Macro Financial Modeling: A Private Sector Perspective on Research Challenges

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Two Market-Based Case Studies

Interest Rates:
Why has unconventional monetary policy failed to create inflation?
Does market liquidity matter for growth?

Energy:
What are the challenges when the dynamics of supply and demand are being driven by ever-changing technologies?
Weather matters, too.
Rates:

Why has unconventional Monetary Policy failed to create inflation

and

Does market liquidity matter for economic growth?
Composition of Federal Reserve Assets

- Long-Term Treasuries
- Short & Medium Term Mortgages-Backed Securities
- Other

Source: Federal Reserve Bank of St. Louis FRED Database
Source: European Central Bank Monthly Bulletins, obtained through the Bloomberg Professional.
Inflation Trends (Smoothed): US, Germany, and Japan

Source: Bloomberg Professional (GRCP2000, JCPNGEN, CPI INDX)
Since 1994, Core PCE Inflation has been between 1.0% and 2.4%, averaging 1.7%.

Source: Federal Reserve Bank of St. Louis FRED Database (PCE, PCE-LFE).
Estimates for Q2/16 - Q4/17 by CME Economics.
10-Year Government Bond Yields

Source: Bloomberg Professional (GJGB10, USGG10YR, 10-Year Government Bond Yields)
Different Interpretations of Negative Rates

The more negative the nominal rates, the more the stimulus -- Linear Thinking

Negative Rates are a tax, discourage economic activity, and may be interpreted as a tighter policy -- Non-Linear Thinking

Source: CME Group, Strategic Intelligence & Analytics
Japanese Yen (vs USD) and the Bank of Japan's Negative Interest Rate Policy

Lower values indicate the yen is appreciating versus the US dollar.

The BoJ's negative rate surprise hit the yen for only 24 hours, then the yen strengthened.

Source: Reuters (Japanese yen per USD spot FX).
The ECB's expansion of negative rates resulted in a stronger Euro vs USD. Higher values indicate the Euro is appreciating versus the US dollar.

Source: Reuters (USD per Euro Spot FX).


Energy:

What are the challenges when the dynamics of supply and demand are being driven by ever-changing technologies and weather?
Oil, Copper, Iron Ore: Finding Trading Ranges in H1/16; Fears of Ever Lower Prices Dissipating?

Source: Bloomberg Professional (CL, HG, IO, Most Active Contract Prices)
WTI and Brent Crude Oil Prices

Source: Bloomberg Professional (CLA, COA)
Brent minus WTI Spot Price Spread

Source: Bloomberg Professional
(Brent = EUCRBRDT, WTI = USCRWTIC)
BTUs per US$1 by US Energy Source

Source: Bloomberg Professional for prices (CL1, NG1), CME Economics Research for BTU conversion.
Crude Oil vs Equities Rolling 90-Day Correlation

Source: Bloomberg Professional.
WTI Crude Oil Futures Maturity Curves

Source: Bloomberg Professional (CL <Comdty>)

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There was no El Niño back in February 2015
El Niño built quickly and peaked in Q3 2015
El Niño started to fade – March 2016
Sings La Niña might be forming -- April 2016
La Niña appears to be forming -- June 2016
Natural Gas Storage: Year on Year Change

Source: Bloomberg Professional (DOENUST1) with CME Group Economic Research Calculations
Natural Gas: 1st Nearby Contract Price

Source: Bloomberg Professional (NG1)
Observations from the Practitioner Perspective

Forecasting or Hypothesis Testing:
Practitioners cannot mix past with future data

Pattern Instability:
Dynamic, time-varying probabilistic tools required
When long-term evolution intersects short-run dynamics -- demographics

Big Data, Small Data, Limited Data:
Appropriate statistical tools for data frequency

Robust theoretical foundation:
Assumptions matter
Institutions and regulations matter
Judgment with quantitative discipline (JQD)
Citations Related to Dynamic Portfolio Risk Assessment & Portfolio Construction


