Macroeconomic effects of non-standard monetary policy measures in the euro area: the role of corporate bond purchases

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On 8 June 2016 the Eurosystem started to purchase corporate bonds under its Corporate Sector Purchase Programme (CSPP).

The Eurosystem purchases securities issued by non-bank corporations in both primary and secondary markets.

The aim is to further strengthen the pass-through of the Eurosystems asset purchases to the financing conditions of the real economy.
This paper evaluates the macroeconomic effects of the CSPP.

We simulate a large-scale New Keynesian dynamic general equilibrium model calibrated to the euro area (EA) and the rest of the world (RW).

The EA is modelled as a monetary union of two regions, Home (calibrated to Italy for illustrative purposes) and rest of the EA (REA).
Outline

- Model description.
- Simulated scenarios.
- Results.
- Conclusions.
The model

- Large-scale New Keynesian dynamic general equilibrium model of the EA and the rest of the world (three-region model).

- It includes all features to characterize international trade and relative prices.

- EA is a two-region monetary union (Home and rest of the euro area, REA).

- It includes regional corporate bonds’ markets and banking sectors.
The model

CENTRAL BANK

SAVERS

RESTRICTED

CORPORATE BONDS

BANKS

CSPP

LOANS

ENTREPRENEURS

BORROWERS

CAPITAL PRODUCERS
The model. Entrepreneurs

- In each EA region there are (non-financial) entrepreneurs.

- Entrepreneurs hold shares of domestic physical capital producers, that invest in physical capital accumulation and rent it to domestic firms.

- Entrepreneurs finance their spending by:
  - issuing securities to domestic savers (‘Ricardian’, first type of households);
  - borrowing from the domestic banking sector.
Securities and loans are imperfect substitutes.

Securities are uncollateralized long-term bonds in the form of perpetuities with exponentially decaying coupons.

Bank loans are collateralized by entrepreneurs real estate.

Real estate is a durable good that enters the production function of regional intermediate goods.

Collateralization takes the form of a loan-to-value ratio.
The model

CENTRAL BANK

SAVERS

SAVERS

CSPP

BANKS

BORROWERS

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CAPITAL PRODUCERS

RESTRICTED

CORPORATE BONDS

DEPOSITS

LOANS
The model. Banking sector

- In each EA region there is a banking sector.
- It collects deposits from and issues equities to domestic savers.
- It lends to:
  - domestic entrepreneurs;
  - domestic borrowers (second type of households).
- It buys government bonds.
The model
The model. Borrowers (indebted households)

- They are “constrained” (i.e., subject to a loan-to-value ratio)
- Use real estate as collateral when demanding bank loans.
The model

[Diagram showing the relationships between central bank, savers, banks, restricted, corporate bonds, capital producers, entrepreneurs, and borrowers.]

- CENTRAL BANK
- SAVERS
- BANKS
- RESTRICTED
- CORPORATE BONDS
- CAPITAL PRODUCERS
- ENTREPRENEURS
- BORROWERS
The model. “Restricted” households

- Restricted households (third type of households) represent non-bank financial institutions.

- They invest in:
  - shares of capital producers;
  - long-term sovereign bonds.

- The feature is consistent with empirical evidence for the EA on the preferred-habitat theory.

- It allows for a complete description of EA financial markets.
The model
Higher demand from the Eurosystem increases corporate bond prices and reduces interest rates.

Entrepreneurs have an incentive to issue bonds so as to finance:

- investment in physical capital (because of their stake in capital producers);
- purchases of real estate and consumption goods.
In the first scenario, the Eurosystem announces that it immediately implements purchases of corporate bonds.

- The amount of quarterly purchases is:
  - 0.3% of quarterly EA GDP in the first quarter of simulation (2016Q2);
  - 1% in each of the subsequent three quarters (2016Q3, 2016Q4, 2017Q1).

- We assume bonds are held to maturity (8 years).

- The EA (short-term) monetary policy rate is kept constant at the baseline for 8 quarters (forward guidance, FG).
Simulated scenarios

- We then run alternative scenarios.
- We evaluate the role of exit policy:
  - corporate bonds are held by the Eurosystem for an amount of time shorter than the bonds maturity;
  - FG longer or shorter than two years.
Finally, we simulate the extension of the CSPP as announced on 8 December 2016 (“CSPP2”).

The additional purchases start after March 2017, i.e., in 2017Q2, and should last for three quarters until the end of 2017 (2017Q4).

Quarterly purchases equal to 1% of quarterly EA GDP.
The March 2016 CSPP boosts EA GDP by around 0.3% in the second year (peak level). Inflation rises too but by a smaller amount.

Taking into account the extension of December 2016, the overall impact of the programme on GDP amounts to 0.6%.

CSPP also stimulates banking activity.

Early exit from the CSPP negatively affects its macroeconomic effectiveness, while the FG on the policy rate enhances it.

There are reasons to believe that our estimates of CSPPs macroeconomic effects are a lower bound.
Combined impact of CSPP and CSPP2

- Corporate bonds interest rate
- EA GDP
- EA CPI inflation

Announcement CSPP

Announcement CSPP2
EA corporate bond market

**Entrepreneurs corporate bonds**

**Savers corporate bonds**

**Corporate bonds interest rate**
Main variables

- Home GDP
- REA GDP
- Home consumption and investment
- REA consumption and investment
- Home exports and imports
- REA exports and imports
- Home inflation
- REA inflation
- Home real exchange rate
- Home terms of trade
Consumption

Home overall consumption

REA overall consumption

HOME consumption

REA consumption

Dividends of bankers (percent dev from initial s.s.)
Labor variables

- Home labor
- REA labor
- Home labor − Tradables
- REA labor − Tradables
- Home labor − Nontradables
- REA labor − Nontradables
- Home real wages
- REA real wages
Real estate variables

Home real estate price

RE A real estate price

Home savers real estate demand

REA savers real estate demand

Home real estate demand

REA real estate demand

Borrowers

Entrepreneurs

Borrowers

Entrepreneurs
Banking sector: quantities
Banking sector: prices

Motivation

Goal

The model

Simulated scenarios

Results

Conclusions
Alternative exit strategies from CSPP

Home corporate interest rate

REA corporate interest rate

Home GDP

REA GDP

Home inflation

REA inflation
Forward Guidance

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Results

Conclusions
This paper evaluates the macroeconomic effectiveness of the CSPP.

According to our results, the CSPP favors economic activity and inflation.

Moreover, it also favors the recovery of the demand for bank loans and, thus, the improvement in banking sector conditions through its expansionary effects on demand for consumption and investment.

Overall, the CSPP can contribute to restore a standard monetary policy regime.