

Discussion on
"Commodity Price Super-Cycle: What Lies
Ahead?"
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Informative Talk

- key data patterns (price increase, volatility, ... index traders, price correlation with net money managers' positions)
- debates in recent literature re: the effects of financialization:
⇒ volatility and asset co-movements?
- Commodity price super cycle (SC) and predictions ahead

Effect of Financialization

- Q1: Do speculative activities move prices away from fundamentals? e.g.
- "no", versus. e.g. Singleton (2011), which found some effect, based on heterogeneous info model with herding
- Insight on data issues (& other critiques)
- Do they make previous positive results go away?

Effect of Financialization

- Q2: Does financialization induce asset comovements (with equity markets)?
- "no", prefer "common responses to global business conditions"
- but they are not mutually exclusive (could even be the same)
- many other possible alternatives (ZLB, policy, news shocks...etc.)
- need to compare/decompose further

Now, Super Cycle

- Ref: {Cuddington, Jerrett, Zellou} (2008, 2012, 2015)
- “An extended period during which prices differ significantly and persistently from their long-run trend.”
- Heap (2005) and Cuddington and Jerrett (2008) define it as a cycle lasting 20 to 70 years
- capturing structural transformation caused by **industrialization and urbanization**
- e.g. increased demand for energy and metals commodities as the manufacturing sector expands.
- (But current cycle related to low supply elasticity?)

Computing SC

- need to avoid spurious periodicity, endpoint problems
- use asymmetric Christiano and Fitzgerald (1999) band pass filter
 - optimal finite-sample approximations for the ideal band pass filter
 - trade-off: asymmetric (flexible #) of leads and lags *versus* phase shifting
- Q: trade-off is case dependent: ok for business cycle, but how about SC?
- (Alternative decomposition, e.g. Wavelets? depends on structure model behind SC)
- Easy to implement (Aug. 2016 blog)¹

¹blue pages below from Cuddington et al (2015)



Tuesday, August 9, 2016

An Application of Data Filtering Extracting Super Cycles in Commodity Prices

Authors and guest post by [Daniel L. Jerrett, Ph.D](#) and [Abdel M. Zellou, Ph.D.](#)

EViews offers numerous techniques to filter time series including the [Hodrick Prescott filter](#) as well as various [band-pass filters](#).

This article will describe an application of one of these filtering techniques, namely the asymmetric Christiano Fitzgerald band pass filter, and its applications to real oil prices in order to extract the various cycle and trend components.

Super Cycles and Christiano Fitzgerald Band Pass Filter

There is a long standing interest in commodity price dynamics, i.e. their trend, cycle and volatility (Cuddington et al. 2007, Cashin and McDermott 2002).

Methodology (cont.)

- Non-Trend Component (cycles with periods from 2 - 70 years) can be decomposed into several mutually exclusive and completely exhaustive components.
- Our interest here, is in the Super Cycle component (& Trend):
 - Business cycles (2 - 8 years)
 - Intermediate cycles (8 - 20 years)
 - Super cycles (20 - 70 years) <<<<
- $LP_BP(2,70) = LP_BP(2,8) + LP_BP(8,20) + LP_BP(20,70)$



Results

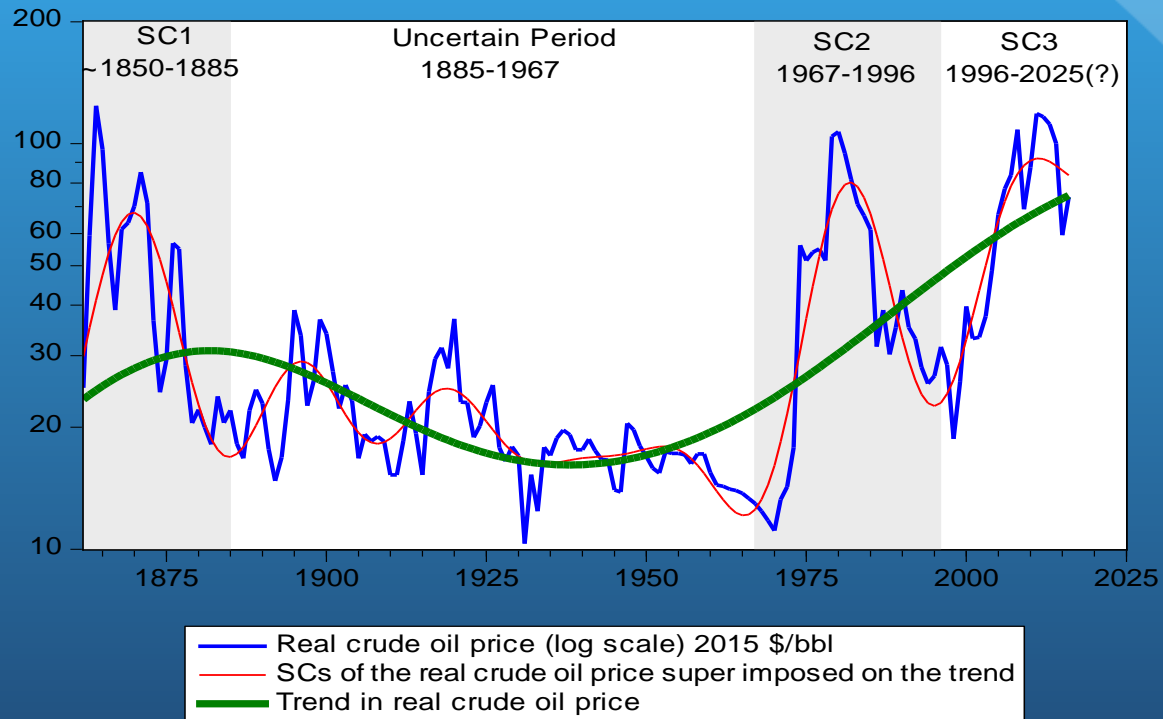
- echo findings in Cuddington, Jerrett, and Zellou (2015) which show forward projections
- with addition of agricultural products

Abstract (cont.)

- What phase of the super cycle are we currently in?
- Crude oil price - super cycle trough in 1996, peak in 2010
- Natural gas price - Super cycle trough in 1994; peak in 2006, heading to trough (in 2017, perhaps)
- Coal price - Super cycle expansion began in 1999, still moving upward toward peak



Real Crude Oil Price: Updated thru 2017 with Forecasts



The Super Cycle component for crude oil peaked in 2010



"What Lies Ahead"?

- CJZ's approach: statistical projections, assume SC3 has same duration as SC2
- Buyuksahin: discuss various global supply and demand outlooks

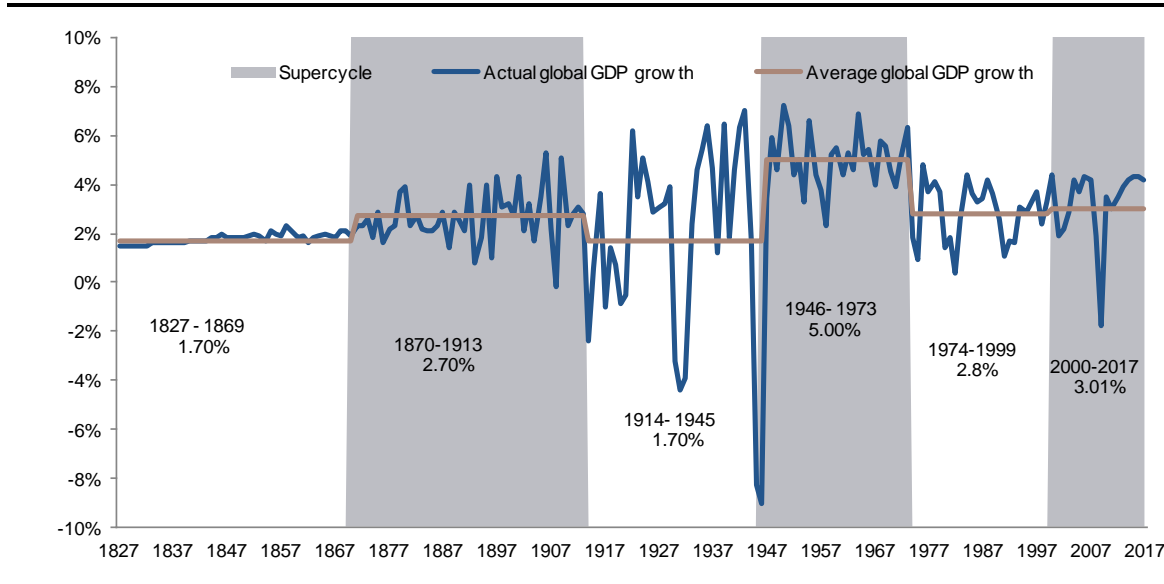
- Concern: how do we distinguish supply and demand outlooks at BUSINESS cycle vs. SUPER cycle frequencies?
- (and why 20-70 yr cycle over other periodicity, e.g. corn-hog cycle, especially for predictions?)
- From Dougherty (2015), another talk at BoC's Workshop on Commodity Super Cycles

SUPERCYCLES HAVE A HISTORY OF BEING JUST THAT...CYCLES

Supercycles are periods of high growth lasting decades driven by massive urbanisation rates, increases in population, technological innovation, increased trade and high rates of investment. High urbanisation and growth in middle classes in developing regions have a particularly big impact on demand for commodities.

When a supercycle has previously ended it was because of a disastrous shock, not a gradual slowdown in the global economy.

The history of commodity super-cycles



Source: SG Cross Asset Research

- First supercycle started in 1870 and ended at the start of WWI. The US was the significant beneficiary, becoming the world's largest economy in this time period (technologies associated with the Industrial Evolution were the main driver)
- 1946 to 1973 was the second supercycle. Function of post-war reconstruction, the baby boom, and the emergence of large middle class in Asia. The 1973 oil crisis choked off this cycle – a rapid spike in oil price being enough to seriously depress growth.
- Third commodity supercycle began rise in 2000 as the impact of suspensions and cancellations of projects started to manifest as demand re-accelerated; prices began to rise. 2008 Financial Crisis triggered a significant pause, but the demographic forces were too strong to allow the financial crisis to halt the commodity supercycle. With so many shifts in commodity prices happening, where is the supercycle now?

Predicting SC

- e.g. Urbanization trend in India probably fits
- But what do 4-5 year global supply or demand growth projections say about 20-70 year cycles?

- Need clearer empirical determinants for SC
- e.g. extract low-frequency (SC) components of global demand and supply (GDP and oil output)?
- Otherwise, difficult to interpret “cycles within cycles” when all potentially respond to the same indicators