Monetary policy announcements effects on commodity prices in high-frequency data

Comments

Simon Price [1] [2]

[1]Bank of England

[2]City University

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The small print

The opinions expressed in this discussion are mine alone and not necessarily those of the Bank of England or members of the Monetary Policy Committee

Excuses, excuses

For reasons I won't go into, I originally prepared remarks for a paper on a related topic:

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Luckily, this wasn't a complete waste of time

Commodity prices and interest rates

- Commodity prices are to varying degrees an asset - now widely traded
- Maybe more so for minerals than agricultural products - in former case not only inventories but also (eg) the oil under the ground, although agricultural inventories larger, and there are stocks (eg livestock, forests)
- Not complicated to see that lower rates raise incentives to hold inventories and keep (eg) oil under the ground
- Would expect to see movements reflected in inventories - but not a source of available information for event studies

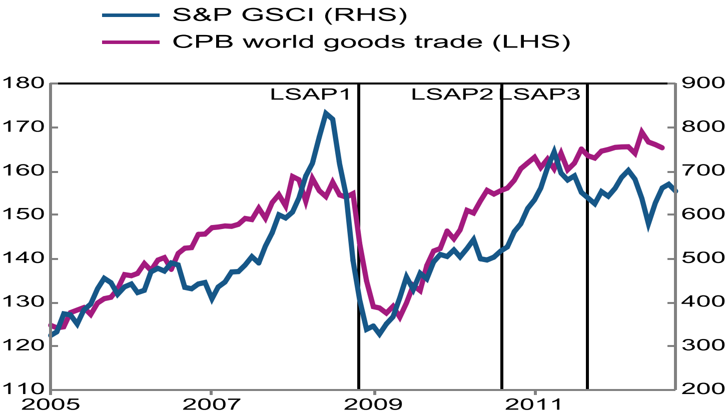
Frankel

- Aside from obvious routes, Frankel (1986, 2010) emphasises an overshooting mechanism - short-run dynamics
- Frankel and Rose (2010) found no evidence loose monetary policy was a major driver in the recent boom

Channels

- Logically, two parts
  1. Did LSAPs lower rates (answer: probably yes)?
  2. Did lower rates raise commodity prices?
- Not obvious an event study best way to answer questions if impact slow burn
- But worth looking at - commodity prices may be informative as they are forward looking and can jump
- In the new paper use futures to infer persistence - not clear that futures answer that question precisely

S&P GSCI and world trade



Demand seems to do a lot in the long frequencies
Of course interest rates part of that process

A short detour

- I want to look at some of our analysis on impact of QE
- Shows
  - dynamics variable
  - yes, surprises are what count
  - but with risky assets the story is complicated

How we think about QE

- Because of imperfections eg preferred habitats, there are portfolio effects
- Gilt purchases impact first in gilts market
- Reduces yields in other markets
- (Then creates wealth and substitution effects that eventually impact on spending, which is the ultimate point)

Channels

1. Signalling - changing market expectations of SR rates
2. Scarcity channel - removing assets private sector want to hold
3. Duration channel – removal of aggregate duration leads to lower required compensation for risk

Recent evidence from disaggregated gilts

- Daines et al (2012) on impact BOE first round purchases
- Market reactions to announcements took time to be fully priced in
- Varied across the term structure
- Overall fall in gilt yields around 100 bp
- Local supply effects (yields on gilts being purchased by the Bank fell by more)
- Duration effects (larger yield falls for bonds with longer maturities)
- Panel regressions using auctions data - yields fell after the actual purchases, particularly during the early stages of the programme

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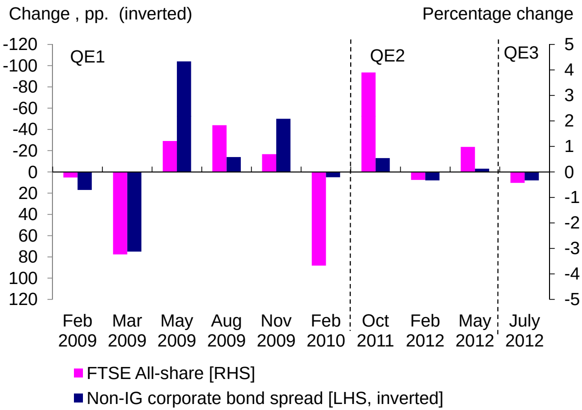
- **So; has expected effects - but a complicated story**

Risky assets

- Commodities are riskier than gilts
- We expect some spillover into risky assets
- In this imperfect markets world that might take time
- Risk premia determined by many factors
- So more likely that prices within the event windows will be distorted and impact at announcements could be ambiguous
- Reaction of equities and high yield corporate bond spreads have mixed effects, consistent with this
- So I guess we'd expect a still more complex story for commodities in short windows

Reaction of risky yields to QE announcements - mixed impact



Negative impact from (surprise) March 2009 announcement

Kozicki et al 2012

- Another event study with differing methodology - looking at abnormal returns
- Jan 2008 to 2011 17 futures commodities
- Didn't use monetary surprises, but did interact with a GARCH derived macro surprise variable
- Conclude US LSAPs had no impact
- Other interesting results - impact on commodity currencies and stock indices

So you know, what that earlier paper did

- Looked at affect of US and UK LSAP announcements on bilateral exchange rates, international TB10 rates and a bunch of commodity price indices
- Used daily data
- Rightly emphasised surprises

Big question from the earlier paper

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- Did the LSAPs raise commodity prices?
- Big answer : no - in fact, rather the opposite - signalling effect?
- (So new results conflict with this)

Bottom lines from the current paper

- Surprise FSS easing has an effect - tightening less so in some cases
- Effects largely transitory
- QE surprises have smaller (or zero) effects than monetary surprises
- But where they exist they are positive, contra previous work

What the earlier paper said

- Have to take account of anticipations after first round, but announcements led to lower LR rates and bilateral depreciations for countries and areas: true for US and UK (latter ex rate effect smaller and less well determined)
- That was already fairly well established - eg, work by Christopher Neely and others
- Commodity prices **fell** despite stimulation - pretty well determined
- So they concluded channel via signalling effect
- +ve surprises lead to commodity price declines that were often significant
- -ve shocks less well determined

Results for US LSAP from earlier paper

- Significant negative impact overall - interpreted as a negative growth signal
- Livestock and agriculturals insignificant
- Energy large and significant
- Metals negative but insignificant
- Precious metals significant - odd, if a hedge?
- Negative shocks uniformly insignificant
- All in all, a mixed picture, as you might expect

Results for UK LSAP from earlier paper

- Less well determined but not smaller - odd? Is BOE perceived as having better information than Board?
- Precious metal impact large, +ve and well determined, in both respects unlike US
- Negative shocks mixed, small and insignificant - but few in number and small

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- For another paper - could take impact of LSAP on long rates as given with estimated impact from other studies - estimate a structural VAR including long rates and infer from that what impact was

What's new here

- Just for US but looks at interest rate surprises as well so can distinguish between LSAP and standard effects
- High frequency data
- Looks at futures
- Exploits high frequency of data to measure surprises directly - changes in FFR or futures long-term assets within 30 minute window
- That sort of means we are getting directly at interest rate effects in LSAP
- Measures scaled for comparison

Scaling

- Calculate long surprises following FFR announcements
- Regress first PC on FFR surprise
- Has to be reduced form estimate of course but hard to think of an identification scheme that could make a better mapping
- Must be doubts about comparability, but nice attempt

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- From Table 2 at the +1day point QE highly sig for Gold, Silver and Wheat - contra the first paper
- In the split FFR case in Table 5 effect of looser policy is better determined although in some cases strong evidence for tightening too
- In split QE case (Table 6) +ve and -ve surprises differ but **stronger** evidence than for pooled impact for effects at +1day, especially for Gold, Silver and Wheat (oddly)

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- In split QE case (Table 6) +ve and -ve surprises differ but **stronger** evidence than for pooled impact for effects at +1day, especially for Gold, Silver and Wheat (oddly)
- Would be interesting to see distribution of surprises
- Figure 1 suggests QE effects smaller than for FFR announcements - but we are only capturing effects at announcement time

Conclusions

- Nice, careful papers
- Answer from first seemed clear - no positive impact effect from LASPs on commodity prices - in fact, leant towards negative impact
- Answers from second, conventional tightening has an impact of the expected sign, loosening less so
- Also from second, LSAPS also have a smaller and less significant effect but the same sign
- But maybe announcement effects aren't where we expect to see the action in this new world of preferred habitats and so on: effects may take time to wind through

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- But maybe announcement effects aren't where we expect to see the action in this new world of preferred habitats and so on: effects may take time to wind through
- What I'd really like is a structural model but that is another paper

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