# Discussion: The incentive channel of monetary policy: quasi-experimental evidence from liquidity operations

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# Introduction of TLTRO

*"In pursuing its price stability mandate, the Governing Council of the ECB has today announced measures to enhance the functioning of the monetary policy transmission mechanism by supporting lending to the real economy."*

- Announced on June 5, 2014, together with the possibility of an expanded asset purchase program
- Targeted operations, as the amount that banks can borrow is linked to their loans to non-financial corporations and households
- Possibility of mandatory early repayment if banks are not engaging in sufficient eligible lending

# This Paper

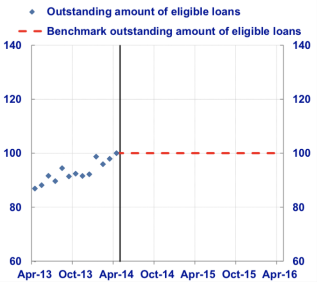
- Investigate the effect of *targeted* liquidity operations, i.e., loans with attached incentive schemes
- Reserach Questions:
  1. Did TLTRO stimulate bank lending?
  2. Did TLTRO stimulate bank lending because of the attached incentive scheme or simply because of liquidity injections?
  3. Spillovers to non-targeted asset classes?
  4. Were banks affected differentially by TLTRO?

# Modalities of TLTRO

- Banks can participate individually or in groups
- Banks are subject to borrowing limits
  - Initial Allowance (operations 1 and 2) = 0.07 * amount outstanding on 30 April 2014 of eligible loans granted
  - Operations (3 to 8; the focus of this paper): Allowance depends on eligible net loan growth over the period May 2013 to April 2014

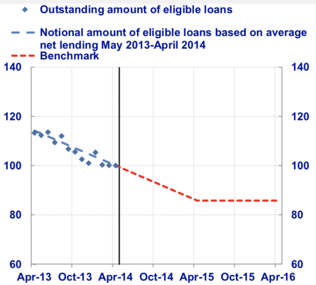
# Modalities of TLTRO

**Chart 1** **Benchmark for a counterparty with positive eligible net lending in the twelve months to 30 April 2014** *(index, April 2014 = 100)*



# Modalities of TLTRO

Chart 2 **Benchmark for a counterparty with negative eligible net lending in the twelve months to 30 April 2014** *(index, April 2014 = 100)*



# How to identify the causal effect of TLTRO on bank lending

- Authors employ regression kink methodology, based on the fact that net lending growth in the 12 months prior to TLTRO announcement determines borrowing allowance
- Identifying assumption: Ex-ante lending behavior provides exogenous variation in TLTRO borrowing allowance and thus TLTRO uptakes
- Allows to estimate the causal effects of TLTRO uptakes on bank lending

# Success of TLTRO?

*"Although banks in vulnerable countries  a category that includes Italy, Portugal and Spain  have not increased lending in absolute terms, they have at least been cutting corporate lending more slowly than they had been, as the scheme requires. Stabilising lending to companies when it had been falling at an average annual rate of 4% since 2012 is a success of sorts."*
Source: The Economist "Money for less than nothing"

- Eight operations until June 2016, directly followed by TLTRO II

# The Paper’s results in a nutshell

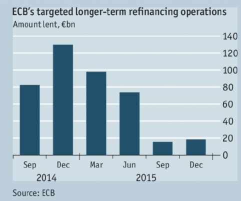
- Positive relation between ex-ante lending (which determines borrowing allowance) and TLTRO uptakes
- Clearly visible kink at the cutoff point
- Leads to increase in loan supply and a decrease in lending rates, with banks rebalancing towards riskier loans
- The program affects only eligible loans
- Effects remain even after controlling for actual uptakes (liquidity channel)
- Leads to a funding cost relief and an overall increase in profitability

# Placement in the Literature

- Large number of papers on 2011 LTRO program
  - Carpinelli and Crosignani (2018) use the fact that the Italian government offered banks a guarantee, against the payment of a fee, on securities otherwise ineligible at the ECB
  - Program effectively allowed banks to increase their borrowing capacity at the central bank; degree of usage depended on wholesale funding dry-up
  - Finding: Banks exposed to the dry-up invested, for every euro borrowed at the LTRO, 0.13 cents in private credit and 0.44 cents in (domestic) government bonds.
- Key innovation of this paper:
  - Focus on **targeted** operations allows to investigate the role of **incentive schemes** embedded in such operations
  - Main question: Does the incentive scheme help to achieve desired allocation of funds?
  - Innovative identification strategy (RK design)

# Empirical Design

- Identification of causal effect hinges on a couple of assumptions, most of which will be easy to test for the authors
- One concern for the authors' analysis might be incomplete take-up (i.e., banks do not fully use their borrowing limits)




*"Only half of the EUR 400 billion on offer in its early stages was taken up, and later demand dropped off further"* Source: The Economist

# Empirical Design

- Given low share of take-ups, it seems plausible that bank characteristics other than the lending allowance explain a significant share of the take-ups by banks
- Could be a concern if some drivers of the take-up decision are correlated with the assignment variable (i.e., ex-ante eligible lending)
- Possible candidates: leverage, regulatory capital ratio, NPLs, borrowing under vLTRO...
  - Weakly-capitalized banks or banks with high NPLs might have negative ex-ante loan growth
  - Similarly, uptakes on previous (untargeted LTRO program) might be correlated with ex-ante lending
- Incomplete take-up may affect the validity of RK design (e.g., Landais 2015)

# Empirical Design

*"The banks that borrowed from the ECB under TLTRO I did expand credit, but largely in countries with already healthy lending, such as Germany and France."* Source: The Economist

| | Loan growth | |
|---|---|---|
| | (1) | (2) |
| Ex-ante lending # D | 1.546*** | 1.318*** |
| | [3.49] | [3.10] |
| Vuln. Country # Ex-ante lending # D | -0.763 | -0.498 |
| | [-1.48] | [-0.98] |

| | Loan growth | |
|---|---|---|
| | (1) | (2) |
| Ex-ante lending # D | 1.006*** | 0.895*** |
| | [2.81] | [2.62] |
| T1 Cap. Ratio # Ex-ante lending # D | 1.542*** | 1.652*** |
| | [2.80] | [3.00] |

- Positive lending effect stronger for core country banks and banks with higher capital ratio

# Empirical Design

- Banks in vulnerable countries, weakly-capitalized banks or banks with high NPLs might have negative ex-ante loan growth
- Given incentive scheme (early mandatory repayment if eligible net lending is below the benchmark) bank characteristics might be correlated with both ex-ante lending growth and TLTRO uptakes
- Banks might be concerned that their low capital or high NPLs prevents them from meeting the requirement
- Hence, if weak banks or banks with high NPLs have less (profitable) lending opportunities they might be reluctant to take up TLTRO funds

# Suggestions

- Plot other bank characteristics to show that they do not have a kink, i.e., that they evolve smoothly at the kink of the assignment variable
- Provide more descriptive statistics on banks on both sides of the cutoff (positive vs negative ex-ante lending growth)
- How different are banks on both sides of the cutoff?

# Suggestions

- Dig deeper into which bank characteristics help to predict the extent to which banks use their allowance
- Do banks in vulnerable vs core countries make more use of their available borrowing allowance?
- How correlated are these characteristics with ex-ante lending of the banks and thus with the assignment variable?
- Could use differences within banks over time (i.e., the different operations): E.g., do banks whose capital position improves between operations take up more funds once they have more capital available?

# Incentive Scheme

- You could try to use the mandatory early repayment scheme to test for the incentive effect more directly (provided tests will have enough power)
- If early repayment is very costly for some banks (e.g., if it caused liquidity problems), these banks have a higher incentive to meet the target
- They might:
  - Issue loans to lower quality borrowers if the loan demand by high quality borrowers is not high enough
  - Do this more aggressively at a later stage of the operations (to "catch up")
  - Offer even lower interest rates

# Bank Samples

- Analysis is run on different bank samples: verification of identification strategy (RK design) is based on broad sample of banks
- More detailed analysis of channels and affected asset classes (due to data limitations) restricted to IRB banks which are most likely the largest banks in the authors' sample
- Would be helpful to redo initial analysis on sample of IRB banks to confirm validity of the identificaiton strategy for this subsample of banks

# Asset Purchase Program

- Third operation of TLTRO (first one used in this paper) in March 2015, coinciding with the beginning of the PSPP
- Does PSPP create additional incentive for banks to sell sovereign bonds? Might contribute to reduction in sovereign debt holdings for banks with high TLTRO uptakes.
- Could be helpful to control for transactions under PSPP by banks in the authors' sample

# Conclusion

- Already many very interesting and novel results that provide a very consistent narrative of the effectiveness of TLTRO I
- Key question: Can "desired" allocation of liquidity injected by central banks be achieved by attaching an incentive scheme to the liquidity provision?
- Highly important research question and great dataset
- Very much looking forward to reading the next draft