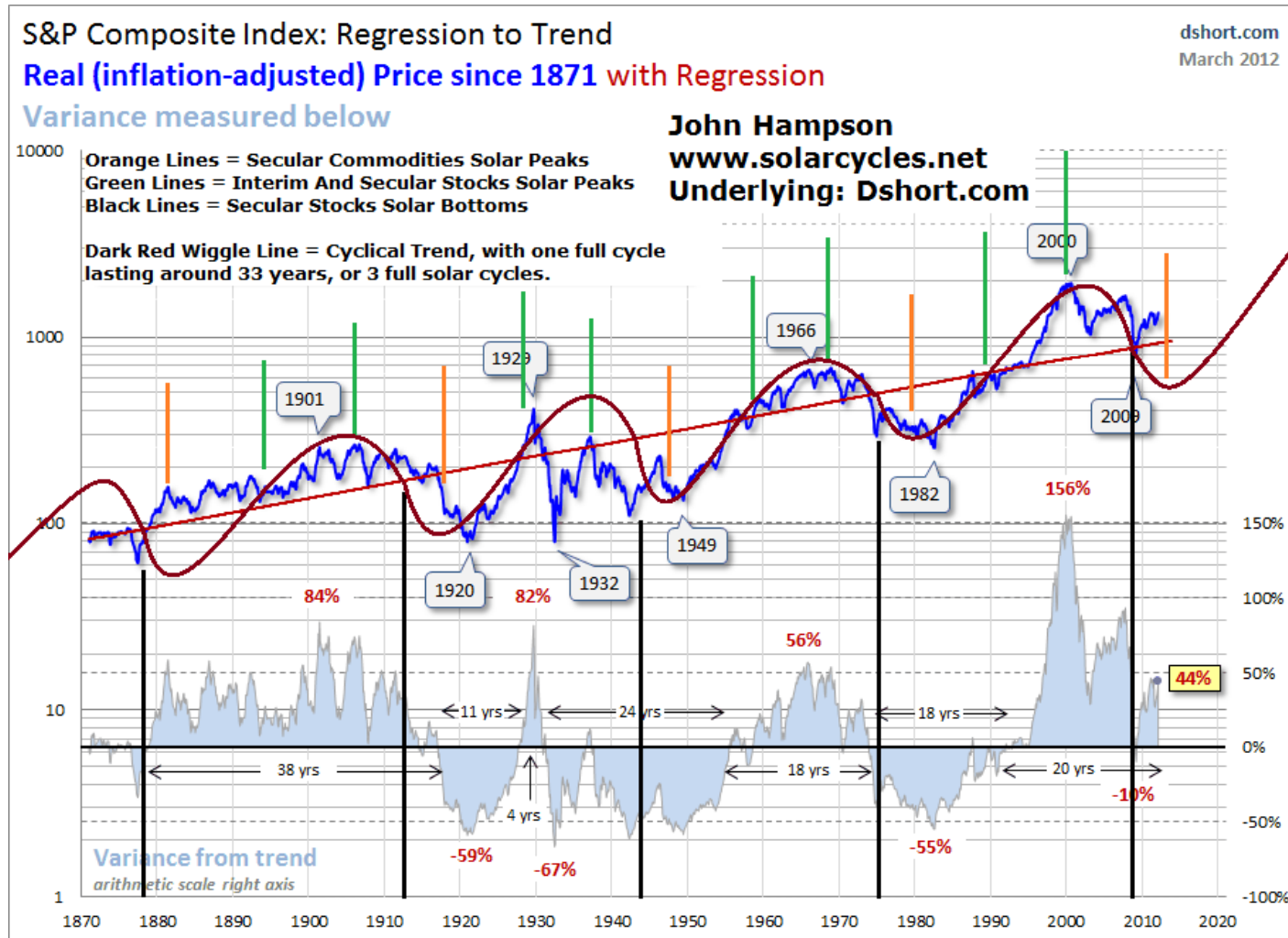


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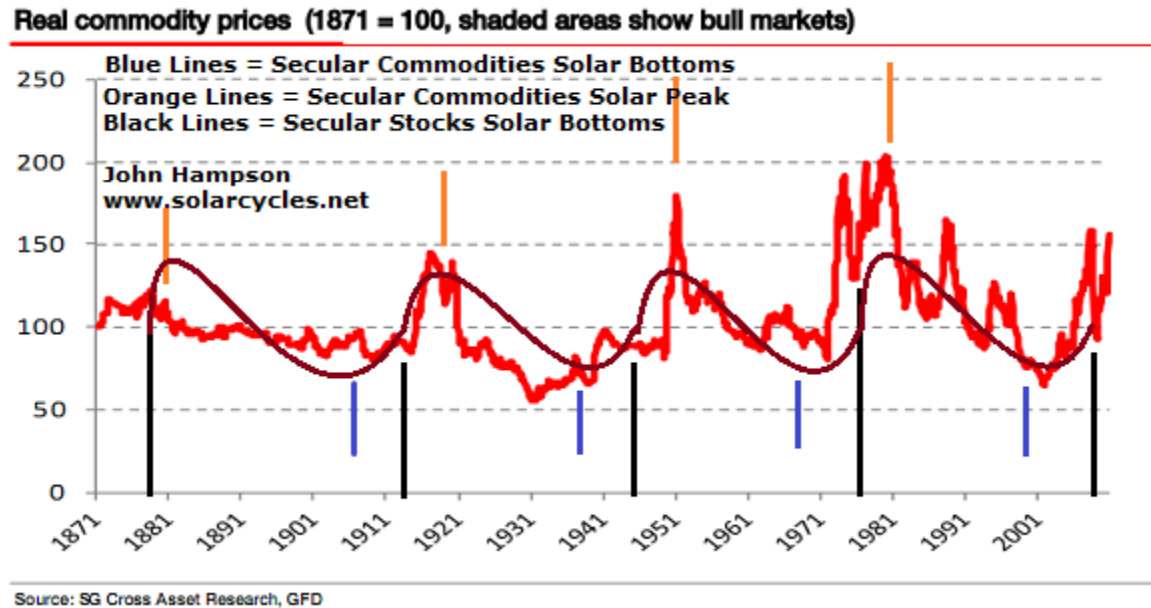
SUNSPOTS AND SECULAR ASSET CYCLES



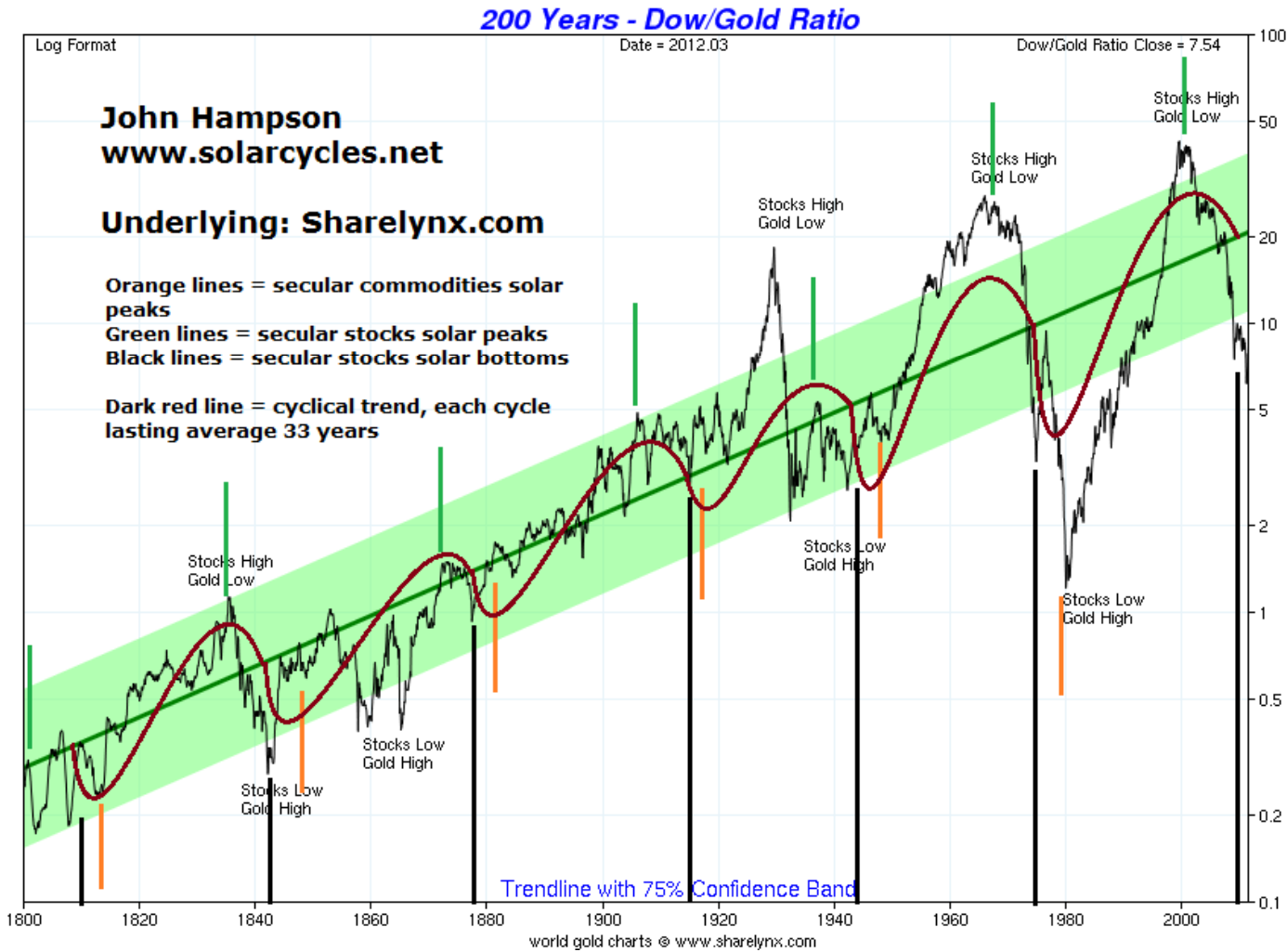
SUNSPOTS AND SECULAR ASSET CYCLES



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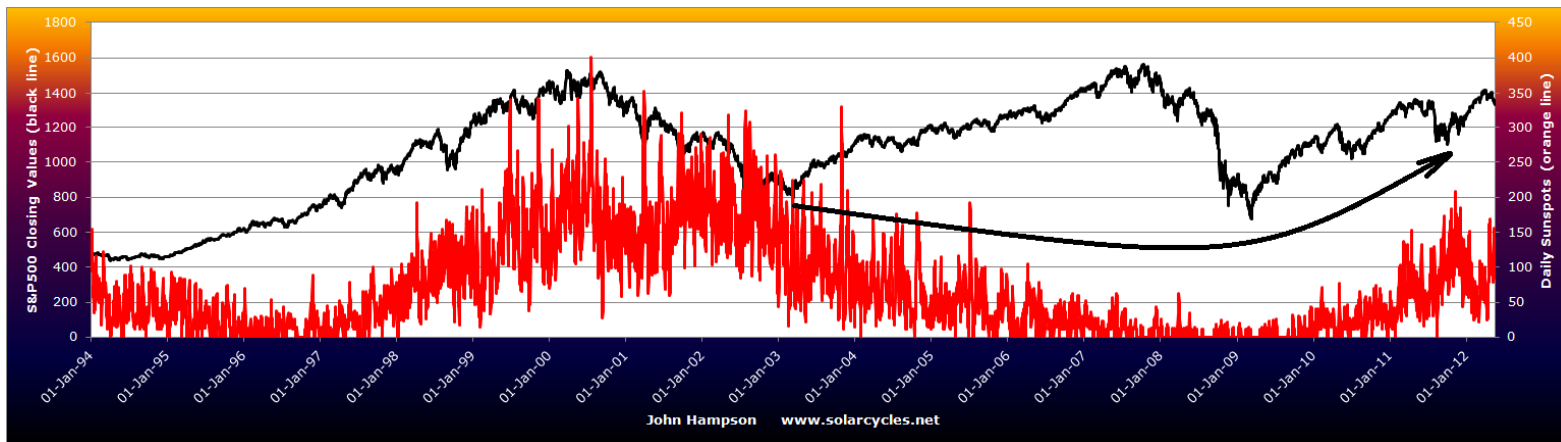


SUNSPOTS AND SECULAR ASSET CYCLES



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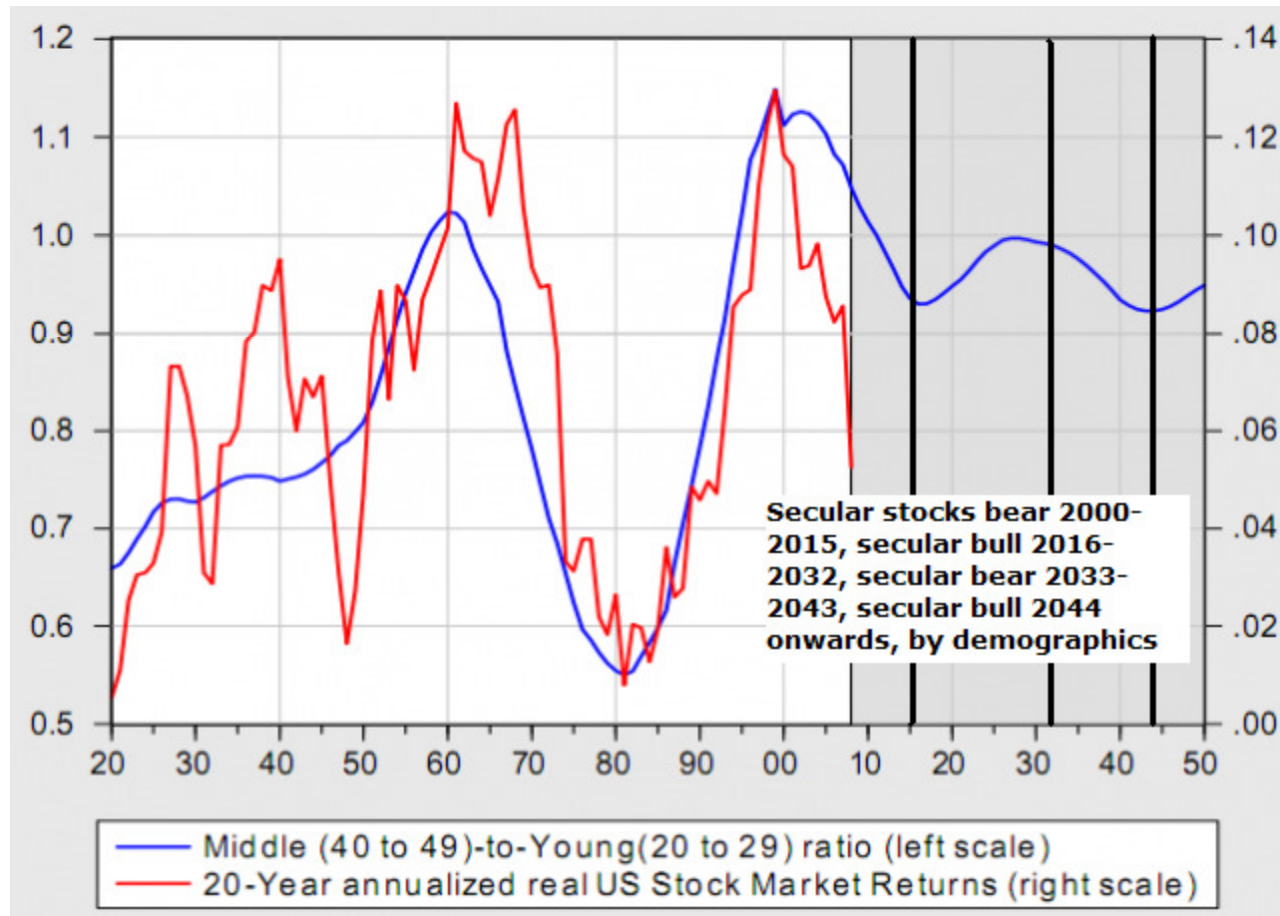
SUNSPOTS AND SECULAR ASSET CYCLES

Buy at Solar Cycle Minimum, Sell at Solar Maximum (3-5 years later)			
Solar Cycle	Start Date (Solar Minimum)	Solar Maximum	Dow Jones Industrials Return
Solar Cycle 14	February 1902	February 1906	50%
Solar Cycle 15	August 1913	August 1917	40%
Solar Cycle 16	August 1923	April 1928	220%
Solar Cycle 17	September 1933	April 1937	200%
Solar Cycle 18	February 1944	May 1947	25%
Solar Cycle 19	April 1954	March 1958	40%
Solar Cycle 20	October 1964	November 1968	10%
Solar Cycle 21	June 1976	December 1979	-15%
Solar Cycle 22	September 1986	July 1989	30%
Solar Cycle 23	May 1996	March 2000	85%
Solar Cycle 24	December 2008	March 2013 (Estimated)	?
Average Gain:			70% (18% per year)
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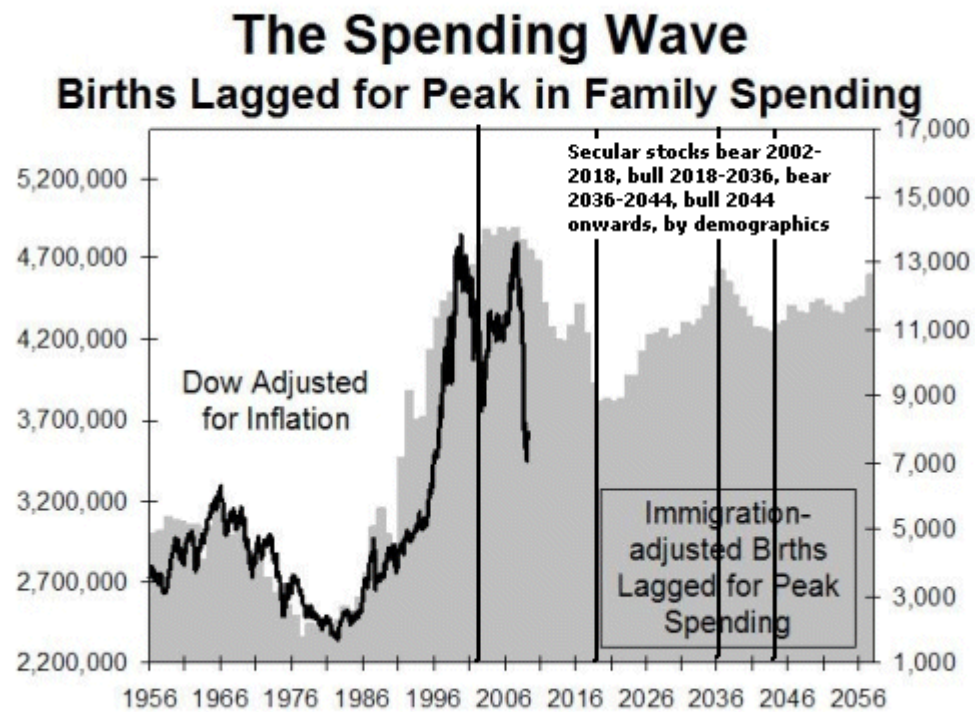
SUNSPOTS AND SECULAR ASSET CYCLES

Buy at Solar Cycle Maximum, Sell at Solar Minimum (5-8 years later)			
Solar Cycle	Start: Solar Maximum	End: Solar Minimum	Dow Jones Industrials Return
Solar Cycle 14	February 1906	August 1913	-20%
Solar Cycle 15	August 1917	August 1923	0%
Solar Cycle 16	April 1928	September 1933	-50%
Solar Cycle 17	April 1937	February 1944	-20%
Solar Cycle 18	May 1947	April 1954	80%
Solar Cycle 19	March 1958	October 1964	100%
Solar Cycle 20	November 1968	June 1976	0%
Solar Cycle 21	December 1979	September 1986	100%
Solar Cycle 22	July 1989	May 1996	100%
Solar Cycle 23	March 2000	December 2008	-20%
Solar Cycle 24	March 2013 (Estimated)	?	?
Average Gain:			25% (4% per year)
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DEMOGRAPHICS AND SECULAR ASSET CYCLES



DEMOGRAPHICS AND SECULAR ASSET CYCLES



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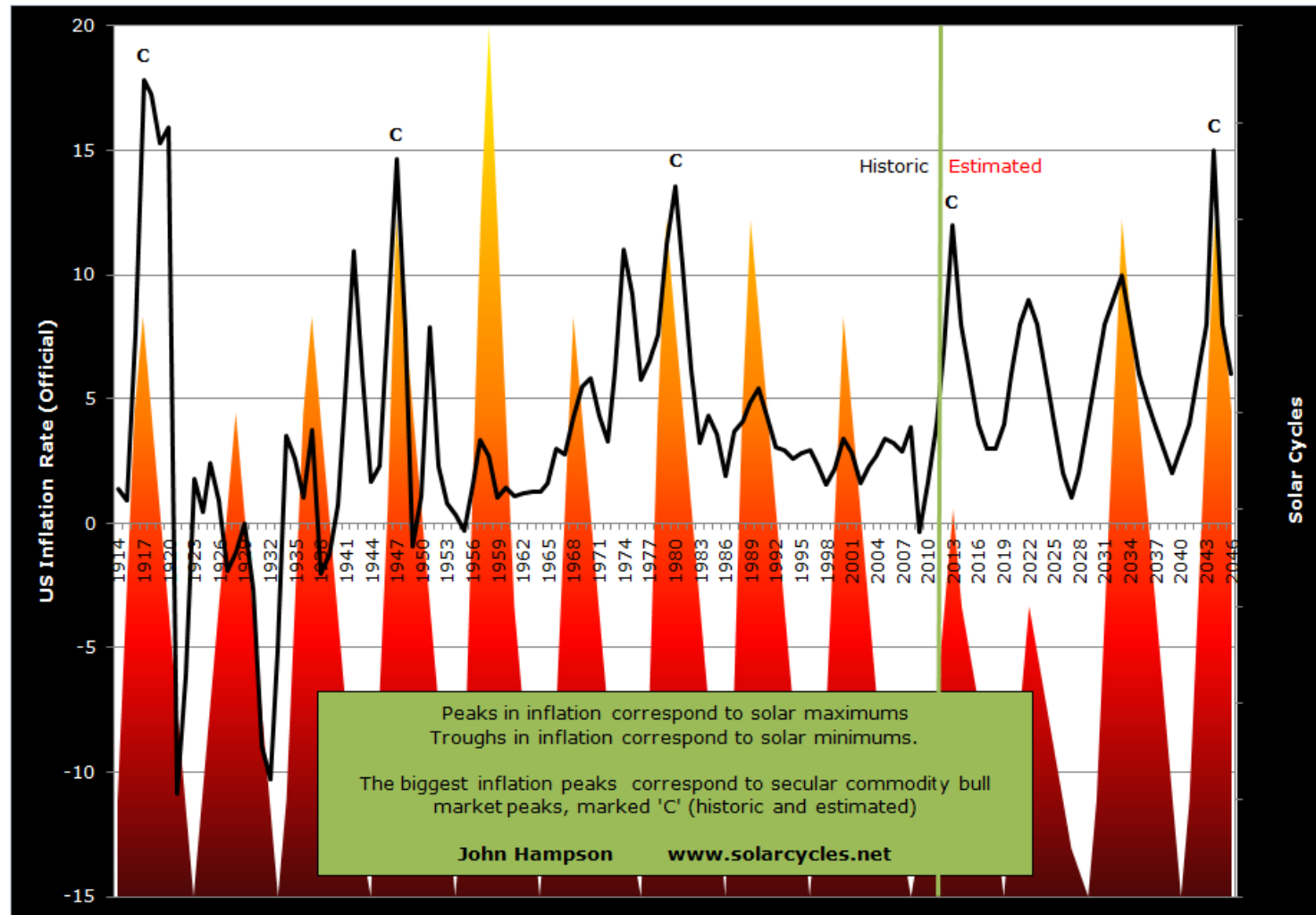
DEMOGRAPHICS AND SECULAR ASSET CYCLES

- How can demographic models align with sunspot cycle predictions?
- Three papers (Visser, Klvana, Sinclair) argue that solar cycles influence populations and demographics in other species.
- Two papers (Juckett, Cherry) correlate human longevity and mortality with solar cycles, so playing a role in shaping human populations.
- Three-way relationship between secular asset cycles, demographics and solar cycles, and the research suggests solar cycles drive the other two.

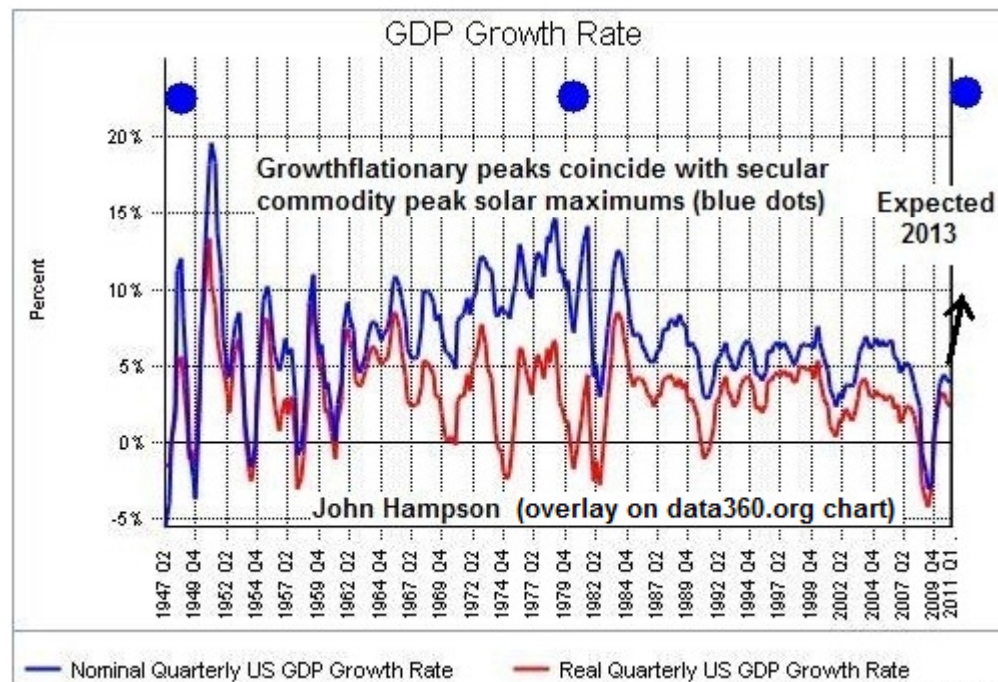
SUNSPOTS, INFLATION, GROWTH AND RECESSIONS

- Peaks in inflation correspond to solar maximums, troughs to solar minimums. The biggest peaks in inflation correspond to commodity bull market peaks.
- We typically experience “growthflation” into solar peaks, i.e. both inflation AND growth.
- The period of rising solar activity (sunspots) into and around the solar maximum correlates positively with economic growth, inflation and risk-asset returns. What links these is risk-taking, spending and investing, or in other words, human excitability (Tchijevksy)

SUNSPOTS, INFLATION, GROWTH AND RECESSIONS



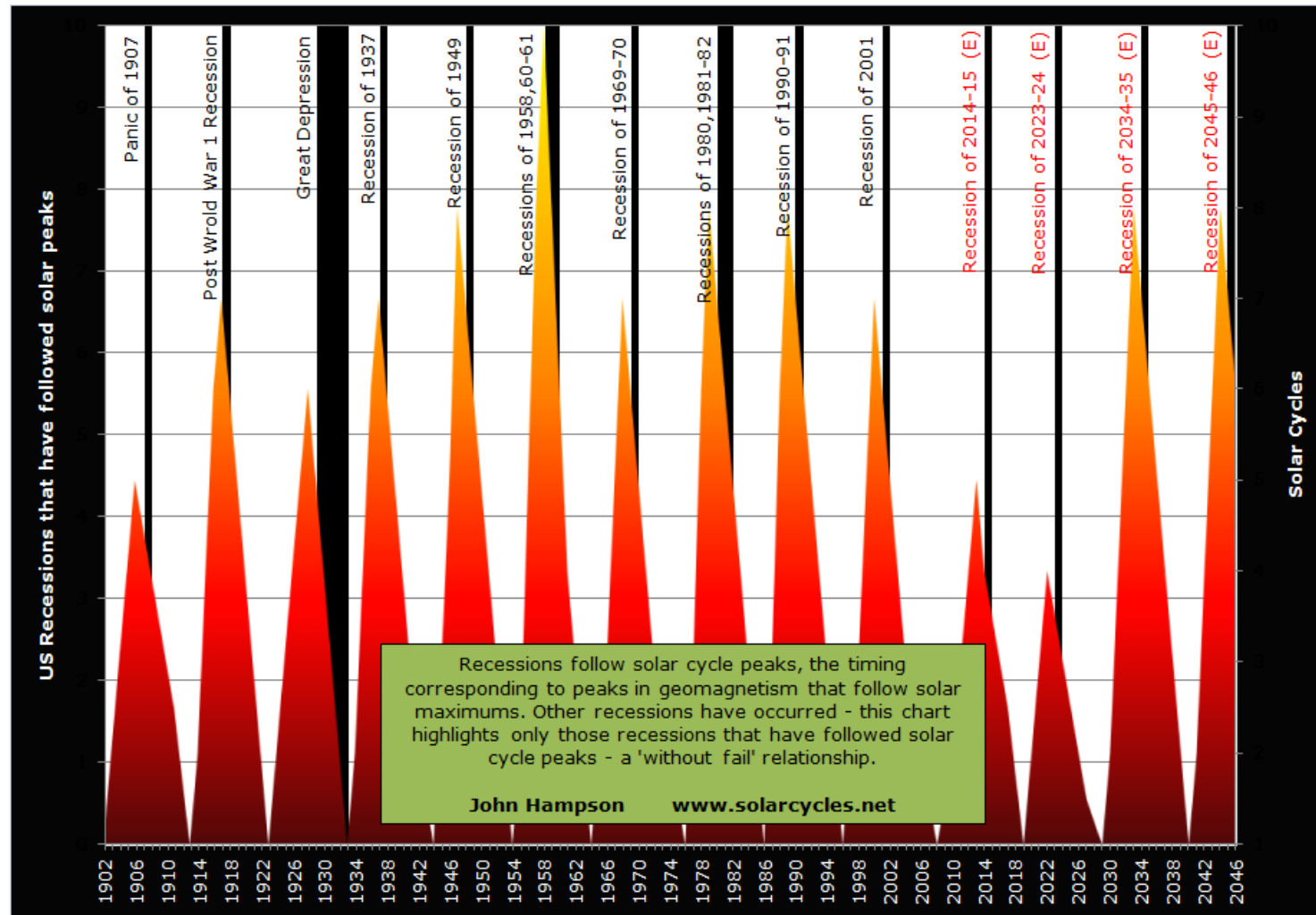
SUNSPOTS, INFLATION, GROWTH AND RECESSIONS



SUNSPOTS, INFLATION, GROWTH AND RECESSIONS

- The period of declining sunspots into the solar minimum is a period of increasing human apathy (Tchijevsky)
- Recessions follow solar cycle peaks, corresponding to the peaks in geomagnetism that lag solar maximums.
- A combination of peak geomagnetism together with declining sunspots creates a combination of increasing human anxiety and apathy. That provides the relevant inputs for shrinking growth and risk-off investment.

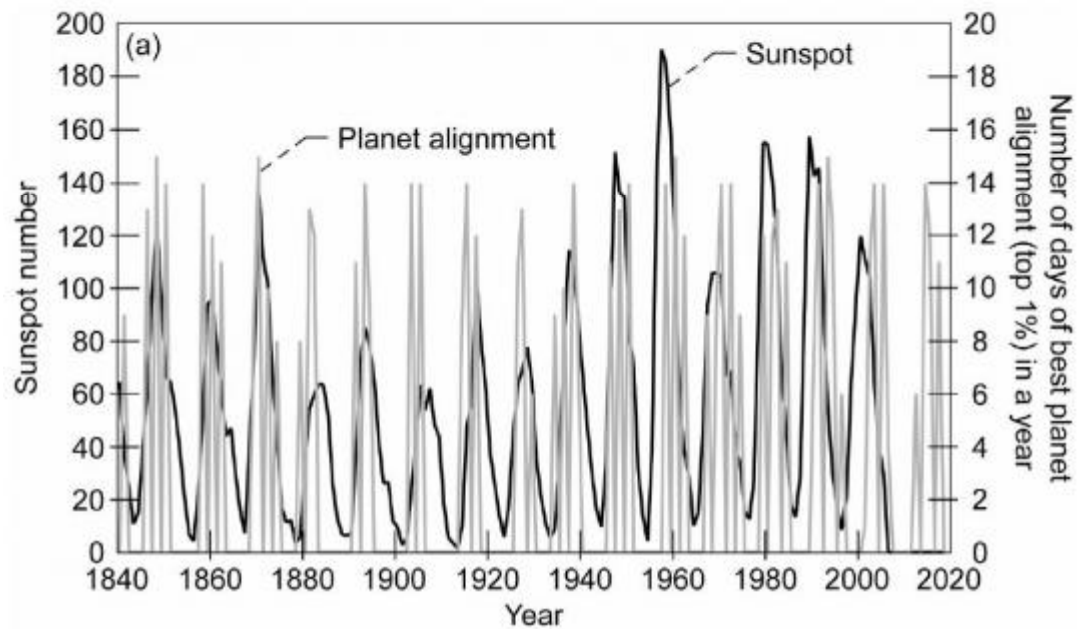
SUNSPOTS, INFLATION, GROWTH AND RECESSIONS



ASTRO TRADING AND SOLAR CYCLES

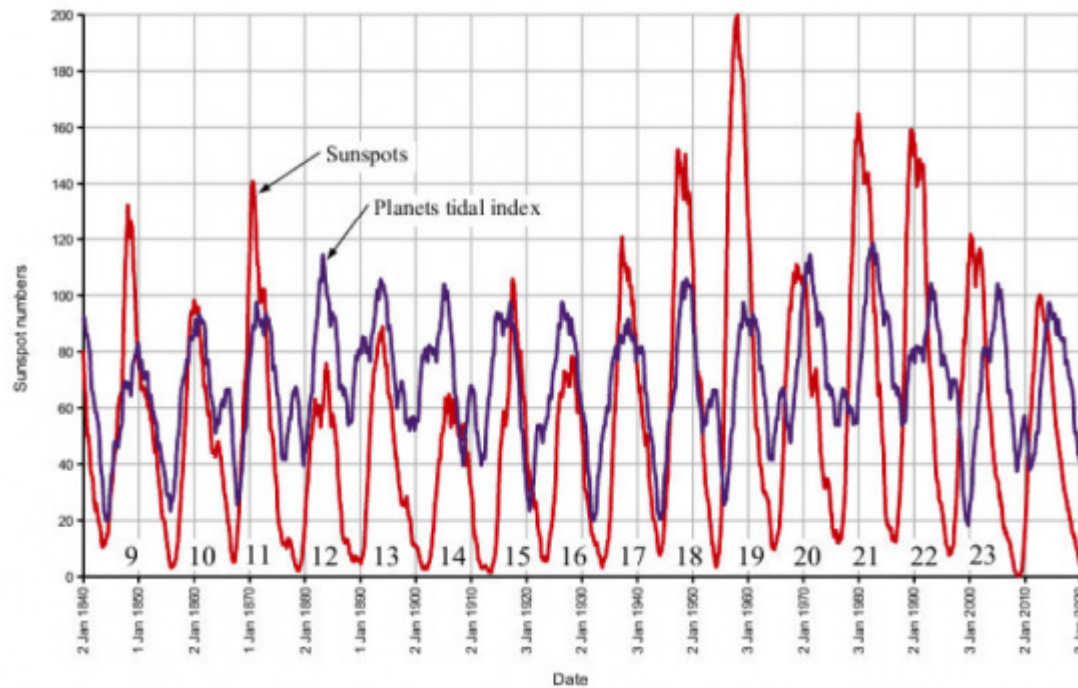
- Astro trading has a fundamental link with astrology, which is a field considered lacking in scientific support. However, there is one line of scientific theory that is potentially supportive, namely that planetary alignment influences solar activity.
- Two studies reveal that there is a close relationship between the alignment of Venus, Earth and Jupiter, and solar activity cycles.
- The most aligned days between these 3 planets correlate very well with solar cycles, suggesting these tidal planets are the key driver of the sun's known 11-year cycle of activity.

ASTRO TRADING AND SOLAR CYCLES



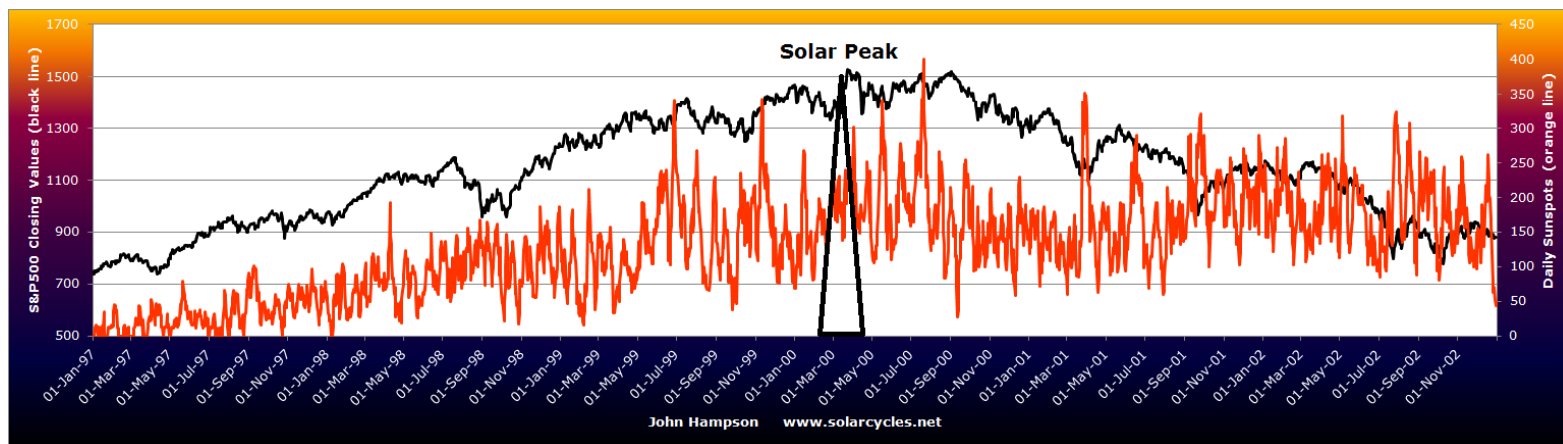
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ASTRO TRADING AND SOLAR CYCLES



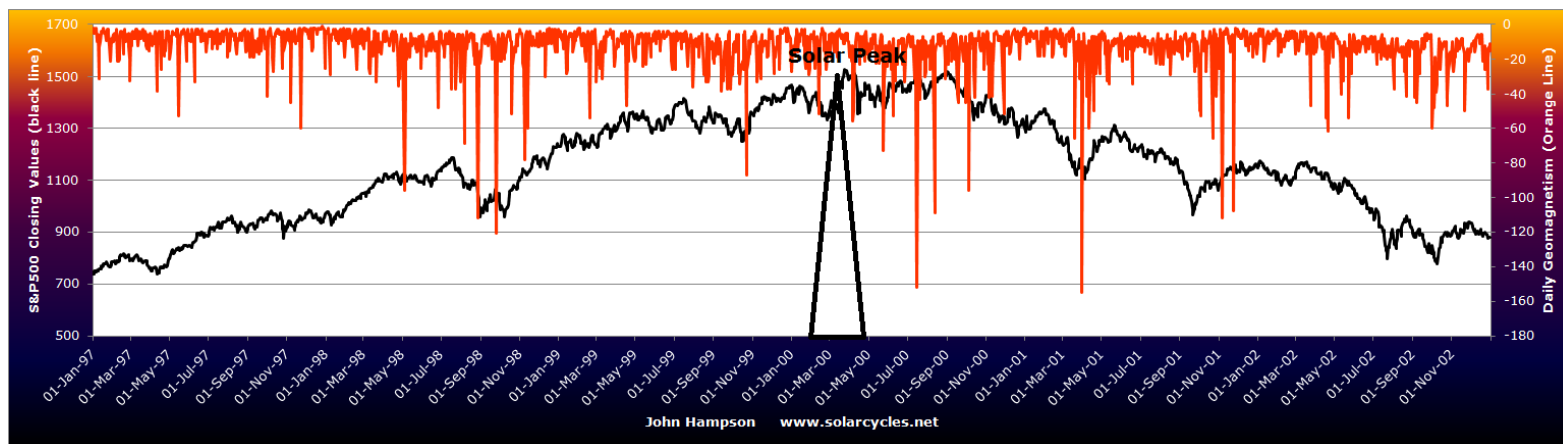
Roy Martin

FORECASTS

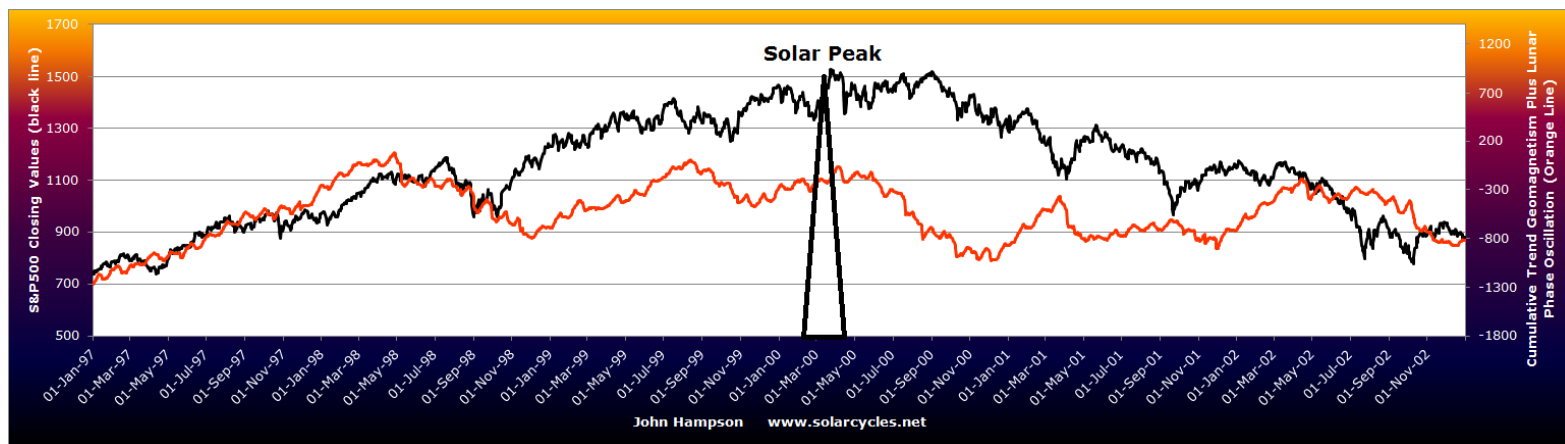


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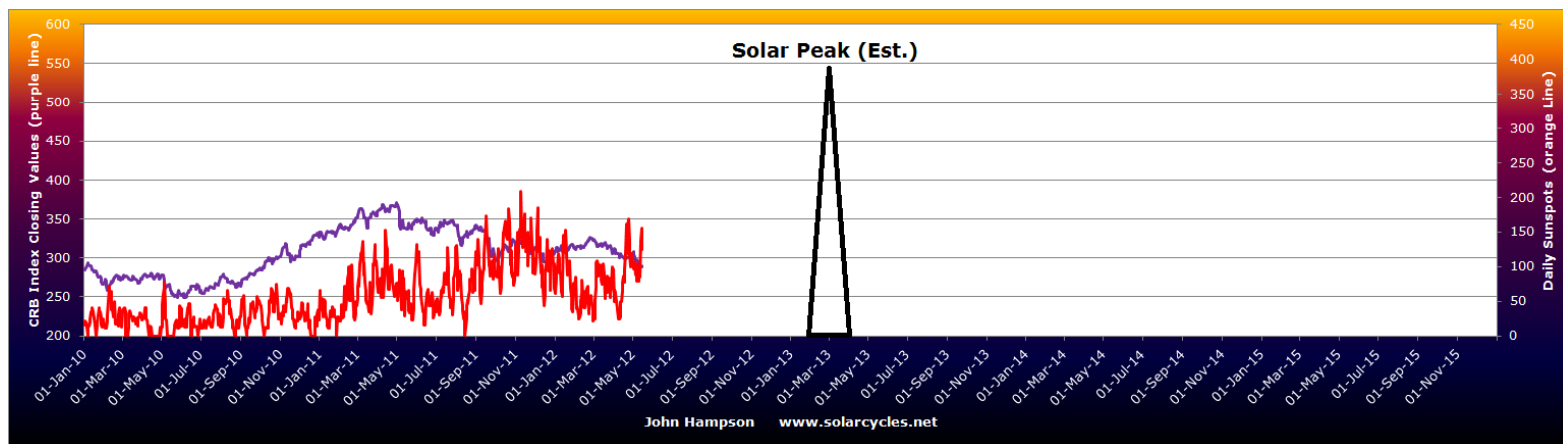


FORECASTS

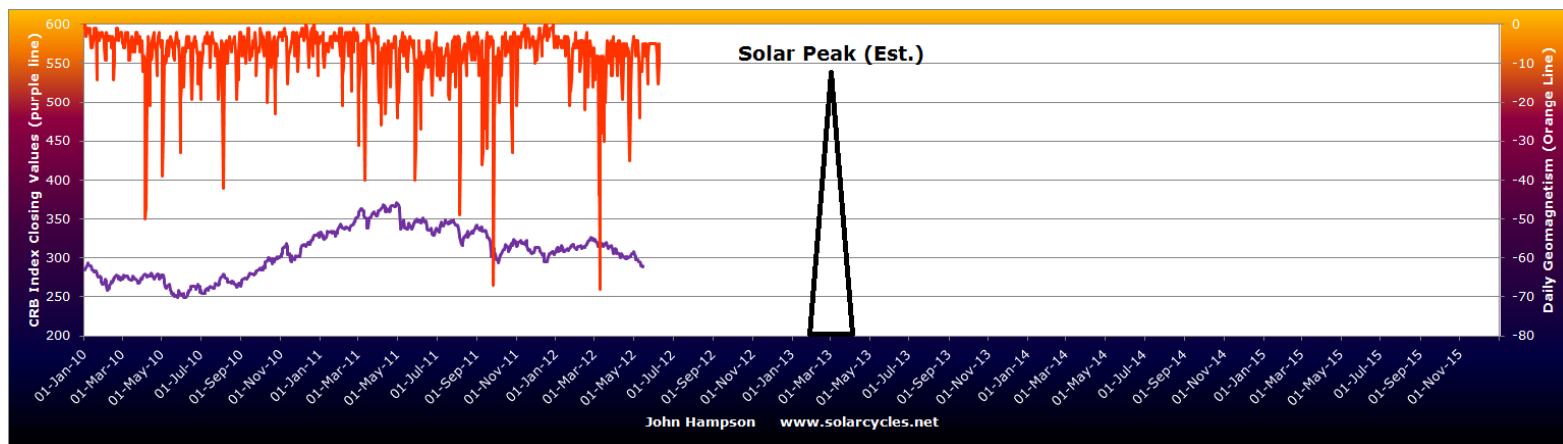


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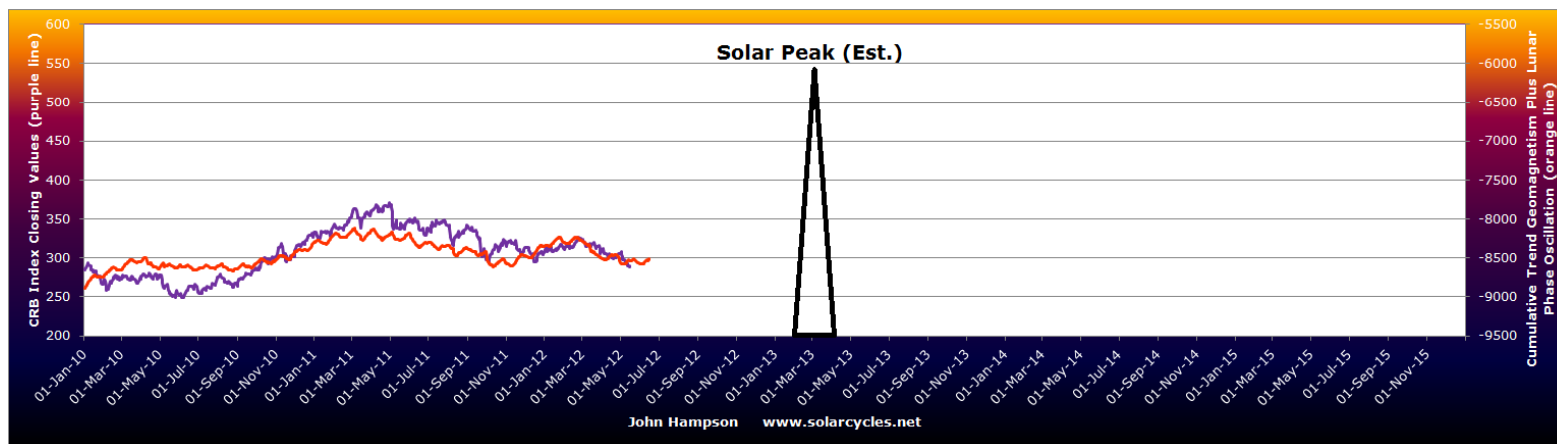
FORECASTS



FORECASTS

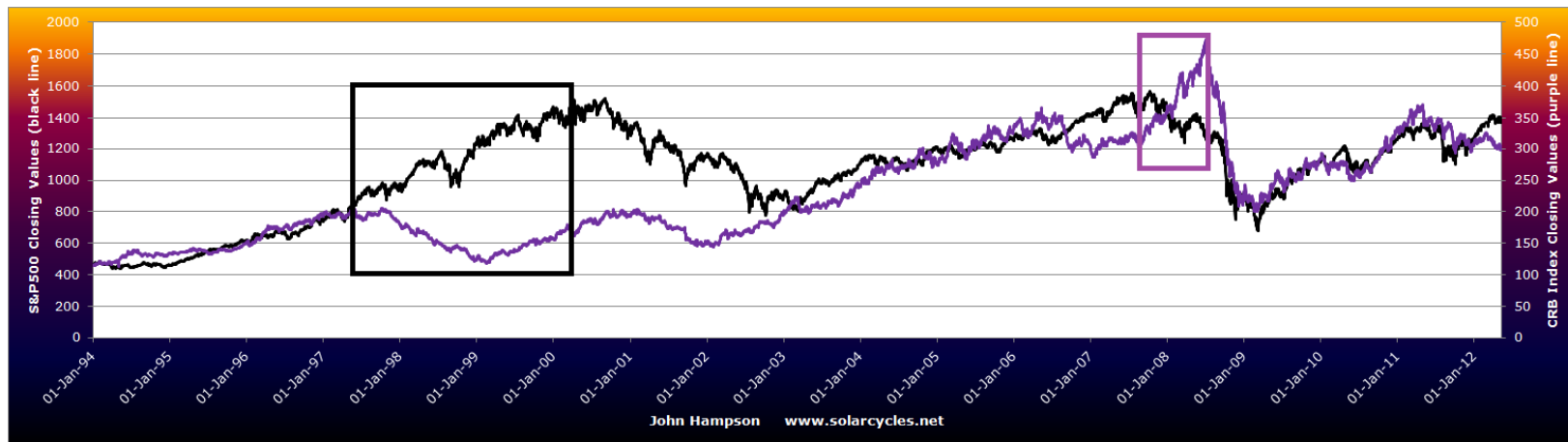


FORECASTS



Earthquakes, protests, revolution, speculation, inflation

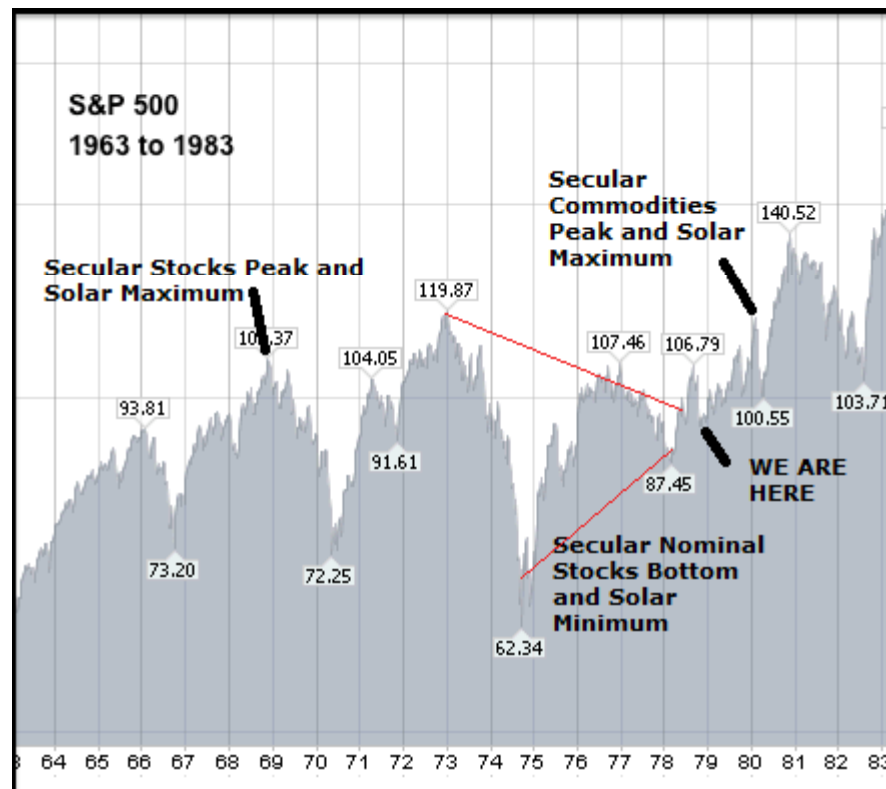
FORECASTS



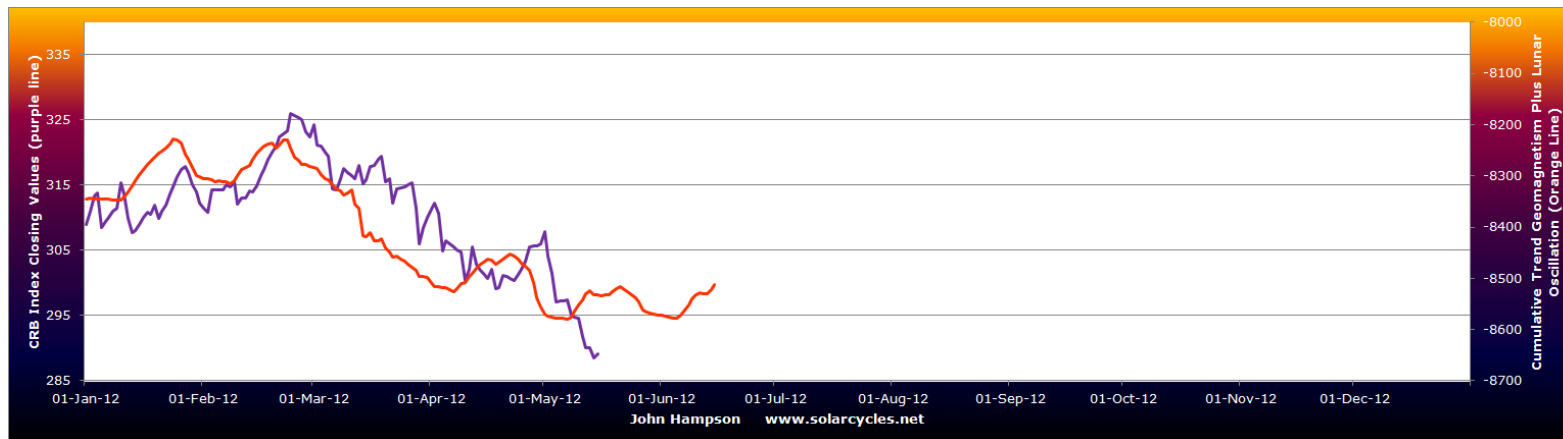
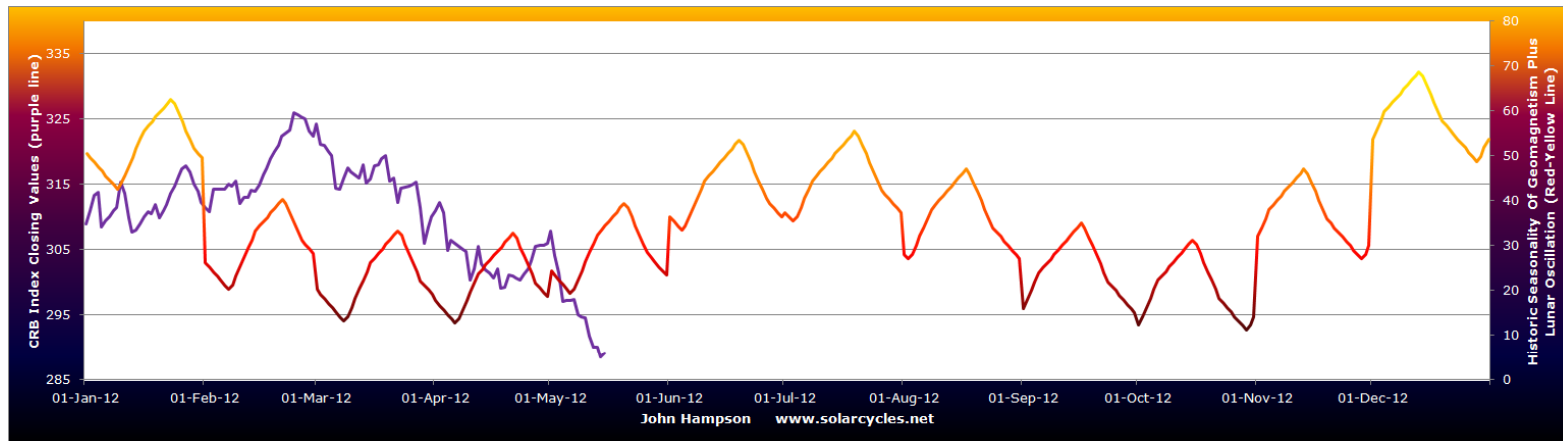
FORECASTS

	Solar peak	Secular peak	Inflation Peak	Geomagnetism Peak	Recession	Stocks: Commodities Ratios	Stocks P/E Ratios
Solar cycle 24	March 2013 <i>(forecast)</i>	Commodities secular peak: April - September 2013 <i>(forecast)</i>	January 2013 - July 2013 <i>(forecast)</i>	2015-2017 <i>(forecast)</i>	April 2013 - November 2014 <i>(starting) (forecast)</i>	Secular Bottom 2013 <i>(forecast)</i>	Secular Bottom 2015-2017 <i>(forecast)</i>
Solar cycle 21	Dec-79	Commodities secular peak: gold January 1980, oil April 1980 <i>(1 to 5 months after)</i>	Mar-80 <i>(4 months after)</i>	1982 <i>(3 years after)</i>	January 1980-July 1980 and July 1981-November 1982 <i>(1 month and 20 months after)</i>	Secular Bottom 1980	Secular Bottom 1982
Solar cycle 18	May-47	Commodities secular peak: CCI index high Oct/Nov 1947 <i>(5 months after)</i>	Mar-47 <i>(2 months before)</i>	1951 <i>(4 years after)</i>	November 1948-October 1949 <i>(18 months after)</i>	Secular Bottom 1947	Secular Bottom 1949
Solar cycle 15	Aug-17	Secular commodities peak: metals 1916, agri 1917, oil 1920 <i>(Average 6 months after)</i>	Jun-17 <i>(2 months before)</i>	1919 <i>(2 years after)</i>	August 1918 - March 1919 and January 1920-July 1921 <i>(12 months and 30 months after)</i>	Secular Bottom 1917	Secular Bottom 1921
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FORECASTS



FORECASTS



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CONCLUSIONS

- History sometimes repeats, history often rhymes; By studying the past, we can predict the future.
- Natural cycles of the sun, namely sunspots, geomagnetism and lunar illumination, are a key underlying cause of these patterns.
- From growth, inflation, demographics and asset cycles, to sentiment, stock market seasonality and waveform, we see solar phenomena and their influence on humans driving cyclical patterns that repeat over time.
- Synchronised to and dominated by cycles and waves.
- Free will, but a little less free will.
- Not everything solar, not every time solar, no holy grail. Solar phenomena are niche disciplines in trading, but should be central.
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