Asymmetric monetary policy in the Euro Area

A new role for the ECB
Agenda

1. Introduction
2. Definition of asymmetric monetary policy
3. Why asymmetric
4. Focus on the Euro Area
5. Objective of the model
6. Structure of the model
7. The outcome
8. The model
9. Limitations
10. Evidences
Definition

• *Use of conventional monetary tools differently across financial institutions of the Member States of a Monetary Union*
Why Asymmetric?

Theory: A monetary union is sustainable over the long-term if business cycles converge over time.

Implication: Either shocks must be symmetric in nature and have the same impact across Member States or the currency area must be endowed with a “flexible” economic structure allowing for shocks to spread similarly across countries (Optimal Currency Area-OCA)
Focus on the Euro Area

The Euro Area is not an optimal currency area

1. Prices and wage flexibility
2. Labor and capital mobility

Especially...

3. Constrained national fiscal policies
 Objective of the model

1. Show how idiosyncratic shocks lead to diverging inflation and output gaps across Member States via the impact on the market for reserves

2. Analyze the results achieved by uniform vs. asymmetric monetary policy.
Structure of the model

- Two countries: Greece and Germany
- Two representative banks
- Idiosyncratic shocks provoke:
  - Lower amount/value of collateral
  - Higher interbank interest rate
- Impact on the reserve market
  - Main refinancing operations
  - Overnight Interbank market
  - Marginal Lending Facility
- Monetary Tools:
  - Collateral requirements when borrowing at the ECB
  - Interest rate on the Marginal Lending Facility
Collateral shock- The outcome

1. **MROs**
   Greek (German) banks obtain fewer (more) reserves than required

2. **Interbank market**
   Shortage filled in the interbank market and MLF (costly)

3. **Result**
   Greek banks are worse off and German banks better off

4. **Uniform Monetary Policy**
   Increase money supply and lower minimum interest rate leads to higher inflation in Germany

5. **Asymmetric monetary policy**
   Accept less valuable collateral by Greek banks offsets the initial fall in the value of collateral
Interbank rate shock-The outcome

1. **MROs**
   German (Greek) banks obtain fewer (more) reserves than required

2. **Interbank market**
   German banks are NOT worse off

3. **Result**
   Greek banks are still worse off

4. **Uniform Monetary Policy**
   Lower imlf for both banks leads to a lower interbank rate for German banks

5. **Asymmetric monetary policy**
   Lower imlf for greek banks only lowers their interbank interest rate
The model

• Formula:

\[ i^A(q_i) = i^I - \frac{1}{B} q_i \]

• Linear function instead of step function
• Constant marginal cost of collateral (B)
  
  (Ewerhart, Cassola, Valla 2006)
• Focus on two banks: Greek and German
• **First**, equal collateral and interbank rate
• Then, the **shock** modifies the collateral and/or the interbank rate of one of the two banks (idyosincratic shocks)

\[ i^A(q_{ger}) = i^I_{ger} - \frac{1}{B_{Ger}} q_{ger} \]

\[ i^A(q_{gree}) = i^I_{gree} - \frac{1}{B_{gree}} q_{gree} \]
Inverse bid schedule

Figure 1

Figure 2

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Inverse bid schedule-modification

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Overnight interbank market

Intra-country Heterogeneity

Figure 3

Figure 4

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Collateral shock for Greek banks

Inverse bid schedules

\[ i^A(q_{\text{Ger}}) = i^I - \frac{1}{B_{\text{Ger}}} q_{\text{Ger}} \]
Collateral for german banks constant

\[ i^A(q_{\text{Gree}}) = i^I - \frac{1}{B_{\text{Gree}}} q_{\text{Gree}} \]
Bgree falls

Assume supply of reserves remains constant
The stop out rate falls
EXTRA reserves for German banks
SHORTAGE of reserves for Greek banks
Collateral shock for Greek banks

Figure 5: Inverse bid schedules post shock

Figure 6: Aggregate demand and supply post shock
Collateral shock for Greek banks

Figure 7

A = \text{i}^{\text{mlf}} \text{ for greek and german banks before the shock}

B = \text{i}^{\text{i}} \text{ for greek and german banks after the shock if the supply does not pivot}

C = \text{i}^{\text{l}} \text{ for greek banks if the supply pivots as a result of credit rationing and risk of default}

\text{S}^{\text{int}} \text{ and risk of default before the shock}

\text{S}^{\text{int}} \text{ new after the shock}

\text{D}^{\text{int}} \text{ and risk of default after the shock}

\text{D}^{\text{int}} \text{ new after the shock}

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Collateral shock for Greek banks

X = interbank rate after the shock
Y = initial interbank rate

Gain with lower |  Gain with higher
| i^l

Gain for Greek banks

Gain for German banks

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Collateral shock for Greek banks

*Uniform monetary policy*

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Figure 9
Collateral shock for Greek banks

*Uniform monetary policy*

- Extra reserves are likely to increase the amount of loans German banks can make, leading to a stronger economic activity in Germany, eventually putting upward pressure to prices.

- Instead, if extra reserves are hoarded, then German banks' position would worsen.

- As the mandate of the ECB is primarily to guarantee overall price stability, the change in inflation rates for countries that have not suffered the shock (Germany) limits the scope of intervention.
Collateral shock for Greek banks

Asymmetric monetary policy

• If the ECB allowed different financial institutions to post different assets as collateral in the auction, then the shock suffered by Greek banks would be limited.

• By allowing Greek banks to have a wider pool of assets to use in the tender procedures, the MC of posting collateral will be diminished. This corresponds to an outward pivot of the inverse bid schedule for Greek banks, as opposed to the inward pivot caused by the initial shock.
Collateral shock for Greek banks

Asymmetric monetary policy

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Model Limitations

• **Moral hazard**
  Discretionary Monetary policy
  Accept only assets whose fall in price does not depend on the risk undertaken by the banks

• **Greek banks-makes sense?**
  Multinational banks branches also borrow in the MROs
  Benchmark (% of lending in Greece as a portion of total loans) to avoid arbitrage

• **Longer term refinancing operations**
  The model is still valid: both auction and interbank market

• **Static**

• **Close economy**
Interbank interest rate shock

• Inverse bid schedule

\[ i^A(q_{ger}) = i^I_{ger} - \frac{1}{B} q_{ger} \]

Interbank rate for German banks

\[ i^A(q_{gree}) = i^I_{gree} - \frac{1}{B} q_{gree} - i^I_{ger} \]

i.e. Greek banks increases

Assume supply of reserves remains constant
The stop out rate rises
EXTRA reserves for Greek banks
SHORTAGE of reserves for German banks
Interbank interest rate shock

Figure 10

credit rationing and risk of default

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Interbank interest rate shock
Interbank interest rate shock

Uniform monetary policy
Interbank interest rate shock

Asymmetric monetary policy
Optimal currency areas and the Euro Area

Were business cycles synchronized?
NO. In fact, Maastricht convergence criteria.

Are they now?
“Revenge of the optimum currency area” – recent article by Paul Krugman


Instead,
“One significant feature of Euro Area inflation differentials is their persistence” - Jean-Claude Trichet (2006)

What went missing?
OCA criteria.
Empirical exercise

• Taylor rule approach
  Divergence between ECB targeted interest rate (the Eonia) and the optimal interest rate (the rate each NCB would have target in absence of a monetary union).

Data
  IMF
  Annual
  Natural real interest rate calculated via the taylor rule
  Different response coefficients attempted
Optimal interest rate vs Eonia

\[ i_t = \pi_t + r^n_t + \varphi_\pi (\pi_t - \pi^*) + \varphi_x (x_t - x^*) \]
\[ r^n_t = EONIA - \pi_t - [\varphi_\pi (\pi_t - \pi^*) + \varphi_x (x_t - x^*)] \]

If the Euro Area is an optimal MU, the two rates equal each other.
## Divergence Table

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Average divergence 2009-2011

Distance of the optimal rates from the eonia = 0.67

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Two Europes

Absolute distance from the eonia 2001-2011


0 0,5 1 1,5 2 2,5 3 3,5 4 4,5
2001-2011 distance in average terms with ECB minimum bid rate

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Evolution of divergence

Absolute distance of optimal rates from the eonia

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Results

• All these evidences aim at showing the limit of a non-optimal MU: no single country is able to achieve its optimal response to current economic conditions.

• The cost may become very high when shocks are isolated and national fiscal policies are constrained by political inertia or high costs of borrowings.

• This is where asymmetric monetary policy comes in.