

Monetary Policy and the Cost of Wage Rigidity: Evidence from the Stock Market

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Introduction

- Monetary policy has a central role in current debate
- Much emphasis on price stickiness (Nakamura and Steinsson (2008), Gorodnichenko and Weber (2016))
- Less evidence on the role of wage rigidity
- Important to study, also because policymakers can affect such rigidities

This Paper

- Uses matched employee-employer data from Italy
- Construct a measure of wage rigidity based on timing of union bargaining
- Shows that higher distance to contract renewal amplifies the effects of monetary policy on stock return and employment volatility
 - Intuition: MP shocks affect firms' revenues, but wages do not adjust quickly
- Results consistent with a New-Keynesian model with staggered wage-setting

Institutional Context

- Collective agreements are signed by unions and industry representatives every 2-3 years
- Major determinant of compensation policy (Boeri, Ichino, Moretti and Posch, 2019):
 - 1 Agreements valid for all workers, even if not unionized
 - 2 Two-tier compensation system:
 - workers' compensation = minimum wage + firm-specific top-up
 - Changes in statutory minimum wages shift entire wage distribution

Data and Empirical Strategy

- Data used for empirical tests:
 - Administrative employee-employer matched data for the universe of Italian private sector (through project VisitINPS)
 - High frequency data on stock returns and swap rates on ECB rates
 - Hand-collected information on renewals of collective agreements
- Our measure of stickiness:

$$WR_{i,t} \equiv \log \left(1 + \frac{\sum_j w_{i,j,c,t} \times \max\{0, \tau_{c,t} - t\}}{\sum_j w_{i,j,c,t}} \right)$$

where j = worker, i = firm, c = job category
 – $\tau_{c,t}$ is the date in which the agreement that is in force at time t expires
 – We truncate $\tau_{c,t} - t$ at zero (to account for possible vacation periods)

- Proxy for MP shock:
 - Change in 1-year EONIA swap rate in the six hours surrounding ECB announcements (Corsetti, Duarte and Mann, 2018)
- Baseline equation (follows Gorodnichenko and Weber, 2016):

$$R_{i,t}^2 = \alpha WR_{i,t} + \beta MP_t^2 \times WR_{i,t} + \gamma' X_{i,t} + \delta' X_{i,t} \times MP_t^2 + \theta_t + \eta_i + \varepsilon_{i,t}$$

– $R_{i,t}$ is stock return over same horizon as MP

Results

- Support for the hypothesis that WR related to amplification of monetary policy
- Effects driven by firms with high labor intensity and low profitability

	Baseline	Low Labor Intensity	High Labor Intensity	Low Profitability	High Profitability
$MP^2 \times WR$	0.021*** (0.006)	0.014 (0.009)	0.029*** (0.010)	0.027*** (0.009)	0.014 (0.010)
Observations	25,529	12,763	12,752	12,810	12,710
R ²	0.125	0.178	0.106	0.135	0.142

- We cumulate shocks at the quarterly level and find similar effects for employment
- However, full time employees relatively unaffected

Dep. Var.	Δ Pay	Δ Days Worked	Δ Employees	Δ Full Time Employees
$MP^2 \times WR$	0.033*** (0.013)	0.029** (0.014)	0.037** (0.015)	0.015 (0.013)
Observations	12,495	12,495	12,495	12,495
R ²	0.409	0.229	0.216	0.225

Model

- New-Keynesian model with staggered wage setting along sectoral lines à la Taylor (1979)
- We calibrate the model and run regressions on simulated data
- In some specifications, add habit formation and hiring costs
- Results in the ballpark of “true” estimates

Specification	Stock Returns	Employment growth
Baseline	0.132*** (0.000)	0.084*** (0.000)
Plus habit and hiring costs	0.033*** (0.005)	0.071*** (0.000)
Plus habit and hiring costs, RRA= 2.15	0.025** (0.034)	0.056*** (0.004)

Summary

- Model-free evidence of the importance of nominal rigidities
- Our strategy could be used in other countries with similar institutional settings and for other shocks
- Tentative lessons:
 - Rigidity in wage setting can *amplify* shocks
 - Policymakers could
 - (i) give more weight to firm-level bargaining
 - (ii) shorten contracts' length

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