



Whatever it takes: The Real Effects of Unconventional Monetary Policy

Viral V. Acharya
NYU Stern

Tim Eisert
Erasmus University Rotterdam

Christian Eufinger
IESE Business School

Christian Hirsch
Goethe University Frankfurt

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Draghi's Speech

- Mario Draghi stated on 26 July 2012, during a conference in London:

“Within our mandate, the ECB is ready to do whatever it takes to preserve the euro. And believe me, it will be enough.”

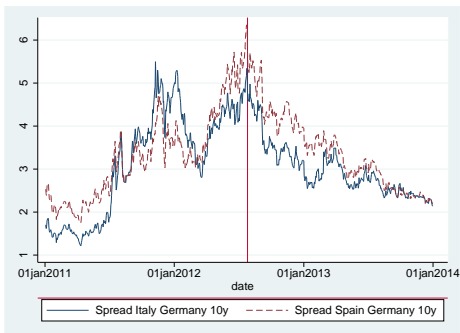
- Three questions: Did the OMT announcement...
 - ① ...affect banks? And how?
 - ② ...impact bank lending?
 - ③ ...revert negative financial and real effects (cash, low employment growth, investment etc.)? (Acharya, Eisert, Eufinger, Hirsch (2015))

Contribution

- 1 Did the OMT announcement affect banks? And how?
 - Periphery country banks benefited significantly due to their large holdings of GIIPS sovereign debt
 - Capital gains on sovereign debt improved equity capitalization of periphery country banks
- 2 Did the OMT announcement impact bank lending?
 - Capital gains led to increase in loan supply to corporate sector
 - Loans are mostly granted to below median quality borrowers
- 3 Did OMT announcement led to financial and real effects?
 - Firms that (re)gain access to funding significantly increase their cash holdings
 - No effect on real economic activity (employment, investment)

OMT program (1): Situation in July 2012

- From mid-2011 to mid-2012, the spreads of Italian and Spanish 10-year government bonds had increased by 200 basis points and 250 basis points respectively relative to Germany
- Yields on 10-year Italian and Spanish government bonds were more than 4 percentage points higher than yields on German government bonds in July 2012



OMT program (2): Evidence on lowered sovereign spreads

- Buy a theoretically unlimited amount of government bonds with one to three years maturity in secondary markets
- Evidence that OMT announcement has significantly lowered sovereign bond spreads
 - Krishnamurthy et al. (2014) and Altavilla et al. (2014) show OMT announcements led to a relative strong decrease for Italian and Spanish government bond yields
 - Altavilla et al. (2014) show that it did not seem to affect the bond yields of the same maturity in Germany and France
 - Szczerbowicz et al. (2012) find that the OMT measure lowered covered bond spreads and periphery sovereign yields
- This paper: Effects on bank lending and financial and real effects for firms

Sample and Variables of Interest

- Hand matched sample at the intersection of Amadeus and Dealscan for the period 2009-2013
- Focus on borrowers in GIIPS countries and non-GIIPS countries with active syndicated loan markets (mainly Germany, France, U.K.)
- Loans issued to 710 private borrowers by 49 lead banks
- Relevant OMT announcement dates (Krishnamurthy et al. (2014)):
 - July 26, 2012: Draghi's "whatever it takes" speech
 - August 2, 2012: Announcement to undertake outright monetary transactions in secondary, sovereign bond markets
 - September 6, 2012: Release of technical details of the operations

Effect on Banks: More Equity

- OMT program announcement has improved the equity capital of banks with large GIIPS sovereign debt holdings
- OMT announcements led to a strong decrease for GIIPS government bond yields
- Gains on sovereign bonds held in the banks' trading book are at least partly realized as valuation reserves in the banks equity because of mark-to-market accounting

“The effects of the narrowing of the BTP/Bund spread entailed an improvement in the market value of debt instruments with a relative positive net impact on the fair value reserve of Euro 855 million [...].”

(UBI Banca annual report 2012)

Main Variable of Interest

$$OMT \text{ windfall gain}_{bj} = \frac{\Delta \text{Value GIIPS Sov. Debt}_{bj}}{\text{Total Equity}_{bj}}.$$

- Gain on GIIPS sovereign debt holdings as a fraction of a bank's total equity
- Like Krishnamurthy et al. (2014) we are only able to use sovereign yields from three out of five GIIPS countries (Spain, Italy, and Portugal)
- For Greece and Ireland information on yields is partially or completely missing
- Due to strong home bias in sovereign debt holdings, we cannot compute windfall gain for Greek and Irish banks

Effect on Banks: Decrease in CDS Spreads (2)

	CDS return	OMT windfall gain	GIIPS/Assets
Non-GIIPS Banks	-0.23 (-9.2)	0.013	0.010
GIIPS Banks	-0.96 (-3.4)	0.098	0.118
<i>t</i> -test for difference	7.8	5.21	12.7

- GIIPS Banks hold on average 11.8% of their total assets in GIIPS sovereign debt
- Implies a gain on their sovereign debt holdings on the OMT announcement date of 9.8% of total equity
- GIIPS Banks see a more than three times larger reduction in CDS spreads

Effect on Banks: Outside Funding

- OMT program announcement has altered the perception of markets and helped to partly restore confidence in banking sectors of the stressed countries
- Changed sentiment of investors: Banks from GIIPS countries were able to tap financial markets again for funding

“Only from October 2012 onwards, given reduced pressures on government bond spreads and the constant improvement in cost levels, UBI Banca returned to the international markets with three new issuance for an overall nominal value of Euro 1.275 billion [...].”

(Annual report 2012 UBI Banca)

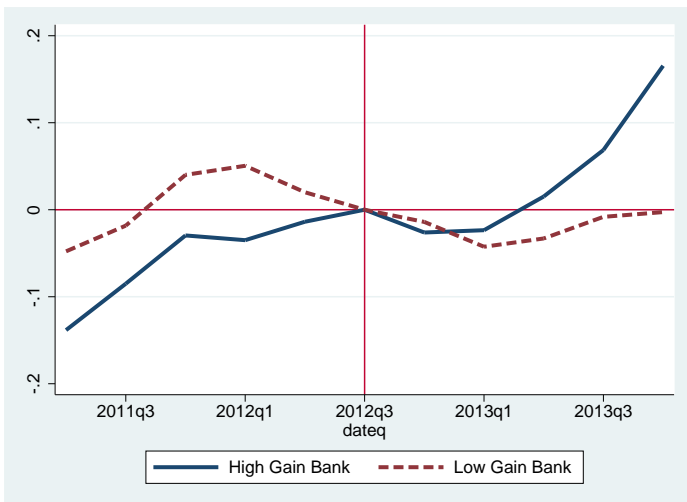
- Acharya, Pierret, and Steffen (2015) provide empirical evidence of a reversal in unsecured funding of U.S. money market fund flows following the OMT announcement

Bank Lending - Khwaja and Mian (2008): Our Approach

$$\begin{aligned}\Delta Volume_{bmjt+1} &= \beta_1 \cdot OMT \text{ windfall gain}_{bj} * PostOMT \\ &+ \gamma \cdot X_{bjt} + Firm \text{ Cluster}_m \cdot Quarter\text{-}Year_{t+1} \\ &+ Firm \text{ Cluster}_m \cdot Bank_{bj} + u_{bmjt+1}.\end{aligned}$$

- Unit of observation is at the firm cluster-quarter-bank level
- Dependent variable: Quarterly change in loan volume of one bank to a firm cluster

Bank Lending - Evolution of Loan Volume: All Firms

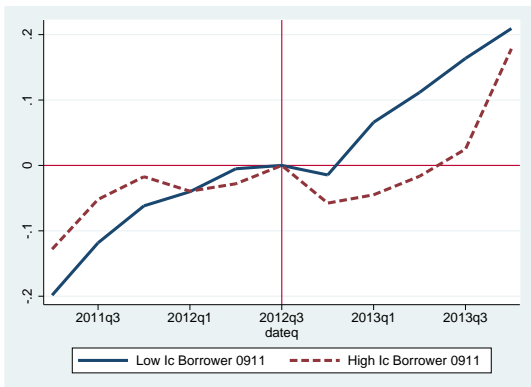


Bank Lending - Evolution of Loan Volume: All Firms (2)

- Higher OMT windfall gains lead to increase in loan volume

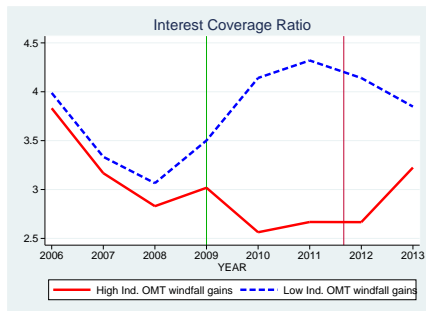
All Loans						
	(1)	(2)	(3)	(4)	(5)	(6)
	Δ Loans	Δ Loans	Δ Loans	Δ Loans	Loan Inc.	Δ Loans
OMT windfall gain*PostOMT	0.208** (2.40)	0.225** (2.46)	0.105*** (2.97)	0.112*** (3.03)	0.159** (2.11)	0.119** (2.60)
Log Assets	-0.031 (-1.12)	-0.039 (-1.22)	0.008 (0.34)	0.014 (0.65)	0.035 (0.91)	0.034 (0.94)
Equity/Assets	-0.250 (-0.78)	-0.193 (-0.51)	-0.159 (-0.70)	-0.088 (-0.34)	0.096 (0.18)	-0.443 (-1.62)
Impaired Loans	0.041 (1.64)	0.053** (2.15)	-0.015 (-0.70)	-0.013 (-0.58)	0.035 (0.76)	-0.033 (-0.91)
Return on Avg. Assets	0.963 (1.42)	0.973 (1.37)	0.413 (0.91)	0.319 (0.67)	1.236 (1.45)	1.159 (1.64)
R^2	0.011	0.101	0.602	0.649	0.614	0.812
N	10576	10576	10576	10576	10576	4240
Bank Fixed Effects	YES	NO	YES	NO	NO	NO
Time Fixed Effects	YES	YES	NO	NO	NO	NO
FirmCluster-Bank Fixed Effects	NO	YES	NO	YES	YES	YES
FirmCluster-Time Fixed Effects	NO	NO	YES	YES	YES	YES

Bank Lending - High Gain Banks



- Split firms based on 3-year country-specific median interest coverage ratio (2009 to 2011)
- Increase driven primarily by increase in lending to low quality borrower

Summary Bank Lending Results



- Low quality borrower had often close relationships with GIIPS banks during sovereign debt crisis
- Borrowers with many GIIPS bank relationships became financially constrained during sovereign debt crisis and were unable to switch (Acharya, Eisert, Eufinger, Hirsch (2015))
- This implies that they got under stress themselves and as a result their interest coverage ratios decreased

Financial and Real Effects - Main Variable

- Measure that captures the benefit of a firm via bank relationships
- Compute the *Average OMT windfall gain* for all the banks that act as lead arranger in a given syndicate.
- Defined for firm i in country j in industry h at time t as:

$$\text{Indirect OMT windfall gains}_{ijht} = \frac{\sum_{l \in L_{ijht}} \text{Avg. OMT windfall gain}_{lijh} \cdot \text{Loan Amount}_{lijht}}{\text{Total Loan Amount}_{ijht}}$$

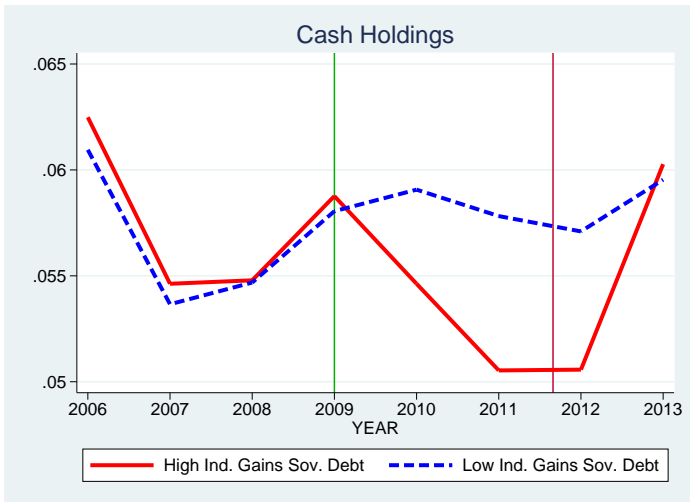
- L_{ijht} are all of the firm's loans outstanding at time t .
- Averaged over the 2009-2011 period

Financial and Real Effects - Specification

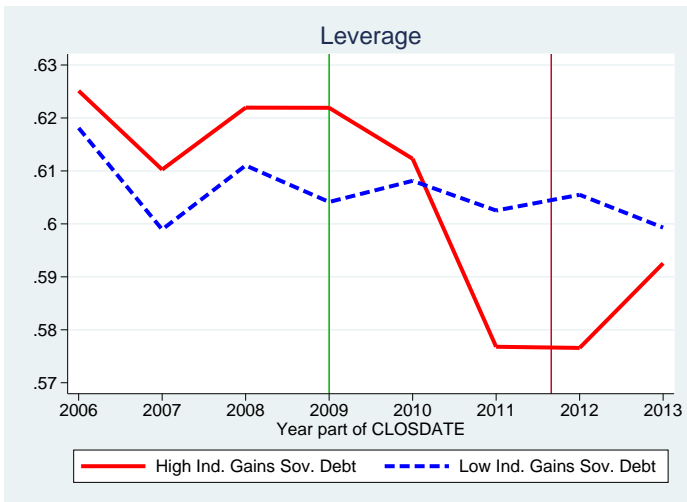
$$\begin{aligned} y_{ijht+1} &= \beta_1 \cdot \text{Indirect Gains on Sov Debt}_{ijht} \\ &+ \beta_2 \cdot \text{Indirect Gains on Sov Debt}_{ijht} \cdot \text{PostOMT} \\ &+ \gamma \cdot X_{ijht} + \text{Firm}_{ijh} + \text{Industry}_h \cdot \text{Country}_j \cdot \text{Year}_{t+1} \\ &+ \text{ForeignBankCountry}_{k \neq j} \cdot \text{Year}_{t+1} + u_{ijht+1} \end{aligned}$$

- Indicator variable *PostOMT*
 - Zero in fiscal years 2009 to 2011
 - Equal to one in fiscal years 2012 and 2013

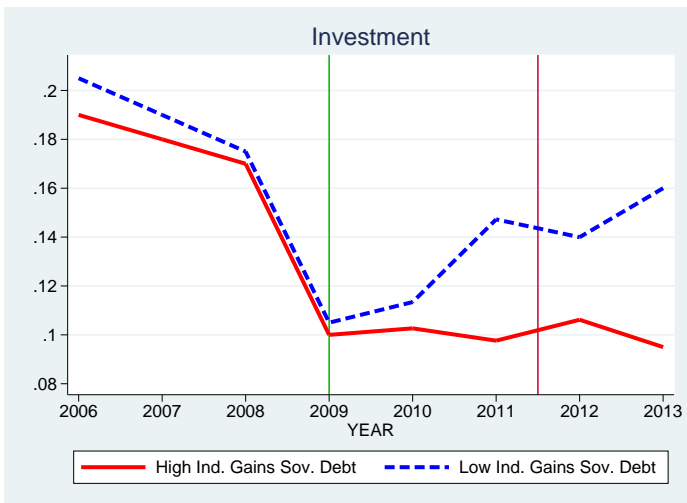
Financial and Real Effects - Cash Holdings



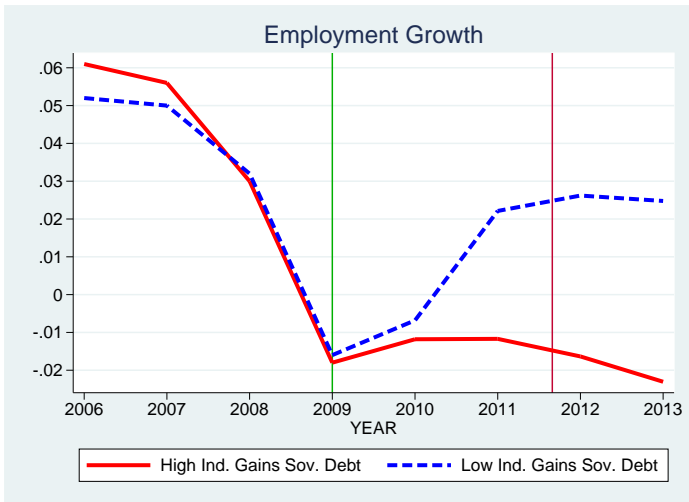
Financial and Real Effects - Leverage



Financial and Real Effects - Investment



Financial and Real Effects - Employment Growth



Financial and Real Effects - All Firms

	Δ Cash	Δ Debt	Δ Debt- Δ Cash	Emp. Growth	CAPX
Indirect OMT windfall gains*PostOMT	0.038*** (2.98)	0.044*** (2.86)	0.006 (0.29)	-0.009 (-0.39)	0.023 (0.69)
R^2	0.550	0.571		0.566	0.591
N	2055	2079		1691	2115
Firm Level Controls	YES	YES		YES	YES
Firm Fixed Effects	YES	YES		YES	YES
Industry-Country-Year Fixed Effects	YES	YES		YES	YES
Foreign Bank Country-Year Fixed Effects	YES	YES		YES	YES

- Cash Holdings and Leverage increase significantly by about the same margin
- Coefficients do not differ statistically or economically
- No change in Employment and Investment
- Results suggest that proceeds from new loans go into cash
- Results driven by low quality firms

Cash Flow Sensitivity: All Firms

- Do firms remain financially constrained after OMT program announcement?
- Acharya, Eisert, Eufinger, Hirsch (2015) show that GIIPS bank dependent firms become financially constrained during the sovereign debt crisis
- Use cash flow sensitivity of cash (Almeida, Campello, and Weisbach (2004))
- Firms that expect to be financially constrained in the future respond by saving more cash out of their cash flow today

Cash Flow Sensitivity: All Firms

	Δ Cash	Δ Cash	Δ Cash
Indirect OMT windfall gains*PostOMT	0.038*** (3.69)	0.022** (2.17)	0.029*** (2.76)
Cash Flow*Indirect OMT windfall gains	0.168*** (3.08)		0.173*** (3.07)
Cash Flow*PostOMT	0.001 (0.03)		-0.002 (-0.11)
Cash Flow*Indirect OMT windfall gains*PostOMT	-0.114*** (-2.64)		-0.101** (-2.31)
New Loan*PostOMT		-0.009 (-0.87)	-0.007 (-0.72)
New Loan*Indirect OMT windfall gains		-0.014 (-1.52)	-0.018 (-1.29)
New Loan*Indirect OMT windfall gains*PostOMT		0.109** (2.19)	0.114** (2.22)
R^2	0.558	0.556	0.564
N	2055	2055	2055

- High *Indirect OMT windfall gains* firms are financially constrained during pre-OMT period and become financially unconstrained in the post-OMT period
- Proceeds from new loans increase cash significantly

Financial and Real Effects - Robustness: Subsidiaries

- During the time of the OMT program announcement, periphery countries were under severe stress
- Firms may not invest because of macroeconomic environment
- Focus on firms that face a relatively small macroeconomic shock
 - ① Non-GIIPS firms without GIIPS subsidiaries
 - ② GIIPS firms with high revenue from non-GIIPS countries
- All results also hold for these subsets of firms

Conclusion

- OMT program announcement led to increase in bank health
- Banks with improved health increase credit supply to low quality borrower
- Low quality borrower become financially unconstrained but do not invest more or create new jobs
- Use proceeds to regain financial stability after being under stress during sovereign debt crisis
- High quality borrower remain financially constrained