

# “Fifty Shares of QE: Comparing Findings of Central Bankers and Academics”,

by Fabo, Jancokova, Kempf and Pastor

Discussant: Annette Vissing-Jorgensen, University of California Berkeley

NBER EFG, February 26, 2021

**Question:** Do central bankers (CBs) and academics find different macro effects of QE. Why?

## **Findings:**

1. CBs find **larger effects** for both **output and inflation**
2. CBs find **more significant effects** for **output** (statistically, economically)
3. CBs use **more positive language** in the abstract (controlling for actual effects)
4. CBs who report more positive output effects are **more likely to be promoted**  
**Career concerns** most likely driver of results

Interesting paper. Important topic. Dramatic results

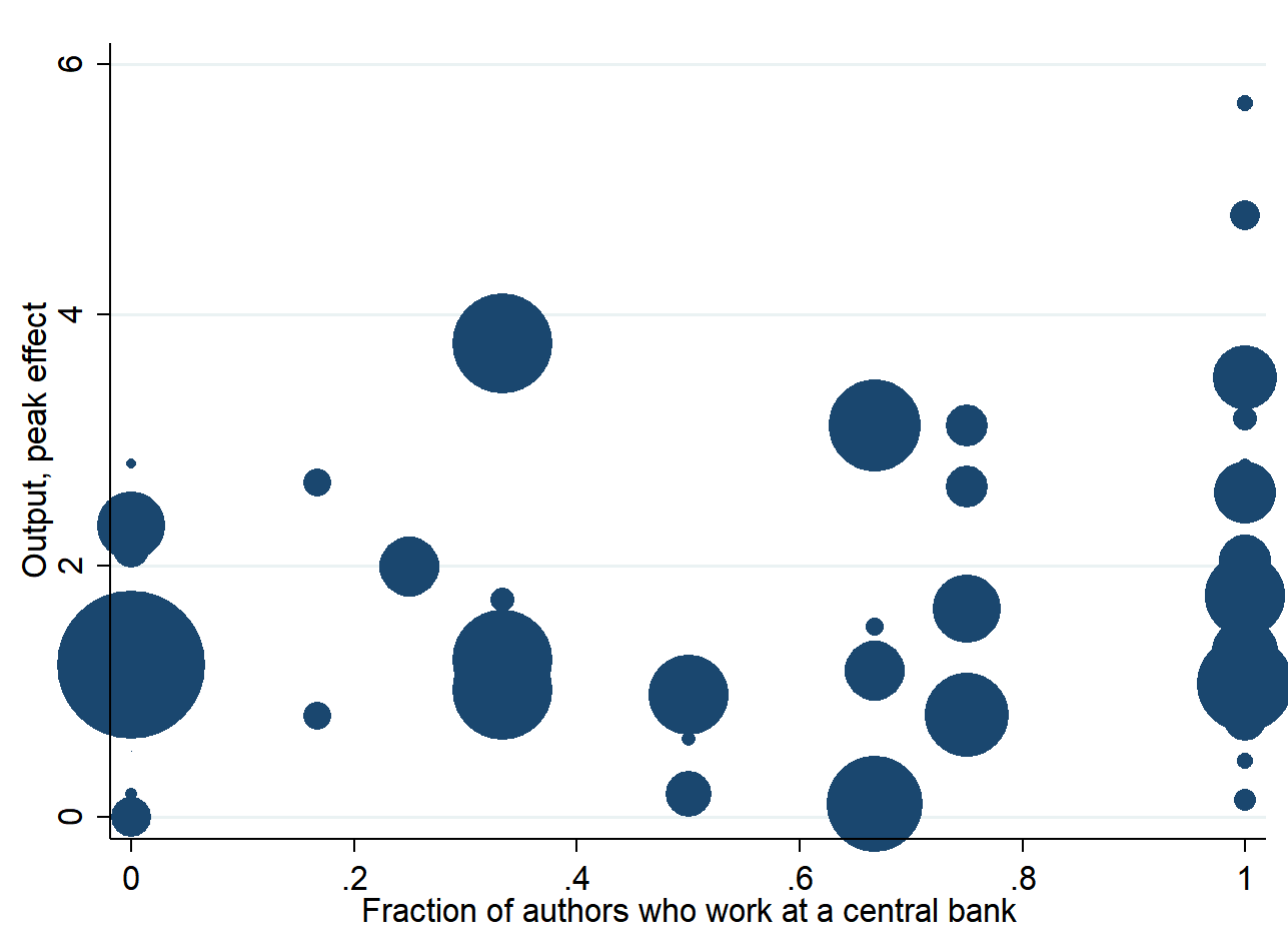
## Discussion:

- How solid are the facts?
  - Some sensitivity to a couple of data points and citation weighting
- Who looks bad?
  - Bank of England is central to the inflation result. We'll see if you think BoE's results look fishy
- Is the career explanation convincing?
  - Not yet (for example, regressions don't work for inflation)
- Implications
  - For monetary policy
  - For academia: What should we in academia do to improve the situation?

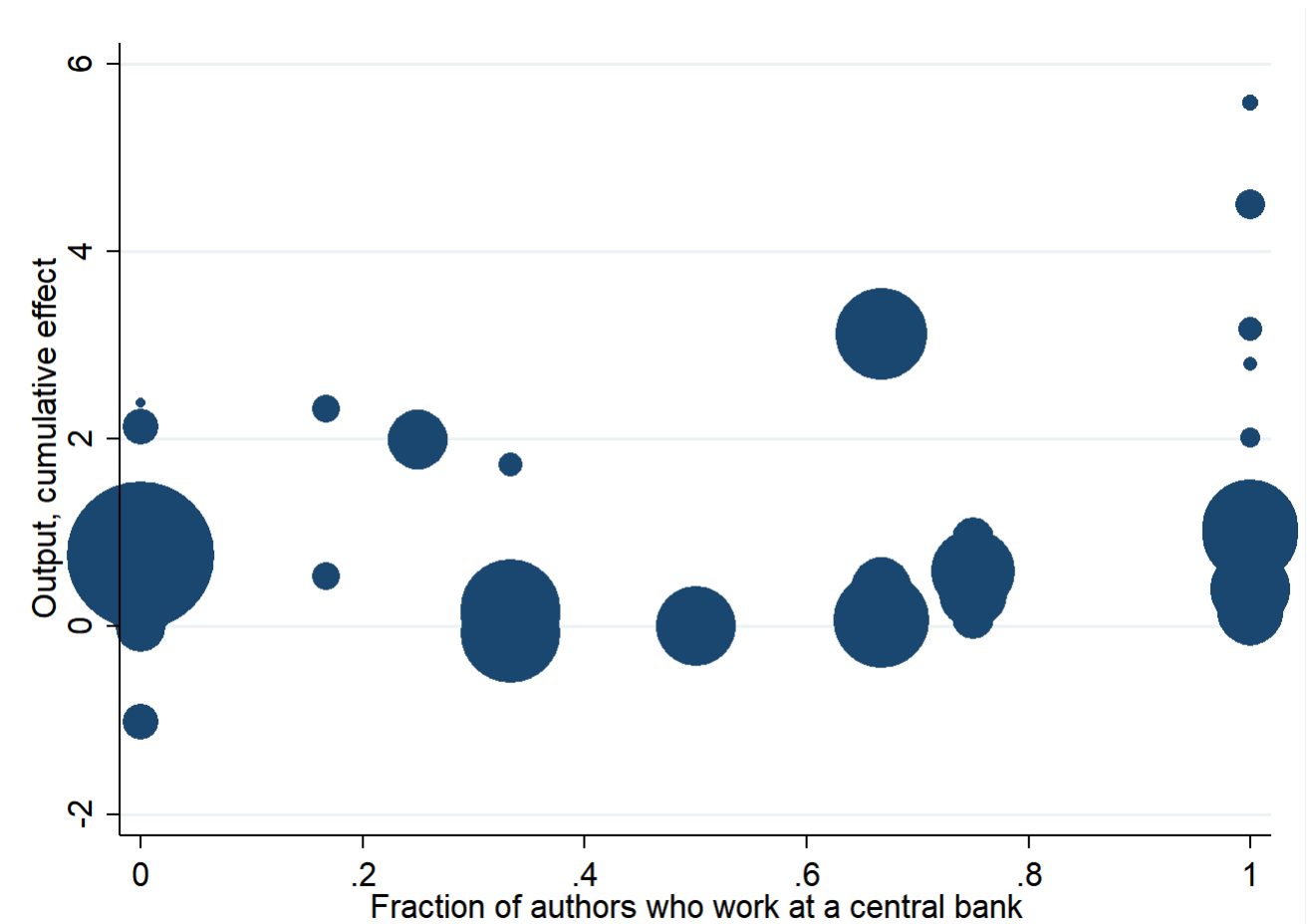
## Comment 1: How solid is the output result?

Output effects (dot size based on Google Scholar citations):

Peak effect



Cumulative effect



Are there high-impact academic papers that say the output effect is small?

- The large dot to the left is Wu and Xia (2016), 1336 google citations. But, [I think it is coded wrong here](#)

## Wu and Xia (2016), JMCB: Use a shadow rate methodology to assess unconv. monetary policy

The shadow rate: A measure of the stance of monetary policy that can be used even at the ZLB

- Essentially, you look at rates that are above zero and estimate what shorter rates would have been had they not been constrained
- The more expansionary forward guidance or QE, the lower the shadow rate

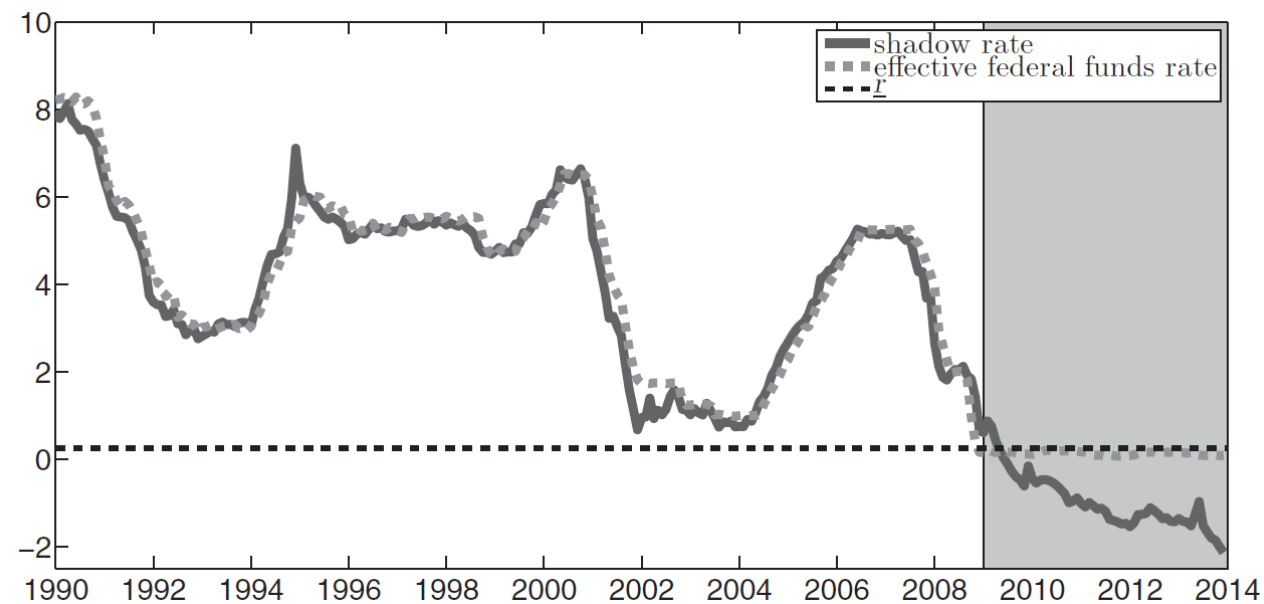


FIG. 4. The Shadow Rate and Effective Federal Funds Rate.

NOTES: Solid gray line: the estimated shadow rate of the SRTSM from January 1990 to December 2013 in percentage points. Light gray dashed line: the EFFF in percentage points. Black dashed line: lower bound  $\underline{r}$ . The gray area marks the ZLB period from January 2009 to December 2013.

- Shadow rate relates about the same way to macro variables as the target did before it hit the ZLB  
→ Can use the shadow rate as policy rate during the ZLB

- Wu and Xia then use a **factor-augmented VAR** (3 factor extracted from 97 macro series, plus the policy rate, ordered last) to estimate effects of monetary policy

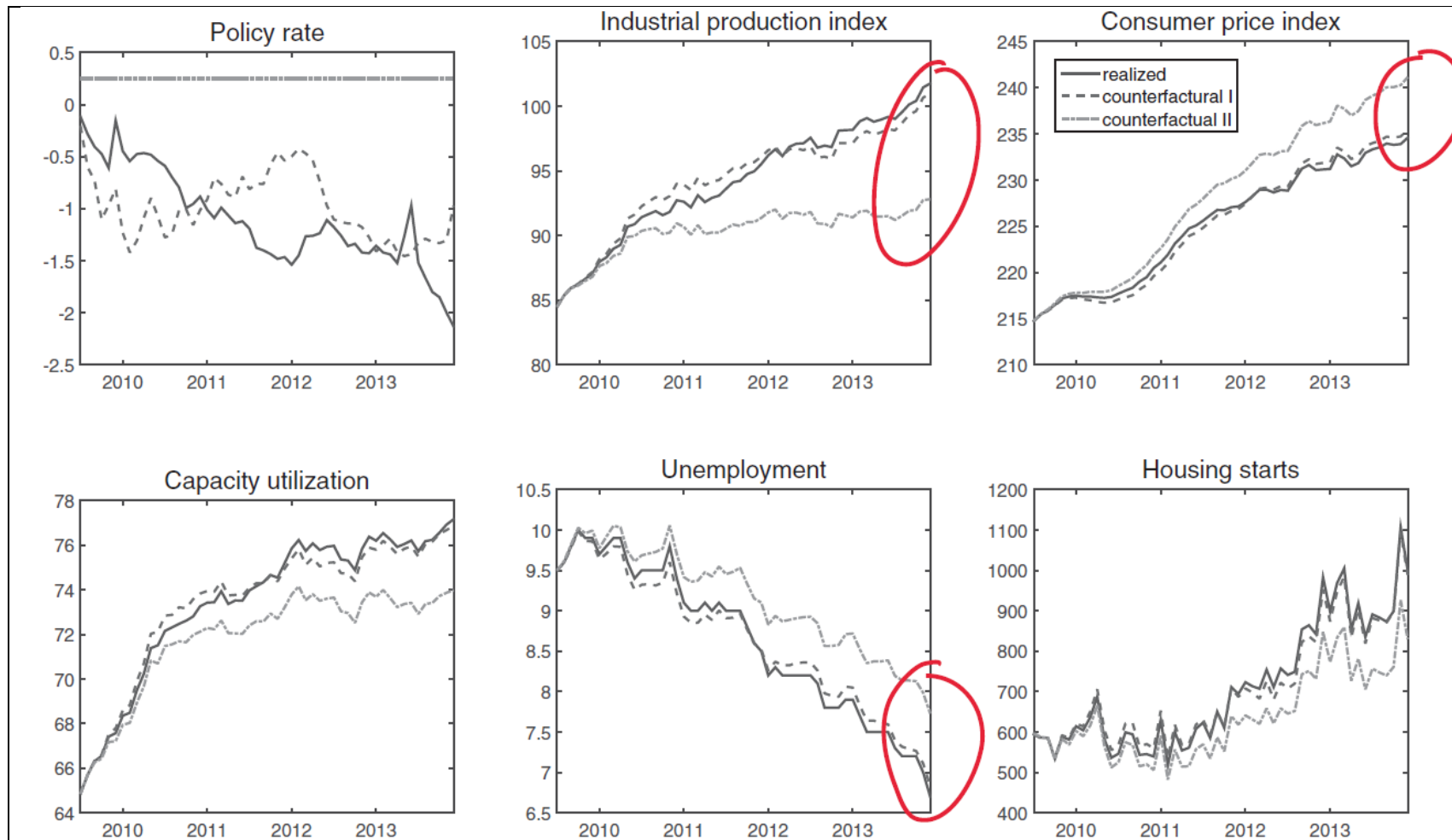


FIG. 6. Observed and Counterfactual Macroeconomic Variables.

NOTES: Gray solid lines: observed economic variables between July 2009 and December 2013. Dark gray dashed lines: what would have happened to these macroeconomic variables, if all the monetary policy shocks were shut down. Light gray dashed lines: what would have happened if the shadow rate was kept at  $r$ .

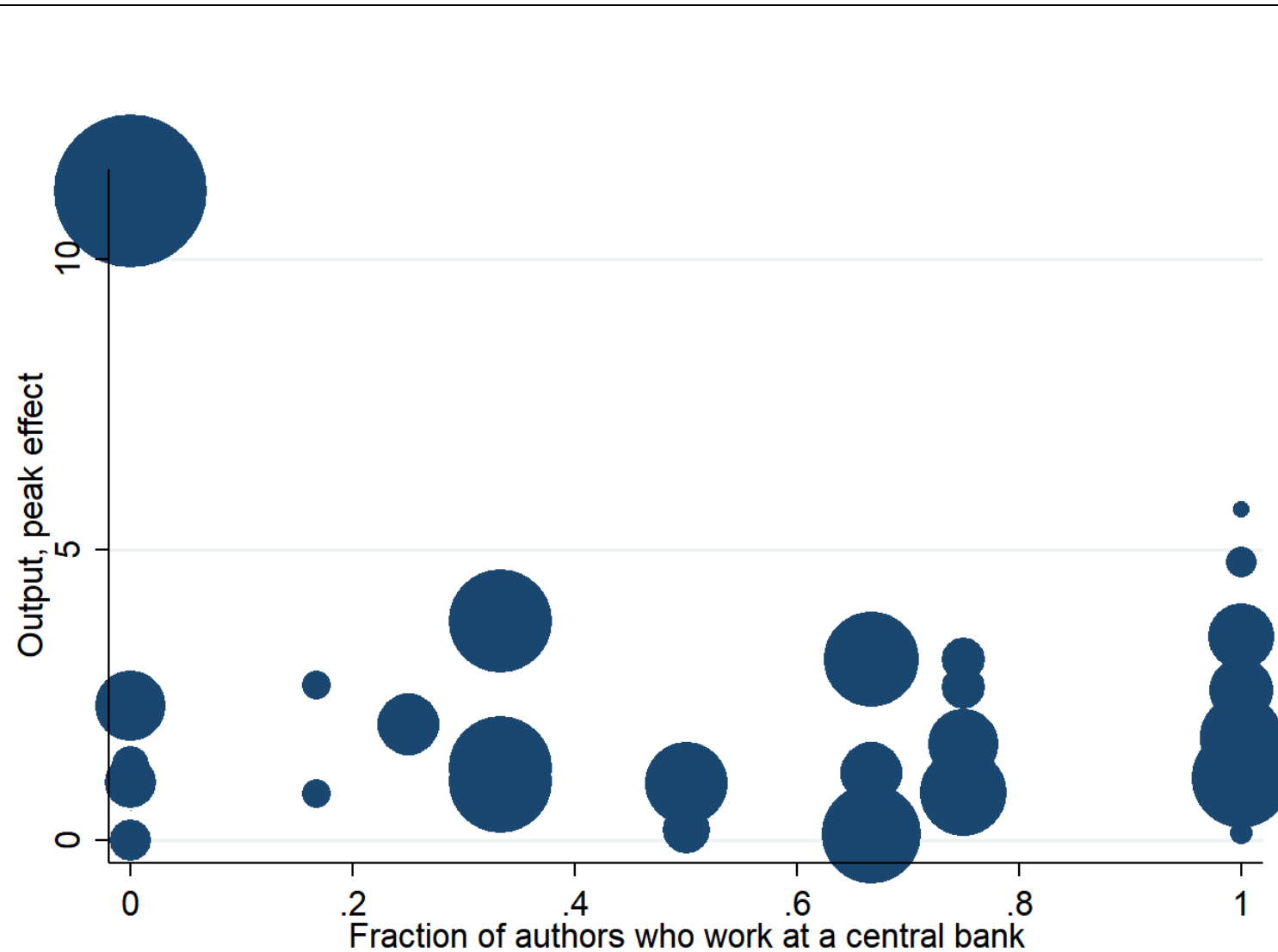
Current paper compares **black and dotted**:

- Effect of monetary **policy shocks relative to a Taylor rule that uses the spliced policy rate series**
- Tiny effects** on IP and CPI
- But that Taylor rule already accounts for unconventional policy by using the shadow rate

Should compare **black and grey**:

- Effect of **the shadow rate being very negative**, via unconv. policy, relative to it being  $\frac{1}{4}$  pp.
- Large effects** on IP and CPI

Redoing the output peak graph, moving up Wu and Xia (2016) based on my rough reading of their graph:



If anything, their output peak number looks too high.

Wu and Xia cites this comparison in their abstract, [for unemployment](#):

“Our estimates imply that **the efforts by the Federal Reserve to stimulate the economy since July 2009 succeeded in making the unemployment rate in December 2013 1% lower**, which is 0.13% more compared to the historical behavior of the Fed.”

i.e., 1% total, slightly more than if they could have used regular monetary policy but taken the rate very negative

## Output peak effect regression (not weighted): Sensitive to Wu and Xia.

	(1) Baseline	(2) Fix Wu & Xia
CB Affiliation	<b>0.788**</b> (2.15)	<b>0.203</b> (0.29)
Constant	<b>1.121***</b> (5.52)	<b>1.626***</b> (2.93)
Observations	58	58
R-squared	0.072	0.002

t statistics in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

- Of course, you can drop Wu and Xia (2016) and the baseline result will hold, but that's dropping the most cited paper in the sample





## Output peak effect, various weights, dropping Wu and Xia (2016) (worse if kept):

	(1) No weight	(2) Cites>=100	(3) weight 1	(4) weight 2	(5) weight 3	(6) weight 4
CB Affiliation	0.793** (2.11)	-0.0212 (-0.05)	0.0294 (0.07)	0.302 (0.67)	0.435 (1.26)	0.586 (1.58)
Constant	1.116*** (5.22)	1.672*** (4.81)	1.588*** (5.15)	1.512*** (5.99)	1.333*** (5.35)	1.280*** (5.70)
Observations	57	27	56	56	56	56
R-squared	0.070	0.000	0.000	0.009	0.022	0.038

t statistics in parentheses

\* p<0.10, \*\* p<0.05, \*\*\* p<0.01

Column 1, 2: No weights

Weight 1: Citations

Weight 2: Citations/Avg. citations for papers released in same calendar year

Weight 3: Sqrt(citations)

Weight 4: Authors,  $\ln(1+\text{citations})/\ln(1+\text{avg citations of other papers released in same calendar year})$

**None of this affects the results on statistical or economic significance for output or results on abstract tone.**

**But none of these variables are driving the career results**

## Comment 2: The career results are not yet convincing

- They don't work for inflation. But then what explains the inflation result?

Table 6: Career Outcomes and Effects of QE on Output

Panel A: Total Program Effect

	Peak Effect		
	(1)	(2)	(3)
Effect on output	0.264 (2.32) [0.027]	0.219 (1.85) [0.037]	0.485 (2.65) [0.018]
Country FE		X	X
Controls			X
Observations	34	34	31
$R^2$	0.030	0.066	0.553

Table J.42: Career Outcomes and Effects of QE on Inflation

Panel A: Total Program Effect

	Peak Effect		
	(1)	(2)	(3)
Effect on inflation	-0.167 (-0.68) [0.685]	-0.184 (-0.73) [0.693]	-0.140 (-1.10) [0.242]
Country FE		X	X
Controls			X
Observations	31	31	29
$R^2$	0.023	0.079	0.482

- They don't work for economic significance. What about statistical significance and abstract tone?
- They don't work for output if you include CB researchers without career updates. Not sure if that's ok

“This is expected, because the absence of a career update may be due to either **stale CV information** or **fixed review periods at central banks** and, as a result, the signal-to-noise ratio for these types of career outcomes is likely to be low.”

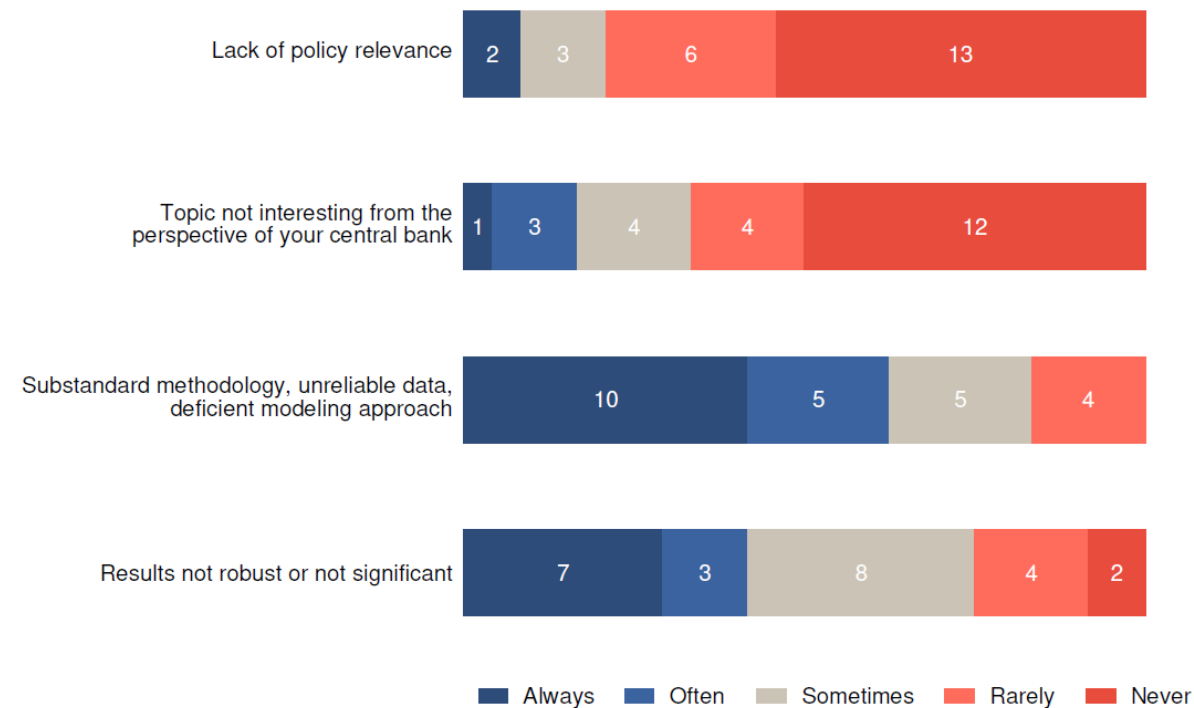
Suggestion 1: **Email those with stale CVs.** I suspect many really didn't have a career change.

Suggestion 2: **Tabulate what review periods are used** in the main central banks in the data set

- **Bundesbank output result is based on two papers, with one author in common**  
(there are 4 Bundesbank papers, but only 2 of them give output results)
- **Central bankers are on average not more positive about their own institution's QE**

- I didn't see obvious red flags from the current survey

For example, the criteria for getting a paper rejected look pretty similar to those we apply at journals



(D) What criteria can lead to the paper being rejected (i.e., not approved for public distribution)?

**Suggestion:** A survey addressed to CB researchers (with anonymity) would be more informative

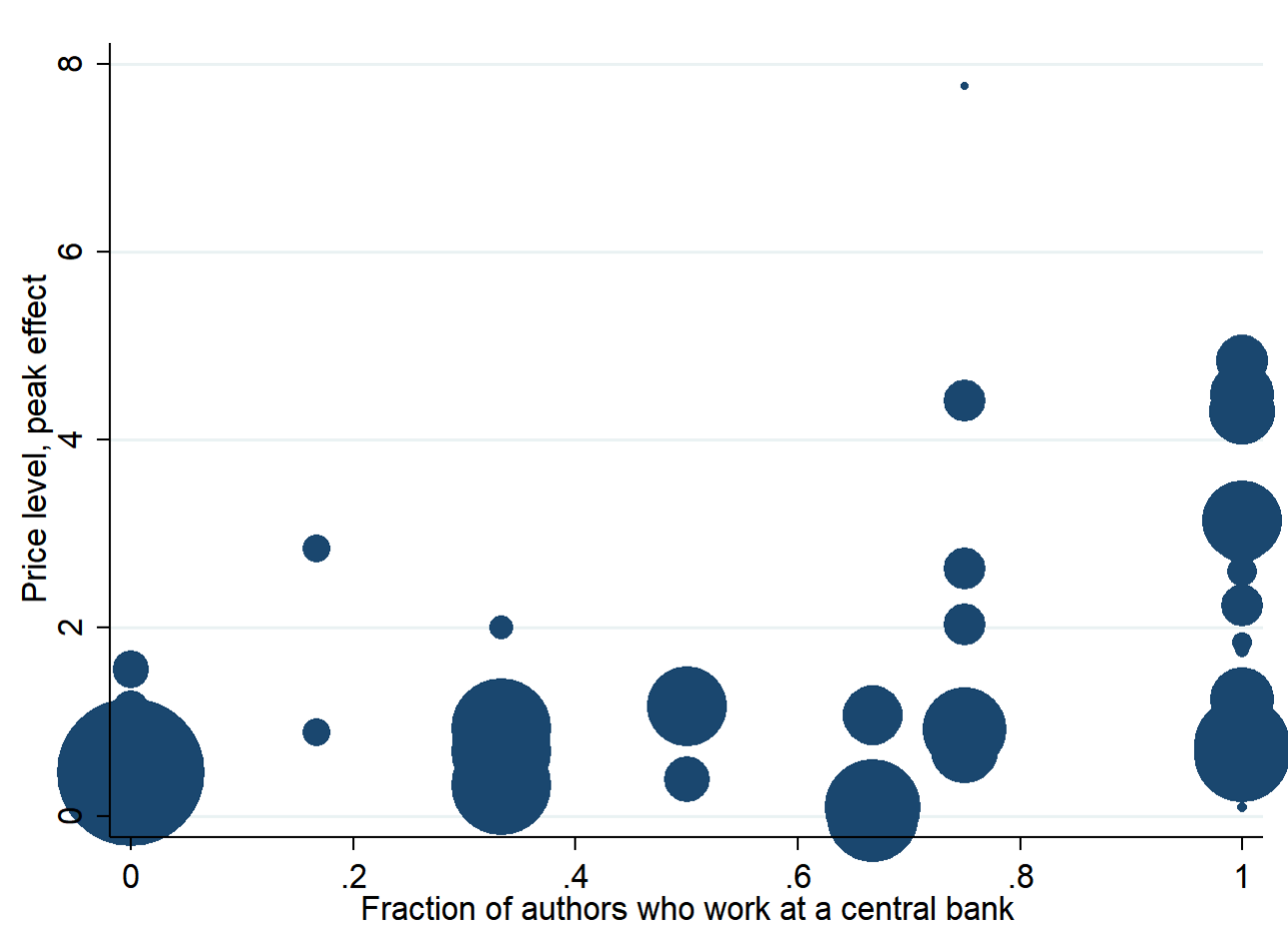
Ask them directly if they feel pressure to tow the party line

Central banks who refuse to circulate the survey would look terrible. You may get a lot of responses

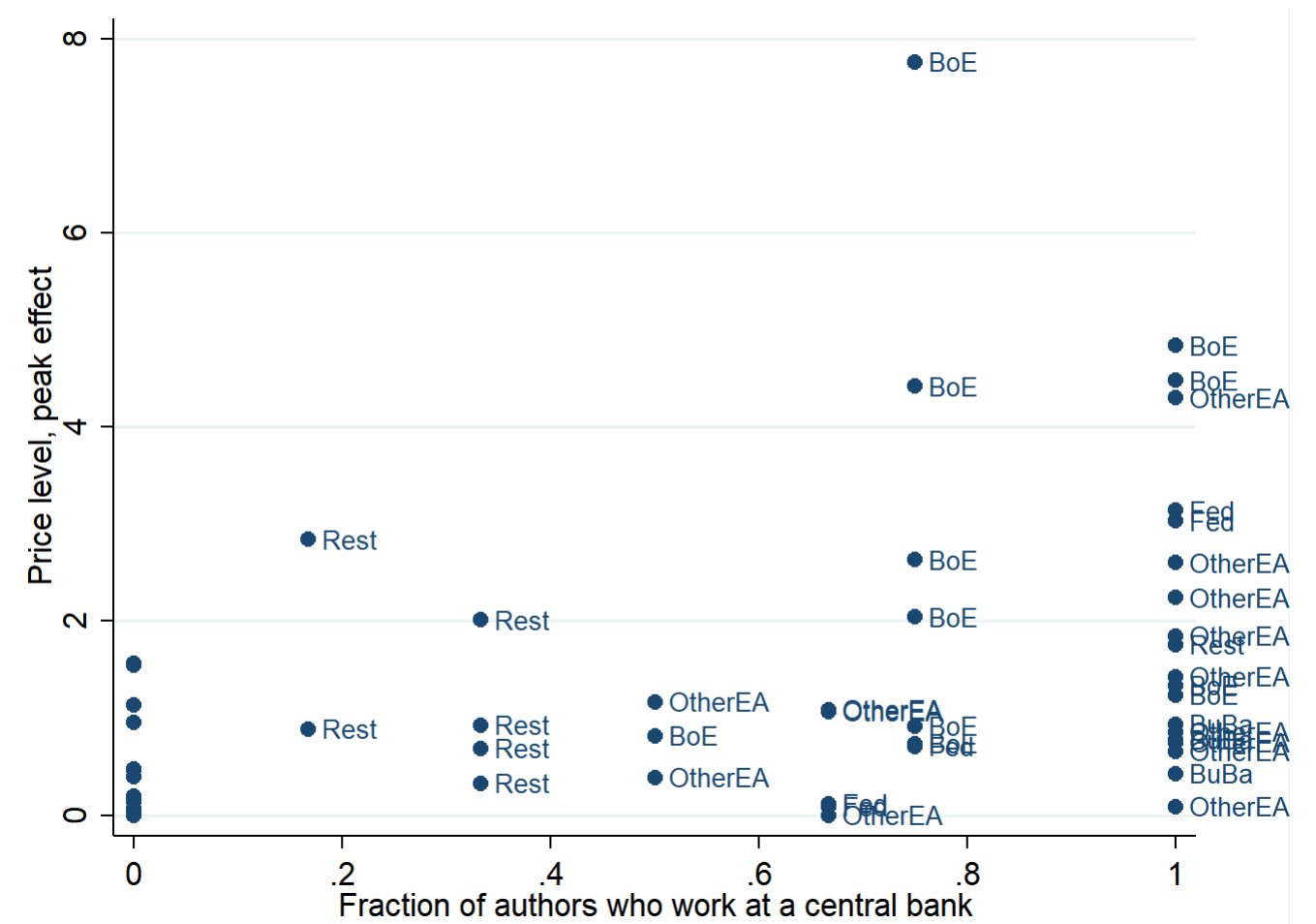
# Comment 3: How solid is the inflation result? Who looks bad?

Inflation (dot size based on citations):

Peak effect



Peak effect



OtherEA: Euro-area, not BuBa (incl ECB)

I did not go over all data points, but one is not coded right.

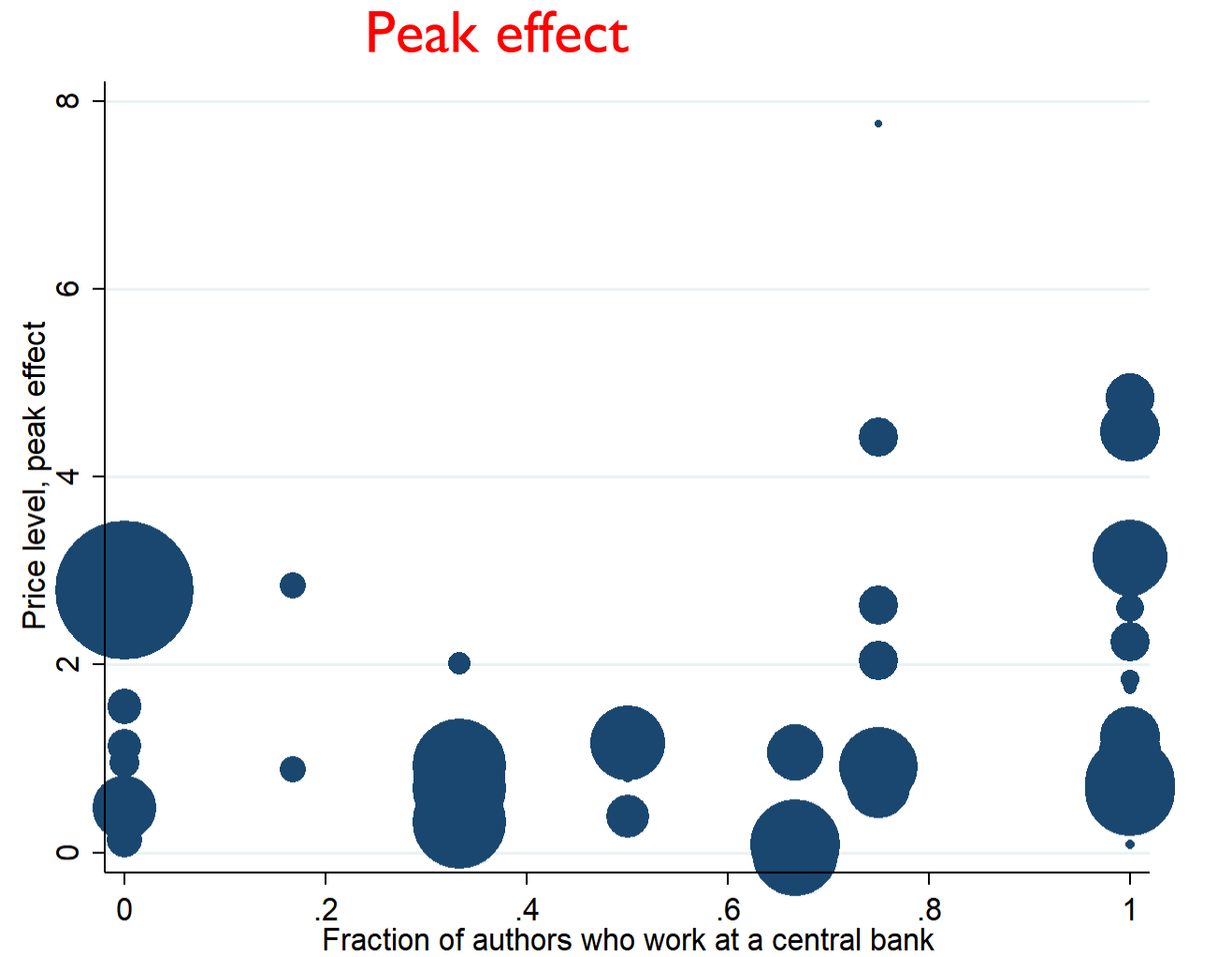
ECB (“OtherEA”) paper in top right: **Andrade, P., Breckenfelder, J., De Fiore, F., Karadi, P., Tristani, O., 2016.**

“The ECB's asset purchase programme: An early assessment.” Working Paper, European Central Bank.

- Current paper: “We **assume that authors show quarter-on-quarter growth rates**, unless the authors **explicitly state** that they use annualized rates”
- Their inflation variable is annualized. I understood it as such because it's next to the policy rate in their graphs which one would not report quarterly. **I confirmed with them**  
Their peak inflation effect is **1.1%**, not 4.3%
- **They had been puzzled** why this paper states they find such a high inflation effect

**Suggestion:** If in doubt, email the authors. It's a pretty small sample. A few misunderstandings could matter

Moving down Andrade et al (2016) and moving up Wu and Xia (2016) we get:



Relation is **still significant** unless you include Wu and Xia (2016) and weight it a bunch





## Inflation peak effect (with my two data edits and dummy coding):

	(1) Peak inflation effect
D(>=1 BoE author)	<b>2.103***</b> (3.04)
D(>=1 Fed author)	<b>0.682</b> (0.96)
D(>=1 BuBa author)	<b>-0.134</b> (-0.54)
D(>=1 other EA author)	<b>0.343</b> (1.05)
D(>=1 other CB author)	<b>0.614</b> (1.32)
Constant	<b>0.736**</b> (2.66)
Observations	<b>53</b>
R-squared	<b>0.279</b>

t statistics in parentheses  
 \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

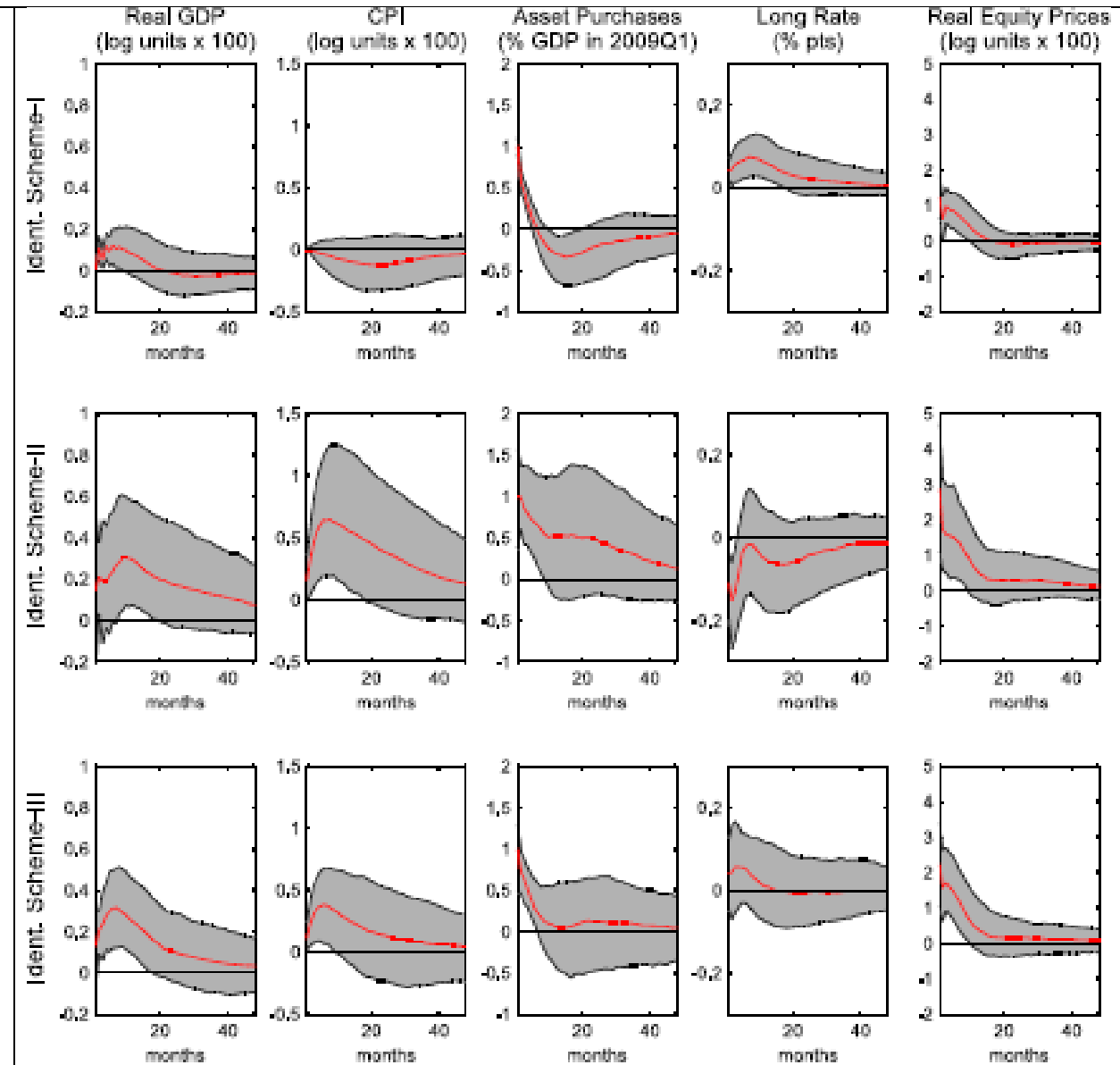
	(1) Peak inflation effect
D(>=1 BoE author)*D(BoE policy)	<b>2.764***</b> (2.71)
D(>=1 BoE author)*D(Not BoE policy)	<b>0.947*</b> (1.82)
D(>=1 Fed author)	<b>0.682</b> (0.95)
D(>=1 BuBa author)	<b>-0.134</b> (-0.53)
D(>=1 other EA author)	<b>0.343</b> (1.04)
D(>=1 other CB author)	<b>0.614</b> (1.30)
Constant	<b>0.736**</b> (2.63)
Observations	<b>53</b>
R-squared	<b>0.353</b>

t statistics in parentheses  
 \* p<0.10, \*\* p<0.05, \*\*\* p<0.01



**Table 1**  
Identification schemes.

	$p$ Log CPI	$y$ Log real GDP	AP Asset Purchases	$i_t$ Long Interest Rate	$sp_t$ Log Real Equity Price
Identification Scheme I					
Log CPI	1	0	0	0	0
Log real GDP		1	0	0	0
Asset Purchases			1	0	0
Long Interest Rate				1	0
Log Real Equity Price					1
Identification Scheme II					
Supply Shock	–	+		+	+
Demand Shock	+	+		+	+
Asset Purchase Shock			+	–	+
Identification Scheme III					
Supply Shock	–	+	0		
Demand Shock	+	+	0		
Asset Purchase Shock			+		+
Uncertainty Shock			+		–



- Including purchase quantities and imposing that asset purchase shock (QE) increases the stock market: May explain the large estimated inflation and output effects
- Baumeister and Benati, 2013: Omit QE quantity and stock market. Study spread shock. Smaller effects.

- Haldane et al's identification is not great: Once you scale up to program size the VAR stock effect is huge.

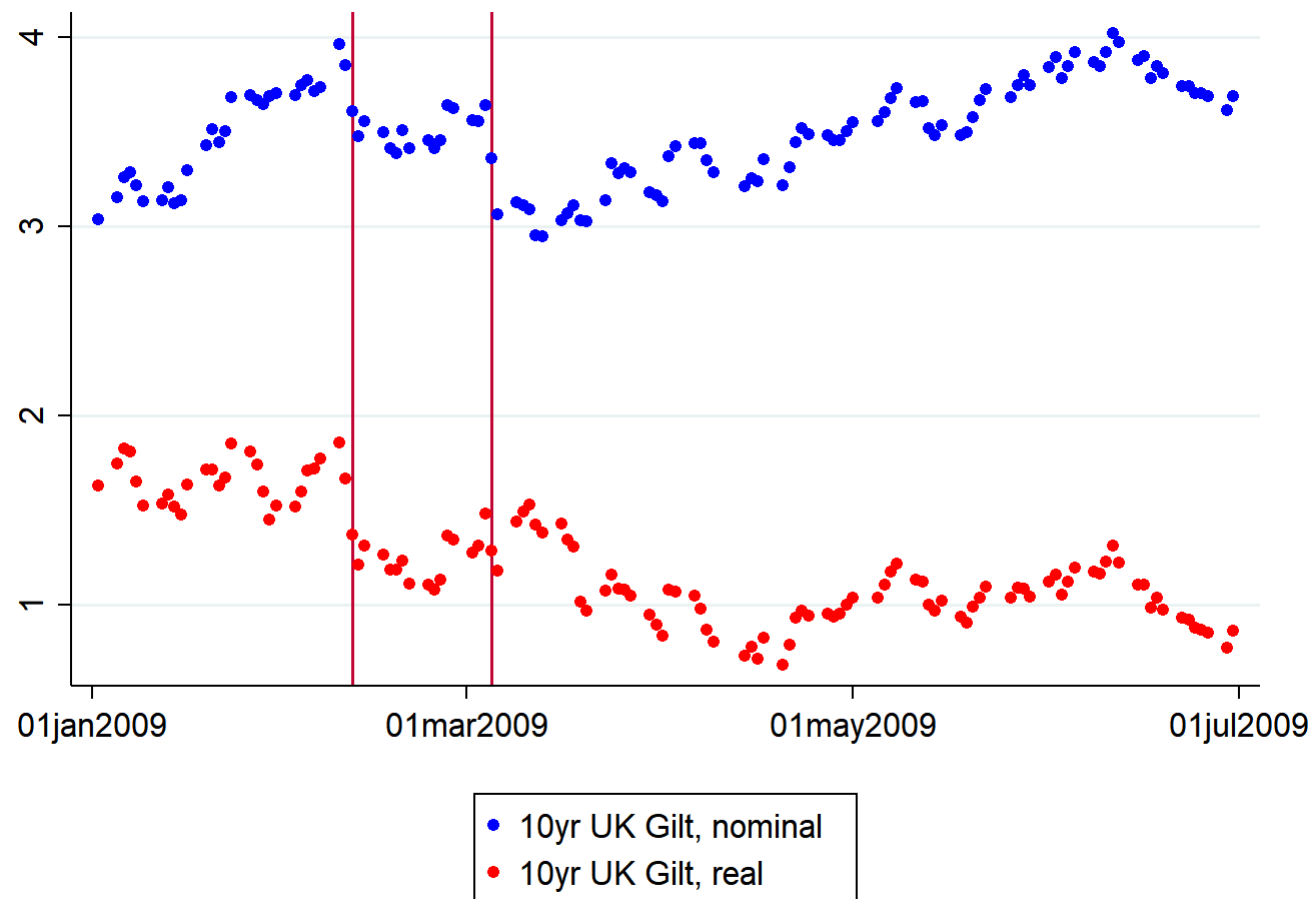
But **the stock market didn't actually rally much on BoE announcement dates** in Haldane et al's own QE event study

Table 2: Summary of asset price movements around BoE QE 1,2 and 3 (basis points, unless specified)

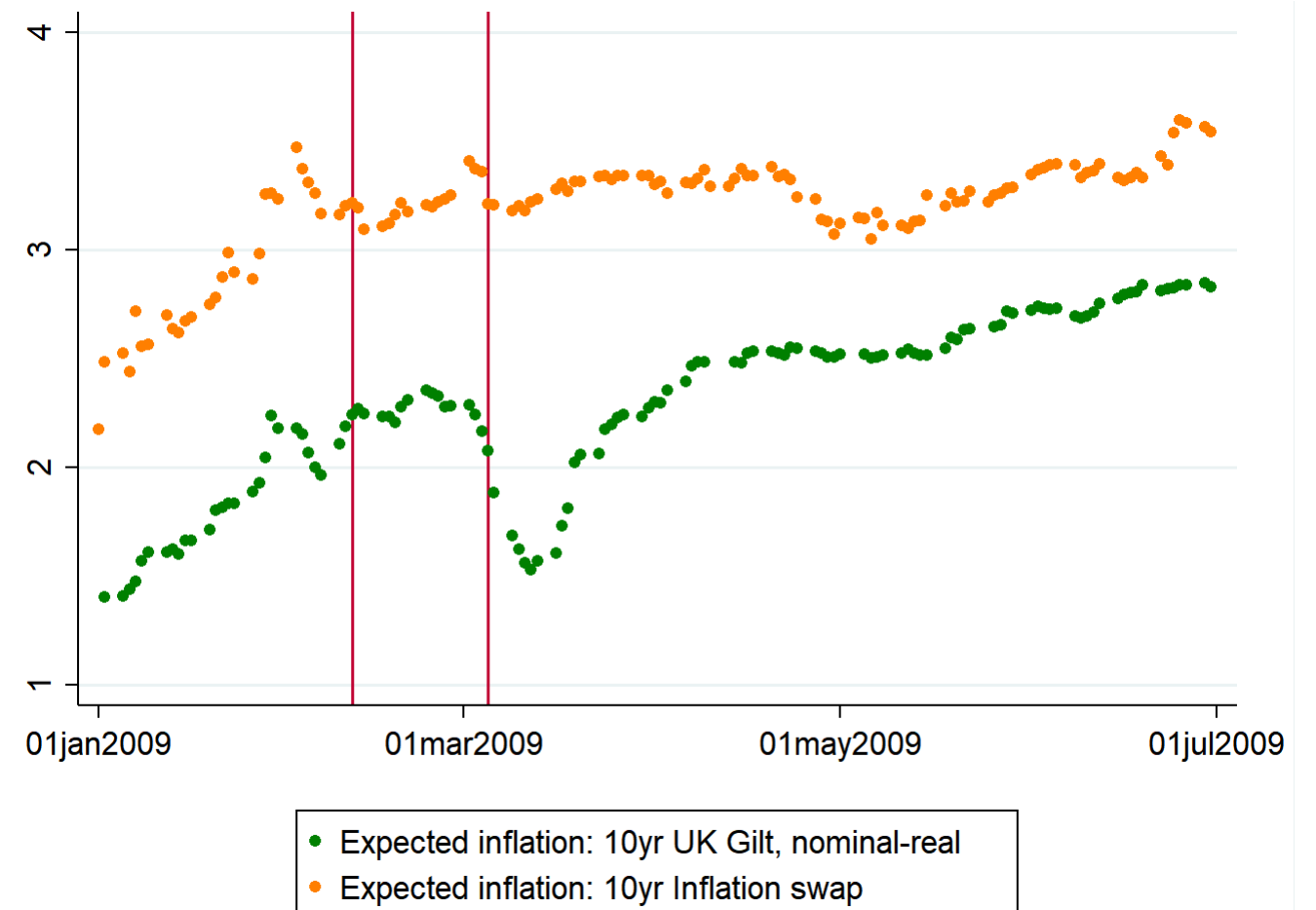
Asset	QE1: total of £200 billion purchases		QE2: total of £125 billion purchases		QE3: total of £50 billion purchases	
	Change around QE1 announcements (Feb 09, Mar 09, May 09, Aug 09, Nov 09, Feb 10).	Change 4 March 2009 – 22 Jan 2010	Change around QE2 announcements (Oct 11, Feb 12, May 12)	Change 5 October 2011 – 2 May 2012	Change around QE3 announcement (July 2012)	Change 4 July 2012 – 8 Nov 2012
Gilts (5-25 year average)	-104 (o/w -90 gilt-OIS spread)	-6 (o/w -41 gilt-OIS spread)	+14	-18	-10	-3
Corporate yields (investment-grade)	-70	-387	+5	-85	-11	-85
Corporate yields (high-yield)	-150	-1944	-5	-215	-5	-189
FTSE All-Share	-3%	+47%	+5%	+14%	0%	+2%
Sterling ERI	-4%	+3%	0%	+5%	+1%	+1%

Source: Bank of America/Merrill Lynch, Bloomberg and Bank calculations

- Haldane et al **do not include inflation measures from their event study**
  - Do event studies suggest large inflation effects in the UK?
  - I checked: **No substantial positive inflation effect across UK event dates**
    - Let's look at the two announcement dates with the largest yields changes
    - Neither inflation measure suggest a large positive inflation effect



Vertical lines mark Feb 11, 2009 and Mar 5, 2009 QE announcements

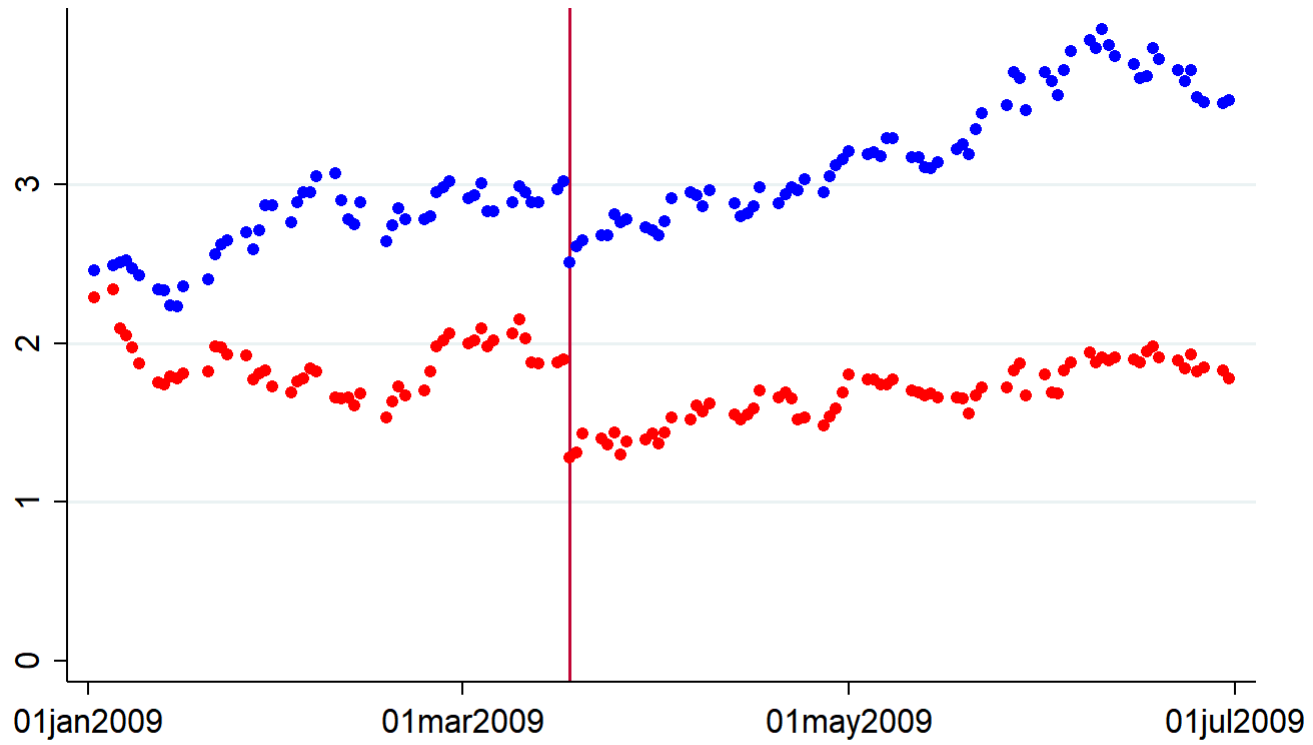


- This contrasts with the US where expected inflation goes up a lot on key LSAPI dates (Krishnamurthy and Vissing-Jorgensen (2011))

**Table 4. Changes in Inflation Swap Rates**  
Basis points

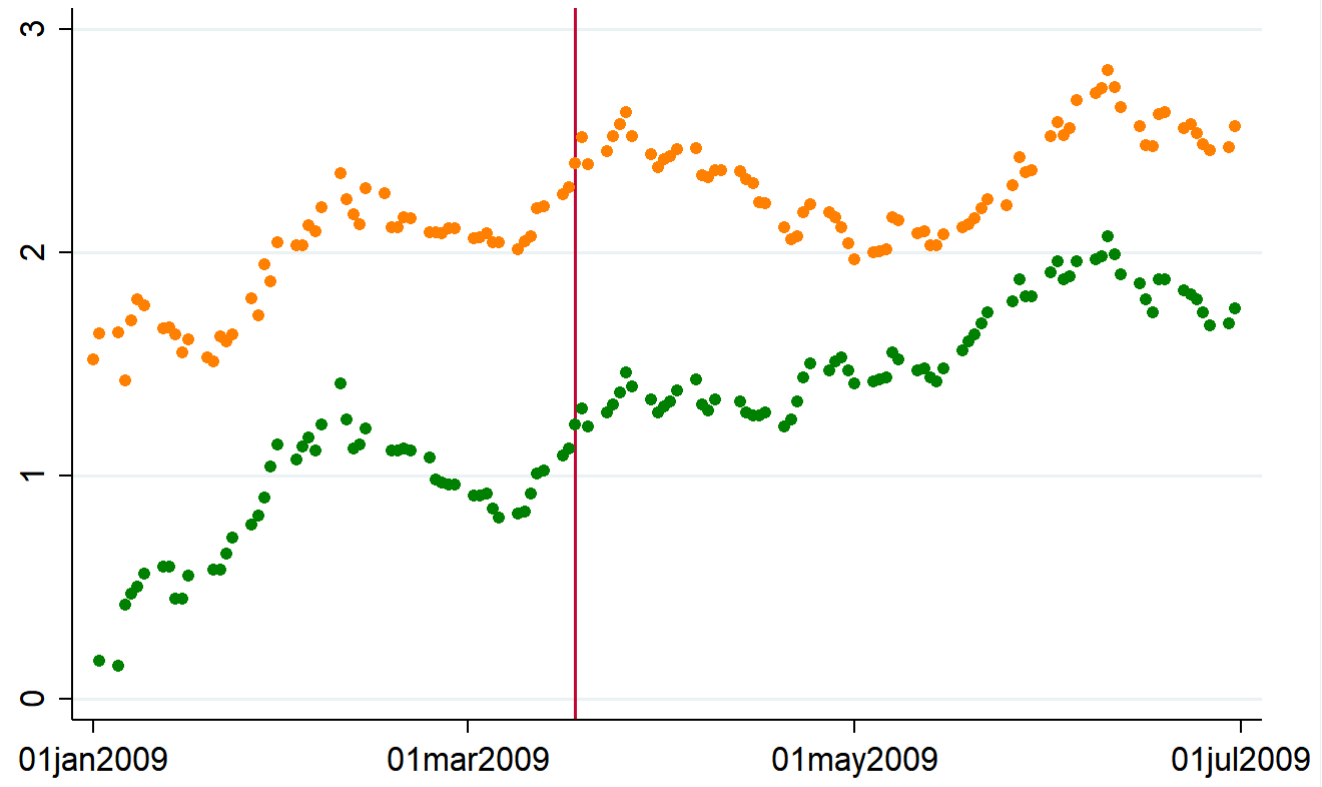
<i>Date<sup>b</sup></i>	<i>Inflation swap rates</i>			
	<i>30-year</i>	<i>10-year</i>	<i>5-year</i>	<i>1-year</i>
Nov. 25, 2008	1	-6	-28	48
Dec. 1, 2008	15	27	12	-40
Dec. 16, 2008	4	37	35	-17
Jan. 28, 2009	14	15	-6	5
Mar. 18, 2009	2	22	24	45
Sum <sup>c</sup>	35**	96**	38	41

Perhaps it was important that US LSAPs purchased MBS, not only government bonds?



• 10yr US Treasury, nominal  
 • 10yr US Treasury, real

Vertical line marks March 18, 2009 LSAP announcement

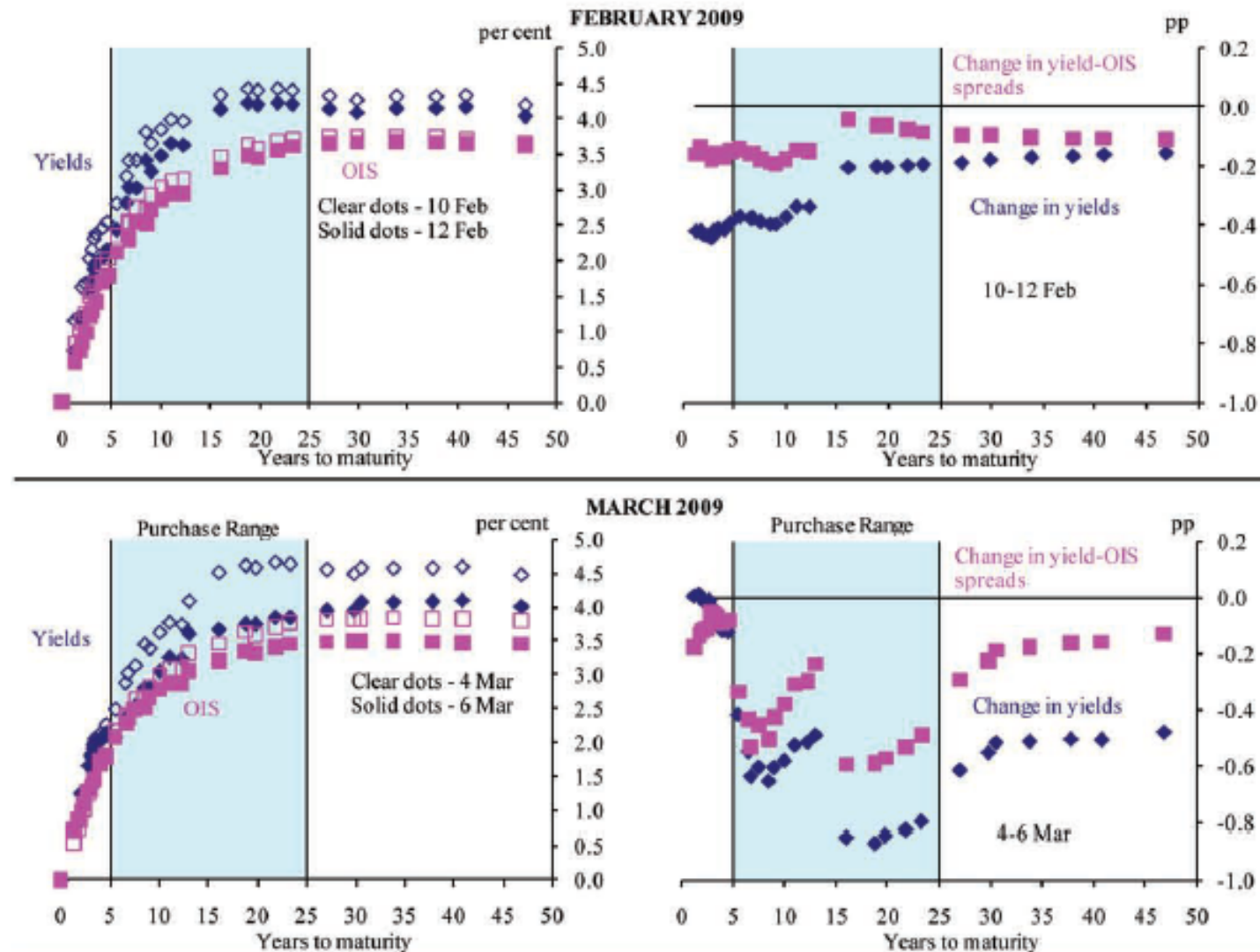


• Expected inflation: 10yr US Treasury, nominal-real  
 • Expected inflation: 10yr Inflation swap

- UK QEI appears to have had very local effects on gilt yields:

Joyce, Lasasosa, Stevens and Tong, 2011, very nice paper in the IJCB by Bank of England authors

- Feb 11, 2009: BoE gives strong indication that QE is likely. No maturity range given
- Mar 5, 2009: QE announced, maturities from 5 to 25 years

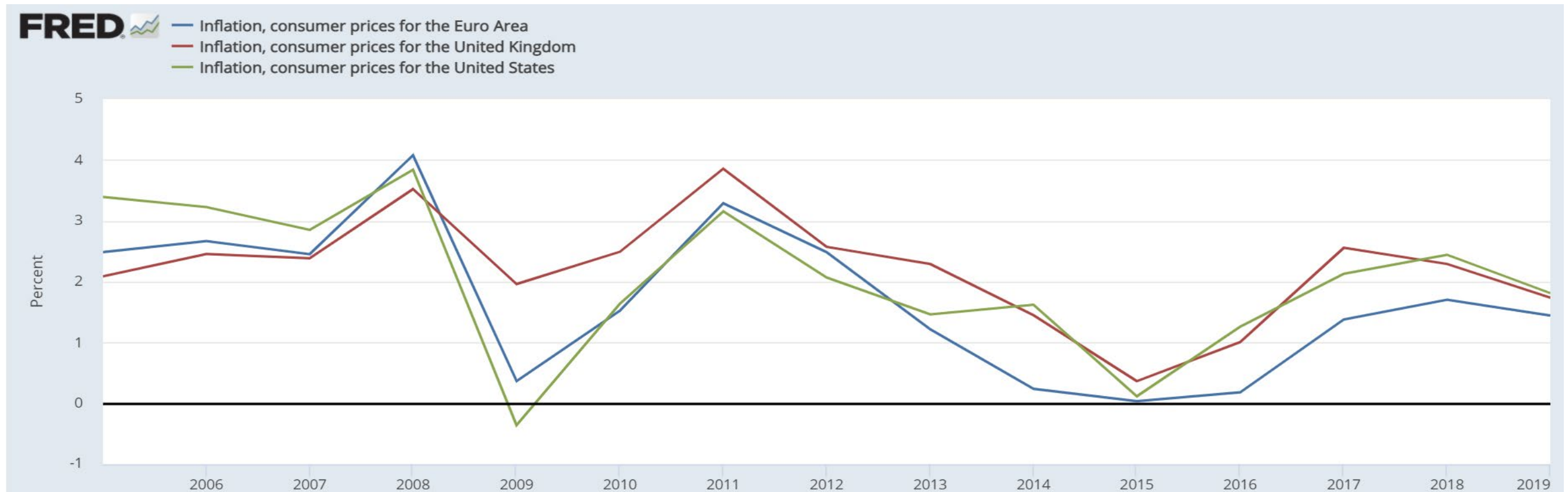




- **My take on all this? The BoE guys may have gotten the wrong result for inflation.**

But this could have **many explanations**:

- Were they **deliberately distorting the research** so they could do more QE or make past QE to look successful? (Weale: On MPC, 2010-2016. Haldane: Chief Economist since 2014)
- Or was it **group-think**? Several approaches gave similar answers. They had **too much tea** together?
- Or perhaps their thinking was affected by the fact that **UK inflation during the financial crisis remained pretty high** – they attributed this to their QE, perhaps incorrectly?



## Comment 4: Implications for policy if the paper is right.

### We may get many rounds of too small amounts of QE

#### Example 1: Staff fools policy makers

- CB researchers hear that the chair/president/head of research is positive on QE
- Seeking to get promoted, researchers write a paper showing large effects of QE  
Or, they toss results that don't look promising
- Policy makers don't understand that they are getting biased advice from the research department  
They keep doing QE not understanding why so many rounds are needed!
- What can organizational behavior teach us? How do powerful leaders get good advice?

#### Example 2: Doves fool hawks

- Doves pressure the research department into overstating how well QE works
- The hawks don't understand the bias and vote in favor of QE based on the research
- But the QE amount is reduced by exaggerated claims of efficacy. More QE rounds ensue
- Now that hawks know, problem solved

**But maybe no is are fooled.**

**Maybe central banks genuinely think QE works and the jury is still out on whether they are right**

- That's why we see a lot of QE
- That's why CB papers show it works
- The smartest junior people coauthor the ``house view'' papers
- They would have been promoted anyway

**Important:**

- The current paper makes **no attempt at sorting out who is right**
- The career analysis does **not control for how well a person is doing aside from the publication studied**  
**Suggestion:** Collect this and control for it

## Comment 5: Implications for academia. What can we do to help? Are we doing it?

- Engage more in debate with central bankers: Perhaps not enough
- Come up with better ways to identify causal effects of monetary policy: Getting better

The NBER assumes conflicts of interest are so important for non-academics that they cannot join

### NBER Affiliates

Each year, following a highly competitive nomination and review process led by the directors of the 20 NBER research programs and advised by steering committees of leading scholars in each field, the NBER appoints about 60 new affiliated scholars. There are currently about 1600 NBER-affiliated researchers; further information on these researchers and their work may be found at [Affiliated Scholars](#). NBER affiliates may be Faculty Research Each year, following a highly competitive nomination and review process led by the directors of the 20 NBER research programs and advised by steering committees of leading scholars in each field, the NBER appoints about 60 new affiliated scholars. There are currently about 1600 NBER-affiliated researchers; further information on these researchers and their work may be found at Affiliated Scholars. NBER affiliates may be Faculty Research Fellows, who are typically junior scholars, or Research Associates, who all have tenure at their home institution. All new affiliates must hold faculty appointments at North American colleges or universities.

## Is that optimal? Keeps us impartial, but could have negative consequences for monetary policy

- Much fewer people will read central bankers' working papers if they are not NBER WPs
- Academics will be less likely to catch bad/biased CB methodologies. Policy will be distorted.
- Academics will be less likely to work on policy relevant topics since they don't read central bankers' papers and don't interact with them much. Policy choices will suffer
- The Fed will keep running the FRB/US model forever. We will never understand exactly what it is!
- CB researchers will be more disconnected from academia and thus more susceptible to pressure

## We don't seem to be consistent in our exclusion:

- As long as they keep their day job in academia, central bankers can stay in the NBER and submit WPs on policy topics
- NBER researchers can write a series of papers with free confidential data from Facebook or Alibaba, but can't work full time for a central bank

## Example: Consistency would suggest that the current paper should not be an NBER WP (it is):

- Lubos is on the board of the central bank of Slovakia
- 3 authors are at central banks, the last (Kempf) is not yet in the NBER

### Fifty Shades of QE: Comparing Findings of Central Bankers and Academics

SEPTEMBER 2020 - WORKING PAPER [27849](#)

AUTHOR(S) - [BRIAN FABO](#), [MARTINA JANČOKOVÁ](#), [ELISABETH KEMPF](#) & [LUBOŠ PÁSTOR](#)

We compare the findings of central bank researchers and academic economists regarding the macroeconomic effects of quantitative easing (QE). We find that central bank papers find QE to be more effective than academic papers do. Central bank papers report larger effects of QE on output and inflation. [more](#)

- **The cynical view:**
  - Perhaps **Lubos is a hawk** (he's at UofC!)
  - He asked Kempf (a junior colleague at Chicago) and Fabo (a researcher at his own central bank) to check the research findings in the literature
  - He only wrote up the paper because the results were in his favor
- **More likely:**
  - Lubos is a good guy
  - He wanted to give back to his country and serves as a central bank board member. He wants to have an **informed opinion on QE**

## Another example:

- Anil Kashyap is on the Financial Policy Committee of the Bank of England while writing an NBER WP on bank regulation

<p style="text-align: right;">February 2020</p> <p><b>Anil K Kashyap</b> University of Chicago Booth School of Business 5807 South Woodlawn Avenue Chicago, IL 60637 Phone: (773) 702-7260 e-mail: <a href="mailto:anil.kashyap@ChicagoBooth.edu">anil.kashyap@ChicagoBooth.edu</a> Web: <a href="http://faculty.chicagobooth.edu/anil.kashyap">http://faculty.chicagobooth.edu/anil.kashyap</a> Assistant: Mary Lagdameo, (773) 702-6324</p> <p><b><u>Education</u></b></p> <p>Massachusetts Institute of Technology, Ph.D., 1989</p> <p>University of California at Davis, B.A., 1982, Graduation with Highest Honors.</p> <p><b><u>Employment</u></b></p> <p>External Member, Financial Policy Committee, Bank of England, October 2016 – present.</p>	<p><b>Optimal Bank Regulation In the Presence of Credit and Run-Risk</b></p> <p>JANUARY 2020 - WORKING PAPER <a href="#">26689</a> AUTHOR(S) - <a href="#">ANIL K. KASHYAP</a>, <a href="#">DIMITRIOS P. TSOMOCOS</a> &amp; <a href="#">ALEXANDROS P. VARDOULAKIS</a></p> <p>We modify the Diamond and Dybvig (1983) model so that, besides offering liquidity services to depositors, banks also raise equity funding, make loans that are risky, and can invest in safe, liquid assets. The bank and its borrowers are subject to limited liability. When profitable, banks monitor borrowers to ensure that they repay loans. Depositors may choose to run based on conjectures about the resources that are available for people withdrawing early and beliefs about banks' monitoring. We use a new type of global game to solve for the run decision. We find that banks opt for a more deposit-intensive capital structure than a social planner would choose. The privately chosen asset portfolio can be more or less lending-intensive, while the scale of intermediation can also be higher or lower depending on a planner's preferences between liquidity provision and credit extension. <b>To correct these three distortions, a package of three regulations is warranted.</b></p>
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## Are these guys more impartial than central bankers? Or should we exclude their papers too?

- The answer is not obvious but we need to understand that exclusion has consequences
- I lean towards inclusion



## What else can we in academia do? Better methods to identify real effects of QE

Estimating the real effects of QE using VARs or DGSE models is a very complex science

- If we had better methods, we wouldn't be so unsure who is right!
- Personally, I have disregarded these approaches to estimating real effects of QE  
([http://faculty.haas.berkeley.edu/vissing/avj\\_comments\\_bis22.pdf](http://faculty.haas.berkeley.edu/vissing/avj_comments_bis22.pdf))

Ramey's excellent Handbook of Macroeconomics Chapter (2016) convinced me it's hard to get robust VAR result for monetary policy

- I focus on reading newer work that relies on program design features and clever labor/corporate finance style identification
  - More convincing causality
  - Helps understand channels for real effects



## Effects of Fed's LSAPs on mortgage refinancing and consumption demand:

Di Maggio, Kermani and Palmer (ReStud, 2020)

- Compare **mortgage refinancing origination volume** for mortgages **eligible to for Fed purchase (those below the GSE conforming loan limit)** to mortgages **not eligible for Fed purchase**
  - QEI lead to a much larger increase in refinancing activity for eligible mortgages
  - Increased refinancing activity due to QEI of around **\$600 billion, resulting in consumption effect of about \$76 billion**, mainly driven by increased consumption from cash-out refinancing.

## Effects of ECB corporate sector purchase program on bank lending supply and firm investment:

Grosse-Rueschkamp, Steffen and Streitz (JFE, 2019)

- ECB corporate bond purchases lower yields on eligible bonds
  - ➔ Firms whose bonds are eligible **substitute bond debt for bank loans**
  - ➔ This relaxes **banks' lending constraints** (regulatory, economic)
  - ➔ Banks **increase credit supply to other firms**
  - ➔ **Investment goes up** not for ECB-eligible bond issuers but **for firms borrowing from banks with a lot of ECB-eligible borrowers**

## Effect of Fed's maturity extension program (MEP) on corporate debt and employment:

Foley-Fischer, Ramcharan and Yu (JFE, 2016)

- **Firms who ex-ante rely more on long-term debt** had abnormally positive stock returns on announcement date and subsequently **increased debt issuance, investment and employment** relative to other firms.  
+1.4 pct point employment growth for +1 $\sigma$  ex-ante long-term debt dependence.

## Effects of QE on bank lending supply: Rodnyansky and Darmouni (RFS, 2017)

- **Banks with higher ex-ante ratios of MBS/Total assets** (top versus bottom quartile):
  - +3 pct higher lending post-QE1 (around \$100B). +2 pct higher lending post-QE3
  - Robust to controlling for loan demand using Khwaja-Mian approach.

Mechanism: Increased bank lending supply driven by...

- **Bank net worth** for QE1
- Banks' reallocating assets for QE3: **Selling MBS for reserves leaves room for more risk-taking** in rest of asset holdings

## Effects of QE on employment: Luck and Zimmermann (JFE, 2020)

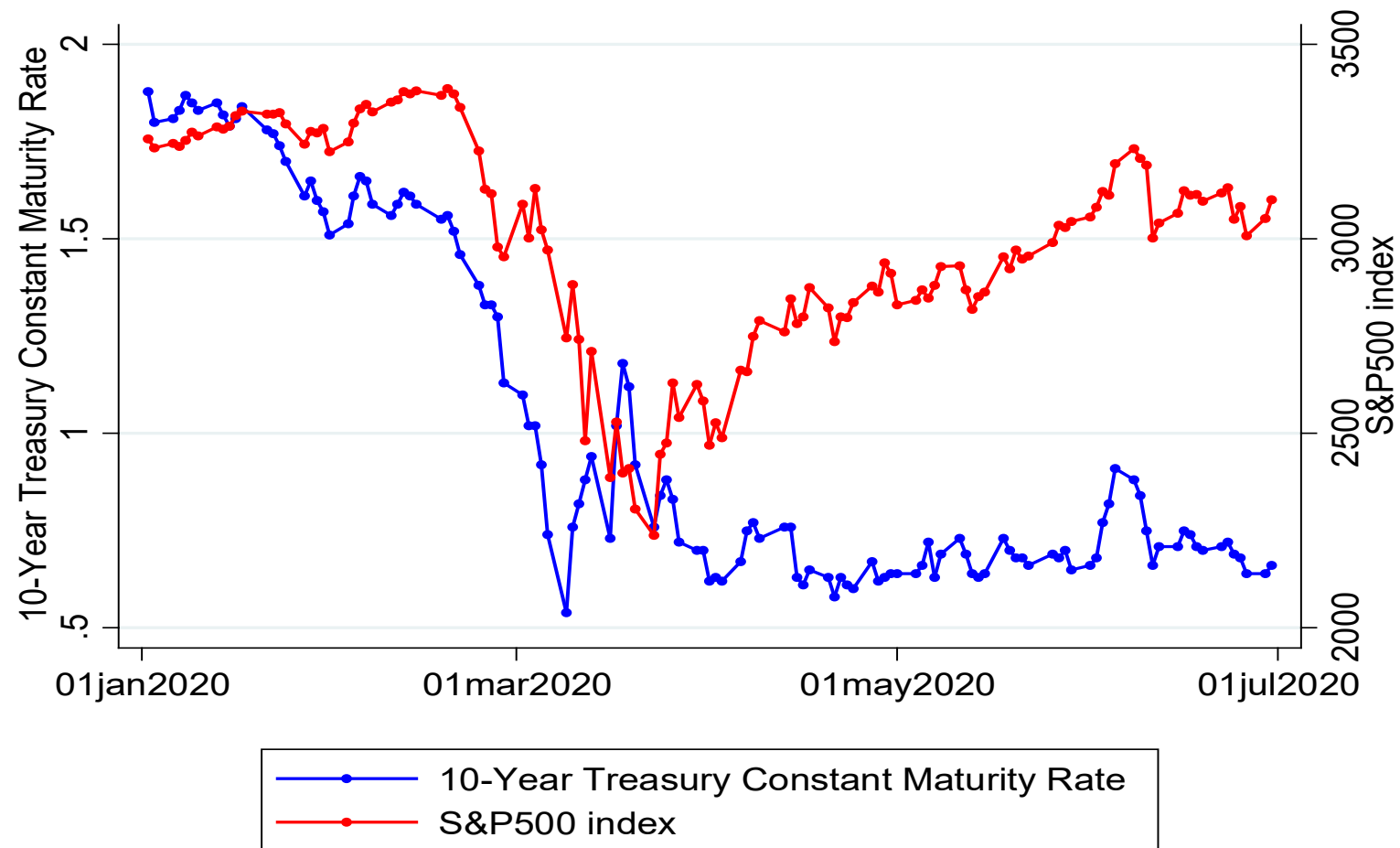
- **Counties whose banks (on avg.) had higher ex-ante ratios of MBS/Total assets** experienced:
  - QE1: Higher mortgage origination growth, **higher consumption growth**
  - QE3: Higher mortgage origination growth, higher C&I lending growth, **higher consumption growth, higher employment growth.**  
+0.5 pct point empl. growth for top vs. bottom tercile of banks' MBS/Total assets.

## Effect of ECB's OMT on bank lending, but not employment: Acharya, Eisert, Eufinger, Hirsch (RFS, 2019)

- **Banks with larger gains on sovereign bonds from OMT** lent more
- But borrowers **didn't increase employment**
- And some of the lending went to **zombie firms**, which hurt more productive firms (credit misallocation)

**But, right as we're making progress: Covid hits and the Fed starts doing "market-functioning" QE which likely works via completely different channels...**

Treasury yields spiked in mid-March as S&P500 kept falling: 10-year yield +64 bps from 3/9 to 3/18



- Not due to inflation or default worries. Real, CDS-adjusted yield spikes >100 bps.
- Instead, Treasury selling was driven by liquidity effects
  1. Bond fund outflows, disproportionate Treasury selling
  2. FX intervention
  3. Hedge funds unwinding levered trades  
Basis trade, perhaps risk-parity

## Fed actions, March-July 2020:

- Reductions in Fed funds target
- USD swap facilities to provide dollars to foreigners
- Facilities to stabilize money markets after outflows from prime funds
- Programs to stabilize bond markets (Treasuries, MBS, corporate, munis, ABS)

### March 15, 5 pm:

- Rate cuts: Fed funds target, primary credit rate, dollar swap line rate
- At least \$500B Treasury purchases, at least \$200B MBS purchases

### March 23, 8 am:

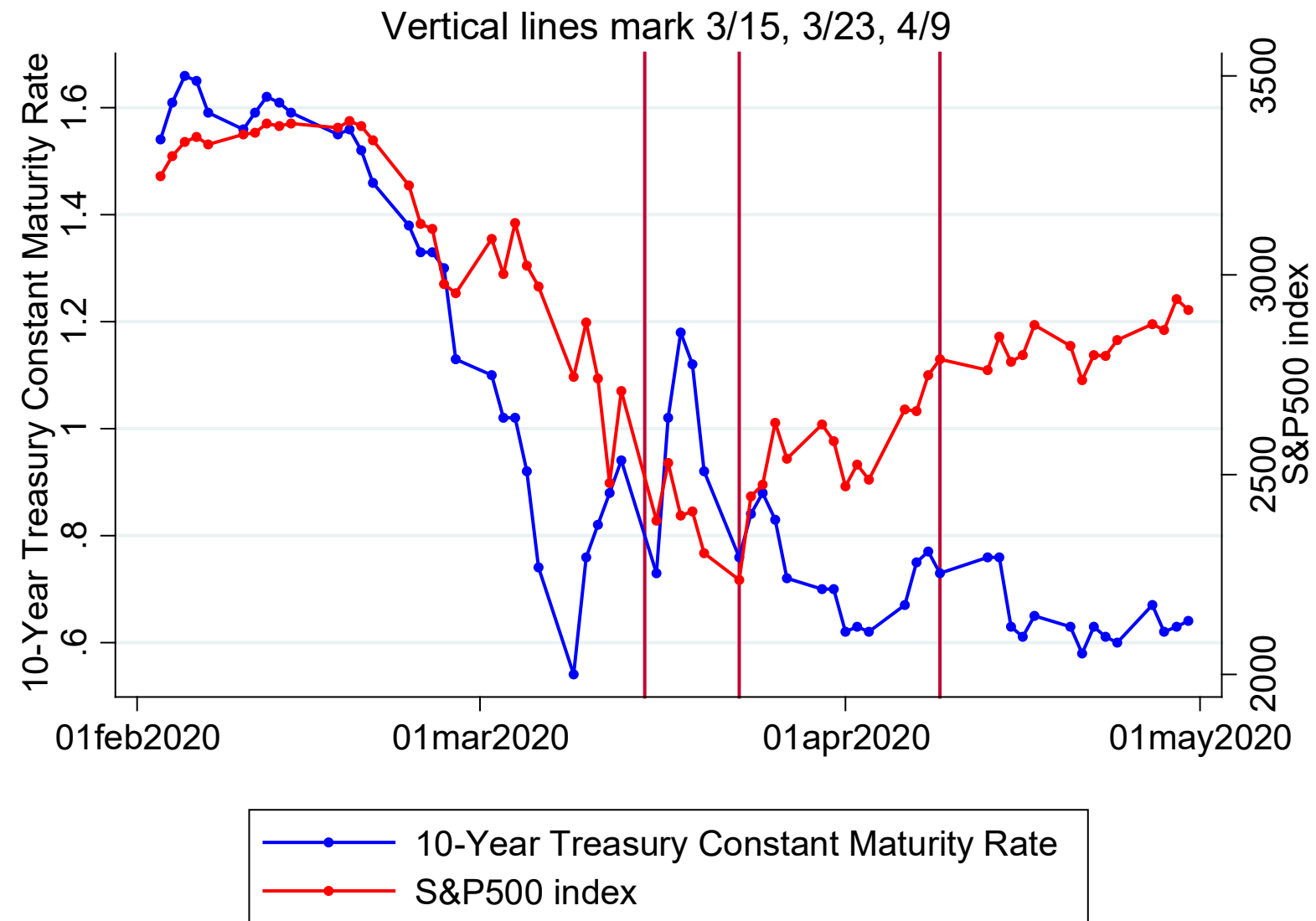
- Unlimited Treasury, MBS purchases
- \$300B in lending, incl corporate bond purchases: Investment grade issuers only

### April 9, 8:30 am:

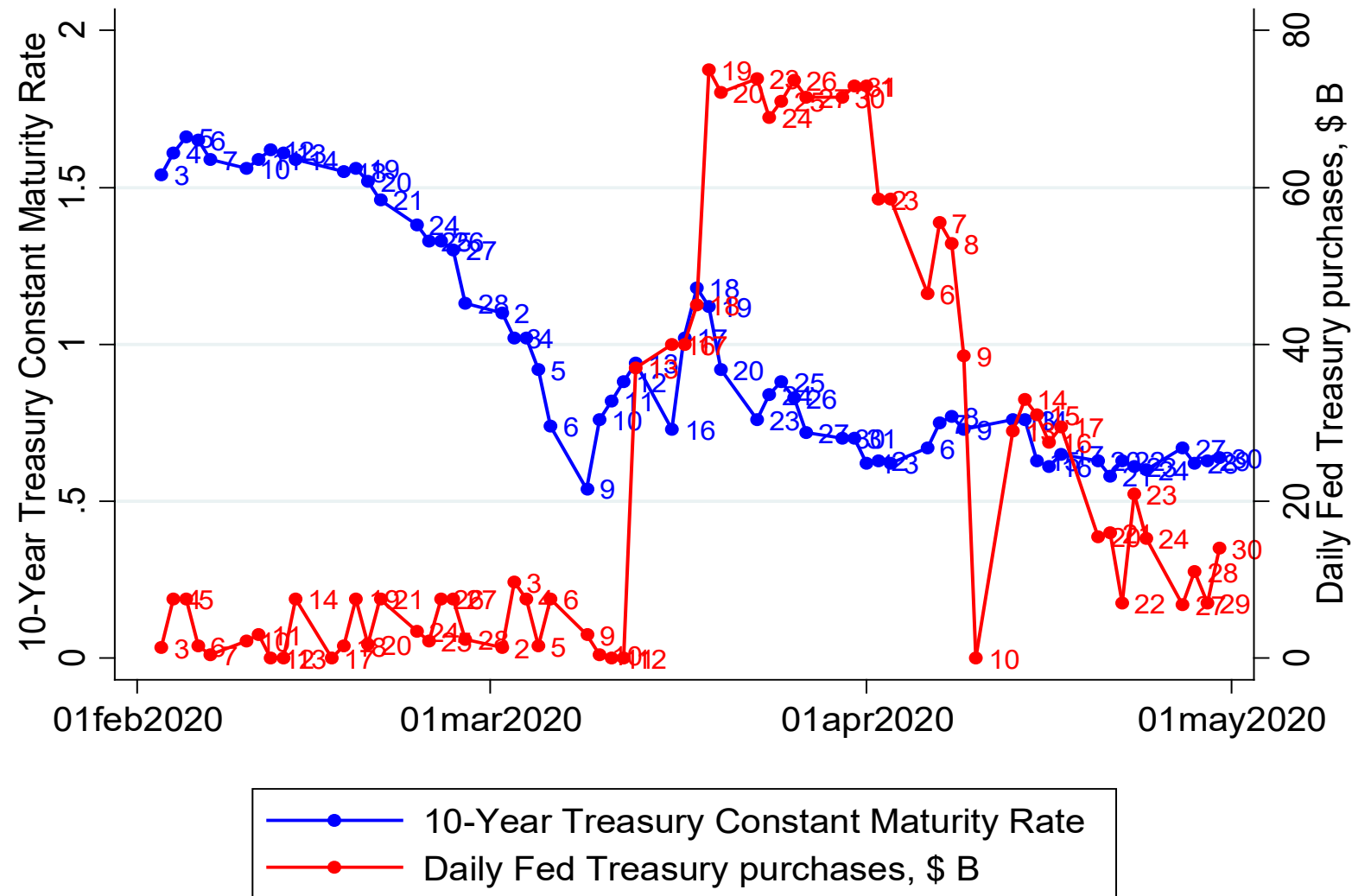
- Corp bond purchases (plus TALF) expanded: Up to \$850B. Fallen angels added.

3/15: Announcement fails to stop yields from increasing on 3/17, 3/18

But larger drop on 3/19-3/20. Why? Was policy not crucial for stabilizing markets? Yes!



## Massive daily Fed purchases from March 19 helped bring Treasury yields down



Fed accommodated a massive negative demand shock for medium/long Treasuries:

- Replaced \$IT of longer/less liquid Treasuries with reserves when yields spiked
- For “market functioning QE”, flow effects (purchase effects) are crucial
- Very different from how Treasury QE worked in 2009: Large announcement effects prior to purchases

But: How do we measure the real effects of market functioning QE?

- The Fed quickly got markets under control
- We never saw the counterfactual
- We hope to get no more data