

The ECB unconventional monetary policies: have they lowered market borrowing costs for banks and governments?

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ECB unconventional monetary policies

- Since 2007: dramatic increase of risk premia on several euro zone markets
- Impaired transmission of conventional monetary policy
- ECB implemented unconventional monetary policies to lower interest rates and squeeze risk premia:
 - ▶ Exceptional liquidity provisions
 - ▶ Asset purchases
 - ▶ Collateral rules easing

Motivation and objective

Assess the effectiveness of the ECB unconventional monetary policies on market borrowing costs of:

- banks (money markets spreads and covered bonds spreads)
- governments (sovereign spreads)

Related Literature

- ① Response of the asset prices to the Fed's unconventional monetary policy news:
 - ▶ Krishnamurthy and Vissing-Jorgensen (2011), Szczerbowicz (2011)
- ② Measuring the effectiveness of the ECB unconventional monetary policies on financial markets:
 - ▶ CBPP 1: Beirne et al. (2011)
 - ▶ Money market spreads: Brunetti et al. (2009), Angelini et al. (2011)

Contribution

- Creation of database of all unconventional monetary announcements in the euro area (2007-2012).
- New evidence on the effectiveness of OMT, SMP, 3-year LTRO and other ECB unconventional policies via event-based regressions.
- Simultaneous evaluation of the impact of all unconventional monetary policies on three euro-zone borrowing markets: money market, covered bonds and sovereign bonds markets.

Results

Limited impact of UMP on interbank market:

- 3-year LTRO was the only measure that significantly reduced euro money market spreads.

Significant impact of UMP on long-term interest rates:

- Sovereign bond purchases (SMP, OMT) reduce sovereign and covered bond spreads in euro area, especially when sovereign risk is high.
- Covered bond purchases (CBPP 1 & 2) reduce covered bond spreads, especially for major covered-bond issuing countries.
- Among the ECB unconventional measures, sovereign bonds purchases proved the most effective in reducing longer-term spreads.

Event-based regression

- It allows testing the impact of an economic event, unconventional monetary announcements, on financial market data.
- The effect of an event should be reflected in asset prices observed over a short time period (1 or 2 days).

Data

- Daily data
- Sample period: July 2, 2007 - September 27, 2012
- Source: Datastream, Bloomberg and Reuters.

Announcements

- Unconventional monetary policies
- Conventional monetary policy
- European Financial Stability Facility news
- Euro-zone sovereign crisis dummy

Unconventional monetary policies

① Exceptional liquidity provisions:

- ▶ Fixed-rate full-allotment procedure (FRFA)
- ▶ Three-year refinancing operations (3y LTRO)
- ▶ Longer-term refinancing operations of maturity greater than 3 months
- ▶ Liquidity in foreign currencies

② Collateral easing

③ Asset purchases:

- ▶ Covered bond purchase programs (CBPP1 and CBPP2)
- ▶ Longer-term sovereign bond purchase program (SMP)
- ▶ Short-term sovereign bond purchase program (OMT)

• Announcements are represented by dummy variables

• Dummy values: 0, 1

Measures of market borrowing costs

I measure the impact of all unconventional monetary policy announcements on:

- 3-month money market spreads
- covered bond spreads (all maturities exceeding 1 year)
- 10-year sovereign bond spreads

Impact on 3-month money market spreads

$$\Delta S_t^M = \alpha + \sum_{i=1}^I \beta_i NC_{i,t} + \varphi_1 F_t + \varphi_2 C_t + \gamma_1 x_t + \sum_{n=1}^N \psi_n \Delta S_{t-n}^M + \sum_{l=1}^7 \theta_l D_{l,t} + \varepsilon_t$$

where:

ΔS_t^M is a 2-day change in 3-month money market spreads (EURIBOR-OIS, EURIBOR-Repo, EURIBOR-Bubill, CD-OIS)

$NC_{i,t}$ are dummies for unconventional monetary policy announcements

F_t is a dummy for the EFSF announcements

C_t is a dummy for sovereign debt crisis

x_t is a surprise change in the ECB policy rates or policy path

ΔS_{t-n}^M are lagged values of dependent variable (number of lags $n = 3$)

$D_{l,t}$ are dummies for the day of the week (Monday, Tuesday...)

ε_t is a stochastic error term ε_t is a stochastic error term

MONEY MARKET SPREADS = 3M unsecured - 3M "safe" rate

3-month	Euribor- -OIS	Euribor- Repo	Euribor- German	CD- OIS
Sovereign crisis dummy	0.00	0.00	0.00	0.00
EFSF/ESM	0.02	0.02*	0.02	-0.01
ECB policy rates surprises	0.13*	0.04	-0.08	0.13
Covered Bonds P.P. 1 and 2	-0.21	-0.37*	-0.17*	-0.15**
Securities Markets Prog.(SMP)	0.19	-0.02	-0.36*	0.01
Outright Monetary Trans.(OMT)	-0.04	-0.06*	-0.01	
Collateral easing	0.02	0.04	0.00	0.03
3Y LTRO announcement	-0.24***	-0.20***	-0.06**	
3Y LTRO operations	-0.06**	-0.06**	-0.03***	-0.13***
Fixed-rate full-allotment	-0.38	-0.19	0.15	-0.10
Longer maturity LTRO	0.13	0.21	0.12	0.10
Swaps agreements	0.01	0.01	0.04	0.04
Observations	1,365	1,365	1,278	1,187
R-squared	0.49	0.61	0.33	0.23

*** p<0.01, ** p<0.05, * p<0.1

Impact on covered bonds spread

$$\Delta S_t^C = \alpha + \sum_{i=1}^I \beta_i NC_{i,t} + \varphi_1 F_t + \varphi_2 C_t + \gamma_1 x_t + \sum_{n=1}^N \psi_n \Delta S_{t-n}^C + \sum_{l=1}^7 \theta_l D_{l,t} + \varepsilon_t$$

where:

ΔS_t^C is a 1-day change in covered bond spread (covered bond yield - German sovereign yield)

$NC_{i,t}$ are dummies for unconventional monetary policy announcements

F_t is a dummy for the EFSF announcements

C_t is a dummy for sovereign debt crisis

x_t is a surprise change in the ECB policy rates or policy path

ΔS_{t-n}^C are lagged values of dependent variable (number of lags $n = 1$)

$D_{l,t}$ are dummies for the day of the week (Monday, Tuesday...)

ε_t is a stochastic error term ε_t is a stochastic error term

COVERED BOND SPREAD = Covered bond rate - German sovereign bond rate

	Euro area	Ireland	Italy	Portugal	Spain
Sovereign crisis dummy	0.01***	0.01***	0.02***	0.04***	0.02***
EFSF/ESM	-0.04***	-0.06***	-0.06***	-0.12*	-0.08***
ECB policy rates surprises	-0.02	-0.01	0.02	-0.01	-0.04
Covered Bonds P.P. 1 and 2	-0.06***	-0.02	-0.16**	-0.08	-0.07***
Securities Markets Prog.(SMP)	-0.20***	-0.49***	-0.38***	-1.64***	-0.35***
Outright Monetary Trans.(OMT)	-0.05***	-0.12***	-0.08***	-0.46***	-0.10***
Collateral easing	-0.01	0.02	-0.03	-0.04	-0.02*
3Y LTRO annoucement	-0.03***	-0.06**	-0.01	0.07	-0.01
3Y LTRO operations	-0.01	-0.01	-0.04	0.00	-0.01
Fixed-rate full-allotment	-0.04	-0.07			-0.06**
Longer maturity LTRO	0.02	0.05	0.08	0.01	0.01
Swaps agreements	-0.00	0.01	-0.01	-0.01	-0.00
Observations	1,368	1,368	973	1,018	1,368
R-squared	0.13	0.13	0.17	0.27	0.20

*** p<0.01, ** p<0.05, * p<0.1

COVERED BOND SPREAD = Covered bond rate - German (UK) sovereign bond rate

	Euro area	France	Germany	(UK)
Sovereign crisis dummy	0.01***	0.01***	0.00**	-0.01***
EFSF/ESM	-0.04***	-0.02***	-0.03***	-0.00
ECB policy rates surprises	-0.02	-0.02	0.01	-0.02
Covered Bonds P.P. 1 and 2	-0.06***	-0.04***	-0.08***	0.04
Securities Markets Prog.(SMP)	-0.20***	-0.08***	-0.12***	0.08
Outright Monetary Trans.(OMT)	-0.05***	-0.03***	-0.04***	0.09*
Collateral easing	-0.01	-0.01	-0.01	0.00
3Y LTRO announcement	-0.03***	-0.04***	-0.01*	0.10*
3Y LTRO operations	-0.01	-0.01	-0.01	0.03
Fixed-rate full-allotment	-0.04	-0.04	-0.03	-0.12***
Longer maturity LTRO	0.02	0.01	0.04	0.06***
Swaps agreements	-0.00	0.00	-0.01	-0.02
Observations	1,368	1,368	1,368	1,369
R-squared	0.13	0.08	0.07	0.04

*** p<0.01, ** p<0.05, * p<0.1

Impact on sovereign bonds spread

$$\Delta S_t^S = \alpha + \sum_{i=1}^I \beta_i NC_{i,t} + \sum_{j=1}^2 \delta_j Q_{j,t} + \varphi_1 F_t + \varphi_2 C_t + \gamma x_t + \sum_{n=1}^N \psi_n \Delta S_{t-n}^S + \sum_{l=1}^7 \theta_l D_{l,t} + \varepsilon_t$$

ΔS_t is a 1-day change in 10-year sovereign bond spread (sovereign yield - German sovereign yield)

$NC_{i,t}$ are dummies for unconventional monetary policy announcements

$Q_{j,t}$ are dummies for the sovereign bonds purchases: Fed (δ_1) and BOE (δ_2)

F_t is a dummy for the EFSF announcements

C_t is a dummy for sovereign debt crisis

x_t is a surprise change in the ECB policy rates or policy path

ΔS_{t-n}^S are lagged values of dependent variable (number of lags $n = 1$)

$D_{l,t}$ are dummies for the day of the week (Monday, Tuesday...)

ε_t is a stochastic error term

SOVEREIGN SPREAD = 10Y Country government bond - 10Y German gov. bond

	Euro area	Greece	Ireland	Italy	Portugal	Spain
Sovereign crisis dummy	0.01**	0.13***	0.02**	0.02**	0.02	0.02**
ECB policy rates surprises	-0.01	-0.36	-0.02	-0.03	-0.02	-0.06
EFSF/ESM	-0.13***	-0.24*	-0.52***	-0.28**	-0.46***	-0.43***
Covered Bonds P.P. 1 and 2	-0.07***	-0.36**	-0.07	-0.21***	-0.07	-0.11
SMP	-0.17***	-4.76***	-1.17***	-0.35***	-2.05***	-0.44***
OMT	-0.13***	-0.17	-0.27*	-0.28***	-0.43**	-0.56***
Collateral easing	-0.02*	0.22	0.03	-0.03	-0.11*	-0.04
3Y LTRO announcement	0.20***	1.00***	0.02	0.51***	0.19	0.37***
3Y LTRO operations	-0.00	-0.03	0.02	-0.01	0.38**	0.05
Fixed-rate full-allotment	-0.01	-0.02	-0.00	-0.04	-0.01	-0.02
Longer maturity LTRO	0.01	0.05	-0.07	0.05	-0.01	0.00
Swaps agreements	-0.01	-0.11	0.02	-0.01	-0.04	-0.01
Treasuries purchases (US)	0.01	-0.02	0.03	0.01	-0.00	0.03
Gilt purchases (UK)	0.01	0.03	0.04	0.02	0.05	-0.00
Observations	1,368	1,368	1,368	1,368	1,368	1,368
R-squared	0.13	0.04	0.19	0.10	0.19	0.17

*** p<0.01, ** p<0.05, * p<0.1

SOVEREIGN SPREAD = 10Y Government bond - 10Y Riskfree rate

	Euro area	Germany	France	UK	US
Sovereign crisis dummy	0.01**	-0.00	0.00	-0.00	-0.00
ECB policy rates surprises	-0.01	0.01	-0.01	0.04	-0.01
EFSF/ESM	-0.13***	0.02	-0.07***	0.00	-0.00
Covered Bonds P.P. 1 and 2	-0.07***	-0.00	-0.02	0.06	0.02
SMP	-0.17***	-0.01	-0.04	-0.01	0.04
OMT	-0.13***	0.01	-0.05	-0.00	-0.00
Collateral easing	-0.02*	-0.01	-0.02	-0.01**	-0.01
3Y LTRO announcement	0.20***	0.07***	0.20***	-0.00	0.01
3Y LTRO operations	-0.00	0.00	-0.03	0.01*	0.01
Fixed-rate full-allotment	-0.01	0.02	-0.01	0.03	-0.02
Longer maturity LTRO	0.01	0.02	0.01	-0.02	0.00
Swaps agreements	-0.01	0.00	-0.01	0.01	-0.00
Treasuries purchases (US)	0.01	0.00	0.01	-0.00	-0.05***
Gilt purchases (UK)	0.01	0.00	0.01	-0.09**	-0.02
Observations	1,368	1,368	1,368	1,369	1,367
R-squared	0.13	0.08	0.06	0.06	0.25

*** p<0.01, ** p<0.05, * p<0.1

Conclusions

Asset purchases reduced long-term interest rates:

- **Sovereign bonds purchases** (SMP, OMT) reduced sovereign and covered bond spreads in euro area, especially when sovereign and denomination risk was high:
 - ▶ SMP for Greek sovereign yields: 476 bps; OMT for Spain: 56 bps; no effect for Germany.
 - ▶ Strong impact of SMP and OMT on covered bond spreads in euro area periphery (SMP: 35-164 bp, OMT: 10-46 bp).
- **Covered bonds purchases** covered bond purchases (CBPP 1 & 2) reduced covered bond spreads, especially for major covered-bond issuing countries (4-16 bps).

Among liquidity measures 3-year loans to banks were the most effective:

- **3-year LTRO** lowered money market spreads by 24 bp and covered spreads by 3 bp.