



WP/20/252

IMF Working Paper

Monetary Policy Surprises and Inflation Expectation Dispersion

by Francesco Grigoli, Bertrand Gruss and Sandra Lizarazo

I N T E R N A T I O N A L M O N E T A R Y F U N D

Monetary Policy Surprises and Inflation Expectation Dispersion*

Francesco Grigoli
IMF

Bertrand Gruss
IMF

Sandra Lizarazo
IMF

Abstract

Anchoring of inflation expectations is of paramount importance for central banks' ability to deliver stable inflation and minimize price dispersion. Relying on daily interest rates and inflation forecasts from major financial institutions in the United States, we calculate monetary policy surprises of individual analysts as the unexpected changes in the federal funds rate before the meetings of the Federal Reserve Board. We then assess the effect of monetary policy surprises on the dispersion of inflation expectations, a proxy for the extent of anchoring, which is based on the same analysts' inflation projections submitted after the Fed meetings. With an identification strategy that hinges on a tight window around the Fed meetings, we find that monetary policy surprises lead to an increase in the dispersion of inflation expectations up to nine months after the policy meeting. We rationalize these results with a partial equilibrium model that features rational expectations and sticky information. When we allow the degree of information rigidity to depend on the realization of firm-specific shocks, the theoretical results are qualitatively consistent and quantitatively close to the empirical evidence.

Keywords: Anchoring, disagreement, dispersion, information rigidity, inflation expectations, sticky information.

JEL Codes: D84, E31, E52

*Francesco Grigoli, fgrigoli@imf.org; Bertrand Gruss, bgruss@imf.org; Sandra Lizarazo, slizarazo@imf.org. The views expressed in this Working Papers are those of the authors and do not necessarily represent those of the IMF or IMF policy. Working Papers describe research in progress by the authors and are published to elicit comments and to encourage debate. We thank, without implicating, Vassili Bazinas, Nina Biljanovska, Francesca Caselli, Nigel Chalk, Gabriel Di Bella, Jose M. Mota, Malhar Nabar, Valeriu Nalban, Roberto Piazza, the US Department of Treasury, and the participants to the 13th International Conference on Computational and Financial Econometrics for their comments and suggestions.

Contents

| | Page |
|---|---------------------------|
| 1 Introduction | 4 |
| 2 Data | 6 |
| 2.1 Monetary Policy Surprises | 6 |
| 2.2 Dispersion of Inflation Expectations | 7 |
| 3 Empirical Analysis | 10 |
| 3.1 The Response of Inflation Expectation Dispersion to Monetary Policy Surprises | 11 |
| 3.2 Narrower Time Windows | 12 |
| 3.3 The Role of Market Surprises | 16 |
| 3.4 Deviations From the Inflation Target | 17 |
| 4 A Model of Inflation Expectations Dispersion | 19 |
| 4.1 Full Information | 21 |
| 4.2 Constant Degree of Information Rigidity | 22 |
| 4.3 Aggregate State-Dependent Degree of Information Rigidity | 27 |
| 4.4 Firm State-dependent Degree of Information Rigidity | 29 |
| 5 Conclusions | 32 |
| References | 35 |
| A Model parameters | 37 |

List of Figures

| | Page |
|--|--------------------|
| 1 Timeline of Forecasts and Data Releases | 6 |
| 2 Monetary Policy Surprises | 7 |
| 3 Cumulative Distribution of Inflation Expectation Dispersion at Different Horizons | 8 |
| 4 Inflation Expectations Dispersion at Different Horizons | 9 |
| 5 Effects of Monetary Policy Surprises on the Term Structure of Inflation Expectation Dispersion | 14 |
| 6 Alternative Pre- and Post-Meeting Windows | 15 |
| 7 Response of Inflation Expectation Dispersion to an Interest Rate Shock, Constant Stickiness . | 25 |
| 8 Average Response of Inflation Expectation Dispersion to an Interest Rate Shock, Constant Stickiness | 26 |
| 9 Response of Inflation Expectation Dispersion to a Persistent Interest Rate Shocks, Varying Stickiness | 27 |
| 10 Response of Inflation Expectation Dispersion to a Persistent Interest Rate Shock, Aggregate State-Contingent Information Stickiness | 29 |
| 11 Average Response of Inflation Expectation Dispersion to an Interest Rate Shock, Aggregate State-Contingent Information Stickiness | 29 |
| 12 Response of Inflation Expectation Dispersion to a Persistent Interest Rate Shock, Firm State-Contingent Information Stickiness | 33 |
| 13 Average Response of Inflation Expectation Dispersion to an Interest Rate Shock, Firm State-Contingent Information Stickiness | 33 |

List of Tables

| | Page |
|--|--------------------|
| 1 Descriptive Statistics of Time Windows | 11 |
| 2 Effects of Federal Funds Rate Surprises on Inflation Expectation Dispersion | 13 |
| 3 Effects of High-Frequency Monetary Policy Shocks on Inflation Expectation Dispersion | 16 |
| 4 Effects of Individual and Market Surprises on Inflation Expectation Dispersion | 17 |
| 5 Effects of Individual and NS-Based Market Surprises on Inflation Expectation Dispersion . . | 18 |
| 6 Effects of Federal Funds Rate Surprises on Inflation Expectation Anchoring | 19 |
| A.1 Parameter Values | 37 |