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Beggar-thy-Neighbor? The international effects of the ECB's unconventional monetary policy measures

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"Quantitative easing policies (...) have triggered (...) a monetary tsunami, have led to a currency war and have introduced new and perverse forms of protectionism in the world."

-Dilma Rousseff in 2012

▶ US tapering raised concern in Brazil, Turkey, India and South Africa (Knyge, 2014)

▶ EA QE raises concern among non-Euro EU members due to strong trade and financial ties

▶ Example: Switzerland abandoning cap in January 2015

Research Questions

- What are the effects of the ECB's unconventional monetary policy (UMP) within the Euro Area?

- What are the spillover effects of the ECB's unconventional monetary policy on other countries?

  - Are they beggar-thy-neighbor policies?
  - Are there differences among countries and if so, why?

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Our Contribution

- ▶ Analyze the international transmission of the ECB's UMP to 9 European countries outside the Euro Area (EA)

- ▶ Use of Bayesian mixed-frequency SVAR to combine monthly macro, daily financial and weekly policy data

- ▶ Evaluate trade and financial transmission channels of monetary policy

- ▶ Compare conventional and unconventional policy transmission since the onset of the financial crisis

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Preview of our Results

▶ UMP affect inflation and stock prices most domestically in EA

▶ ECB UMP shocks have international real and financial spillover effects

  ▶ No generalized beggar-thy-neighbor effects

  ▶ Heterogeneous international macro effects

  ▶ International transmission occurs through both trade and financial channels

 ▶ But: financial channels dominate

Countries in our Sample
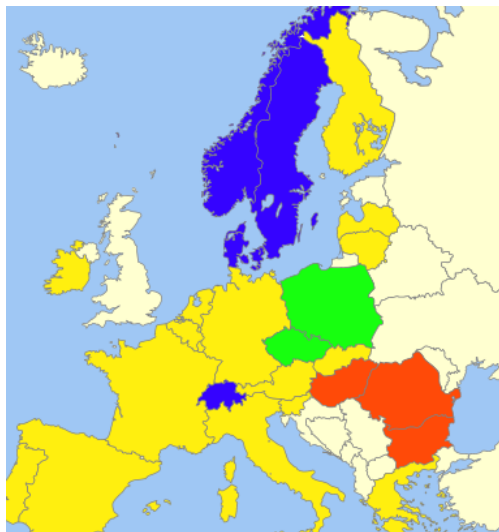
Unconventional Policies in our Sample

Date	Tool	in Bn of €
Dec. 2007-ongoing	Reciprocal Currency Agreement	271.6
Mar. 2008-May 2010	6-month Long term refinancing operations	66
May–Dec. 2009	12-month Long term refinancing operations	614
Jun. 2009-Jun. 2010	Covered Bond Purchase Programme	45
May 2010-Aug. 2012	Securities Market Programme	195
Aug. 2011	12-month Long term refinancing operations	49.8
Oct. 2011	13-month Long term refinancing operations	57
Nov. 2011-Oct. 2012	Covered Bond Purchase Programme 2	15
Dec. 2011	36-month Long term refinancing operations	489
Feb. 2012	36-month Long term refinancing operations	530
Jul. 2012	Draghi's "Whatever it takes speech"	
Aug. 2012-ongoing	Outright Monetary Transaction	
Jul. 2013	Forward Guidance	

Source: ECB weekly Financial Statements; ECB Statistical Warehouse; Cecioni et al.

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Transmission Channels in our Sample
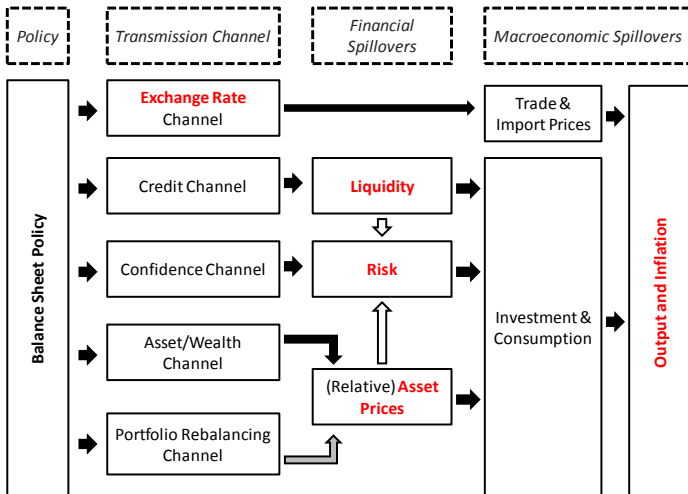
Previous studies on domestic effects within the Euro Area

- ▶ Quarterly VARs with lending survey/ credit supply
  - ▶ Output and inflation respond similar to conventional but slower, less significant and stickier (Peersman, 2012)
  - ▶ Positive output and inflation effects found by Darracq Pariès and De Santis (2013), Lenza et al. (2010) and Gambarcorta et al. (2012)

- ▶ (Quasi) Event studies/HF for financial variables and announcement effects
  - ▶ Reduction in market spreads after announcement (Angelini et al., 2011; Abbassi and Linzert, 2011; Beirne et al., 2011)
  - ▶ Using intra-day data significant announcement effects on term premia and government bonds (Ghysels et al. 2013 or Rogers et al., 2014)

Previous studies on international transmission of UMPT

- ▶ US QE: Dollar depreciation, rise in stock prices and decrease in CDS spreads (Neely, 2010; Chinn, 2013; Fratzscher et al., 2013 for QE2)

- ▶ Effect on emerging countries stronger (Chen et al., 2012)

- ▶ EA UMP: Decline in risk, positive equity spillovers, little effect on portfolio flows and yields, Euro depreciation (Fratzscher et al., 2014)

- ▶ Less output and bank lending effects in less capitalized countries (Boeckx et al., 2014)

- ▶ Problems:
  - ▶ High-frequency: macro - finance linkages not properly accounted for because of time aggregation
  - ▶ Low-frequency: policy endogeneity

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Our Model

Structural form of VARX:

$$A_0 y_t = A(L)y_{t-1} + Bx_t + \epsilon_t, \ \ \epsilon_t \sim N(0, \Sigma),$$

- The endogenous variables are defined as $y_t = [z_t, q_t]$:
    - z_t are the variables with missing observation
    - q_t are fully observed

- The endogenous variables can be decomposed into $y_t = [y_{t,1}, y_{t,2}]$:
    - EA variables: $y_{1t} = [y_t^*, \pi_t^*, UMPT_t^*, sp_t^*, l_t^*, r_t^*]'$
    - Domestic variables: $y_{2t} = [y_t, \pi_t, e_t, sp_t, l_t, r_t]'$

- The exogenous variables $x_t = [News_t, i_t, i_t^*, PC_t]$

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The Estimation Approach

- Aggregate daily financial data, use weekly monetary policy data, and construct weekly macro data from monthly observations

- Bayesian Gibbs sampler approach: draw missing data from multivariate normal distribution (Chiu et al., 2011, Qian, 2013).

  - Weekly frequency irregular

  - Mid-point average data rather than end of the period sampling. Directly sample from constrained multivariate distributions

- Flat prior for all coefficients

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Identification

- Block exogeneity of Euro area variables with respect to foreign variables (see Cushman and Zha, 1997, Mackowiack, 2007)

- Baseline: Country blocks have recursive order

    - Output and inflation predetermined within a week to UMP shocks

    - Financial variables do not enter the UMP reaction function (more accurate for LTRO, less accurate for SMP)

    - Ordering of financial variables arbitrary

    - Perform robustness checks

- Contemporaneous restrictions very weak –> weekly

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The Data

- ▶ Sample: 18th December 2008-10th May 2014

  - ▶ Avoid major structural breaks

  - ▶ Avoid the high volatility period following the Lehman crisis

  - ▶ Have a time period where UMP were frequently used

  - ▶ Avoid negative interest rates (began June 2014)

- ▶ Countries:

  - ▶ Mostly floating currency regimes

  - ▶ 2 pegged (Denmark and Bulgaria)

  - ▶ 1 hybrid (Switzerland, switched from floating to fixed regime in September 2011)

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▶ Variables:

  ▶ Monthly IP index and CPI index for output and inflation.

  ▶ Weekly UMP variable: sum of LTRO, SMP and Covered Bond Purchase Programmes (CBP) (I and II).

  ▶ Daily financial variables: bilateral nominal exchange rate, the liquidity spread, stock market indices, and CDS spreads.

  ▶ Announcement dummy: sum of event dummies for LTROs, collateral changes, SMP, CBP I and II.

  ▶ PC indicator for global factors and US and UK monetary policy variables

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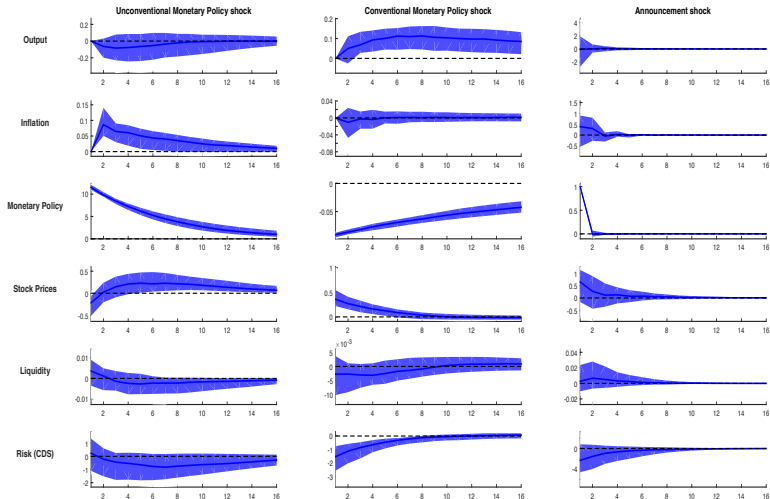**Estimation**
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Research Questions

▶ **What are the spillover effects of the ECB's unconventional monetary policy (UMP) within the Euro Area?**

▶ What are the spillover effects of the ECB's unconventional monetary policy on other countries?

  ▶ Are they beggar-thy-neighbor policies?

  ▶ Are there differences among countries and if so, why?

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UMP Shock: Domestic
UMP Shock: International
Heterogeneity
Robustness

Domestic Transmission of UMP shock

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Summary of Results for Domestic Shock

	Output	Inflation	Stock Prices
UMP shock	0	+	+
Conventional MP Shock	+	0	+

- With unconventional monetary policy output responses insignificant
  - Different to US and UK which had asset purchase programmes rather than interbank liquidity intervention
  - For stronger output effects need bank lending channel to work (little evidence)
- Liquidity and risk spread significantly negative in the medium run only (weak credit and confidence channel)

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Summary of results for conventional and news shock

▶ With conventional monetary policy disturbances output responses significant and persistent - peak effect after 8 -10 weeks

▶ Risk perceptions persistently decrease; stock prices increase

▶ UMP announcement surprises have little effect on aggregated macro variables

▶ The responses of stock prices and risk spread similar to those of a conventional policy disturbances (Szczerbowicz, 2015)

▶ Possible underestimation because of averaging of daily data (see Ghysels et al., 2013; Rogers et al., 2014)

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UMP Shock: Domestic
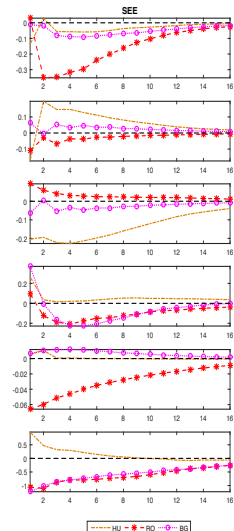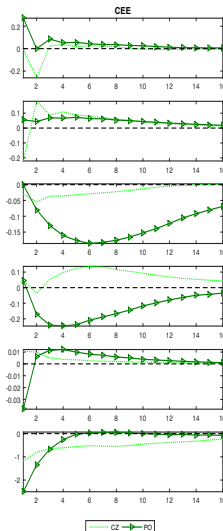UMP Shock: International
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International Transmission of UMP shock

- Responses in deviations from Euro area responses (the exchange rate is in level)

- Country groups:

    Advanced: Sweden, Norway, Denmark, and Switzerland

        CEE: Central Eastern European countries - Poland, and the Czech Republic

        SEE: Southern Eastern European countries - Hungary, Romania, and Bulgaria

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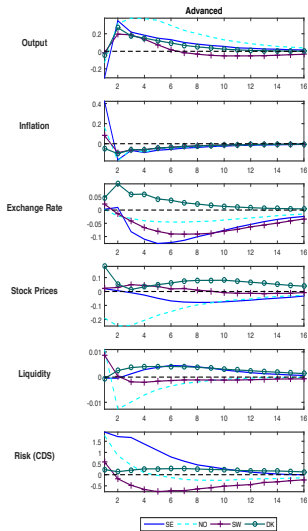
Summary of International Transmission of UMP shocks

▶ Macro responses heterogeneous

	Output	Inflation
Advanced	+	-
CEE	0	+
SEE	-	0

▶ No generalized beggar-thy-neighbor effect!

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- ▶ The exchange rate, wealth, risk and portfolio re-balancing channels spill Euro area UMP shocks to foreign countries

- ▶ Credit channel is weak

- ▶ The exchange rate channel is not responsible for heterogeneity in output responses

- ▶ Financial channels crucial for international transmission of UMP disturbances (less so for conventional monetary shocks)

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    ▶ **Are there differences among countries and if so, why?**

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Introduction   UMP Shock: Domestic
Estimation   UMP Shock: International
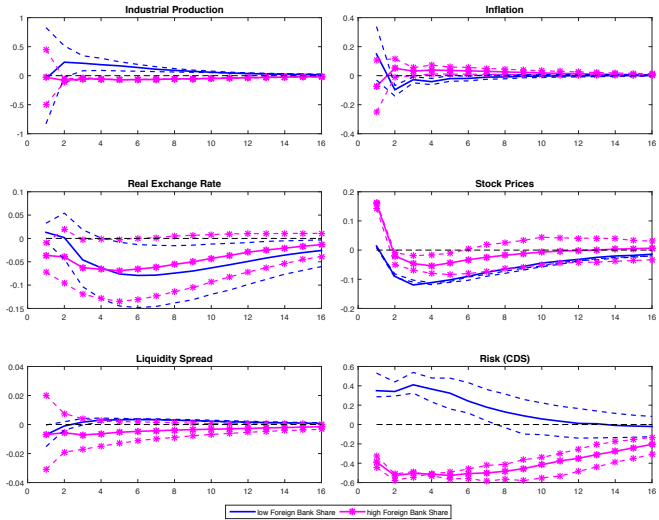**Results**   **Heterogeneity**
Conclusion   Robustness

Why are foreign macro responses heterogeneous?

- ▶ Different exchange rate regimes?

- ▶ Other exogenous shocks, e.g. oil shocks that occur at the same time and proxy for UMP shocks?

- ▶ UMP shocks hit countries at different stages of their business and financial cycle?

- ▶ Some small countries themselves conducted UMP, while others did not?

- ▶ Different domestic financial market structure?

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Why are foreign macro responses heterogeneous?

▸ IMF (2013) states 70-90% of assets in CEE and SEE countries held by foreign banks (mostly from the Euro area)

▸ Cheap ECB liquidity may be invested into foreign financial markets rather than lent to foreign households and firms

   ▸ Increase in foreign asset prices and risk reductions

   ▸ No positive real spillovers - foreign loans unaffected by the additional liquidity banks obtain

▸ In countries with a large share of foreign banks, global liquidity increases should have the smallest real pass-through

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Heterogeneity due to foreign bank share?

- ▶ Stark difference in the response of output, inflation and risk

- ▶ Countries with high share of foreign bank ownership experience decrease in output, an increase in inflation and reduction in risk relative to the Euro area

- ▶ Similar conclusions if we group countries according to the level of financial development or the credit-to-GDP ratio

- ▶ Result in line with macro studies Aizenman (2015), Dedola (2015), and micro studies Ongena et al. (2015)

- ▶ Exchange rate and credit channel shows no significant difference between groups

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Robustness

- ▶ VIX instead of CDS for countries available

- ▶ Excess liquidity as UMP measure

- ▶ Splitting of liquidity and sovereign bond policies: sovereign debt policies produce positive real activity and negative inflation response

- ▶ Identification Scheme

  - ▶ R1-R3: Reordering of financial block

  - ▶ R4: Sign and zero restrictions (liquidity spread non-positive for at least one period after UMP shock)

  - ▶ R5: Heteroskedasticity switches before/ after Draghi "Whatever-it- takes" speech

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Conclusion

▶ ECB UMP shocks have important domestic effects, especially on inflation and stock prices

▶ ECB UMP shocks have international real and financial spillover effects

  ▶ No generalized beggar-thy-neighbor effects

  ▶ Heterogeneous international macro effects

  ▶ Heterogeneity possible due to share of foreign banks in domestic financial markets

  ▶ International transmission occurs through both trade and financial channels

  ▶ But: financial channels dominate

Thank you for your attention!