Discussion of “On the International Spillovers of U.S. Quantitative Easing”

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Distinct Contribution to Large Literature on an Important Topic

- One of few papers examining spillovers to **<u>EMEs</u>**

- First to look at effects of unconventional monetary policy on portfolio **<u>flows</u>**

    - rest of literature focuses on asset prices

- Even handedness, almost a guilelessness, to the results and conclusions

- Hard to argue with general implications

Policies (since 2007)	Effects: US	Effects: AEs	Effects: EMEs
US	QE1: Lowered long term yields and supported equity prices. Dollar appreciated. Capital inflows into US equity and bond funds (out of EMEs). QE2: Ineffective in lowering yields worldwide. Dollar depreciated. Capital outflows (into EME equities). Overall, US policy caused capital flows to act counter-cyclically. **(FLDS)**	QE1: Lowered long term yields and supported equity prices. QE2: "Portfolio rebalancing out of bond funds globally, primarily into EME equity markets." No lowering of sovereign yields. Overall, US policy has raised global asset prices and weakened the dollar. Capital flows in other AE's also acted counter-cyclically. **(FLDS)**	QE1: Capital outflows (into US equity and bond funds). QE2: Capital inflows (out of US) into EME equities. US policy magnified EME capital flow variability and pro-cyclicality overall during this period. **(FLDS)** US policy shocks that lower US yields also lower EME yields, sometimes to a larger degree. **(BLS)**
AEs	BOE policies spill over to US(dollar appreciates, long term interest rate increase), but to a lesser degree than the other way around. BOJ and ECB have no significant effect on US. **(RCW)**	<u>Expansive monetary policy:</u> Lowers long term yields: US, UK, Japan Stock prices up: US and Euro Currency depreciates: US, UK, Japan Currency appreciates: Euro Asset purchase programs, in general, create a greater positive effect than other monetary policy actions. **(RCW)**	EMEs are effected through global trade, global liquidity, and global portfolio rebalancing. Spillovers from AE policy cause higher volatility in currency and financial markets. Due to lower importance of financial markets in EMEs, effect on real economy is smaller. **(Fic)**
EMEs			Better policy can protect them from unwanted spillover from AEs. Limiting exchange rate flexibility or imposing controls on capital account openness are not necessarily the actions to take. **(FLDS)** Countries with high interest rates, CDS spreads, inflation, current account deficits are more affected by changes in US policy. **(BLS)**

Primary Concern

- Doubts about basic regression specification (equation (1)).

$$Y_{i,t} = E_{i,t-1}[y_{i,t}] + (\beta + \Upsilon^{EME} D_i^{EME} + \Upsilon^{AE} D_i^{AE}) MP_t + \varepsilon_{i,t}$$

Y_t = net inflows into bonds or equities; or equity price returns; or change in long bond yields; or change in exchange rate

$MP_t = [AN1_t, AN2_t, LQ_t, TR_t, MBS_t]$

AN1 (AN2) = announcement related to QE1 (QE2)

Actual Interventions:

LQ = liquidity support measures for financial institutions

TR = purchases of long-term Treasury bonds

MBS = purchases of mortgage-backed securities and GSE agency debt

• What's the problem?

(1) Announcements

- many are partly anticipated
  - Less a problem for QE1 which came as a big surprise
  - Biasing the asset price effects of QE2 downwards and could even flip the sign
- announcement dummy is a 0-1 variable
  - Doesn't distinguish between big and small announcements

(2) Actual interventions

- Are essentially fully anticipated

- The operations that the Fed does are locked in place at the start of the month. For example, the plan for purchases for March was released at the end of February:

http://www.newyorkfed.org/markets/tot_operation_schedule.html

- Is not obvious what "unexpected" operations means.

The Desk plans to purchase approximately $**34** billion in Treasury securities over the month of March. This amount is approximately $1 billion less than the stated pace of $35 billion per month, given that purchases conducted in February exceeded the target by approximately $1 billion.

PURCHASE OPERATIONS				
OPERATION DATE[1]	SETTLEMENT DATE	OPERATION TYPE	MATURITY RANGE	EXPECTED PURCHASE SIZE
Mon, Mar 3, 2014	Tue, Mar 4, 2014	Outright Treasury Coupon Purchases	05/15/2021 - 02/15/2024	$2.25 - $2.75 billion
Tue, Mar 4, 2014	Wed, Mar 5, 2014	Outright Treasury Coupon Purchases	02/15/2036 - 02/15/2044	$1.00 - $1.25 billion
Wed, Mar 5, 2014	Thu, Mar 6, 2014	Outright Treasury Coupon Purchases	12/31/2019 - 02/28/2021	$2.25 - $2.75 billion
Thu, Mar 6, 2014	Fri, Mar 7, 2014	Outright Treasury Coupon Purchases	02/15/2036 - 02/15/2044	$1.00 - $1.25 billion
Mon, Mar 10, 2014	Tue, Mar 11, 2014	Outright Treasury Coupon Purchases	05/15/2021 - 02/15/2024	$2.25 - $2.75 billion
Tue, Mar 11, 2014	Wed, Mar 12, 2014	Outright Treasury Coupon Purchases	02/15/2036 - 02/15/2044	$1.00 - $1.25 billion
Wed, Mar 12, 2014	Thu, Mar 13, 2014	Outright TIPS Purchases	04/15/2018 - 02/15/2044	$0.75 - $1.00 billion
Thu, Mar 13, 2014	Fri, Mar 14, 2014	Outright Treasury Coupon Purchases	03/31/2018 - 11/30/2018	$3.25 - $4.00 billion
Fri, Mar 14, 2014	Mon, Mar 17, 2014	Outright Treasury Coupon Purchases	02/15/2036 - 02/15/2044	$1.00 - $1.25 billion
Mon, Mar 17, 2014	Tue, Mar 18, 2014	Outright Treasury Coupon Purchases	12/31/2019 - 02/28/2021	$2.25 - $2.75 billion
Tue, Mar 18, 2014	Wed, Mar 19, 2014	Outright Treasury Coupon Purchases	02/15/2036 - 02/15/2044	$1.00 - $1.25 billion

PURCHASE OPERATIONS				
OPERATION DATE[1]	SETTLEMENT DATE	OPERATION TYPE	MATURITY RANGE	EXPECTED PURCHASE SIZE
Thu, Mar 20, 2014	Fri, Mar 21, 2014	Outright Treasury Coupon Purchases	05/15/2021 - 02/15/2024	$2.25 - $2.75 billion
Fri, Mar 21, 2014	Mon, Mar 24, 2014	Outright Treasury Coupon Purchases	02/15/2036 - 02/15/2044	$1.00 - $1.25 billion
Mon, Mar 24, 2014	Tue, Mar 25, 2014	Outright Treasury Coupon Purchases	11/15/2024 - 02/15/2031	$0.50 - $0.75 billion
Tue, Mar 25, 2014	Wed, Mar 26, 2014	Outright Treasury Coupon Purchases	02/15/2036 - 02/15/2044	$1.00 - $1.25 billion
Wed, Mar 26, 2014	Thu, Mar 27, 2014	Outright Treasury Coupon Purchases	05/15/2021 - 02/15/2024	$2.25 - $2.75 billion
Thu, Mar 27, 2014	Fri, Mar 28, 2014	Outright Treasury Coupon Purchases	12/31/2018 - 11/30/2019	$3.75 - $4.50 billion
Fri, Mar 28, 2014	Mon, Mar 31, 2014	Outright Treasury Coupon Purchases	02/15/2036 - 02/15/2044	$1.00 - $1.25 billion

The next release of the tentative outright Treasury operation schedule will be at 3 p.m. on March 31, 2014. At that time the Desk will publish information on transaction prices for securities included in the operations listed above.

(3) Implications

- The estimated effects of interventions on asset prices have to be strongly downwardly biased because they only measure the price impact of the (already-anticipated) actual purchase, not of the earlier announcement.

- Same applies to the effects of monetary policy on flows.
    - Flows more sluggish than prices, so more of the effect should be at the time of the intervention than at the time of the announcement.
    - But the total effect on flows should come from (i) pre-announcement building up of expectations, (ii) the announcement, (iii) the time between the announcement and the intervention and (iv) the intervention itself. Authors are measuring just (ii) and (iv), and are doing so separately.

- In sum, worry that MP variable in (1) being incorrectly treated as a surprise, when it is not, and this introduces a bias that varies across MP measures and varies across time. There is some acknowledgment of this issue at the end of page 13/top of page 14, but not much.

Identifying MP Shocks in the New Millenium

- Kuttner (JME, 2001): difference between the central bank's announcement concerning the short-term interest rate and the ex-ante expectation of this announcement, measured from interest rate futures.

- Doh (2010), Gagnon et al. (2011), Meaning and Zhu (2011), Neely (2010), Krishnamurthy and Vissing-Jorgenson (2011), Joyce and Tong (2012) and Swanson (2011)

    - Identify announcements they argue are complete surprises, add up the jumps in asset prices in short windows bracketing these announcements.
    - Hinges on entire announcement being unexpected.

- Cahill et al. (2013) and Joyce et al. (2011)
    - Use survey expectations to estimate the surprise component of asset purchase announcements.
    - Surveys have limited data availability and are not necessarily perfect measures of investors' beliefs.

(cont'd)

- Gurkaynak, Sack, and Swanson (2005b), Wright (2012), Rogers, Scotti, and Wright (2014)
    - Measure MP surprises directly from asset prices
    - GSW: use near-term money market futures quotes to measure the effect of MP announcements on expectations of the path of policy during the period of conventional monetary policy
    - Wright (2012) and Rogers-Scotti-Wright (2014), respectively, extend this to using Treasury futures during the period of unconventional monetary policy for the U.S. and the U.S., U.K., Euro Area, and Japan

- Rogers, Scotti, Wright (2014)

- Estimate $\Delta y_t = \beta MPS_t + \varepsilon_t$

- y_t the financial asset prices
  - **<u>Intraday</u>** data on bond, stock and exchange rate futures, combined with daily data on corporate bond yields, the MOVE index (options-implied interest rate volatility) and euro-area sovereign yields.

- MPS is the monetary surprise: intraday changes in government bond yields right around the announcement
  - Measure how big the MP surprise was and then trace out its effects in other markets

  - For US, the first principal component of the change in yields for 2-, 5-, 10-, and 30-year Treasury futures; UK, the change in long gilt futures yields; Japan, the change in 10-year JGB futures yields.

  - ECB, intraday changes in cash-market spreads between yields on Italian ten-year government bonds and their German counterparts.

  - Intraday window is either from 15 minutes before to 15 minutes after (narrow window), or from 15 minutes before to 1 hour 45 minutes after (wide window)

(cont'd)

Rogers-Scotti-Wright (2014)

- Also address **persistence** of MP shocks
- Estimate VARs in daily data
- Consider Identification through heteroskedasticity
    - Relies only on volatility of MP shock being different on announcement days vs. non-announcement days
- Effects wear off slowly
    - Large uncertainty around these estimates

A Word on FLDS Treatment for Endogeneity

- $E_{i,t-1}[y_{i,t}]$
  - Add lagged variables to control for expectations of the LHS variable.
  - Returns/flows are nearly independent over time, so this (a) seems an odd way of controlling for expectations, and (b) hence isn't surprising that the lagged variables don't do much.