The Bank Lending Channel of Conventional and Unconventional Monetary Policy: A Euro-area bank-level Analysis

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This paper

We assess the pass-through of both CMP and UMP on loan interest rates in the euro area using a panel data for several euro-area banks

Three main questions

Q1. To what extent have unconventional measures transmitted to the cost of loans in the euro area?

Q2. Was a bank lending channel (BLC) operational during the crisis?

Q3. Were there differences in the BLC between conventional and unconventional MP (CMP and UMP)?

Motivation: theories to be tested

Three main theories

1. Bank lending channel with information asymmetries: MP pass-through *stronger* for *weaker* banks (i.e. less liquid, less capitalized, small banks)
   - Kashyap and Stein (1995; 2000); Jimenez et al. (2012; 2014)
2. Bank lending channel with capital constraints: MP pass-through *stronger* for *more capitalized* banks
   - Bernanke and Lown (1991); van den Heuvel (2002)
3. Bank capital channel via profitability, i.e. expectations about future capital: MP pass-through also depends on the effects of MP on the slope of the yield curve
   - van den Heuvel (2002)

Recent related literature

Effects of euro-area MP on lending rates using the same dataset

✓ Holton and Rodriguez d'Acri (2016, ECB WP)

- Error-correction pass-through models as in Gambacorta (EER, 2008)
- Only conventional monetary policy measure
- More bank-specific variables (size, more variables related to bank funding)

✓ Altavilla, Canova, Ciccarelli (2016)

- Estimate a VAR for each bank and then compute percentiles of individual effects
- All variables are endogenous, so potential feedback effects among variables
    - Impulse responses of lending rates reflect MP transmission via both demand and supply
- We focus on the identification of the effects of MP via supply
- Differences in the UMP measures (event study vs. shadow rate approach)

Heterogeneity of MP on lending rates with country-level data

- Illes and Lombardi (BIS 2013)
- Von Borstel, Eickmeier and Krippner (CAMA WP 2015)

Rest of the talk

1. Data
2. Empirical strategy
3. Regression results
4. Conclusions

The data and sources

Bank-level information

1) **Average rate of new loans to NFC**: monthly I-MIR data (160-200 MFIs from July-07 to Dec-15)

2) Bankscope, group-level, half-yearly consolidated

- **Tier1 ratio**
- **NPL ratio**

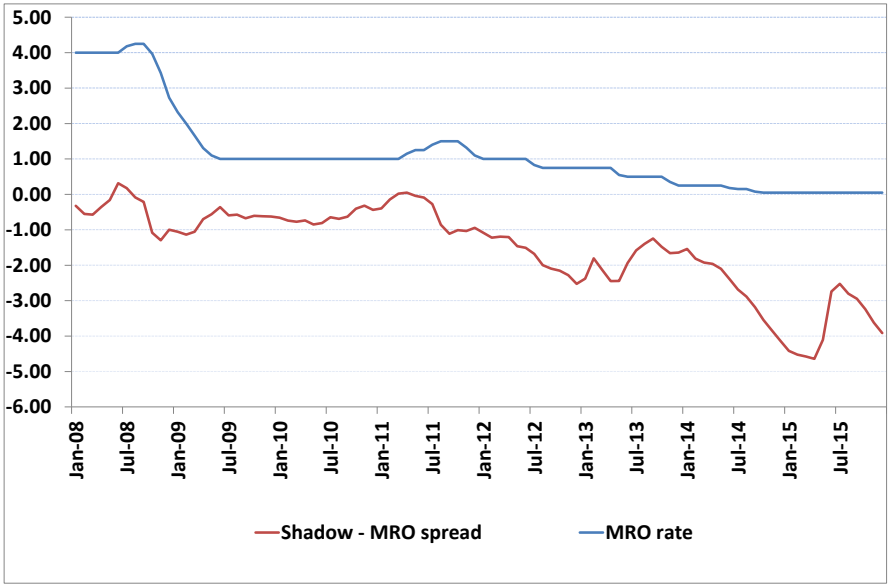
3) I-BSI: MFI-level, monthly unconsolidated

- **Deposit ratio** = HH+NFC deposits / Total main liabilities
- **Sovereign exposure** = domestic Gov't bonds / Total main assets
- **Net interest income**= Net interest income / Total main assets

Monetary policy variables

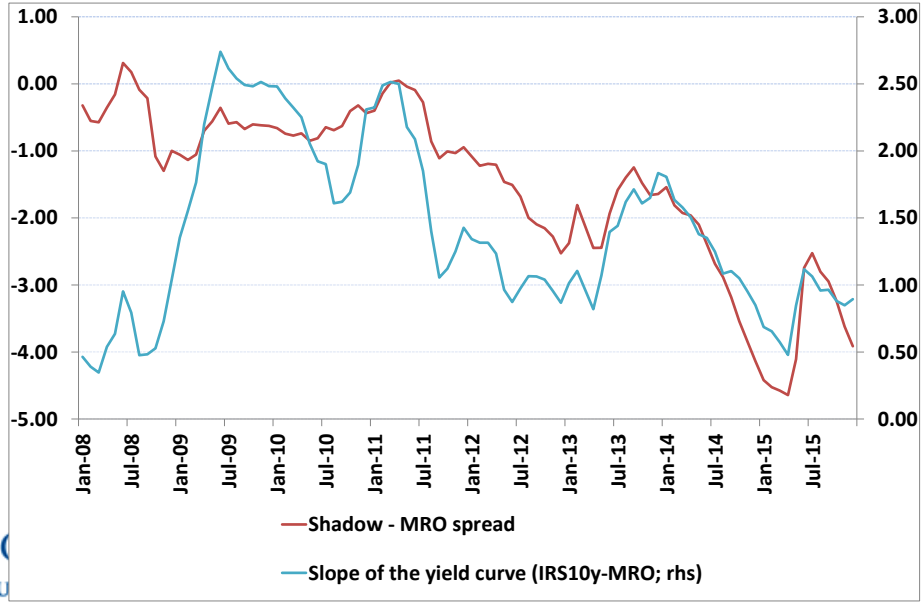
- Conventional MP: **MRO rate**
- Unconventional MP: **shadow rate** by Krippner (2014)
    - Eonia-MRO rate, ECB's balance sheet, slope of the yield curve

Monetary policy measures: MRO rate vs. Shadow rate



- It describes the stance of MP in a ZLB environment
- Movements are broadly consistent with timing of many unconventional measures
- However, it is model-dependent

- Shadow-MRO spread tracks movements in the slope of the yield curve since 2013
- Following APP and forward guidance, long-term risk-free rates declined more than short-term rates



Empirical strategy

We estimate a dynamic pass-through equation:

$$r^{C}_{it} = \omega_i + \tau_{Ct} + \alpha r^{C}_{it-1} + \beta X_{it-1} + \rho MP_{t-1} \cdot X_{it-1} + \varepsilon^{C}_{it}$$

- r^{C}_{it} : loan rate charged by bank *i* (of country C) at month *t*
- ω_i: bank fixed-effects
- τ_{Ct}: country-month fixed effects
- X_{it-1} : bank-specific variables
- MP_{t-1}: indicators of the monetary policy stance (conv & unconventional)
- **MP_{t-1}*X_{it-1}**: interaction terms between MP and bank-specific variables

<u>Testing theories: assessing sign and magnitude of interaction terms</u>

<u>Key identification issues:</u> more granular dataset may imply a more rigorous control for demand conditions and borrowers' riskiness

- We do better than studies on macro data while worse than studies on Credit Register data (where multiple lending is required)
- For the euro area this is the best we can do (still waiting for ANACREDIT)

Expected signs

Conventional monetary policy	BLC: asymmteric information
MRO rate*	
Tier1 Ratio	-
Liquidity ratio	-
Deposit ratio	-
NPL ratio	-
Sov. Exposure ratio	+/-

Unconventional monetary policy	BLC: asymmteric information
Shadow-MRO spread*	
Tier1 Ratio	-
Liquidity ratio	-
Deposit ratio	-
NPL ratio	-
Sov. Exposure ratio	+/-

Expected signs

Conventional monetary policy

MRO rate*	BLC: asymmteric information	BLC: capital constraints
Tier1 Ratio	-	+
Liquidity ratio	-	
Deposit ratio	-	
NPL ratio	-	
Sov. Exposure ratio	+/-	

Unconventional monetary policy

Shadow-MRO spread*	BLC: asymmteric information	BLC: capital constraints
Tier1 Ratio	-	+
Liquidity ratio	-	
Deposit ratio	-	
NPL ratio	-	
Sov. Exposure ratio	+/-	

Expected signs

Conventional monetary policy

MRO rate*	BLC: asymmteric information	BLC: capital constraints	Bank capital channel
Tier1 Ratio	-	+	-
Liquidity ratio	-		
Deposit ratio	-		
NPL ratio	-		
Sov. Exposure ratio	+/-		

Unconventional monetary policy

Shadow-MRO spread*	BLC: asymmteric information	BLC: capital constraints	Bank capital channel
Tier1 Ratio	-	+	+
Liquidity ratio	-		
Deposit ratio	-		
NPL ratio	-		
Sov. Exposure ratio	+/-		

Expected signs

Conventional monetary policy

MRO rate*	BLC: asymmteric information	BLC: capital constraints	Bank capital channel
Tier1 Ratio	-	+	
Liquidity ratio	-		
Deposit ratio	-		
NPL ratio	-		
Sov. Exposure ratio	+/-		
Net interest income			+

Unconventional monetary policy

Shadow-MRO spread*	BLC: asymmteric information	BLC: capital constraints	Bank capital channel
Tier1 Ratio	-	+	
Liquidity ratio	-		
Deposit ratio	-		
NPL ratio	-		
Sov. Exposure ratio	+/-		
Net interest income			-

Expected signs

Conventional monetary policy

MRO rate*	BLC: asymmteric information	BLC: capital constraints	Bank capital channel
Tier1 Ratio	-	+	
Liquidity ratio	-		
Deposit ratio	-		
NPL ratio	-		
Sov. Exposure ratio	+/-		
Net interest income			+
Net interest income * Tier1 Ratio			same sign as Tier1 Ratio

Unconventional monetary policy

Shadow-MRO spread*	BLC: asymmteric information	BLC: capital constraints	Bank capital channel
Tier1 Ratio	-	+	
Liquidity ratio	-		
Deposit ratio	-		
NPL ratio	-		
Sov. Exposure ratio	+/-		
Net interest income			-
Net interest income * Tier1 Ratio			opposite sign as Tier1 Ratio

Empirical results

Main results

	Baseline	Bank lending channel & bank capital channel
Conventional monetary policy		
MRO *		
Tier1 ratio	**-0.011 ****	
Deposit ratio	**-0.128 *****	
Sovereign exposure	**-0.548 ****	
Unconventional monetary policy		
SHADOW-MRO *		
Tier1 ratio	**0.011 *****	
Deposit ratio	0.062	
Sovereign exposure	**0.673 *****	
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	
Bank characteristics	Yes	
Bank fixed effects	Yes	
Country-time fixed effects	Country*YY:M	
Clustering (two-way)	Year*Bank, Year:mm	
N° of observations	8600	

Main results

	Baseline	Bank lending channel & bank capital channel
Conventional monetary policy		
MRO *		
Tier1 ratio	**-0.011 ****	**-0.010 ****
Deposit ratio	**-0.128 *****	**-0.130 *****
Sovereign exposure	**-0.548 ****	**-0.561 ****
Net interest margin		-0.008
Unconventional monetary policy		
SHADOW-MRO *		
Tier1 ratio	**0.011 *****	**0.012 *****
Deposit ratio	0.062	**0.076 ***
Sovereign exposure	**0.673 *****	**0.636 *****
Net interest margin		**-0.046 ****
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	Y, Not Sign.
Bank characteristics	Yes	Yes
Bank fixed effects	Yes	Yes
Country-time fixed effects	Country*YY:M	Country*YY:M
Clustering (two-way)	Year*Bank, Year:mm	Year*Bank, Year:mm
N° of observations	8600	8570

Main results

	Baseline	Bank lending channel & bank capital channel	
Conventional monetary policy			
MRO *			
Tier1 ratio	**-0.011 ****	**-0.010 ****	**-0.023 ****
Deposit ratio	**-0.128 *****	**-0.130 *****	**-0.139 *****
Sovereign exposure	**-0.548 ****	**-0.561 ****	**-0.527 ****
Net interest margin		-0.008	-0.089
Net interest margin * Tier1 ratio			0.008
Unconventional monetary policy			
SHADOW-MRO *			
Tier1 ratio	**0.011 *****	**0.012 *****	**0.025 *****
Deposit ratio	0.062	**0.076 ***	**0.091 ****
Sovereign exposure	**0.673 *****	**0.636 *****	**0.606 *****
Net interest margin		**-0.046 ****	0.068
Net interest margin * Tier1 ratio			**-0.010 ****
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.
Bank characteristics	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes
Country-time fixed effects	Country*YY:M	Country*YY:M	Country*YY:M
Clustering (two-way)	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm
N° of observations	8600	8570	8570

Economic relevance of estimated effects

Compute long-run pass-through on lending rates on the basis of estimated coefficients

- Calculations based on 90th-10th percentile of selected variables

1) MRO rate falls by 100bps

- Loan rate falls by **17 bp more** for ***lowly-capitalized*** banks
  - by **36 bp more** when controlling for BCC
- Loan rate falls by **15 bp more** for banks with **low deposit ratio**
- Loan rate falls by **11 bp more** for banks with **low sovereign risk**

2) Shadow - MRO spread falls by 100bps

- Loan rate falls by **17 bp more** for ***highly-capitalized*** banks
  - by **40 bp more** when controlling for BCC
- Loan rate falls by **14 bp more** for banks with **high sovereign risk**

By country group

	Baseline	By country group	
		Not stressed countries	Stressed countries
Conventional monetary policy			
MRO *			
Tier1 ratio	**-0.011 ****		
Deposit ratio	**-0.128 *****		
Sovereign exposure	**-0.548 ****		
Unconventional monetary policy			
SHADOW-MRO *			
Tier1 ratio	**0.011 *****		
Deposit ratio	0.062		
Sovereign exposure	**0.673 *****		
Interactions of MP with NPL and Liq ratio	Y, Not Sign.		
Bank characteristics	Yes		
Bank fixed effects	Yes		
Country-time fixed effects	Country*YY:M		
Clustering (two-way)	Year*Bank, Year:mm		
N° of observations	8600		

By country group

	Baseline	By country group	
		Not stressed countries	Stressed countries
Conventional monetary policy			
MRO *			
Tier1 ratio	**-0.011 ****	**-0.014 ****	
Deposit ratio	**-0.128 *****	**-0.104 ***	
Sovereign exposure	**-0.548 ****	**-1.069 ****	
Unconventional monetary policy			
SHADOW-MRO *			
Tier1 ratio	**0.011 *****	**0.012 ***	
Deposit ratio	0.062	0.025	
Sovereign exposure	**0.673 *****	**0.918 *****	
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	Y, Not Sign.	
Bank characteristics	Yes	Yes	
Bank fixed effects	Yes	Yes	
Country-time fixed effects	Country*YY:M	Country*YY:M	
Clustering (two-way)	Year*Bank, Year:mm	Year*Bank, Year:mm	
N° of observations	8600	4927	

By country group

	Baseline	By country group	
		Not stressed countries	Stressed countries
Conventional monetary policy			
MRO *			
Tier1 ratio	**-0.011 ****	**-0.014 ****	-0.007
Deposit ratio	**-0.128 *****	**-0.104 ***	-0.097
Sovereign exposure	**-0.548 ****	**-1.069 ****	-0.322
Unconventional monetary policy			
SHADOW-MRO *			
Tier1 ratio	**0.011 *****	**0.012 ***	**0.013 ****
Deposit ratio	0.062	0.025	0.084
Sovereign exposure	**0.673 *****	**0.918 *****	**0.591 ****
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.
Bank characteristics	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes
Country-time fixed effects	Country*YY:M	Country*YY:M	Country*YY:M
Clustering (two-way)	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm
N° of observations	8600	4927	3673

Robustness – 1

	Baseline	Controlling for interactions with other macro variables	Excluding branches and subsidiaries
Conventional monetary policy			
MRO *			
Tier1 ratio	**-0.011 ****		
Deposit ratio	**-0.128 *****		
Sovereign exposure	**-0.548 ****		
Unconventional monetary policy			
SHADOW-MRO *			
Tier1 ratio	**0.011 *****		
Deposit ratio	0.062		
Sovereign exposure	**0.673 *****		

Interactions of MP with NPL and Liq ratio	Y, Not Sign.
Bank characteristics	Yes
Bank fixed effects	Yes
Country-time fixed effects	Country*YY:M
Clustering (two-way)	Year*Bank, Year:mm
N° of observations	8600

Robustness – 1

	Baseline	Controlling for interactions with other macro variables	Excluding branches and subsidiaries
Conventional monetary policy			
MRO *			
Tier1 ratio	**-0.011 ****	-0.010	
Deposit ratio	**-0.128 *****	**-0.127 ****	
Sovereign exposure	**-0.548 ****	**-0.719 ****	
Unconventional monetary policy			
SHADOW-MRO *			
Tier1 ratio	**0.011 *****	**0.010 *****	
Deposit ratio	0.062	0.063	
Sovereign exposure	**0.673 *****	**0.598 ****	
Other macroeconomic controls			
Unemployment * Bank characteristics	NO	YES	
CISS Indicator * Bank characteristics	NO	YES	
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	Y, Not Sign.	
Bank characteristics	Yes	Yes	
Bank fixed effects	Yes	Yes	
Country-time fixed effects	Country*YY:M	Country*YY:M	
Clustering (two-way)	Year*Bank, Year:mm	Year*Bank, Year:mm	
N° of observations	8600	8600	

Robustness – 1

	Baseline	Controlling for interactions with other macro variables	Excluding branches and subsidiaries
Conventional monetary policy			
MRO *			
Tier1 ratio	**-0.011 ****	-0.010	**-0.010 ****
Deposit ratio	**-0.128 *****	**-0.127 ****	**-0.112 *****
Sovereign exposure	**-0.548 ****	**-0.719 ****	**-0.482 ****
Unconventional monetary policy			
SHADOW-MRO *			
Tier1 ratio	**0.011 *****	**0.010 *****	**0.009 *****
Deposit ratio	0.062	0.063	**0.074 ***
Sovereign exposure	**0.673 *****	**0.598 ****	**0.595 ****
Other macroeconomic controls			
Unemployment * Bank characteristics	NO	YES	NO
CISS Indicator * Bank characteristics	NO	YES	NO
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.
Bank characteristics	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes
Country-time fixed effects	Country*YY:M	Country*YY:M	Country*YY:M
Clustering (two-way)	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm
N° of observations	8600	8600	6958

Robustness – 2

	Baseline	Using the EONIA rate and the shadow-EONIA spread	Including the EONIA-MRO spread	Using the slope of the yield curve	Including excess liquidity	Including dummy for OMT
Conventional monetary policy						
MP Measure *	MRO *					
Tier1 ratio	**-0.011 ****					
Deposit ratio	**-0.128 *****					
Sovereign exposure	**-0.548 ****					
Unconventional monetary policy						
MP Measure *	SHADOW-MRO *					
Tier1 ratio	**0.011 *****					
Deposit ratio	0.062					
Sovereign exposure	**0.673 *****					

Interactions of MP with NPL and Liq ratio	Y, Not Sign.
Bank characteristics	Yes
Bank fixed effects	Yes
Country-time fixed effects	Country*YY:M
Clustering (two-way)	Year*Bank, Year:mm
N° of observations	8600

Robustness – 2

	Baseline	Using the EONIA rate and the shadow-EONIA spread	Including the EONIA-MRO spread	Using the slope of the yield curve	Including excess liquidity	Including dummy for OMT
Conventional monetary policy						
MP Measure *	MRO *	EONIA *	MRO *			
Tier1 ratio	**-0.011 ****	**-0.009 ***	**-0.010** *			
Deposit ratio	**-0.128 *****	**-0.116 *****	**-0.098 ****			
Sovereign exposure	**-0.548 ****	**-0.439 ****	**-0.461 ***			
Unconventional monetary policy						
MP Measure *	SHADOW-MRO *	SHADOW-EONIA *	SHADOW-MRO *			
Tier1 ratio	**0.011 *****	**0.009 *****	**0.010 *****			
Deposit ratio	0.062	0.051	0.035			
Sovereign exposure	**0.673 *****	**0.564 *****	**0.585 *****			
MP Measure *			EONIA-MRO *			
Tier1 ratio			-0.013			
Deposit ratio			-0.252			
Sovereign exposure			-0.881			
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.			
Bank characteristics	Yes	Yes	Yes			
Bank fixed effects	Yes	Yes	Yes			
Country-time fixed effects	Country*YY:M	Country*YY:M	Country*YY:M			
Clustering (two-way)	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm			
N° of observations	8600	8600	8600			

Robustness – 2

	Baseline	Using the EONIA rate and the shadow-EONIA spread	Including the EONIA-MRO spread	Using the slope of the yield curve	Including excess liquidity	Including dummy for OMT
Conventional monetary policy						
MP Measure *	MRO *	EONIA *	MRO *	MRO *		
Tier1 ratio	**-0.011 ****	**-0.009 ***	**-0.010** *	0.000		
Deposit ratio	**-0.128 *****	**-0.116 *****	**-0.098 ****	-0.068		
Sovereign exposure	**-0.548 ****	**-0.439 ****	**-0.461 ***	0.107		
Unconventional monetary policy						
MP Measure *	SHADOW-MRO *	SHADOW-EONIA *	SHADOW-MRO *	10YIRS - MRO		
Tier1 ratio	**0.011 *****	**0.009 *****	**0.010 *****	**0.015 ****		
Deposit ratio	0.062	0.051	0.035	0.118		
Sovereign exposure	**0.673 *****	**0.564 *****	**0.585 *****	**0.996 *****		
MP Measure *			EONIA-MRO *			
Tier1 ratio			-0.013			
Deposit ratio			-0.252			
Sovereign exposure			-0.881			
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.		
Bank characteristics	Yes	Yes	Yes	Yes		
Bank fixed effects	Yes	Yes	Yes	Yes		
Country-time fixed effects	Country*YY:M	Country*YY:M	Country*YY:M	Country*YY:M		
Clustering (two-way)	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm		
N° of observations	8600	8600	8600	8600		

Robustness – 2

	Baseline	Using the EONIA rate and the shadow-EONIA spread	Including the EONIA-MRO spread	Using the slope of the yield curve	Including excess liquidity	Including dummy for OMT
Conventional monetary policy						
MP Measure *	MRO *	EONIA *	MRO *	MRO *	MRO *	
Tier1 ratio	**-0.011 ****	**-0.009 ***	**-0.010** *	0.000	-0.008	
Deposit ratio	**-0.128 *****	**-0.116 *****	**-0.098 ****	-0.068	**-0.087 ***	
Sovereign exposure	**-0.548 ****	**-0.439 ****	**-0.461 ***	0.107	**-0.430 ***	
Unconventional monetary policy						
MP Measure *	SHADOW-MRO *	SHADOW-EONIA *	SHADOW-MRO *	10YIRS - MRO	SHADOW-MRO *	
Tier1 ratio	**0.011 *****	**0.009 *****	**0.010 *****	**0.015 ****	**0.011 *****	
Deposit ratio	0.062	0.051	0.035	0.118	0.066	
Sovereign exposure	**0.673 *****	**0.564 *****	**0.585 *****	**0.996 *****	**0.677 *****	
MP Measure *			EONIA-MRO *			
Tier1 ratio			-0.013			
Deposit ratio			-0.252			
Sovereign exposure			-0.881			
Including other MP measures						
Excess liquidity * Bank characteristics	NO	NO	NO	NO	YES	
OMT dummy * Bank characteristics	NO	NO	NO	NO	NO	
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.	
Bank characteristics	Yes	Yes	Yes	Yes	Yes	
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	
Country-time fixed effects	Country*YY:M	Country*YY:M	Country*YY:M	Country*YY:M	Country*YY:M	
Clustering (two-way)	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm	
N° of observations	8600	8600	8600	8600	8600	

Robustness – 2

	Baseline	Using the EONIA rate and the shadow-EONIA spread	Including the EONIA-MRO spread	Using the slope of the yield curve	Including excess liquidity	Including dummy for OMT
Conventional monetary policy						
MP Measure *	MRO *	EONIA *	MRO *	MRO *	MRO *	MRO *
Tier1 ratio	**-0.011 ****	**-0.009 ***	**-0.010** *	0.000	-0.008	**-0.011 ****
Deposit ratio	**-0.128 *****	**-0.116 *****	**-0.098 ****	-0.068	**-0.087 ***	**-0.128 *****
Sovereign exposure	**-0.548 ****	**-0.439 ****	**-0.461 ***	0.107	**-0.430 ***	**-0.545 ****
Unconventional monetary policy						
MP Measure *	SHADOW-MRO *	SHADOW-EONIA *	SHADOW-MRO *	10YIRS - MRO	SHADOW-MRO *	SHADOW-MRO *
Tier1 ratio	**0.011 *****	**0.009 *****	**0.010 *****	**0.015 ****	**0.011 *****	**0.011 *****
Deposit ratio	0.062	0.051	0.035	0.118	0.066	0.063
Sovereign exposure	**0.673 *****	**0.564 *****	**0.585 *****	**0.996 *****	**0.677 *****	**0.673 *****
MP Measure *			EONIA-MRO *			
Tier1 ratio			-0.013			
Deposit ratio			-0.252			
Sovereign exposure			-0.881			
Including other MP measures						
Excess liquidity * Bank characteristics	NO	NO	NO	NO	YES	NO
OMT dummy * Bank characteristics	NO	NO	NO	NO	NO	YES
Interactions of MP with NPL and Liq ratio	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.	Y, Not Sign.
Bank characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Bank fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country-time fixed effects	Country*YY:M	Country*YY:M	Country*YY:M	Country*YY:M	Country*YY:M	Country*YY:M
Clustering (two-way)	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm	Year*Bank, Year:mm
N° of observations	8600	8600	8600	8600	8600	8600

Take away

- Both CMP and UMP effective via the BLC & BCC

For unconventional MP

- Regulatory constraints may have limited the effectiveness of the measures via BLC
- Transmission via the BLC stronger for banks more reliant on wholesale funding and more exposed to sovereign risk
- No role played by NPLs

Thank you