Announcement and Implementation Effects of Central Bank Asset Purchases

Marco Bernardini[1], Antonio M. Conti[2]

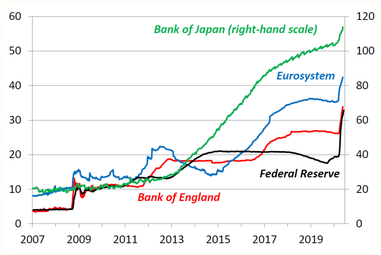
[1]Banca d'Italia, DG for Economics, Statistics and Research. Mail: marco.bernardini@bancaditalia.it

[2]Banca d'Italia, DG for Economics, Statistics and Research. Mail: antoniomaria.conti@bancaditalia.it

Introduction

- Asset Purchases (AP) have become a key tool to support inflation at the ELB and to fight market dysfunction

Figure 1: Asset Purchases in % of GDP.



- Vast literature on the effects of purchase announcements and actual purchases, typically referred as stock and flow effects.
- Stock effects are set in motion by changes in the stock of assets held by the central bank in its balance sheet
- By contrast, flow effects – or implementation effects - emerge with the actual implementation of AP in the market

Motivation

- Important gap in this literature. ⇒ The conclusion that announcement effects are larger and more persistent than flow effects looks severely flawed for three main reasons
  1. Typical analysis uses different frameworks (event studies and microeconometric models), not necessarily consistent with each other and do not always account for feedback effects of announcements on implementation and viceversa
  2. Effects should be cumulated over time. To the extent that they are frequent and persistent, important taking into account past as well current actions
  3. Assessing only the role played by exogenous and unanticipated changes in purchase announcement and actual purchases overlooks the contribution played by the systematic reaction of AP in stabilizing economic and financial conditions

This Paper

- Tries to fill this gap ⇒ **develops an empirical framework** that allows comparing and combining announcement and implementation effects of APs
- Two key pillars
  1. **a unique daily dataset** covering the whole history of the asset purchases conducted in the euro area
  2. **a high-frequency identification** based on the combination of external instruments (Stock and Watson, 2012; Mertens and Ravn, 2013) and zero-sign restrictions (Arias et al., 2021, Cesa-Bianchi and Sokol, 2022)

Main Findings

- **Announcement and implementation effects are similar**: key to correctly disentangle them
- **APs are largely endogenous**: key role played by the systematic reaction of APs
- **Evidence of large impact of APs** on financial conditions and inflation expectations
- **Implementation choices matter**: announcement effects not sufficient to evaluate large-scale AP programmes
- **ECB pandemic AP lowered yields by ≈ 50 bp** (**significant role of flexible implementation**)

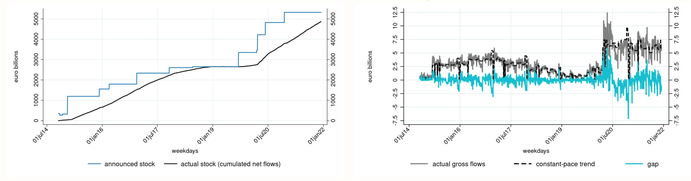
Empirical Framework

- Daily Bayesian VAR model

$$y_t = c + A(L)y_{t-1} + u_t \qquad (1)$$

- 2 APs policy variables ⇓

  Announced stock and **Implemented Flows**

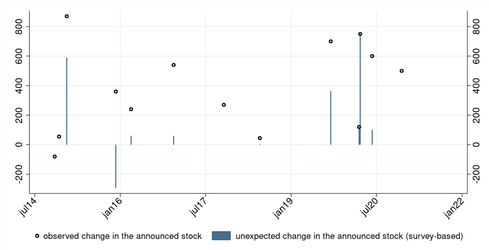


- 4 financial variables ⇒ yield slope, yield spread, medium-term inflation expectations, stock prices

Identifying Announcement and Implementation Shocks

- Announcement shocks are identified using an external instrument
- The instrument (or proxy) measures survey-based surprises about the announced stock
- Technically, we assume that the instrument is correlated with announcement shocks but is uncorrelated with all the other shocks

Figure 2: The External Instrument.



- **Implementation** shocks identified with sign restrictions
- Assumption: they generate (on impact) a positive co-movement between actual purchase flows and asset prices (growing body of evidence on flow effects)
- Other shocks ⇒ split in two broad categories using zero&sign restrictions
  1. **Shocks that trigger a stabilizing within-day response** by the central bank in terms of gross purchase flows
  2. **All the other shocks** do not induce a within–day response by the central bank in terms of gross purchase flows

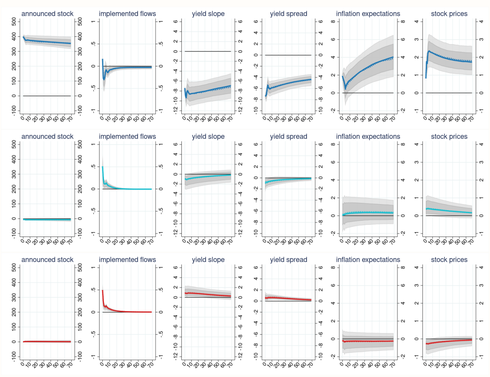
Table 1: Identification.

	AP shocks		non-AP shocks	
	announcement	implementation	within-day response	lagged response
announced stock	proxy			
implemented flows	proxy	> 0	> 0	$= 0 = 0 \quad = 0$
yield slope	proxy	< 0	> 0	
yield spread	proxy	< 0	> 0	
inflation expectations	proxy			
stock prices	proxy	> 0	< 0	

Transmission

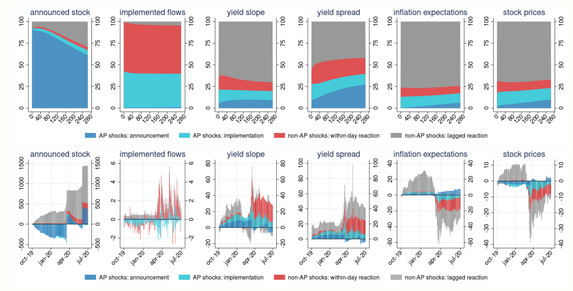
- **Highly persistent** effects of **Announcement shocks** ↓ fin. conditions, ↑ infl. expectations
- **Implementation shocks** ⇒ qualitatively-similar effects, but **less persistent**

Figure 3: Impulse Responses.



Relevance

Figure 4: FEVDs and HDs.



- Fin. conditions, infl. expectations mainly driven by Non-AP shocks
- Strong evidence of *endogenous* responsiveness of implemented flows during the Covid-19 crisis
- Further validation of the model

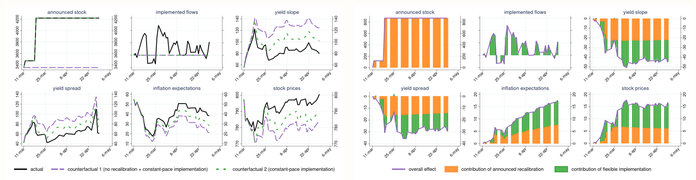
The Need for Counterfactuals

- Two different components are involved
  1. **discretionary**: cumulative effects of AP shocks
  2. **systematic**: cumulative response to non-AP shocks
- To assess the effectiveness of APs in their entirety (i.e., not just the discretionary component!), we need to rely on **counterfactual scenarios**
- Key features minimizing Lucas' critique concerns
- The counterfactual paths of the policy variables:
  1. are attributed only to the policy (AP) shocks
  2. are imposed over short-periods of time

Decomposing Total Effect of AP

- The height of the Covid-19 Crisis: the Pandemic Emergency Purchase Programme (PEPP)
- CF#1: the ECB does not recalibrate its APs and implement them at a constant pace
- CF#2: the ECB does recalibrate its APs but implement them at a constant pace

Figure 5: The Impact of Pandemic AP.



- Substantial frontloading: around €45 bn
- Sizable effects of APs, partly driven by flexible implementation

Robustness and Extensions

- Findings unaffected after **several robustness checks**
  1. Sample
  2. Priors
  3. Lag order
  4. Construction of policy variables
  5. Narrative restrictions for implementation shocks
- **Extensions** ⇒ **further disentangling** of *other* shocks into demand (IS-type), supply, financial (LM-type)

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