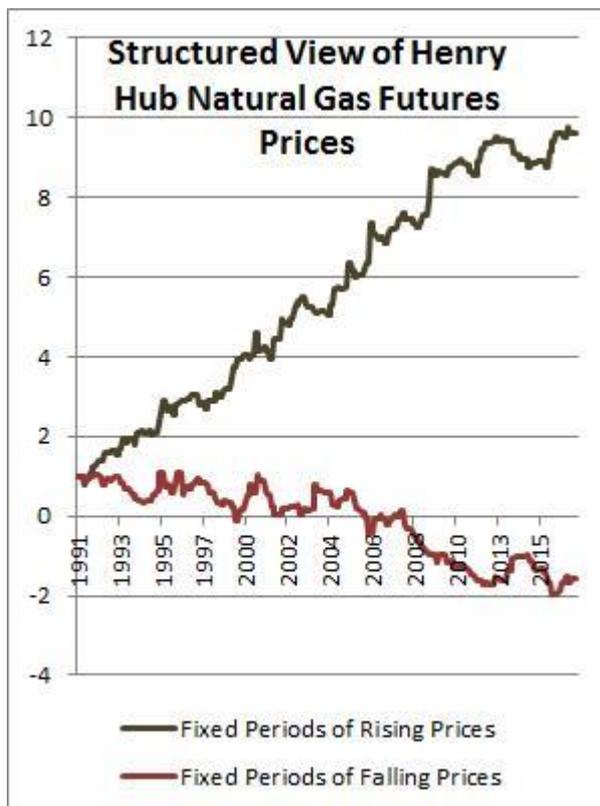


Kenton-Dau LLC

363 Mount Pleasant Road • Christchurch • New Zealand • +64 22 101 9057 • <http://kenton-dau.com>

Why do Markets Display Fixed Recurring Periods of Rising and Falling Prices?

Introduction



Fixed periods of rising and falling prices in Henry Hub Natural Gas Futures recurring around 4 times a year.

Traditional fundamental analysis seeks to find correlations between supply and demand or seasonal factors and a change in prices. For example if the weather is cold then people use more natural gas to keep themselves warm. The demand for natural gas increases and due to constraints in supply the price tends to increase.

Yet markets also display periods of rising and falling prices that recur like clockwork at fixed intervals. These periods cannot be explained by correlations with traditional fundamental factors.

For example the while a fundamental approach to natural gas prices would predict a six month cycle of price rises in winter and falling prices in summer, no fundamental factor explains the rapid periodic cycles taking place around four times a year seen in the market.

What then explains the presence of these periods? This is not a purely academic question. The presence of these fixed periods can have a significant impact on the ability to forecast price movements.

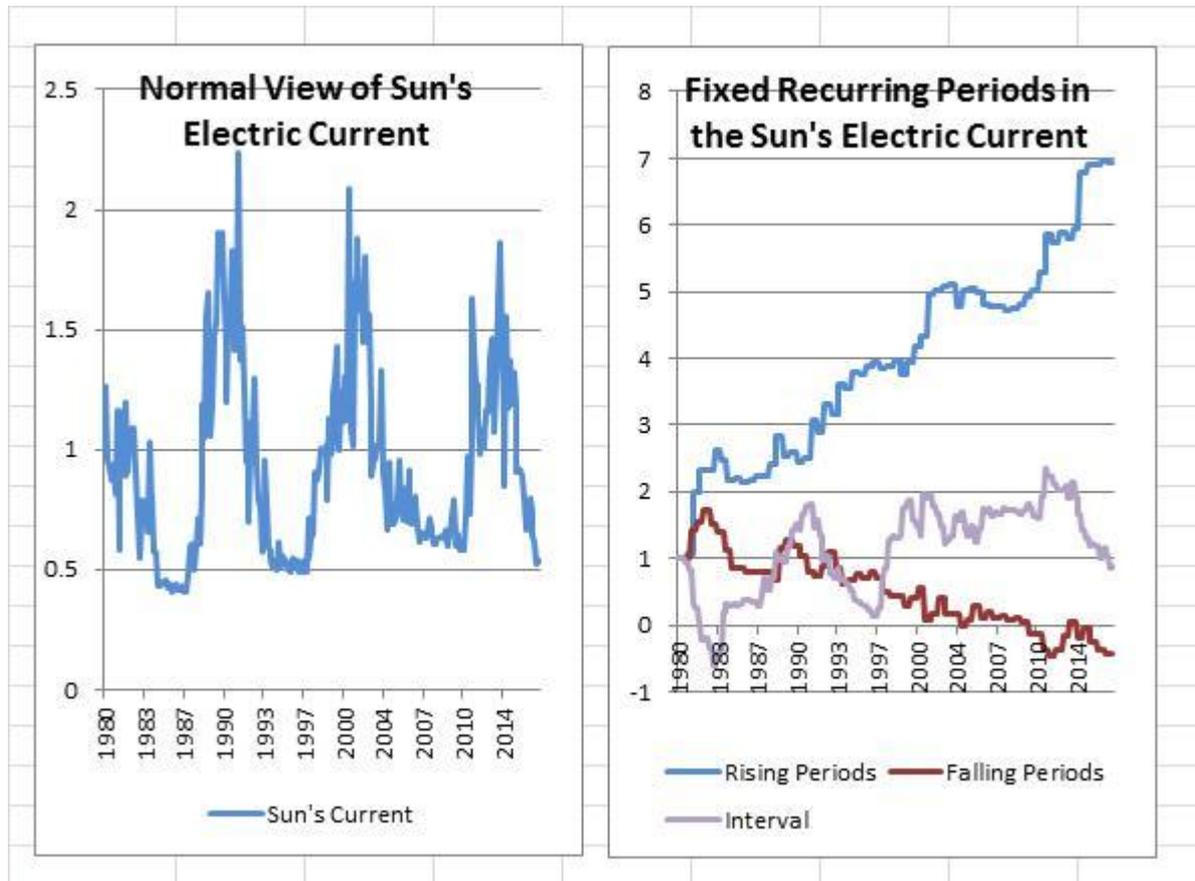
Fixed Recurring Patterns in Nature

Fixed recurring periods of rise and fall is not simply a feature of the markets. The same structure is common to many natural and man-made systems. For example, the left hand graph below shows the strength of the electrical output from the Sun since 1980. The output rises and falls as the sun progresses through its solar cycles. However, the left hand graph illustrates that the electrical output of the sun is also structured into fixed periods of rising and falling output lasting 54 days.

54 days of rising output is followed by an interval of 54 days. Then 54 days of falling output followed by a second 54 day interval before the period of rising output repeats itself. The electrical output of the sun therefore displays a fixed recurring pattern of:

Rise >> Interval >> Fall >> Interval >> Rise >> Interval >> Fall >>...

The length of the periods and interval are always the same. The pattern repeats perpetually.

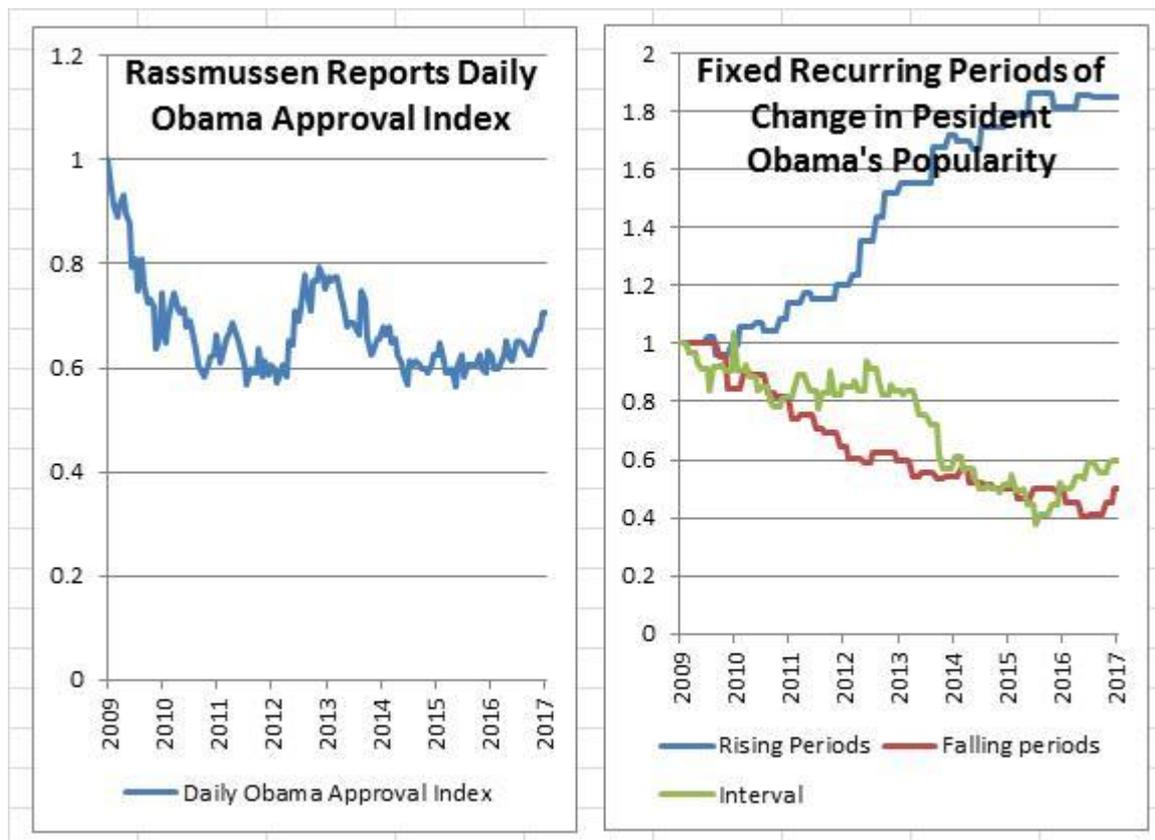


Left hand graph: Sun's electrical output since 1980. Right graph: same data structured into recurring 54 day periods.

The Obama Approval Rating

Importantly fixed recurring patterns of rise and fall are not confined to natural systems. Price action is not a natural phenomenon. The markets are man-made systems. Unlike the weight of a cubic metre of coal there is no inherent reason why the price of natural gas should be \$3 MMBtu (One million British thermal units) rather than \$4.80 MMBtu. The price at any given time is the result of the participation of buyers and sellers in the market whose collective perception of value sets the price. Besides the markets do other man-made systems also display fixed recurring patterns?

The Rasmussen Reports Daily Obama Approval Index provided a daily indicator of public opinion of President Obama during his term in office from November 2008 to January 2017.¹



The graph on the left gives the daily Index score during President Obama's term. The graph on the right shows exactly the same data, this time divided into recurring six week periods. The graph shows a recurring structure where Obama's popularity would rise for six weeks. This would be immediately followed by a six week fall in public approval. There was then a 12 week interval before the pattern would repeat itself.

A Frequency Based Universe

The presence of fixed recurring periods of rise and fall in natural systems and other man-made systems shows that their presence in the markets is neither unexpected nor unique. The reason why a wide range of systems should display this characteristic is not yet fully understood. However there is growing scientific consensus that the universe at a basic level is composed of various frequencies of energy.

Light, sound and electricity are well known oscillating systems. At the sub-atomic level matter 'dissolves' to be replaced with oscillations of energy – the frequency of the pulse giving rise to the particular characteristics of the atom².

¹

http://www.rasmussenreports.com/public_content/politics/obama_administration/obama_approval_index_history

² <https://www.physics.uci.edu/~wilsonho/N062598.htm>

The presence of fixed recurring patterns in natural and human systems indicates that these systems are themselves oscillating at a stable frequency. It is the frequency that gives rise to the interval between the rise and fall and their duration. The fact that a system operates at a specific frequency suggests that this frequency, like that of atoms, is stable enough to be used as an identifier for the system. That is to say, the frequency at which prices rise and fall in, say, natural gas will not change. It is the signature of the system irrespective of prevailing market conditions.

Summary

Fundamental analysis looks for correlations between price and other external factors. However markets also display fixed recurring periods of rising and falling prices that cannot be explained by the fundamental approach.

The presence of fixed recurring patterns in the markets is shared by other natural and man-made systems. The recurring nature of the pattern and the set interval at which they occur is the result of these systems oscillating at a set frequency. As such they appear to be examples of the broader scientific perspective that suggests at a base level the universe is composed of energy in periodic motion.

More Information

Branton Kenton-Dau
Principal Kenton-Dau LLC
branton@kenton-dau.com

+64 221 019 057