

Energy-Price Volatility and Data Availability

The Financial Risk Management Angle

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- Need Harmonization of Physical Market Data
- Other Needed Physical Market Data
- Needed Financial Market Data

Production Data Ease of Access (Lack Thereof) via Website

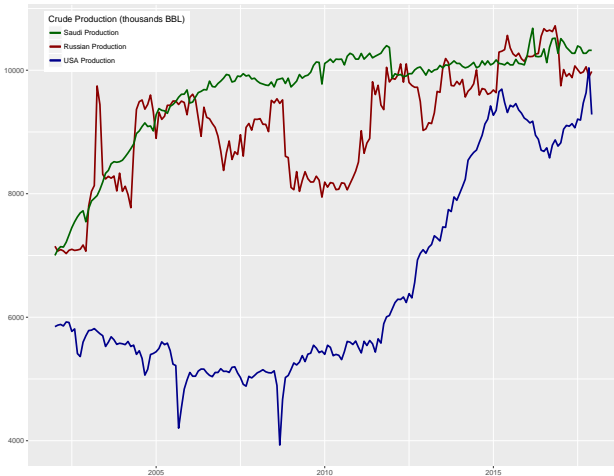
- jodidata.org website allows:
 - Simple interactive plots online, not useful for data analysis
 - Download .csv file – unreadably large
 - Download .ivt file – requires B20/20 browser (Windows only)
 - Use B20/20 browser in Web Data Server, download piecemeal!

The screenshot shows a web browser window displaying a data table from jodidata.org. The table has columns for 'Country', 'Year' (from 2002 to 2009), and several production-related metrics. A tooltip is overlaid on the table, stating: '2574 cells have been selected, which exceeds the upper limit of 7500. Please select fewer cells and try again.' The table content includes rows for various countries like Albania, Algeria, Angola, Argentina, Armenia, Australia, Austria, Azerbaijan, Bahrain, Bangladesh, Barbados, Belarus, Belgium, Benin, Bolivia, Botswana, Brazil, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cuba, Cyprus, Czech Republic, Denmark, and Dominican Republic.

- Using other-API servers? Some good and bad news

Positive: Jodi Data Easy To Import Directly via API Queries

```
saudiprod=Quandl("JODI/OIL_CRPRKD_SAU",type="xts",start_date="2002-01-01",end_date="2018-02-28")  
russiaproduct=Quandl("JODI/OIL_CRPRKD_RUS",type="xts",start_date="2002-01-01",end_date="2018-02-28")  
usprod=Quandl("JODI/OIL_CRPRKD_USA",type="xts",start_date="2002-01-01",end_date="2018-02-28")
```

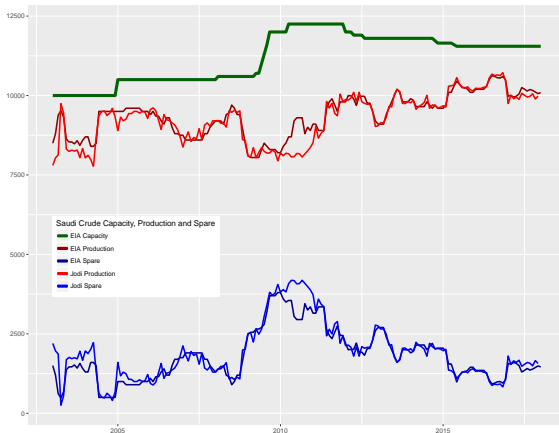


Negative: Production Data Do Not Match with EIA Data

Also, Capacity Data Is Not Available From Jodi

```
saudieiacapacity=Quandl("EIA/STEO_COPC_SA_M",type="xts",start_date="2003-01-01", end_date="2018-02-28")
saudieiaprod=Quandl("EIA/STEO_COPR_SA_M",type="xts",start_date="2003-01-01", end_date="2018-02-28")
saudieiaspare=Quandl("EIA/STEO_COPS_SA_M",type="xts",start_date="2003-01-01", end_date="2018-02-28")
saudijodiprod=Quandl("JODI/OIL_CRPRKD_SAU",type="xts",start_date="2003-01-01", end_date="2018-02-28")
```

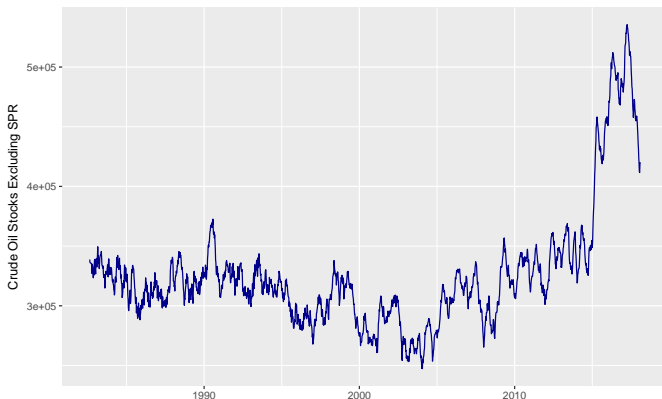
```
saudidata=merge(saudieiacapacity*1000,saudieiaprod*1000,saudieiaspare*1000,saudijodiprod$Value)
saudijodispare=saudidata[,1]-saudidata[,4]
saudidata=cbind(saudidata,saudijodispare)
names(saudidata)<-c("EIAcapacity","EIAproduction","EIASpare","Jodiprod","Jodispare")
```



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Other Needed Data

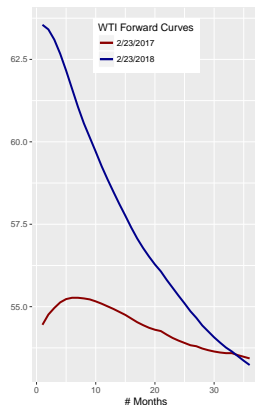
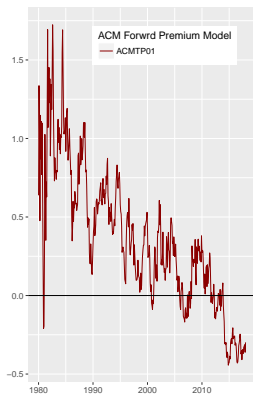
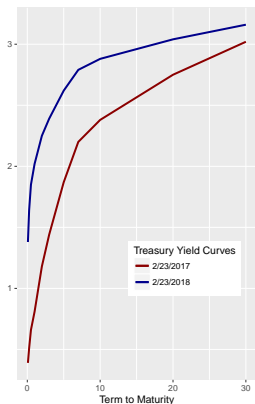
- U.S. inventory data is available weekly, need it for other countries
- Shale blurs line between capacity and inventory . . . need both!



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Crude Futures As One of Many Overpriced Financial Assets

- Much of the volatility in energy prices is driven by financial markets
- Low yields, negative term premium \Rightarrow overvaluation in all asset markets \Rightarrow contributes to steeply backwarddated WTI forward curve



How Much of The Backwardation Is Financial? What Next?

- Historical data from CFTC must be imported from four different Excel spreadsheets! (<http://www.cftc.gov/MarketReports/CommitmentsOfTraders/index.htm>)
- (For MM & SD) “The computed amount of spreading is calculated as the amount of *offsetting futures in different calendar months* or offsetting futures and options in the same or different calendar months.”

