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Bayes Business School

City, University of London

London, United Kingdom

PHD IN FINANCE

Three Essays on the Role of Macroeconomic Announcement Surprises

Supervisors

Prof. Barbara Casu

Prof. Giovanni Urga

Candidate

Stefano Di Colli

Submission Date: April 2026

Academic Year 2025–2026

Declaration

I, Stefano, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Date: October 27, 2026

Signature:

A black rectangular box used to redact the signature.

(Stefano Di Colli)

Contents

Abstract	5
Acknowledgments	7
Disclaimer	8
List of Tables	12
List of Figures	13
List of Abbreviations	14
1 Introduction	16
2 Macroeconomic Announcements, Confidence and Economic Activity Through the Business Cycle	20
2.1 Introduction	20
2.2 Data	23
2.2.1 Variables	23
2.3 Empirical analysis	32
2.3.1 Impact of Surprises on Industrial Production and Business Confidence	32
2.3.2 Surprise indices	39
2.3.3 Time-Varying impact of Macro Announcement Surprises	43
2.3.4 Transmission mechanism of macroeconomic surprises	46
2.3.5 Sensitivity analysis	53
2.4 Conclusions	55

3	Anchoring inflation expectations under different monetary policy conditions	57
3.1	Introduction	57
3.2	Data	60
3.2.1	Macroeconomic News Announcement surprises	60
3.2.2	Inflation expectations	64
3.2.3	Monetary Policy Regimes	67
3.3	Empirical analysis	68
3.3.1	Surprises and deanchoring of inflation expectations	68
3.3.2	Time-Varying de-anchoring of inflation expectations	76
3.3.3	De-anchoring of expectations under different monetary policy regimes	79
3.4	Conclusions	87
4	Measuring Information-Driven Uncertainty: A Macroeconomic News Announcement–Based Uncertainty Index	89
4.1	Introduction	89
4.2	Data	93
4.2.1	Macroeconomic News Announcement surprises	93
4.2.2	Uncertainty and macroeconomic variables	94
4.3	Empirical analysis	97
4.3.1	Impact of MNAs on uncertainty indices	97
4.3.2	MNA Uncertainty Index	101
4.3.3	Economic activity response to MNAUI innovations	104
4.3.4	Sensitivity analysis	111
4.4	Conclusions	113
5	Conclusions and Further Developments	114
5.1	Conclusions and Further Developments	114
A	Appendix Chapter 2	125
A.1	Local projections	125
A.2	Additional Tables	127
B	Appendix Chapter 3	155
B.1	Additional Tables - Chapter 3	155

C Appendix Chapter 4	197
C.1 Additional Tables - Chapter 4	197

Abstract

This dissertation investigates the macroeconomic role of information by treating the unexpected component of macroeconomic announcements as a source of well-identified information shocks. Through three complementary empirical studies covering major advanced economies over recent decades, it examines how these surprises shape the formation and revision of agents’ beliefs—specifically business confidence, inflation expectations, and economic uncertainty—and how such revisions propagate to real economic activity. By distinguishing information-driven from sentiment-driven belief changes, the dissertation provides a coherent framework for assessing the persistence and economic relevance of information shocks across multiple domains of macro-finance.

The empirical analysis is organized into three complementary studies covering major advanced economies over the past two decades. The first study develops novel surprise-based indicators—the Business Confidence Surprise Index (*BCSI*) and the Industrial Production Surprise Index (*IPSI*) — designed to isolate the unanticipated component of macroeconomic news. Using a large cross-country panel, the study shows that these surprise shocks have statistically and economically significant effects on both business confidence and industrial production. Importantly, the effects are persistent rather than transitory and exhibit strong state dependence: the responsiveness of real activity to news is substantially amplified during periods of economic stress, low confidence, or heightened uncertainty. These findings provide robust empirical support for the “news view” of business-cycle fluctuations, according to which agents update expectations in response to new information about fundamentals, rather than purely sentiment-driven dynamics.

The second study extends the analysis to inflation expectations, examining how macroeconomic announcement surprises influence market-based expectations across different maturities in the United States, the United Kingdom, and the euro area. The results indicate that macroeconomic news has its strongest impact on short-term expectations, with effects gradually attenuating at longer horizons. However, the sensitivity

of expectations is highly time-varying and state-dependent, increasing markedly during periods of macroeconomic instability or unconventional monetary policy. Significant cross-country heterogeneity also emerges, reflecting differences in institutional frameworks, financial market structures, and central bank communication strategies. These findings highlight that the anchoring of inflation expectations is not static, but evolves with the informational environment and policy regime, with important implications for the credibility and effectiveness of monetary policy.

The third study focuses on the measurement and real effects of economic uncertainty by introducing a new indicator—the Macroeconomic News Announcement Uncertainty Index (*MNAUI*)—which captures the component of uncertainty directly linked to unanticipated macroeconomic information. The analysis demonstrates that uncertainty shocks grounded in fundamental information have substantially larger and more persistent contractionary effects on real activity than alternative uncertainty measures. This result underscores the importance of distinguishing between different sources of uncertainty: while narrative- or sentiment-based uncertainty may generate short-lived fluctuations, uncertainty driven by genuine information about fundamentals plays a more central role in shaping macroeconomic outcomes. The findings also provide evidence of amplification mechanisms, whereby information-driven uncertainty intensifies the real effects of other types of shocks.

Taken together, the three studies offer a unified perspective on the macroeconomic importance of information. They show that unanticipated macroeconomic news systematically affects expectations, confidence, and uncertainty, generating persistent and state-dependent effects on real economic activity. Moreover, the results emphasize that not all information arrivals are equally informative: only shocks that convey genuinely new information about economic fundamentals produce sustained behavioral and macroeconomic responses.

Overall, the dissertation contributes to the literatures on expectation formation, macro-finance, monetary economics, and uncertainty by developing new empirical tools (the three indices: *BCSI*, *IPSI* and *MNAUI*) based on macroeconomic announcement surprises and applying them across different contexts. The findings underscore the central role of the informational environment in shaping macroeconomic dynamics and highlight the importance of timely, credible, and transparent communication by policymakers. In this perspective, the management of information emerges not merely as a complement to traditional policy instruments, but as a key determinant of their effectiveness in influencing expectations and stabilizing economic activity.

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Disclaimer

This dissertation is submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Finance at Bayes Business School, City, University of London. The work contained in this dissertation is original and has not been submitted for any other degree or professional qualification.

Some of the material presented in this dissertation has been previously circulated as working papers or presented at academic conferences. Any such prior dissemination is acknowledged where relevant in the text.

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List of Tables

2.1	<i>US Macroeconomic Announcements</i>	24
2.2	<i>Japanese and UK Macroeconomic Announcements</i>	25
2.3	<i>German and French Macroeconomic Announcements</i>	26
2.4	<i>Italian and Spanish Macroeconomic Announcements</i>	27
2.5	<i>Summary Descriptive Statistics</i>	30
2.6	<i>Macroeconomic Surprises Effects on the US Industrial Production</i>	36
2.7	<i>Macroeconomic Surprises Effects on the US Business Confidence</i>	37
2.8	<i>Macroeconomic ann. Surprises Effects on Confidence and Economic activity</i>	38
3.1	<i>US macroeconomic announcements</i>	61
3.2	<i>German and French Macroeconomic Announcements</i>	62
3.3	<i>Italian, UK and Spanish Macroeconomic Announcements</i>	63
3.4	<i>Impact of MNAs on US Inflation expectations</i>	82
3.5	<i>Impact of MNAs on Euro Zone Inflation expectations</i>	83
3.6	<i>Impact of MNAs on UK Inflation expectations</i>	84
4.1	<i>Pairwise Correlations among Uncertainty Indices</i>	95
4.2	<i>Uncertainty and Macroeconomic Indicator Summary Statistics</i>	96
4.3	<i>Goodness-of-Fit of MNA Surprise Regressions across Uncertainty Measures</i>	99
A.1	<i>Unit root test results - Macroeconomic variables</i>	127
A.2	<i>Unit root test results - Surprise Indices</i>	128
A.3	<i>Macroeconomic Surprises Effects on Japanese Industrial Production</i>	129
A.4	<i>Macroeconomic Surprises Effects on UK Industrial Production</i>	130
A.5	<i>Macroeconomic Surprises Effects on the German Industrial Production</i>	131
A.6	<i>Macroeconomic Surprises Effects on the French Industrial Production</i>	132
A.7	<i>Macroeconomic Surprises Effects on the Italian Industrial Production</i>	133
A.8	<i>Macroeconomic Surprises Effects on the Spanish Industrial Production</i>	134
A.9	<i>Macroeconomic Surprises Effects on the Japanese Business Confidence</i>	135

A.10	<i>Macroeconomic Surprises Effects on the UK Business Confidence</i>	136
A.11	<i>Macroeconomic Surprises Effects on the German Business Confidence</i>	137
A.12	<i>Macroeconomic Surprises Effects on the French Business Confidence</i>	138
A.13	<i>Macroeconomic Surprises Effects on the Italian Business Confidence</i>	139
A.14	<i>Macroeconomic Surprises Effects on the Spanish Business Confidence</i>	140
A.15	<i>Macroeconomic Surprises Lagged Effects on US Ind. Prod.</i>	141
A.16	<i>Macroeconomic Surprises Lagged Effects on Japanese Ind. Prod.</i>	142
A.17	<i>Macroeconomic Surprises Lagged Effects on UK Industrial Production</i>	143
A.18	<i>Macroeconomic Surprises Lagged Effects on the German Ind. Prod.</i>	144
A.19	<i>Macroeconomic Surprises Lagged Effects on French Indu. Prod.</i>	145
A.20	<i>Macroeconomic Surprises Lagged Effects on Italian Ind. Prod.</i>	146
A.21	<i>Macroeconomic Surprises Lagged Effects on the Spanish Ind. Prod.</i>	147
A.22	<i>Macroeconomic Surprises Lagged Effects on US Business Confidence</i>	148
A.23	<i>Macroeconomic Surprises Lagged Effects on Japanese Bus. Conf.</i>	149
A.24	<i>Macroeconomic Surprises Lagged Effects on UK Bus. Conf.</i>	150
A.25	<i>Macroeconomic Surprises Lagged Effects on German Bus. Conf.</i>	151
A.26	<i>Macroeconomic Surprises Lagged Effects on French Bus. Conf.</i>	152
A.27	<i>Macroeconomic Surprises Lagged Effects on Italian Bus. Conf.</i>	153
A.28	<i>Macroeconomic Surprises Lagged Effects on the Spanish Bus. Conf.</i>	154
B.1	<i>Unit root test results - US ILS rates</i>	155
B.2	<i>Unit root test results - UK ILS rates</i>	156
B.3	<i>Unit root test results - Euro Zone ILS rates</i>	157
B.4	<i>Macroeconomic Surprises Effects on the US ILS rates (1Y maturity)</i>	158
B.5	<i>Macroeconomic Surprises Effects on the US ILS rates (2Y maturity)</i>	159
B.6	<i>Macroeconomic Surprises Effects on the US ILS rates (3Y maturity)</i>	160
B.7	<i>Macroeconomic Surprises Effects on the US ILS rates (4Y maturity)</i>	161
B.8	<i>Macroeconomic Surprises Effects on the US ILS rates (5Y maturity)</i>	162
B.9	<i>Macroeconomic Surprises Effects on the US ILS rates (6Y maturity)</i>	163
B.10	<i>Macroeconomic Surprises Effects on the US ILS rates (7Y maturity)</i>	164
B.11	<i>Macroeconomic Surprises Effects on the US ILS rates (8Y maturity)</i>	165
B.12	<i>Macroeconomic Surprises Effects on the US ILS rates (9Y maturity)</i>	166
B.13	<i>Macroeconomic Surprises Effects on the US ILS rates (10Y maturity)</i>	167
B.14	<i>Macroeconomic Surprises Effects on the US ILS rates (15Y maturity)</i>	168
B.15	<i>Macroeconomic Surprises Effects on the US ILS rates (20Y maturity)</i>	169
B.16	<i>Macroeconomic Surprises Effects on the US ILS rates (30Y maturity)</i>	170

B.17	<i>Macroeconomic Surprises Effects on the UK ILS rates (1Y maturity)</i>	. . . 171
B.18	<i>Macroeconomic Surprises Effects on the UK ILS rates (2Y maturity)</i>	. . . 172
B.19	<i>Macroeconomic Surprises Effects on the UK ILS rates (3Y maturity)</i>	. . . 173
B.20	<i>Macroeconomic Surprises Effects on the UK ILS rates (4Y maturity)</i>	. . . 174
B.21	<i>Macroeconomic Surprises Effects on the UK ILS rates (5Y maturity)</i>	. . . 175
B.22	<i>Macroeconomic Surprises Effects on the UK ILS rates (6Y maturity)</i>	. . . 176
B.23	<i>Macroeconomic Surprises Effects on the UK ILS rates (7Y maturity)</i>	. . . 177
B.24	<i>Macroeconomic Surprises Effects on the UK ILS rates (8Y maturity)</i>	. . . 178
B.25	<i>Macroeconomic Surprises Effects on the UK ILS rates (9Y maturity)</i>	. . . 179
B.26	<i>Macroeconomic Surprises Effects on the UK ILS rates (10Y maturity)</i>	. . . 180
B.27	<i>Macroeconomic Surprises Effects on the UK ILS rates (15Y maturity)</i>	. . . 181
B.28	<i>Macroeconomic Surprises Effects on the UK ILS rates (20Y maturity)</i>	. . . 182
B.29	<i>Macroeconomic Surprises Effects on the UK ILS rates (30Y maturity)</i>	. . . 183
B.30	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (1Y maturity)</i>	184
B.31	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (2Y maturity)</i>	185
B.32	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (3Y maturity)</i>	186
B.33	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (4Y maturity)</i>	187
B.34	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (5Y maturity)</i>	188
B.35	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (6Y maturity)</i>	189
B.36	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (7Y maturity)</i>	190
B.37	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (8Y maturity)</i>	191
B.38	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (9Y maturity)</i>	192
B.39	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (10Y maturity)</i>	 193
B.40	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (15Y maturity)</i>	 194
B.41	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (20Y maturity)</i>	 195
B.42	<i>Macroeconomic Surprises Effects on the Euro Zone ILS rates (30Y maturity)</i>	 196
C.1	<i>Unit root test results - Industrial Production indices</i>	 197
C.2	<i>Unit root test results Uncertainty and MNAUI Indices</i>	 198
C.3	<i>Macroeconomic Surprises Effects on the VIX Financial Uncertainty index</i>	199
C.4	<i>Macroeconomic Surprises Effects on the JLN Uncertainty index</i>	 200

C.5	<i>Macroeconomic Surprises Effects on the Global EPU (current) Uncertainty index</i>	201
C.6	<i>Macroeconomic Surprises Effects on the Global EPU (PPP) Unc. index</i>	202
C.7	<i>Macroeconomic Surprises Effects on the Web Search-based Uncertainty index</i>	203
C.8	<i>Macroeconomic Surprises Effects on the World Uncertainty index</i>	204

List of Figures

2.1	Time-Varying impact of Macro Surprises on Business Confidence index. .	44
2.2	Time Varying impact of Macro Surprises on the Industrial Production index.	45
2.3	Industrial Production index response to a Business Confidence Surprise Index shock.	47
2.4	Industrial Production index response to an Industrial Production Surprise Index shock.	48
2.5	Industrial Production index response to a Business Confidence Index shock.	51
2.6	Industrial Production index response to a (Business Confidence and Industrial Production Surprise) index shock: Variance Decomposition. . . .	52
2.7	Sensitivity analysis - US Industrial Production index response to BCSI shocks.	54
3.2	Time varying de-anchoring of Inflation Expectations in the US.	72
3.3	Time varying de-anchoring of Inflation Expectations in the Euro Zone. .	73
3.4	Time varying de-anchoring of Inflation Expectations in the UK.	74
3.5	Fit of the impact of Macro Announcement Surprises on Inflation Expectations.	77
4.1	Macroeconomic News Announcement Surprise-based Uncertainty Indices (MNAUI) and corresponding original Uncertainty measure.	103
4.2	Response of industrial production to Financial Volatility (VIX)-based MNAUI and to original Financial Volatility (VIX) Index.	106
4.3	Response of industrial production to model-based (JLN) MNAUI and to original model-based (JLN) Uncertainty Index.	107
4.4	Response of industrial production to GEPU (Current prices)-based MNAUI and Global EPU Index.	108
4.5	Sensitivity analysis.	112

List of Abbreviations

BCSI	Business Confidence Surprise Index
CB	Conference Board
CPI	Consumer Price Index
ECB	European Central Bank
EIRP	Easing Interest Rate Policy
EPU	Economic Policy Uncertainty
GDP	Gross Domestic Product
GEPU	Global Economic Policy Uncertainty
GUM	General Unrestricted Model
HAC	Heteroskedasticity and Autocorrelation Consistent
HIRP	Hiking Interest Rate Policy
IFO	Institut für Wirtschaftsforschung (Business Climate Index)
IIS	Impulse Indicator Saturation
ILS	Inflation-Linked Swap
IP	Industrial Production
IPSI	Industrial Production Surprise Index
IRF	Impulse Response Function

ISM	Institute for Supply Management
JLN	Jurado, Ludvigson and Ng (Uncertainty Index)
MNA	Macroeconomic News Announcement
MNAUI	Macroeconomic News Announcement Uncertainty Index
MU	Michigan University (Consumer Sentiment Index)
NIRP	Negative Interest Rate Policy
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
OIRF	Orthogonalised Impulse Response Function
PIRP	Positive Interest Rate Policy
PMI	Purchasing Managers' Index
PPP	Purchasing Power Parity
PPI	Producer Price Index
SA	Seasonally Adjusted
VAR	Vector Autoregression
VIX	CBOE Volatility Index
WUI	World Uncertainty Index
ZEW	Zentrum für Europäische Wirtschaftsforschung
ZIRP	Zero Interest Rate Policy

Chapter 1

Introduction

Information is a fundamental input in economic decision-making. Consumption, investment, pricing, and policy choices all depend on agents' beliefs about the current and future state of the economy, and these beliefs are continuously updated as new information becomes available. In modern economies, macroeconomic outcomes are therefore shaped not only by realized fundamentals, but also by how economic agents interpret incoming information, assess its relevance, and revise expectations. Periods of economic instability are often characterized by rapid and sometimes abrupt belief revisions following the arrival of new information, suggesting that information itself can act as a powerful driver of macroeconomic dynamics. Historical episodes, including the Great Depression, the Global Financial Crisis of 2008–2009, the Covid-19 pandemic in 2020, the post-pandemic inflation surge in 2021–2022, the European sovereign debt crisis of 2010–2012, and the geopolitical tensions following the Russian invasion of Ukraine in 2022, illustrate that sharp revisions in expectations, confidence, or uncertainty can generate large and persistent fluctuations in output, investment, and employment, even when observable fundamentals remain relatively stable.

This dissertation studies the macroeconomic role of information by focusing on the unexpected component of macroeconomic announcement releases. These releases occur at predetermined dates, are widely anticipated by professional forecasters, financial market participants, and policymakers, and convey quantitative information about key economic variables. The difference between the realized value and the expected value of an announcement can be interpreted as genuinely new information. By isolating this unexpected component, the analysis separates the effect of information-driven belief updating from changes in sentiment, narratives, or endogenous policy responses. Not all information arrivals are equally informative: surprises induce agents to revise their in-

formation sets about economic fundamentals, potentially leading to persistent changes in behavior, whereas belief changes not tied to fundamentals, such as shifts in sentiment or narratives, are likely to be weaker or more transitory.

A long-standing literature emphasizes that expectations and confidence play a central role in shaping aggregate demand and business-cycle dynamics. Early contributions stress the importance of “animal spirits,” suggesting that waves of optimism and pessimism, largely disconnected from economic fundamentals, can generate self-reinforcing booms and busts. More recent theoretical work ([Angeletos and La’O \(2013\)](#), [Blanchard et al. \(2013\)](#), [Chan \(2024\)](#), [Liu \(2024\)](#)) has rationalized these ideas within equilibrium frameworks featuring strategic complementarities, multiple equilibria, and self-fulfilling beliefs. In such models, shifts in expectations can be both rational and destabilizing, even in the absence of fundamental shocks. At the same time, an alternative perspective, the so-called “news view”, argues that changes in expectations and confidence reflect agents learning about future economic conditions. Disentangling these mechanisms empirically is challenging, as both can generate similar short-run dynamics in observable variables.

This dissertation contributes to this debate by exploiting the informational structure of unexpected component of macroeconomic announcement releases to distinguish between sentiment-driven and information-driven belief revisions. The guiding hypothesis is that if confidence, expectations, or uncertainty respond persistently to macroeconomic announcement surprises, these responses are likely to reflect learning about fundamentals rather than transitory psychological effects. Conversely, if belief measures respond primarily to anticipated components of announcements or to broader narrative-based indicators, this would support a more sentiment-based interpretation. By systematically focusing on the unexpected component of macroeconomic news, the thesis provides a unifying empirical framework to study belief formation across multiple domains of macroeconomic analysis.

The analysis conducted in this dissertation approaches the role of macroeconomic information from multiple, complementary perspectives. First, it investigates how unexpected macroeconomic news shapes economic confidence and business-cycle fluctuations. Second, it studies how the same information affects inflation expectations and, through them, perceptions of central bank credibility under different monetary policy regimes. Third, it examines how macroeconomic news contributes to the formation and transmission of economic uncertainty, and how the informational content of uncertainty measures conditions their real effects. Across these dimensions, the unifying theme is the role of *unexpected macroeconomic announcement releases* as observable and well-identified information shocks through which agents update beliefs about the economy.

The main contributions of this dissertation are threefold. First, it develops a systematic framework to study how surprise-driven information affects expectations, confidence, and uncertainty, and how these belief revisions propagate to real economic activity. Second, it introduces novel empirical tools in the form of surprise-based indices (the *Business Confidence Surprise Index (BCSI)*, the *Industrial Production Surprise Index (IPSI)*, and the *Macroeconomic News Announcement Uncertainty Index (MNAUI)*) that aggregate information from a broad set of macroeconomic releases and allow for the identification of meaningful information shocks. Third, it empirically distinguishes between persistent, information-driven adjustments and short-lived, sentiment-based fluctuations, highlighting the informational content of macroeconomic announcements (Angeletos and La’O (2013), Blanchard et al. (2013), Chan (2024), Liu (2024), Rychalovska et al. (2025)).

The dissertation consists of three chapters, each addressing complementary research questions:

- The first chapter examines how unexpected macroeconomic announcement releases affect business confidence and real economic activity across major advanced economies over multiple business cycles. Using the new empirical tools, it identifies the magnitude, persistence, and state-dependence of belief-driven fluctuations in output and investment, showing that responses are stronger during periods of elevated uncertainty.
- The second chapter investigates how macroeconomic announcement surprises influence inflation expectations and the perceived credibility of central banks under different monetary policy regimes. By analyzing market-based term-structure measures, it evaluates both short- and long-horizon expectations, illustrating how surprise-driven information shapes the anchoring of inflation expectations and the dynamic credibility of monetary policy.
- The third chapter focuses on economic uncertainty, proposing a novel index that isolates the component of uncertainty directly linked to *unexpected macroeconomic announcement releases*. The analysis demonstrates that information-driven uncertainty shocks have larger and more persistent effects on real economic outcomes than conventional measures, and emphasizes cross-country spillovers via trade and financial linkages.

Across these chapters, the unifying theme is that information-driven belief updating constitutes a central mechanism in macroeconomic dynamics. By leveraging well-identified unexpected macroeconomic announcement releases and the newly constructed

indices, the dissertation provides new insights into how expectations, confidence, and uncertainty interact to shape output, investment, and employment. The findings underscore the importance of policy communication, data releases, and information management as integral components of macroeconomic policy, particularly in environments characterized by heightened uncertainty, rapid structural change, and frequent policy interventions.

The remainder of the dissertation is organized as follows. Chapter 2 presents the first essay on macroeconomic news, confidence, and business cycles. Chapter 3 examines the response of inflation expectations to macroeconomic news under different monetary policy regimes. Chapter 4 introduces the macroeconomic news-based uncertainty index and studies its real effects. Chapter 5 concludes.

Chapter 2

Macroeconomic Announcements, Confidence and Economic Activity Through the Business Cycle

2.1 Introduction

Economic confidence is one of the main driving forces of business cycles. Recent global events, such as the Covid-19 pandemic, rising inflation, and geopolitical tensions, have heightened the importance of confidence on economic activity. Empirical evidence shows that shifts in economic confidence directly influence aggregate demand, affecting consumer spending and business investment ([Beaudry and Portier \(2004\)](#); [Angeletos et al. \(2020\)](#); [Faccini and Melosi \(2022\)](#)). However, there exist significant disagreements about the influence of confidence on business cycle fluctuations ([Nam and Wang \(2019\)](#)), with a major challenge being the identification of the transmission mechanism to the economy and the distinction between sentiment (or changes in beliefs unrelated to fundamentals) and news.

In this paper, we propose two novel surprise indices, the Business Confidence Surprise Index (*BCSI*) and the Industrial Production Surprise Index (*IPSI*), constructed using macroeconomic announcement surprises, to investigate the relationship between economic confidence and business cycles for a panel of major economies such as the United States, Japan, the United Kingdom, Germany, France, Italy, and Spain, over the period 2000-2023.

Classic macroeconomic literature proposes different theories to explain the role of confidence. The first relates to Keynes' *animal spirits* and postulates that purely psy-

chological waves can determine belief fluctuations. Such exogenous shifts in optimism (pessimism) generate a temporary causal effect on aggregate demand (Blanchard (1993); Hall (1993)). A variation of this approach, known as *self-fulfilling animal spirits*, assumes that changes in confidence are entirely rational because of a self-fulfilling feedback loop - optimism causes an increase in economic activity which confirms the original optimistic shock (Benhabib and Farmer (1994); Farmer and Guo (1994); Farmer (2012); Farmer (2013); Farmer (2016); Nam and Wang (2019)). More recently, New Keynesian models with rational expectations have been reformulated to include economic sentiment. Benhabib et al. (2016) and Acharya et al. (2021) attribute macroeconomic fluctuations to purely psychological sunspot-driven waves while suggesting that it is the subsequent actions triggered by these waves that cause changes in fundamentals. This perspective rationalizes the initial boom or bust in confidence as expectations eventually materialize.

An alternative stream of literature, known as *news view*, suggests that a relationship exists between economic confidence and subsequent macroeconomic activity because confidence measures contain fundamental information about the current and future state of the economy (Cochrane (1994)). In this case, optimism (pessimism) arises when agents learn about forces that will positively (negatively) affect the future value of fundamentals. This approach emphasises the role of new information (Barsky and Sims, 2011, 2012; Blanchard, 1993; Beaudry and Portier, 2014; Chahrour and Jurado, 2018).

Macroeconomic announcements are one of the most effective channels through which new information arrives to agents. Market participants, economists, and the media interpret the new information, use it to make decisions, and update their views on the next release of the same or other relevant economic variables. An important characteristic of macroeconomic announcements is that they are released at dates and times known in advance (scheduled), thus carrying quantitative content on which agents can formulate precise expectations (Hardouvelis (1988)). The regularity of the release allows agents to formulate expectations based on the model of the economy they have in mind and their efficiency in distinguishing between noise and market signals. Agents' confidence is mainly affected by the unexpected component (surprise), defined as the difference between the actual and expected values of the announcements. If markets are efficient, agents react when the actual releases differ from their expectations: "news" moves the markets (Gürkaynak and Wright (2013)).

We focus on the unexpected information (surprises) coming from macroeconomic announcements, and we postulate that the releases of macroeconomic announcements, when different from expectations, can induce persistent changes in the information set about the fundamentals of the economy, thus affecting agents' predictions about future

states of the economy. This change can have a structural impact on economic confidence not only as a temporary psychological wave, as postulated by the *animal spirits* point of view but as a long-term effect reflected in a persistent change in economic activity.

We contribute to the literature analysing the connection between surprises, economic confidence and economic activity by implementing an empirical strategy composed of the following steps. In the first step, we evaluate the role played by the arrival of new information (surprises) on economic and financial variables by estimating their impact on business confidence and economic activity (industrial production) for each country in our sample. To the best of our knowledge, this is the first paper to evaluate the direct impact of macroeconomic surprises on economic activity and business confidence, incorporating global announcements coming from the US, major European economies and Japan, with macroeconomic announcements released throughout the global trading day in different time zones.

In the second step, building on the literature on surprise indices ([Altavilla et al., 2017](#); [Scotti, 2016](#)), we construct two novel surprise indices, namely the *BCSI* and *IPSI*, by aggregating the significant macroeconomic surprises identified by implementing the automated selection procedure *Autometrics* ([Doornik \(2009\)](#)), that allows us to improve the adjusted R^2 . We also check the robustness of the final specification to the presence of latent variables and local and global shifts via an extensive indicator saturation procedure ([Castle et al. \(2023\)](#)). In the third step, building upon the framework of ([Swanson and Williams, 2014a](#); [Gardner et al., 2022](#); [Bauer and Swanson, 2023](#)), we explore how the impact of macroeconomic announcement surprises changes over the different business cycles, isolating their time-varying effects. Our estimations cover the period from January 2000 to April 2023, allowing us to include several business cycles along with periods of financial crises and geopolitical turbulence. Time-varying estimates show that macroeconomic announcement surprises have a statistically significant impact on confidence and economic activity throughout the entire time sample. However, the impact is more significant during the periods of turbulence. This result is in line with the literature that suggests that during periods of crises or recessions, the capacity of agents to make predictions deteriorates as uncertainty increases ([Scotti \(2016\)](#)).

Finally, we investigate the transmission mechanism from macroeconomic surprise shocks to economic confidence and economic activity in a vector autoregressive (VAR) framework, following the recursive approach proposed in [Levchenko and Pandalai-Nayar \(2020\)](#). The use of our proposed *BCSI* and *IPSI* allows us to distinguish confidence shocks due to the arrival of relevant unexpected macroeconomic information (economic situation news) from variations in expectations not related to current or future changes

in economic activity (sentiment). We provide robust evidence that the arrival of new information persistently affects confidence and economic activity, confirming the *news view* hypothesis. The variance decomposition analysis highlights the effectiveness of our approach: surprise shocks, particularly those on confidence, have a predominant role. Compared with [Enders et al. \(2021\)](#), who find that the contribution of belief shocks to output fluctuations to be about 40%, our VAR analysis explains more than 50% of the forecast error variances of the economic activity of all countries included in this analysis (from a minimum of 56% for Germany to a maximum of 73% for France). The results of the VAR model are robust to changes in variable ordering, estimation sample, filters applied to the automated model selection procedure, the VAR estimation technique, and the introduction of additional macroeconomic and financial control variables.

The remainder of the paper is organised as follows. Section [2.2](#) discusses the main properties of the data used in the empirical investigation, including macroeconomic announcement surprises, business and industrial production confidence and other financial and economic variables. In Section [2.3](#), we report the empirical analysis: the estimates of the effects of macroeconomic surprises on business confidence and industrial production (Section [2.3.1](#)), the construction of surprise indices (Section [2.3.2](#)), their time-varying impact (Section [2.3.3](#)), the transmission mechanism of macroeconomic surprises (Section [2.3.4](#)), and finally a comprehensive sensitivity analysis (Section [2.3.5](#)). Section [2.4](#) concludes.

2.2 Data

We use time series data from January 2000 to April 2023 ($T=280$ observations), available in real time and re-conducted to monthly frequency for the United States, Japan, the United Kingdom, Germany, France, Italy, and Spain. The number of observations for macroeconomic announcements differs, with some news released or surveyed/recorded by Bloomberg only after January 2000 (see Tables [2.1](#) - [2.4](#) for more details).

2.2.1 Variables

The dataset contains a selection of $K=137$ actual and expected macroeconomic announcements, and two macroeconomic indicators such as the business confidence and the industrial production indices.

Table 2.1: *US Macroeconomic Announcements*

Announcements	Measurement (i)	# Obs (ii)	Frequency (iii)	Timing of release (iv)
GDP (Advanced)	q/q ann. % ch.	88	Q	7:30/8:30AM
GDP (Preliminary)	q/q ann. % ch.	87	Q	8:30AM
GDP (Final)	q/q ann. % ch.	88	Q	7:30/8:30/9:30AM
ISM composite	Diffusion ind. 0=50	217	M	8:55/9/10/11 AM
Leading Indicator	Index 2016=100	264	M	9/9:50/11AM
Ind. Production index	y/y % ch.	264	M	8:15/8:51/9:15PM
Capacity Utilization	% rate	264	M	8:15/8:51/9:15PM
Business Inventories	m/m % ch	264	M	8:30/9/10AM
Factory Orders	m/m % ch	264	M	9/10/11AM - 3PM
ISM Manufacturing	Diffusion ind. 0=50	264	M	9/10/10:26/11AM
PMI Manufacturing (Final)	Diffusion ind. 0=50	115	M	8:58AM to 9:45AM
Chicago PMI	Diffusion ind. 0=50	280	M	8:17 to 11AM
Durable Goods (Preliminary)	m/m % ch	90	M	7:30/8:30AM
Durable Goods (Final)	m/m % ch	257	M	7:30/8:30/9/10AM
Personal income	m/m % ch	264	M	7:30/8:30/9/10AM
Personal consumption	m/m % ch	227	M	7:30/8:30/9:30AM
Retail Sales index	y/y % ch	247	M	7:30/8:30AM
Consumer credit	mln \$	264	M	2/3/4PM
Cons. Confidence (CB)	Index 1985=100	264	M	9AM to 11AM
Cons. Confidence (MU, Prel.)	Index 1966:Q1=100	263	M	8:55AM to 11AM
Cons. Confidence (MU, Final)	Index 1966:Q1=100	264	M	8:55AM to 11AM
New House Sales	k units	264	M	8/9/10AM
S&Ps Case-Shiller's	y/y % ch	181	M	8/9AM - 14:15PM
Construction Spending	m/m % ch	264	M	9/10/11AM
Housing Starts	mln units	264	M	7:30/8:30AM
CPI (yearly)	y/y % ch	231	M	7:30/8:30AM
CPI (monthly)	m/m % ch	264	M	7:30/8:30AM
Core CPI (yearly)	y/y % ch	231	M	7:30/8:30AM
Core CPI (monthly)	m/m % ch	264	M	7:30/8:30AM
PPI (yearly)	y/y % ch	230	M	7:30/8:30/9:30AM
PPI (monthly)	m/m % ch	264	M	7:30/8:30/9:30AM
Unemployment	% rate	264	M	7:30/8:30/9:30AM
Non-Farm Payroll Change	k units	264	M	7:30/8:30/9:30AM
Initial Jobless Claims	k units	940	W	7:30/8:30/9:30AM
Public Deficit	mln \$	264	M	11AM to 16PM
Commercial Trade Balance	mln \$	264	Q	7:30/8:30AM

Notes: The table summarises the main features of the US macroeconomic announcements. In Column (iii), Q stands for Quarterly and M for Monthly frequency. Sample period: January 2000-April 2023.

Table 2.2: *Japanese and UK Macroeconomic Announcements*

Announcements	Measurement (i)	# Obs. (ii)	Frequency (iii)	Timing of release (iv)
Japanese announcements				
GDP (Preliminary)	q/q ann. % ch.	78	Q	0:50/1:50AM
GDP (Final)	q/q ann. % ch.	78	Q	0:50/1:50AM
Ind. Prod. index (Prel.)	y/y % ch.	252	M	0:50/1:50AM
Unemployment	% rate	280	M	0:00 AM to 3:30 AM
CPI (yearly)	y/y % ch.	260	M	0:00/0:30/1:00/1:30 AM
CPI core (yearly)	y/y % ch.	200	M	0:30/1:30/6:00 AM
PPI (yearly)	y/y % ch.	235	M	0:50/1:50AM
PPI (monthly)	m/m % ch.	279	M	0:50/1:50AM
Retail Sales index (Prel.)	m/m % ch.	241	M	0:50/1:50AM
Tankan Business Conf.	Diffusion ind.	93	Q	0:50/1:50AM
PMI Manufacturing	Diffusion ind. 0=50	252	M	1:30AM to 7:30AM
Consumer confidence	Diffusion ind. 0=50	229	M	6:00 to 8:00 AM
M3	y/y % ch.	179	M	0:50/1:50AM
UK announcements				
GDP (Advanced)	y/y % ch.	74	Q	10:30AM
GDP (Preliminary)	y/y % ch.	93	Q	8:00/10:30AM
GDP (Final)	y/y % ch.	93	Q	8:00/10:30/11:30 AM
Ind. Prod. index	y/y % ch.	280	M	8:00/10:30 AM
Unemployment	% rate	252	M	8:00/10:30 AM 3:00 PM
CPI (yearly)	y/y % ch.	239	M	8:00/10:30AM
CPI (monthly)	m/m % ch.	232	M	8:00/10:30AM
CPI core (yearly)	y/y % ch.	212	M	8:00/10:30AM
PPI (yearly)	y/y % ch.	280	M	7:59/8:00/10:30AM
PPI (monthly)	m/m % ch.	280	M	7:59/8:00/10:30AM
Retail Sales index (Prel.)	y/y % ch.	280	M	8:00/10:30AM
PMI Composite	Diffusion ind. 0=50	153	M	10:30AM
PMI Manufacturing	Diffusion ind. 0=50	229	M	9:30/10:30AM
Consumer confidence	Diffusion ind.	272	M	1:00 AM to 8:20 PM
M4	y/y % ch.	266	M	10:30/11:30 AM

Notes: The table summarises the main features of the Japanese and the UK macroeconomic announcements. In Column (iii), Q stands for Quarterly and M for Monthly frequency. Sample period: January 2000 - April 2023.

Table 2.3: *German and French Macroeconomic Announcements*

Announcements	Measurement (i)	# Obs (ii)	Frequency (iii)	Timing of release (iv)
German announcements				
GDP (Preliminary)	y/y % ch.	82	Q	8:00/10:00AM
GDP (Final)	y/y % ch.	92	Q	8:00/9:30AM
GDP (Quarterly - Prel.)	q/q ann. % ch.	81	Q	8:00/10:00AM
GDP (Quarterly - Fin.)	q/q ann. % ch.	96	Q	8:00AM to 9:30AM
Ind. Prod. index (Yearly)	y/y % ch.	264	M	7:40AM to 5:45PM
Ind. Prod. index (Monthly)	m/m % ch.	264	M	7:40AM to 5:45PM
Unemployment	% rate	281	M	9:16AM to 11:24AM
CPI (yearly)	y/y % ch.	243	M	8:00/10:30AM
CPI (monthly)	m/m % ch.	243	M	8:00/10:30AM
PPI (yearly)	y/y % ch.	280	M	8:00/8:15AM
PPI (monthly)	m/m % ch.	280	M	8:00/8:15AM
Retail Sales index	y/y % ch.	281	M	7:45 to 8:13PM
PMI Composite	Diffusion ind. 0=50	110	M	9:30/9:55AM
PMI Manufacturing	Diffusion ind. 0=50	229	M	9:55AM
Consumer confidence	Diffusion ind. 0=50	202	M	8:00AM to 1:00PM
IFO Business Climate Ind.	Index 2015=100	194	M	8:00AM to 4:00PM
ZEW Current Situation Ind.	Diffusion ind.	231	M	11:00AM
ZEW Ec. Expectations Ind.	Diffusion ind.	261	M	11:00AM to 4:00PM
French announcements				
GDP (Advanced)	y/y % ch.	17	Q	7:30AM
GDP (Preliminary)	y/y % ch.	91	Q	7:30AM to 7:00PM
GDP (Final)	y/y % ch.	91	Q	7:30AM to 9:11AM
GDP (Advanced - Quarterly)	q/q % ch.	21	Q	7:30AM to 8:50AM
GDP (Preliminary - Quarterly)	q/q % ch.	91	Q	7:30AM to 7:00PM
GDP (Final - Quarterly)	q/q % ch.	91	Q	7:30 to 8:50AM
Ind. Prod. index	y/y % ch.	291	M	8:40 to 9:50AM
Ind. Prod. index	m/m % ch.	291	M	8:40 to 9:50AM
Unemployment	% rate	157	M/Q	7:30AM to 10:30PM
CPI (yearly)	y/y % ch.	291	M	7:30AM to 8:50AM
CPI (monthly)	m/m % ch.	288	M	7:30AM to 8:50AM
PPI (yearly)	y/y % ch.	281	M	8:40AM to 9:50AM
PPI (monthly)	m/m % ch.	281	M	8:40AM to 9:50AM
Retail Sales index	y/y % ch.	270	M	7:30/8:45/8:50AM
PMI Composite	Diffusion ind. 0=50	122	M	9:50AM
PMI Manufacturing	Diffusion ind. 0=50	241	M	9:50AM
Consumer confidence	Index 2015=100	279	M	8:40 AM to 10:01 PM

Notes: The table summarises the main features of the German and the French macroeconomic announcements. In Column (iii), Q stands for Quarterly and M for Monthly frequency. Sample period: January 2000 - April 2023.

Table 2.4: *Italian and Spanish Macroeconomic Announcements*

Announcements	Measurement (i)	# Obs (ii)	Frequency (iii)	Timing of release (iv)
Italian announcements				
GDP (Preliminary)	y/y % ch.	75	Q	9:00AM to 12:00PM
GDP (Final)	y/y % ch.	89	Q	9:00AM to 14:30AM
GDP (Quarterly - Prel.)	q/q ann. % ch.	77	Q	9:00AM to 12:00PM
GDP (Quarterly - Fin.)	q/q ann. % ch.	88	Q	9:00AM to 14:30AM
Ind. Prod. index (Yearly)	y/y % ch.	285	M	9:00AM to 12:30PM
Ind. Prod. index (SA - Yearly)	y/y % ch.	285	M	9:00AM to 12:30PM
Ind. Prod. index (Monthly)	m/m % ch.	225	M	9:00AM to 12:30PM
Unemployment (SA - Quarterly)	% rate	23	Q	9:00AM to 10:00AM
Unemployment	% rate	143	M	9:00AM to 12:00PM
Unemployment (Quarterly)				
Industrial Orders (Yearly)	y/y % ch.	201	M	9:00AM to 1:00PM
Industrial Orders (Monthly)	m/m % ch.	202	M	9:00AM to 1:00PM
Industrial Turnover (Yearly)	y/y % ch.	212	M	9:00AM to 1:00PM
Industrial Turnover (Monthly)	m/m % ch.	212	M	9:00AM to 1:00PM
CPI (NIC - Yearly)	y/y % ch.	152	M	9:00AM to 7:38PM
CPI (IPCA - Yearly)	y/y % ch.	236	M	9:00AM to 12:00PM
CPI (NIC - Monthly)	m/m % ch.	152	M	9:00AM to 7:38PM
CPI (IPCA - Monthly)	m/m % ch.	205	M	9:00AM to 6:35PM
PPI (Yearly)	y/y % ch.	222	M	9:00AM to 1:00PM
PPI (Monthly)	m/m % ch.	223	M	9:00AM to 1:00PM
Retail Sales index (Yearly)	y/y % ch.	281	M	9:00AM to 12:00PM
Retail Sales index (Monthly)	m/m % ch.	225	M	9:00AM to 12:00PM
Spanish announcements				
GDP (Preliminary)	y/y % ch.	73	Q	9:00AM
GDP (Final)	y/y % ch.	85	Q	8:50AM to 11:15AM
GDP (Preliminary - Quarterly)	q/q % ch.	113	Q	9:00AM
GDP (Final - Quarterly)	q/q % ch.	85	Q	8:50AM to 11:15AM
Ind. Prod. index (Yearly)	y/y % ch.	280	M	8:49AM to 10:35AM
Ind. Prod. index (Monthly)	m/m % ch.	93	M	9:00AM
Unemployment	% rate	137	M/Q	8:15AM to 7:00PM
CPI (yearly)	y/y % ch.	254	M	8:58 to 9:34AM
CPI (monthly)	m/m % ch.	255	M	8:58 to 9:34AM
PPI (yearly)	y/y % ch.	243	M	9:00AM
PPI (monthly)	m/m % ch.	242	M	9:00AM
Retail Sales index	y/y % ch.	211	M	9:00/9:06AM
PMI Composite	Diffusion ind. 0=50	110	M	9:15AM
PMI Manufacturing	Diffusion ind. 0=50	110	M	9:15AM
Consumer Confidence index	Index 2015=100	52	M	10:00 to 10:07AM

Notes: The table summarises the main features of the Italian and the Spanish macroeconomic announcements. In Column (iii), Q stands for Quarterly and M for Monthly frequency. Sample period: January 2000 - April 2023.

The first group of variables of actual and expected real-time macroeconomic announcements is released monthly, part of them quarterly, only the Initial Jobless Claim at a weekly frequency. A detailed list of announcements is reported in Tables 2.1-2.4, which summarise the main features of announcements: Column (i) contains the unit of measurement, (ii) the number of observations, namely how many announcements were released within the sample, (iii) the frequency, and finally (iv) the time of the releases.

The overall sample period extends from January 2000 to April 2023. However, effective coverage differs across announcement-surprise series owing to variations in data availability. Specifically, some macroeconomic indicators were introduced after the beginning of the sample, some were subsequently discontinued, and, for others, Bloomberg began reporting consensus expectations only at a later date, making it impossible to compute surprise measures for earlier periods. The coverage of each announcement series is reported in column (ii) of Tables 2.1-2.4.

Market participants observe more than one release for some of the variables listed in Tables 2.1-2.4. Examples include real GDP, which has preliminary, final and advanced releases; durable goods and the University of Michigan confidence indicator, which have preliminary and final releases. In our analysis, these different releases are used as separate variables.

The database also deliberately includes different releases and transformations of the same underlying macroeconomic variable. Successive estimates of selected indicators provide distinct information events for financial markets. Preliminary estimates typically represent the earliest signal of current economic conditions and therefore tend to attract substantial market attention, despite being subject to greater measurement error. Subsequent releases incorporate additional source data, revisions, and methodological refinements, thereby reducing statistical uncertainty while potentially revealing economically meaningful information that was unavailable at the time of the initial publication. Consequently, each vintage represents a separate update of the market’s information set and may generate an independent surprise when the released figure differs from market expectations.

Furthermore, we include different transformations of the same variables. For example, GDP, industrial production, and inflation may be reported in month-on-month (MoM), quarter-on-quarter (QoQ), or year-on-year (YoY) terms. Although these measures are naturally correlated, they are not informationally equivalent. Higher-frequency growth rates, such as MoM and QoQ changes, primarily capture short-term economic momentum and turning points, whereas YoY rates reflect more persistent developments and are less affected by temporary fluctuations.

The expected values of announcements are the surveys collected by Bloomberg considered the main benchmark for market expectations (Balduzzi et al., 2001; Anderson et al., 2003; Scotti, 2016; Altavilla et al., 2017; Gilbert et al., 2017; Caruso, 2019).

Data from the Economic Calendars (ECO) provided by Bloomberg are used to proxy the real-time information available to market participants. For each macroeconomic announcement, Bloomberg Economic Calendars makes its realised (actual) value and the predicted (expected) value available. The expected values are obtained by conducting a survey among a panel of market participants. The ECO survey forecasts procedure typically starts from one to two weeks before each release and is updated in real-time until the macroeconomic variable is officially released. They are available from a few days before the announcements and can be updated by the respondents up to one hour before the release. The survey value is calculated as the median (consensus) forecast. Using the official value released and the corresponding ex-ante expectation for each macroeconomic variable permits measuring the size and direction of the unexpected component (surprise) of macroeconomic announcements at each point.

We measure the surprise in the k -th announcement as the difference between actual and expected values: $FS_{k,t} = A_{k,t} - F_{k,t}$ where $A_{k,t}$ is the released value of the k -th announcement at time t , in our case k going from 1 to 137; $F_{k,t}$ indicates the median of the Bloomberg survey expectations among practitioners given their information set at time t . If the k -th variable is not released at time t , $A_{k,t}=F_{k,t}=0$, then the surprise is zero as well. In other words, forecast surprises are constructed as daily vectors equal to $FS_{k,t}$ on those days when a piece of news occurs, to 0 otherwise or when $A_{k,t} = F_{k,t}$. Since units of measurement change significantly across economic variables, $FS_{k,t}$ are standardised (Balduzzi et al., 2001; Anderson et al., 2003), by their standard deviation σ_k , calculated only on those days where a news release occurs:

$$S_{k,t} = \frac{FS_{k,t}}{\sigma_k}. \quad (2.1)$$

All surprises, irrespective of their original release frequency (weekly, monthly or quarterly), are then first mapped into a daily time series in which each observation takes the value of either the released figure (actual) or the corresponding market expectation (expected) on the official release date, and zero otherwise.

To match announcements released at different frequencies with the monthly dependent variables, we follow the timing convention adopted by Altavilla et al. (2017). Each standardised announcement surprise is first assigned to its official release date and mapped into a daily series, $(S_{k,d})$, which takes the value of the surprise on announcement

Table 2.5: *Summary Descriptive Statistics*

Variables	Frequency (i)	Source (ii)	Max (iii)	Min (iv)	Mean (v)	StDev (vi)
Business Confidence Indices						
United States	M	OECD	102.13	95.73	99.97	1.16
Japan	M	OECD	101.71	96.79	100.15	1.13
United Kingdom	M	OECD	105.59	93.45	100.32	2.15
Germany	M	OECD	103.53	95.97	100.48	1.42
France	M	OECD	103.96	94.79	100.37	1.52
Italy	M	OECD	102.66	96.35	100.46	1.19
Spain	M	OECD	103.09	94.41	100.41	1.68
Industrial Production Indices						
United States	M	OECD	103.21	83.86	92.02	4.90
Japan	M	OECD	119.45	79.63	102.01	7.14
United Kingdom	M	OECD	113.32	88.57	101.46	5.66
Germany	M	OECD	107.71	71.31	92.84	8.72
France	M	OECD	115.29	68.06	103.60	6.13
Italy	M	OECD	133.29	58.30	111.23	11.78
Spain	M	OECD	136.26	70.14	111.38	12.79
Ec. Policy Uncertainty Indices						
United States	M	OECD	503.96	44.78	139.63	65.57
Japan	M	OECD	237.68	47.60	107.22	31.84
United Kingdom	M	OECD	1141.80	29.03	215.38	152.88
Germany	M	OECD	844.85	28.43	181.17	144.16
France	M	OECD	547.63	16.59	197.54	106.52
Italy	M	OECD	279.39	31.70	113.12	40.69
Spain	M	OECD	407.42	23.32	117.09	56.81

Notes: The table reports frequency, source and summary statistics for Business Confidence, Industrial Production, and Economic Policy Uncertainty Indices. In Column (i), M indicates monthly frequency. Sample period: January 2000 - April 2023.

days and zero on all other days. The corresponding monthly surprise variable is then constructed as

$$S_{k,m}^M = \sum_{d \in \mathcal{D}_m} S_{k,d} \quad (2.2)$$

where $(\mathcal{D}_m)$ denotes the set of calendar days belonging to month (m) . Accordingly, all weekly announcements released during a given month contribute to that month's explanatory variable, a monthly announcement enters the month in which it is released, and a quarterly announcement enters only the month of its official publication. The

aggregation is therefore based on the timing of the information release rather than on the reference period of the underlying indicator. This procedure ensures that no information is incorporated before it becomes available to economic agents and that all announcement surprises released during a given month are consistently matched with the corresponding monthly dependent variable.

The direction of the effect of surprises is determined empirically. For example, if GDP growth is higher (lower) than expected, $S_{GDP,t} > 0$ ($S_{GDP,t} < 0$), this is positive (negative) news. In contrast, there is a subset of indicators for which the sign of surprise has an inverse meaning. If unemployment is higher (lower) than expected $S_{Unem,t} > 0$ ($S_{Unem,t} < 0$), it is a negative (positive) surprise. The subset of surprises with reversal economic interpretation consists of the unemployment rate and public deficit. At the same time, inflation surprises (regarding CPI, core CPI and PPI) can be ambiguously interpreted. During periods of weak or negative economic growth and inflation rate consistently lower than the Central Bank inflation target, the value of an inflationary announcement higher than expected can be read as a positive surprise. The opposite occurs during good economic times and/or when the inflation rate is higher or too close to the Central Bank's inflation target.

The construction of the macroeconomic announcement database builds on the real-time information and nowcasting literature. [Giannone et al. \(2008\)](#) show that timely assessments of economic conditions require exploiting the sequential arrival of macroeconomic releases, each of which updates the information set available to economic agents. [Scotti \(2016\)](#) and [Caruso \(2019\)](#) extend this approach by constructing real-time indicators based on the continuous flow of macroeconomic announcements. Building on this framework, the present study follows the macroeconomic surprise literature, particularly [Altavilla et al. \(2017\)](#), by measuring the unexpected component of scheduled macroeconomic releases as the difference between realised outcomes and market expectations. Accordingly, we construct a comprehensive database of macroeconomic announcements from which the announcement surprise indices are derived. Although the objective of the present analysis differs from that of the nowcasting literature, both approaches share the underlying principle of extracting economically relevant information from a broad set of real-time data releases.

We consider business confidence indicators and industrial production indices among the macroeconomic variables. The OECD reports all of them on a monthly basis. In particular, confidence indicators are smoothed, normalised, and seasonally adjusted, while Industrial Production and Retail Sales indices are seasonally adjusted. Table 2.5 shows the summary statistics, highlighting that the minimum value of all variables was reached

in the first semester of 2020, which corresponds to the peak of the Covid-19 pandemic. Table 2.5 also reports preliminary statistics on Economic Policy Uncertainty (EPU, Baker et al. (2016)) indices, which are included as control variables in the robustness checks.

2.3 Empirical analysis

2.3.1 Impact of Surprises on Industrial Production and Business Confidence

This section describes the identification strategy for economic activity behaviour. We follow a recursive approach based on (Levchenko and Pandalai-Nayar, 2020; Barsky and Sims, 2011, 2012).

Formally, we assume that the change in industrial production at time t (ipi_t) follows a moving-average process driven by a shock due to the unexpected part of the production at time t (ϵ^{ipi}_t), plus the shock given by the arrival of unexpected relevant information (ϵ^{news}_t) that can change the information set available to the investors to decide at which level to set production:

$$ipi_t = \theta_1 \epsilon^{ipi}_t + \theta_2 \epsilon^{news}_t \quad (2.3)$$

We also assume that agents' expectations (e_t , change in business confidence) about the state of the economy can be represented as a moving-average process of the following type:

$$e_t = \phi_1 \epsilon^{e_t} + \phi_2 \epsilon^{news}_t + \phi_3 \epsilon^{sent}_t + u_t \quad (2.4)$$

where expectations are affected not only by the unexpected (ϵ^{e_t}) and news shocks (ϵ^{news}_t) but also by a sentiment shock (ϵ^{sent}_t). The latter captures variations in expectations not related to current or future changes in economic activity.

In our set-up, the shock due to the arrival of the unexpected relevant information (ϵ^{news}_t) is approximated by the unexpected component of the macroeconomic announcement released at time t , namely the surprise as defined in Equation 2.1. We estimate the monthly effect of macroeconomic announcement surprises on industrial production and business confidence to approximate ϵ^{news}_t in Equations 2.3 and 2.4, respectively. To

this aim, for each country, we estimate the following specification:

$$y_t = \alpha + \sum_{k=1}^K \beta_k S_{k,t} + \eta_t \quad (2.5)$$

where y_t is either the first difference of the logarithm of ipi_t or e_t ; t = January 2000, ..., April 2023 with a monthly frequency, α is the constant, $S_{k,t}$ are the standardised surprises, for k ranging from 1 to $K=137$, β_k measures the impact of surprises on industrial production and business confidence, η_t is the error term. The daily surprise series are aggregated to the monthly level by summing all announcement surprises occurring within the same calendar month. This aggregation procedure follows the timing convention adopted by [Altavilla et al. \(2017\)](#), ensuring that all information released during a given month is incorporated into the corresponding monthly explanatory variable. All series used in the empirical analysis are either stationary in levels or have been transformed to achieve stationarity, as shown in Tables [A.2-A.16](#).

Equation 2.5 indicates that each initial estimate includes all announcement surprises regarding the selected countries' economies. The standard errors are corrected for autocorrelation and heteroscedasticity with a HAC Newey-West standard error correction.

Formally, the shock due to new information, ϵ^{news_t} in Equations (2.3) and (2.4), represents the component of the macroeconomic announcement orthogonal to other shocks, isolating its effect on both expectations and realized production. Sentiment shocks, ϵ^{sent_t} , account for variations in expectations unrelated to fundamentals, such as risk perception or investor sentiment.

The coefficients $\hat{\beta}_k$ in Equation (2.5) measure the sensitivity of industrial production or business confidence to the corresponding macroeconomic announcement surprise. A positive and significant $\hat{\beta}_k$ indicates that better-than-expected news increases expectations or output, while negative coefficients reflect variables where higher-than-expected values reduce expectations or activity (e.g., Unemployment or Initial Jobless Claims). Variables with ambiguous economic interpretation (e.g., CPI) are interpreted conditionally depending on the monetary policy context. This interpretation highlights which types of announcements are most informative for agents and how new information propagates into economic activity and confidence.

The inclusion of the domestic industrial production surprise reflects the distinction between the realised dynamics of industrial production and the informational content of its announcement. While the dependent variable captures the observed change in industrial production, the surprise variable measures the unexpected component of the

release, defined as the difference between the published figure and the corresponding Bloomberg consensus forecast. Consistent with the macroeconomic news literature (e.g., [Altavilla et al. \(2017\)](#)), the surprise captures the information shock conveyed by the announcement rather than the level of economic activity itself. An industrial production release that matches market expectations contains little new information, regardless of its realised value, whereas a large surprise conveys substantial new information and may therefore induce a significant revision of market expectations.

Tables 2.6 and 2.7 report the estimated $\hat{\beta}_k$ regression coefficients from Equation (2.5) with industrial production (Table 2.6) and business confidence (Table 2.7) for the United States¹. as dependent variables. In Column (i), we report the result of the regression which includes the full set of announcement surprises, as in [Altavilla et al. \(2017\)](#). Columns (ii)-(iv) report the estimated regression coefficients associated with macroeconomic surprises selected with the automated model selection procedure *Autometrics* at 90%, 95% and 99% confidence levels, respectively².

Evidence shows that a large set of macroeconomic announcement surprises significantly influences industrial production and business confidence. Among others, the first set of confidence-moving indicators includes qualitative surveys such as the Conference Board Consumer Confidence index, the ISM manufacturing surveys, the Chicago PMI index, and the Leading Indicator index. Because of their timeliness, these soft data (the Leading Indicator index partially includes hard data information) are particularly important (as in [Altavilla et al. \(2017\)](#)) for the confidence of economic agents, but not for economic activity.

A second set of relevant indicators includes data about economic fundamentals. Vari-

¹The results for the other countries are reported in the Appendix A, Tables A.2-A.28

²*Autometrics* is an automatic model selection programme, within the general-to-specific framework also known as the 'Hendry' or 'LSE' methodology, based on a tree-search structure commencing from a general unrestricted model (GUM) and selecting congruent, parsimonious encompassing simplifications. The main procedure involves the following steps: divide the complete set of variables and indicators into sub-blocks smaller than $T/2$; select within each block, where many variables are included, and record which variables are relevant in each block search, and collect information across blocks on which variables remain significant when other relevant variables are included. At each stage, *Autometrics* groups variables into those already selected and those not yet selected. Variables that are not currently selected are divided into sub-blocks, and the search switches between an expansion step, selecting within the not-selected sub-blocks to find significant omitted variables. This process is repeated until the current model is small enough for the usual algorithm, and further searches do not locate any additional significant omitted variables. It is infeasible to test the GUM for mis-specifications if $N > T$, so the programme selects as if the estimable sub-models were well specified and seeks to move to a final choice that is congruent. This approach selects a statistically robust and simplified model from a complex initial set of variables ([Santos et al., 2008](#); [Doornik, 2009](#); [Castle et al., 2012, 2023](#)). An alternative approach is the so-called *screening approach* of [Chudik et al. \(2018\)](#), extended to the case of variable selection in presence of parameter instability by [Chudik et al. \(2024\)](#).

ables regarding labour market, such as Unemployment (relevant for business confidence), change in Nonfarm Payrolls (for industrial production), and Initial Jobless Claims (for both), are found to be important. Again, these variables are also very timely (Jobless Claims are released on a weekly basis). Other important macroeconomic announcements include advanced releases of GDP, Capacity Utilisation, Core CPI (for industrial production), Factory Orders, Industrial Production, Durable Goods, New House Sales (for business confidence), and Retail Sales and Personal Income (for both).

Finally, business confidence and industrial production are affected by a large set of macroeconomic announcement surprises released by all countries included in the dataset. This allows us to control for the role of global surprises in business confidence fluctuations and, consequently, their impact on business cycles. By incorporating macroeconomic announcements from all countries in our sample, we account for the different time zones into which the global trading day is divided.

The sign of the statistically significant coefficients of macroeconomic announcements about the economy of the same country is typically positive: good macroeconomic news (positive surprise) leads to an improvement in expectations about the economy's future, then to an increase in economic activity.

There are some exceptions, in particular for those announcements with a reversal economic meaning (a greater than expected Unemployment is a bad surprise) or for those with potentially inflationary implications that may create expectations of future monetary policy tightening (Factory Orders, New House Sales, Capacity Utilisation, Retail Sales index). The sign of the Consumer Price Index can also be ambiguous: if it is greater than expected when inflation is below the monetary policy target, it can be considered a positive surprise; the opposite is when inflation is above it.

Looking at the size of the estimated significant coefficients, the most relevant macroeconomic surprises are those related to the labour market (in particular, Unemployment for business confidence, non-farm Payroll Change, and Initial Jobless Claim for industrial production). Tables 2.6 and 2.7 (last row) and Table 2.8 report the adjusted R^2 for the regressions from Equation 2.5. Macroeconomic surprises explain a relevant proportion of industrial production and business confidence indices variability. Looking at Column (iii) of Table 2.8 the adjusted R^2 of the model estimates selected at 95% confidence level represents an average of 64.4% of the industrial production (from a min. of 44.8% for Japan and a max. of 79.9% for Spain) and an average of 69.7% of the business confidence (from a min. of 58.4% for the US to a max. of 76.7% for Japan)³.

³The R^2 are, on average, 1.5% higher for the Business Confidence index and 1.6% higher for the Industrial Production index when applying the selection procedure at 90% confidence level.

Table 2.6: *Macroeconomic Surprises Effects on the US Industrial Production*

P-value filters Announcements	$\hat{\beta}_{k*}$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.129	0.146	0.130	-
US Capacity Utilization	-0.052	-0.089	-0.081	-
US Personal income	0.311	0.320	0.257	0.295
US Ret. Sales index	-0.198	-0.142	-0.136	-0.140
US Core CPI (yearly)	0.161	0.151	0.150	0.098
US Non-Farm Payroll Change	0.381	0.506	0.504	0.552
US Initial Jobless Claims	-0.260	-0.233	-0.279	-0.243
Ja. Unemployment	-0.138	-0.109	-0.161	-0.132
Ja. Core CPI (y/y)	-0.115	-0.099	-	-
Ja. Tankan B. Conf. index	-0.119	-0.108	-0.091	-
Ja. Cons. Conf. index	-0.053	-0.065	-0.066	-
UK Ind. Prod. (m/m)	0.512	0.391	0.382	-
UK PPI (y/y)	0.207	0.186	-	-
UK Ret. Sales (y/y)	0.171	0.200	0.140	0.165
UK Cons. Conf.	0.183	0.202	0.167	-
Ger. CPI (m/m)	0.185	0.111	0.115	-
Ger. Cons. Conf. index	0.443	0.529	0.555	-
Ger. IFO index	-0.234	-0.067	-0.059	-
Ger. ZEW index (curr.)	-0.453	-0.533	-0.567	-
Ger. ZEW index (exp.)	0.683	0.656	0.534	-
Fr. GDP (y/y - Final)	0.197	0.230	0.167	0.132
Fr. CPI (m/m)	-5.556	-3.094	-3.029	-
Fr. PPI (y/y)	2.468	1.560	1.524	-
Fr. Ret. Sales index (y/y)	-0.598	-0.088	-	-
Fr. PMI Composite	1.635	0.905	0.833	-
Fr. PMI Manuf.	-1.075	-0.707	-0.682	-0.020
It. Ind. Prod. index (SA, y/y)	0.340	0.244	0.280	0.253
It. CPI (y/y)	-0.172	-0.099	-0.057	-0.082
It. CPI (NIC index y/y)	0.148	0.190	0.149	-
It. PPI (y/y)	-0.144	-0.113	-	-
Sp. GDP (q/q) Final	0.171	0.244	-	-
Sp. CPI (m/m)	0.047	0.056	0.064	-
Sp. Ret. Sales index (y/y)	-0.119	-0.182	-0.135	-
Adj. R²	0.745	0.801	0.787	0.746

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significant levels, respectively. Sample period: January 2000 - April 2023.

Table 2.7: *Macroeconomic Surprises Effects on the US Business Confidence*

P-value filters Announcements	$\hat{\beta}_k^*$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US Leading Indicator	0.095	0.106	0.104	0.117
US Ind. Prod. index	0.123	0.143	0.140	0.160
US Factory Orders	-0.143	-0.156	-0.169	-0.149
US ISM Manuf.	0.117	0.163	0.189	0.180
US Chicago PMI	0.122	0.096	-	0.079
US Durable Goods (Final)	0.123	0.107	0.129	0.108
US Personal income	0.140	0.126	0.183	0.131
US Ret. Sales index	0.224	0.197	0.167	0.150
US Cons. Conf. (CB)	0.112	0.152	0.164	0.163
US New House Sales	-0.112	-0.182	-0.167	-0.171
US Unemployment	-0.310	-0.329	-0.332	-0.273
US Initial Jobless Claims	-0.098	-0.092	-0.067	-0.086
Ja. PPI (y/y)	0.124	0.276	0.231	0.272
Ja. Tankan B. Conf. index	0.174	0.120	-	-
UK Ind. Prod. (m/m)	0.731	0.321	0.195	0.203
UK CPI core (y/y)	0.600	0.736	0.665	0.501
UK Cons. Conf.	0.414	0.367	0.416	0.371
Ger. CPI (m/m)	-0.142	-0.167	-0.094	-
Ger. Cons. Conf. index	0.230	0.205	0.191	0.155
Fr. Ind. Prod. index (m/m)	-0.143	-0.205	-0.164	-0.223
Fr. CPI (y/y)	-1.035	-0.174	-0.173	-0.173
Fr. CPI (m/m)	-0.632	-0.235	-0.188	-0.224
Fr. PMI Composite	0.630	0.646	0.540	0.643
It. Gdp q/q Final	0.345	0.162	0.240	0.085
It. Ind. Prod. index (SA, m/m)	0.640	0.537	0.539	0.574
It. Unemployment rate (M)	-0.646	-0.526	-0.522	-0.564
It. Ind. orders (m/m)	0.278	0.337	0.195	0.283
It. PPI (y/y)	0.285	0.287	0.207	0.307
Sp. Ind. Prod. index (y/y)	-0.585	-0.506	-0.438	-0.483
Sp. PMI Manuf.	0.337	0.401	0.341	0.344
Adj. R²	0.500	0.596	0.584	0.566

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significant levels, respectively. Sample period: January 2000 - April 2023.

Table 2.8: *Macroeconomic ann. Surprises Effects on Confidence and Economic activity*

Industrial Production				
P-value filters	None (i)	90% (ii)	95% (iii)	99% (iv)
United States	0.745	0.801	0.787	0.746
Japan	0.337	0.482	0.448	0.361
United Kingdom	0.469	0.585	0.574	0.548
Germany	0.561	0.670	0.662	0.628
France	0.629	0.729	0.714	0.690
Italy	0.733	0.783	0.775	0.754
Spain	0.731	0.811	0.799	0.784
Average Adj. R_i^2	0.601	0.694	0.644	0.680
Business Confidence				
P-value filters	None (i)	90% (ii)	95% (iii)	99% (iv)
United States	0.500	0.596	0.584	0.566
Japan	0.716	0.775	0.767	0.747
United Kingdom	0.545	0.679	0.636	0.599
Germany	0.707	0.776	0.763	0.761
France	0.586	0.679	0.668	0.650
Italy	0.629	0.715	0.702	0.690
Spain	0.712	0.765	0.760	0.742
Average Adj. R_i^2	0.628	0.712	0.697	0.679

Notes: The table reports the adj. R_i^2 of Equation 2.5 with the Industrial Production and the Business Confidence as the dependent variables, Column (i) reports adj. R_i^2 for the specification, including all the macroeconomic announcements, Columns (ii)-(iv) report adj. R_i^2 for the specifications including announcements significant at 90%, 95% and 99% confidence levels, respectively. Sample period: January 2000 - April 2023.

The effectiveness of adopting *Autometrics* is demonstrated by the significant improvement achieved on average in the adjusted R^2 , up to a maximum of +9.3% on average (from a minimum of 5.0% for Italy to a maximum of +14.5% for Japan) for the *IP* equation, +8.4% (from a minimum of 5.3% for Spain to a maximum of 13.4% for the United Kingdom) for the *BC* specification (Table 2.8).⁴

It is worth noticing that the estimated specifications are likely to be affected by multiple breaks, outliers and latent factors missing in Equations 2.3 and 2.4 that may limit the validity of the estimated coefficients. To this aim, we run an impulse-indicator saturation (IIS) procedure for model evaluation and in particular for testing parameter constancy (e.g., [Hendry \(1999\)](#); [Castle et al. \(2012\)](#); [Marczak and Proietti \(2016\)](#)). The approach tackles data contamination and removes extreme observations, as well as location shifts and innovation outliers. Statistical properties of IIS are provided by Johansen and Nielsen ([Johansen and Nielsen, 2013, 2016](#)), while a comprehensive non-technical explanation is in a recent paper by [Martinez and Ericsson \(2025\)](#). News shocks include a common component controlling for prevalent common shocks in the economy, applicable to all types of news shocks on output, inflation, employment, and financial markets. Good examples would, of course, include the COVID-19 pandemic or the global financial crisis, as well as global recessions or slowdowns in 2001, 2009, 2012-14, and 2020. To control for common shocks and to treat for breaks during the COVID-19 pandemic, we executed an IIS procedure that incorporates the common shocks and possible breaks.

2.3.2 Surprise indices

As the next step, country-specific Industrial Production Surprise Index ($IPSI_t$) and Business Confidence Surprise Index ($BCSI_t$) are constructed as the weighted average of the significant macroeconomic surprises ([Scotti, 2016](#); [Altavilla et al., 2017](#); [Caruso, 2019](#)), with the weights being the beta estimated in the previous step ($w_k = \hat{\beta}_k$):

$$SI_t = \sum_{k^*=1}^{K^*} \hat{\beta}_{k^*} S_{k^*,t} \quad (2.6)$$

⁴It is important to note that most surveys are conducted during the first or second week of each month, meaning that daily news shocks can occur after the survey period. To account for potential reverse causality and spurious correlations, we re-estimated Equation 2.5 for the *BC*, using macroeconomic announcement surprises lagged by one month as regressors. The results, reported in Appendix A, confirm the significance of these surprises in explaining business confidence, although the adjusted R^2 values are smaller than those reported in Table 2.8.

where SI_t is either $IPSI_t$ or $BCSI_t$, K^* is the statistically significant subset of the 137 macroeconomic surprises selected for each country at the 95% confidence level using Equation 2.5. The $BCSI_t$ and $IPSI_t$, which result from Equation 2.6, represent estimates of $\epsilon_t^{news_t}$ in Equations 2.3 and 2.4.

The economic literature has recently acknowledged the relevance of a meaningful surprise index. For instance, [Scotti \(2016\)](#) constructs both a surprise and an uncertainty index that weight market-based news using the contributions of the variables to common factors. [Altavilla et al. \(2017\)](#) construct surprise indices by aggregating macroeconomic news across different time frequencies, ranging from high-frequency (intra-daily) to low-frequency (quarterly) data. Their findings indicate that the surprise index exerts a significant influence on bond yields, with its explanatory power being more pronounced at lower frequencies (the fit is around 30% for quarter data) compared to higher frequencies (the fit is less than 10% for daily data).

We make a major contribution to this strand of literature by constructing two novel surprise indices, namely $IPSI_t$ and $BCSI_t$, based on statistically significant surprises as illustrated in Section 2.3.1. In line with [Altavilla et al. \(2017\)](#), the two macroeconomic surprise indices reflect the impact of surprises on macroeconomic variables.

The announcement surprise indices are designed to measure the informational content of scheduled macroeconomic announcements rather than realised macroeconomic outcomes. Each index is constructed from standardised announcement surprises, defined as the difference between the released value and the corresponding Bloomberg consensus forecast. These surprises isolate the unexpected component of each release. The indices therefore summarise the extent to which the flow of incoming macroeconomic information deviates from prior market expectations, thereby capturing innovations in the information set available to economic agents.

Importantly, the indices are not equivalent to fitted values from the underlying regressions. They are constructed exclusively as weighted combinations of the selected announcement surprises and do not include the intercept, control variables, or residual component of the estimated equations. They should therefore be interpreted as synthetic measures of information shocks rather than as statistical predictions of business confidence or industrial production. In this sense, the indices quantify the unexpected information conveyed by scheduled macroeconomic announcements, consistent with the macroeconomic news literature (e.g., [Altavilla et al., 2017](#)), rather than the realised evolution of economic activity itself.

The construction of the announcement surprise indices builds on the real-time information framework adopted by [Scotti \(2016\)](#), [Altavilla et al. \(2017\)](#), and [Caruso \(2019\)](#),

in which macroeconomic announcements are transformed into surprise measures by comparing realised outcomes with market expectations. The subsequent index-construction procedure, however, differs from those employed in these contributions. To the best of our knowledge, none of these studies adopts the two-step procedure used in this thesis, whereby announcement surprises are first evaluated within a regression framework and then selected through the *Autometrics* algorithm before being combined into weighted indices. This methodology represents one of the contributions of the present study. Its purpose is to identify, from a broad set of macroeconomic announcements, the surprises that contain independent information relevant to fluctuations in business confidence or industrial production, while allowing the data-driven selection procedure to determine their relative importance. Accordingly, the proposed indices should be viewed as an extension of the existing macroeconomic news literature rather than as a direct implementation of an established methodology.

The choice of *Autometrics* reflects the specific objective of the analysis, which is not forecasting per se but identifying a parsimonious and economically interpretable set of macroeconomic announcement surprises. Dimension-reduction techniques such as dynamic factor models summarise the information contained in a large dataset through latent factors, thereby obscuring the contribution of individual announcements. Shrinkage methods, including LASSO and high-dimensional Bayesian VARs, can retain more information about the original variables but generally shrink coefficients or prioritise predictive performance. By contrast, *Autometrics* implements a general-to-specific model-selection procedure while preserving the identity and estimated contribution of each selected announcement variable. This property is particularly important in the present context because the economic interpretation of the resulting indices depends on the specific macroeconomic releases included in the final specification. Moreover, *Autometrics* provides a statistically disciplined framework for variable selection in models containing many potentially relevant regressors, while controlling the probability of retaining irrelevant variables through the chosen significance level. It is therefore well suited to constructing economically interpretable surprise indices from a large set of candidate macroeconomic announcements.

The interpretation of the sign of the surprise indices is as follows. When the economy is in an *expansionary period*, a positive surprise indicates that the release was “better than expected” (i.e., insufficient optimism or unjustified pessimism). Conversely, a negative surprise suggests that economic performance was “worse than expected” (i.e., over-optimism or insufficient pessimism). In *recessionary periods*, the mechanism operates in the opposite direction: a negative surprise indicates that the economy is performing

worse than even unfavourable expectations (i.e., insufficient pessimism or unjustified optimism), while a positive surprise reflects not an economic improvement, but rather excessive pessimism or insufficient optimism.

The resulting surprise indices are then used to approximate the structural shocks to be included in a VAR framework in the next step of the analysis: the “news” shocks on industrial production and business confidence (ϵ_t^{news} in Equations 2.3 and 2.4, respectively), can be thought of as the component of industrial production and business confidence explained by macroeconomic announcement surprises (i.e., news). This methodology allows us to distinguish between shocks to expectations related to the country’s economic activity and those that are unrelated (i.e., sentiment).

To provide a clearer intuition behind the construction of the surprise indices, it is useful to emphasize that $IPSI_t$ and $BCSI_t$ are designed to capture the part of economic fluctuations that is truly unexpected, as perceived by market participants. By weighting only statistically significant macroeconomic surprises with the estimated coefficients $\hat{\beta}_{k*}$ from Equation 2.5, the indices isolate the information content of macroeconomic announcements that is relevant for industrial production and business confidence.

In practical terms, a positive value of $IPSI_t$ indicates that the observed industrial production developments are better than previously anticipated based on available information, whereas a negative value reflects worse-than-expected outcomes. Similarly, $BCSI_t$ measures the deviation of business confidence from expectations, capturing the market’s reaction to news that alters agents’ beliefs about the economic outlook.

Compared to existing measures such as Scotti (2016) and Altavilla et al. (2017), our indices have two main advantages. First, they focus only on surprises that have a statistically significant impact on the variables of interest, thereby filtering out noise and ensuring that the indices reflect economically meaningful shocks. Second, by constructing separate indices for industrial production and business confidence, we can distinguish between news shocks affecting actual economic activity and those influencing sentiment or expectations, which allows for a more precise identification of the structural shocks to be included in the subsequent VAR analysis. This approach clarifies the economic interpretation of ϵ_t^{news} in Equations 2.3 and 2.4, as shocks representing the information contained in macroeconomic announcements rather than unanticipated idiosyncratic fluctuations.

2.3.3 Time-Varying impact of Macro Announcement Surprises

This step of our empirical analysis involves estimating the time-varying impact of macroeconomic announcement surprises on the business confidence and industrial production. This step also allows us to account for structural breaks caused by exogenous shocks, such as the COVID-19 pandemic or Brexit.

In line with [Elenev et al. \(2024\)](#), who provide strong evidence of a countercyclical sensitivity of the stock market to news across a wide range of macroeconomic news announcements, we investigate the time-varying effects of news to industrial production and business confidence adopting the approach proposed in [Gardner et al. \(2022\)](#) and [Swanson and Williams \(2014a\)](#). In particular, we isolate the time-varying response of industrial production and business confidence to macroeconomic surprises estimating the following specification for each country via ordinary least-squares:

$$y_t = \gamma + \sum_{j=2000}^{2023} \delta_j SI_t \times Year_j + \eta_t \quad (2.7)$$

where y_t is either the first difference of the logarithm of ipi_t or e_t , γ is the constant, SI_t is the surprise index (either $IPSI_t$ or $BCSI_t$) interacted with year dummy variables $Year_j$, δ_j measures the time-varying impact of the surprise indices, η_t is the error.

Figures 2.1 - 2.2 plot the estimates of $\hat{\delta}_{j,i}$ over time, along with 95 per cent confidence error bands. The upper part of Figures 2.1 - 2.2 shows that the impact of macroeconomic surprises on the US $IPSI$ and $BCSI$ is statistically significant throughout the entire time horizon here considered, except only for the years 2012, 2014 and 2017. The other very relevant point that emerges from Figure 2.1 is that the announcements' surprise impact on the US business confidence is greater than the full sample average (greater than 1) over the periods 2000-2003, 2008-2011, 2015-2016, which correspond to periods of market turbulence and financial crises, in particular the Dot.com crisis (2000-2001) and the Global Financial crisis (2008-2009). The impact on the US $IPSI$ index is also greater than average during the crisis periods, although different ones: 2008-2010 (the Global Financial crisis) and 2020-2021 (the Covid-19 pandemic). The time-varying impact for other countries shows a similar pattern, with slight differences: a greater-than-average effect (in some cases marginal) is shown during the European Sovereign debt crisis (2010-2011, only for Japan, Germany, France and Italy) and in the first two years (2020-2021) of the Covid-19 pandemic. A statistically significant negative peak in 2018 occurred for the UK, probably due to the turbulence related to the implementation of the European Union Withdrawal Act two years after the Brexit referendum in 2016.

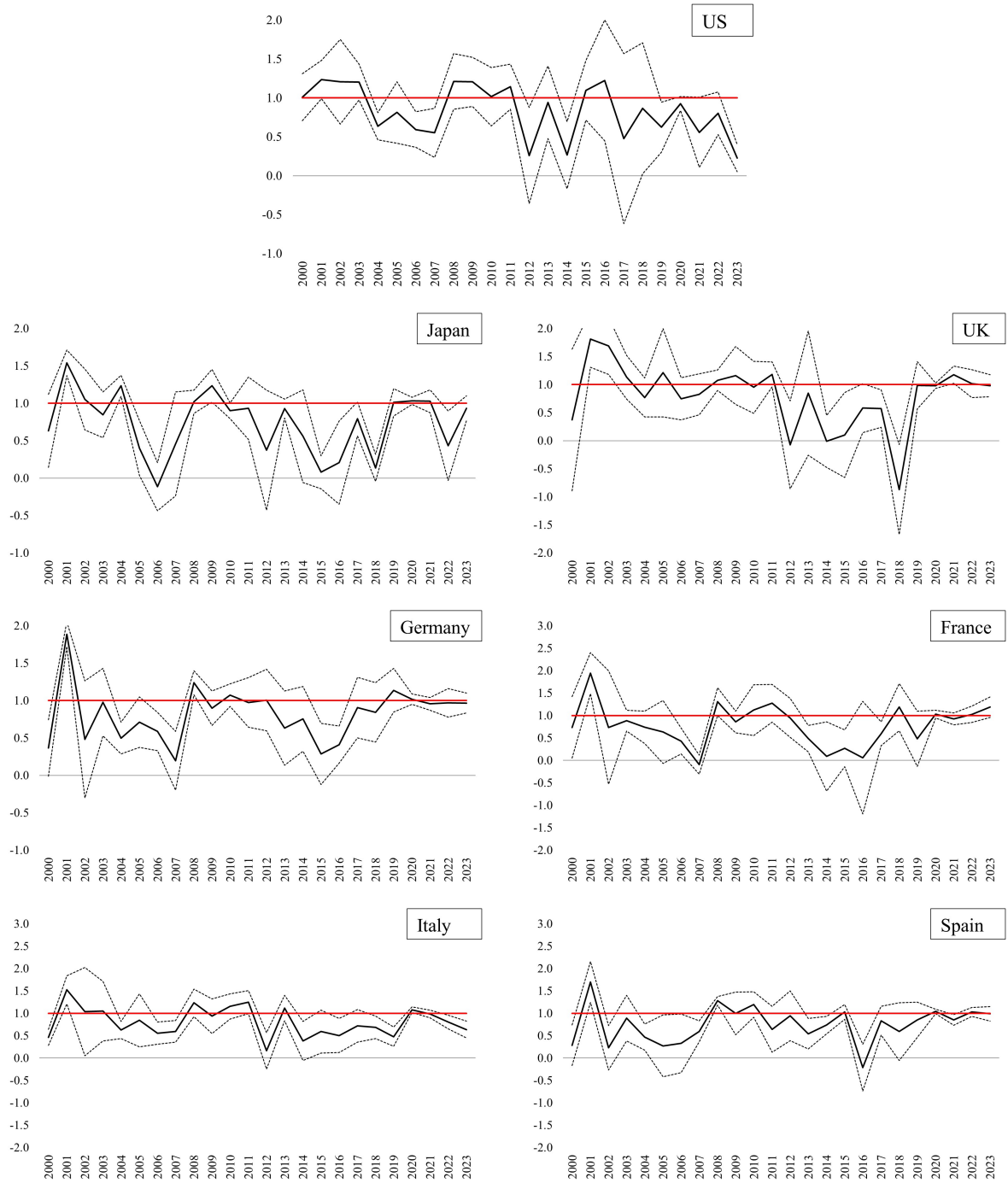


Figure 2.1: *Time-Varying impact of Macro Surprises on Business Confidence index.* The figure plots $\hat{\beta}_j$ for each year (black line), the full sample $\hat{\beta}$ (red line), and 95% confidence error bands (black dotted lines), estimated using Equation 2.7. Sample period: January 2000 - April 2023.

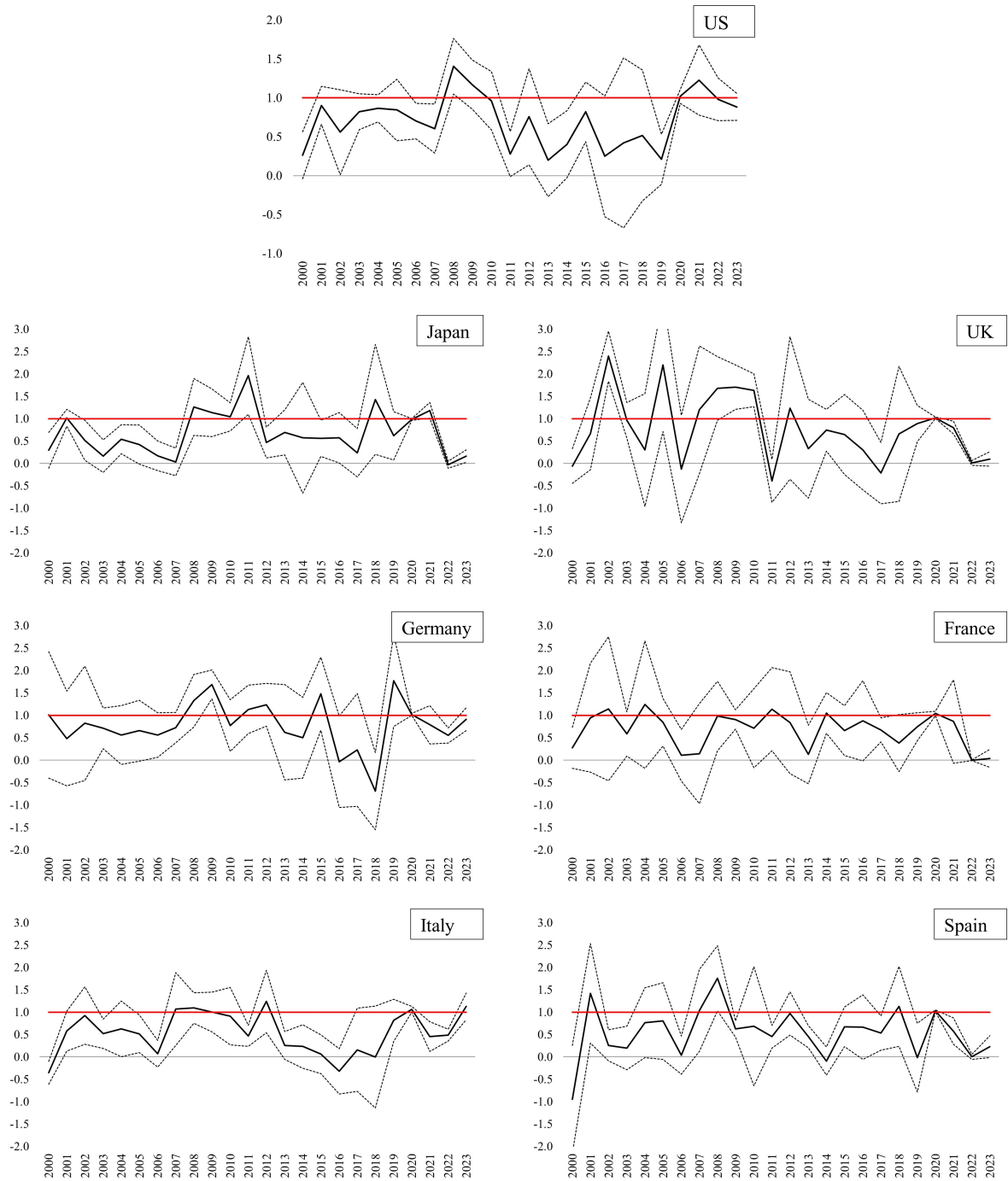


Figure 2.2: *Time Varying impact of Macro Surprises on the Industrial Production index.* The figure plots $\hat{\delta}_j$ for each year (black line), the full sample $\hat{\beta}$ (red line), and 95% confidence error bands (black dotted lines), estimated using Equation 2.7. Sample period: January 2000 - April 2023.

Specifically, we provide new evidence by using the information coming from macroeconomic announcement surprises to estimate the new business confidence surprise indices and industrial production surprise indices, as illustrated in Section 2.3.2, to approximate news shocks under Equations 2.3 and 2.4.

Next, we undertake a VAR analysis between the surprise indices, the $BCSI_t$ and the $IPSI_t$ to empirically investigate the transmission mechanism from macroeconomic surprise shocks to business confidence and industrial production to test the *news view* (Barsky and Sims (2012)) hypothesis against the *animal spirits* one.

2.3.4 Transmission mechanism of macroeconomic surprises

This section investigates the transmission mechanism from macroeconomic announcement surprises to business confidence and economic activity (industrial production). We build upon the work of (Levchenko and Pandalai-Nayar, 2020; Barsky and Sims, 2011, 2012) to distinguish between news and sentiment.

As noted by Levchenko and Pandalai-Nayar (2020), it is not possible to identify the three shocks in the system given by Equations (2.3) and (2.4), based only on industrial production and an expectation variable, here approximated by the business confidence index. Thus, to measure the relationship between macroeconomic announcement surprises, business confidence, and economic activity, we estimate a Vector Autoregression (VAR) model, including first the $BCSI_t$, which isolates the effect of announcement surprises on business confidence, ϵ^{news_t} in Equation 2.4; the $IPSI_t$, which represents the shock of surprises on the economic activity (ϵ^{news_t} from Equation 2.3); the business confidence index as an expectation variable, e_t in Equation 2.4; and finally the industrial production index, ipi_t from Equation 2.3.

The reduced-form finite-order VAR representation is:

$$x_t = \psi(L)x_{t-1} + \eta_t \quad (2.8)$$

where $x_t = [BCSI_t, IPSI_t, e_t, ipi_t]$, e_t and ipi_t are standardized first difference of the logarithm, $\psi(L)$ is a polynomial in the lag operator of order 3, $\eta_t \sim N(0, \Omega)$ is the vector of residuals with variance-covariance matrix Ω . The VAR baseline models also include equation-specific constants. To recover orthogonal shocks, we use a Cholesky decomposition, with $\Omega = PP^T$, where P is the unique lower-triangular Cholesky factor with non-negative diagonal elements.

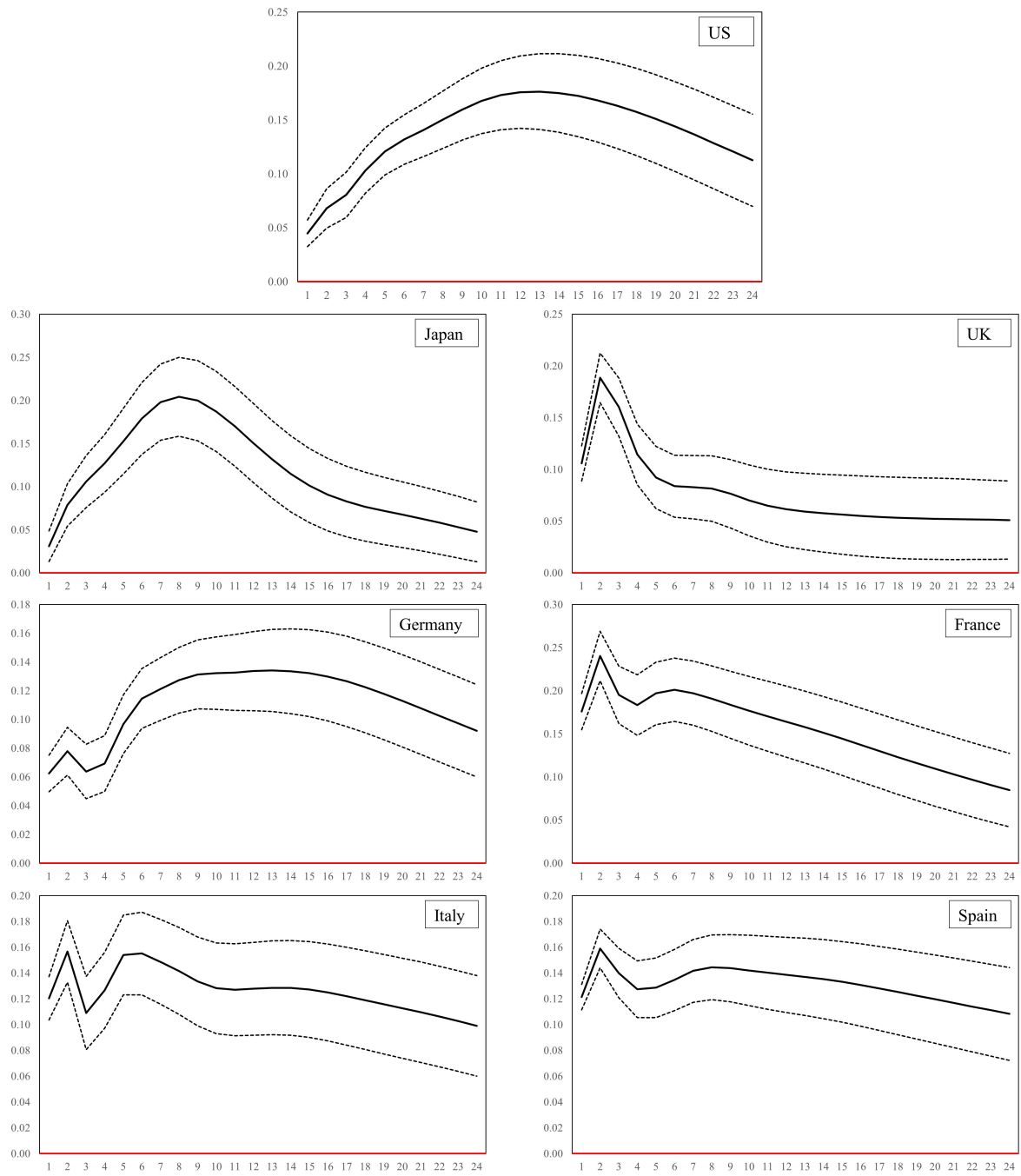


Figure 2.3: *Industrial Production index response to a Business Confidence Surprise Index shock*. Size of the shock: one standard deviation. Solid line: Point estimates. Dotted lines: 95% confidence interval. Sample period: January 2000 - April 2023.

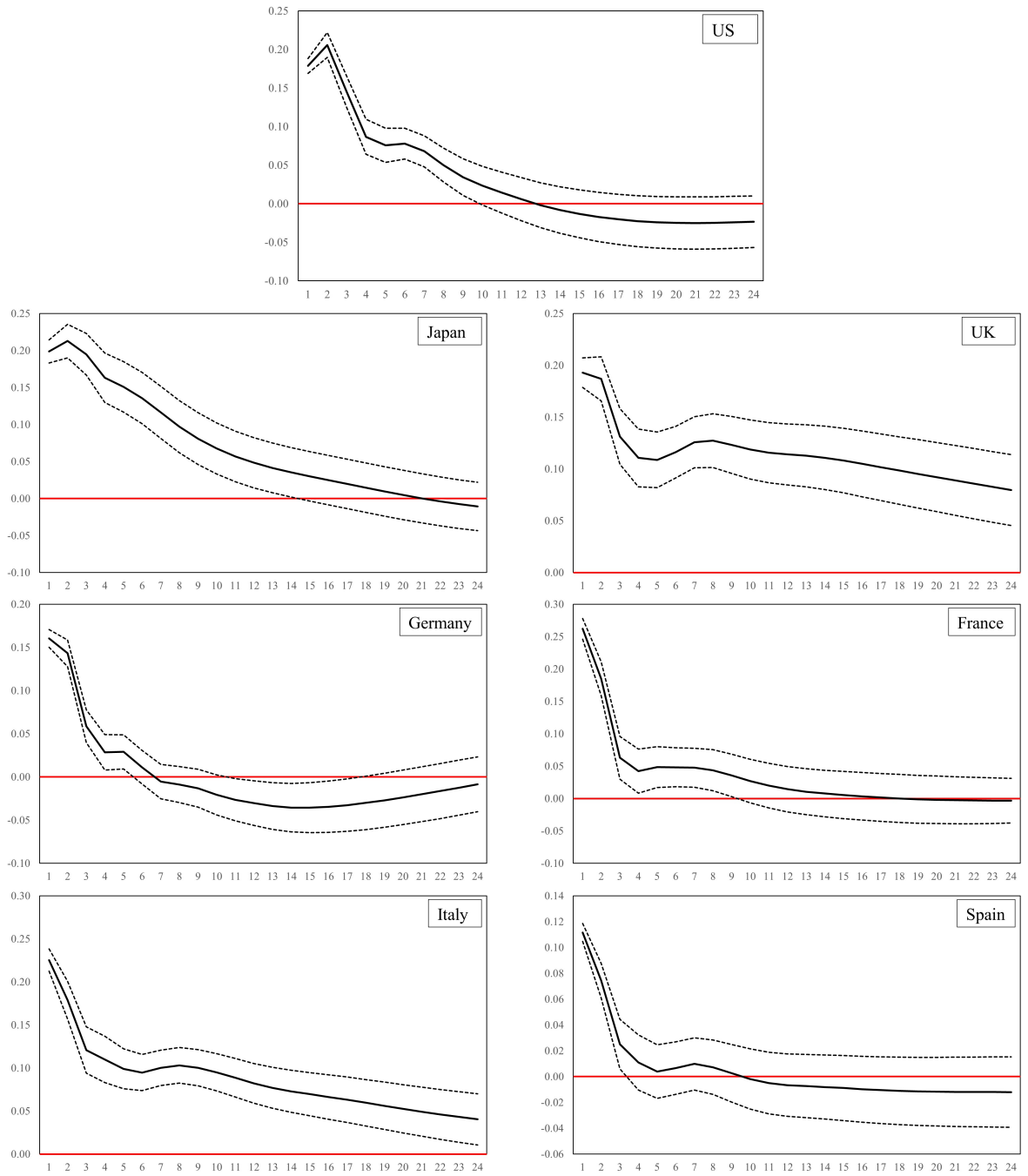


Figure 2.4: *Industrial Production index response to an Industrial Production Surprise Index shock*. Size of the shock: one standard deviation. Solid line: Point estimates. Dashed lines: 95% confidence interval. Sample period: January 2000 - April 2023.

As indicated above, we order the surprise indices first, as in [Corneli et al. \(2023\)](#), consistently with the assumption that the information arrival is exogenous. In particular, the $BCSI_t$, which represents that part of business confidence explained by macroeconomic announcement surprises, is ordered first (before the $IPSI_t$), to isolate the role played by business confidence in the transmission mechanism from the surprise shocks to economic activity. In addition, the assumption that the surprise indices are exogenous is consistent with the *News View* hypothesis, and it has been confirmed by Granger causality tests.

It is worth stressing that $IPSI_t$ is introduced into the VAR to proxy future productivity (shocks), which partly acts as a common component in the news shocks, and to better isolate the role of business confidence in the transmission mechanism. It is ordered second to explore if future productivity news shocks serve as common shocks in the economy ([Levchenko and Pandalai-Nayar \(2020\)](#)).

A potential concern is that the announcement surprise indices are subsequently included in a VAR alongside industrial production and business confidence, even though these variables serve as dependent variables in the regressions from which the index weights are estimated.

Although this procedure creates some overlap in the underlying information set, it does not generate a mechanical identity between the indices and industrial production. The indices are not constructed from realised macroeconomic outcomes alone, but from the unexpected components of scheduled announcements, measured as deviations of released values from prior market expectations. Once the selection procedure and weights have been estimated, the indices are functions exclusively of these standardised announcement surprises. They therefore summarise the information shocks associated with the flow of macroeconomic news rather than the realised evolution of economic activity itself. Industrial production enters the index-construction stage as the dependent variable used to identify the relevant announcement surprises and estimate their weights; in the VAR, by contrast, it is included as an outcome variable whose dynamic response to innovations in the announcement surprise index is examined. Nevertheless, because the selection and weighting stages use information from industrial production, the resulting impulse responses and forecast error variance decompositions should be interpreted as describing the dynamic effects of innovations in the announcement-based information set, rather than as identifying fully exogenous structural shocks.

The impulse response of the US economic activity to a one-standard-deviation shock on $BCSI_t$ (which isolates the macroeconomic announcement surprises on the BC index) reaches a peak of 17.6% in 13 months (in the other countries it goes from a minimum of

13.4% for Germany to a maximum of 24.0% for France, see Figure 2.3). The response to $IPSI_t$ (which represents the direct effect of macroeconomic announcement surprises on Industrial Production index) hits a maximum of 20.6% in two months (in the other countries it goes from a minimum of 11.2% for Spain to a maximum of 26.2% for France, see Figure 2.4). At the same time, economic activity reacts positively and persistently to Business Confidence innovations. Figure 2.3 shows that the US Industrial Production response to Business Confidence innovations reaches a peak of 11.1% after 13 months (in the other countries, it goes from a minimum of 5.7% for the UK to a maximum of 21.8% for Japan).

The IRFs are also statistically significant and positive, as expected: a positive surprise index shock means that macroeconomic releases during the t -th month were mainly better than expected by market agents. As a consequence, business confidence improves, economic agents increase their propensity to invest, and economic activity grows (Figure 2.4 also shows the positive effect of the improvement of business confidence on economic activity).

Responses of economic activity to business confidence surprise indices are also quite persistent: they don't return to the beginning pre-shock level before 28 months for the US, supporting the *News View* hypothesis.

Further evidence of the role of macroeconomic announcement shocks for economic activity can be drawn from the variance decomposition analysis.

Figure 2.6 shows that surprise shocks have a prevalent role in explaining the forecast error variances of the economic activity on impact (79.2% for the US as a sum of the contribution of $BCSI_t$ and $IPSI_t$, from a minimum of 46.5% for Japan to a maximum of 79.6% for Italy). In some cases, they gain relevance over the simulation horizon: for the US, they reach a peak in two months (83.9%). Then they stabilise in the long run: for the US around 68%, for all the other countries from a minimum of 56% for Germany to a maximum of 73% for France).

The role played by the $BCSI$ shock in the fraction of economic activity variance explained by announcement surprise shocks (see the bar graphs in dark grey of Figure 2.6) is smaller on impact (4.7% for the United States, from a minimum of 1.1% for Japan to a maximum of 43.2% for Spain) but becomes predominant over time (54.0% in the longer term for the US, from a minimum of 21.1% for the UK, the only country in the panel for which it remains on a minority level, to a maximum of 61.1% for Spain).

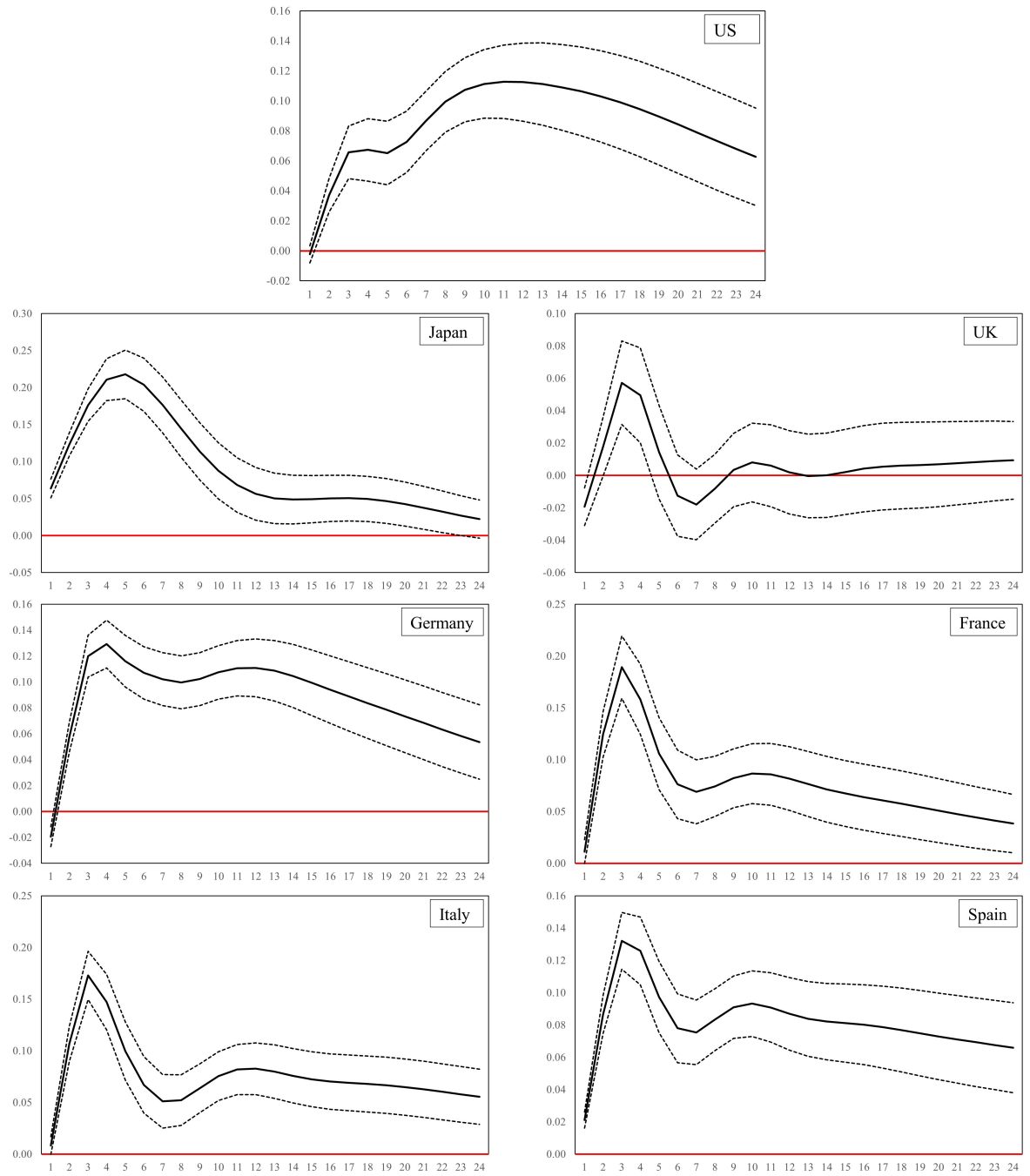


Figure 2.5: *Industrial Production index response to a Business Confidence Index shock.* Size of the shock: one standard deviation. Solid line: Point estimates. Dotted lines: 95% confidence interval. Sample period: January 2000 - April 2023.

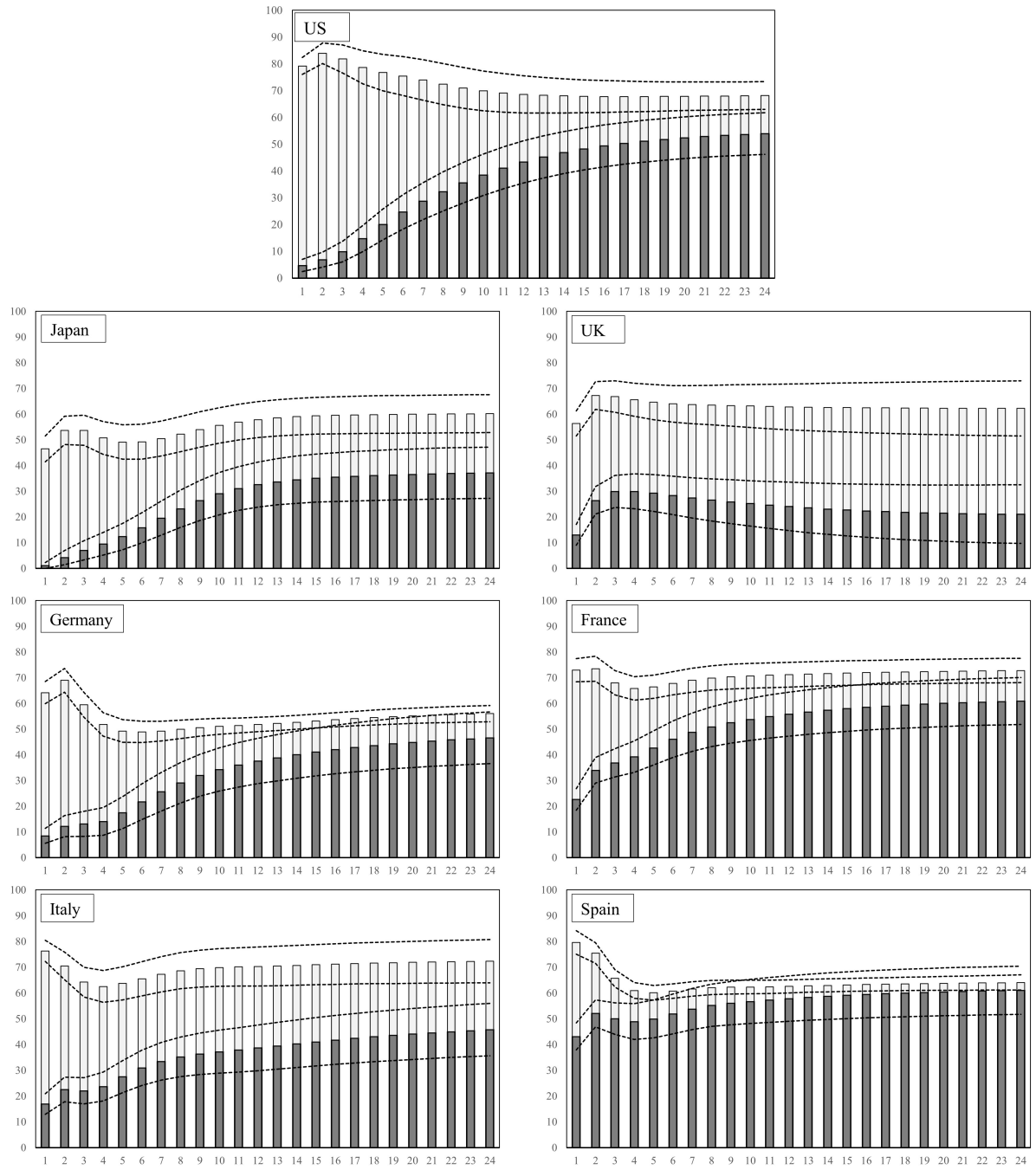


Figure 2.6: *Industrial Production index response to a (Business Confidence and Industrial Production Surprise) index shock: Variance Decomposition.* The bar graph in dark grey represents: Percent Industrial Production variance due to Business Confidence Surprise Index. The bar graph in light grey represents: Percent Industrial Production variance due to Industrial Production Surprise Index. Dotted lines: 95 per cent confidence interval estimated with Monte Carlo simulations (100). Sample period: January 2000 - April 2023.

2.3.5 Sensitivity analysis

The results from the VAR model in Equation 2.8 are robust to extensive checks.

Figure 2.7 reports the sensitivity analysis conducted on IRFs of economic activity after a one-standard deviation shock on the $BCSI_t$ for the United States (other IRFs for the full set of countries are available upon request).

The first issue concerns our identification strategy, which relies on a Cholesky decomposition conditional on a vector with surprise indices ordered first. Despite being in line with the literature and useful to test the *news view* versus the *animal spirits* hypothesis, this assumption is debatable. Therefore, the variable ordering in the VAR transmission mechanism is changed: the $IPSI_t$ is ordered first [$x_t = IPSI_t, BCSI_t, e_t, ipi_t$], and then another VAR excluding it [$x_t = BCSI_t, e_t, ipi_t$]. Panel 1) of Figure 2.7 shows that the IRFs of economic activity are still positive, persistent over time and statistically significant in the case of $IPSI_t$ ordered first (blue line) and without $IPSI_t$ (red line). This last result confirms that the presence of $IPSI_t$ in the VAR does not affect the industrial production IRF to a business confidence shock but improves the variance decomposition, as previously illustrated in Figure 2.6. In addition, to show that news shocks are orthogonal to macro aggregates, the variable ordering in the VAR transmission mechanism is inverted. As explained above, the new shock may include common shocks prevalent in the economy [$x_t = IPSI_t, e_t, ipi_t, BCSI_t$]. As in Barsky and Sims (2011) and Levchenko and Pandalai-Nayar (2020), we order the surprise index after the macro variables.

Panel 2) of Figure 2.7 confirms that the IRF of the business confidence surprise index is not statistically significant at the 5% level in response to an industrial production shock. Second, our sample covers several periods of severe economic and financial turbulence. To show that the results do not depend on the choice of the sample period, we replicate the IR analysis over alternative sub-samples of the same length (8 years), such as 2000-2007, 2008-2015, and 2016-2023. As can be seen in Panel 3) of Figure 2.7, the responses show similar paths and persistence as the baseline but with slightly different magnitudes. The responses are all statistically significant and consistent with the *news view* hypothesis.

Third, we estimate the surprise index using an automatic model selection procedure with a 95% confidence level filter to estimate Equation (2.5). To demonstrate that the results are robust both by adopting different confidence levels and to the absence of any automatic selection method, we estimate surprise indices by applying alternative confidence level filters to the automated model selection procedure (in particular 90% and 99% confidence levels) and without applying any automatic selection method.

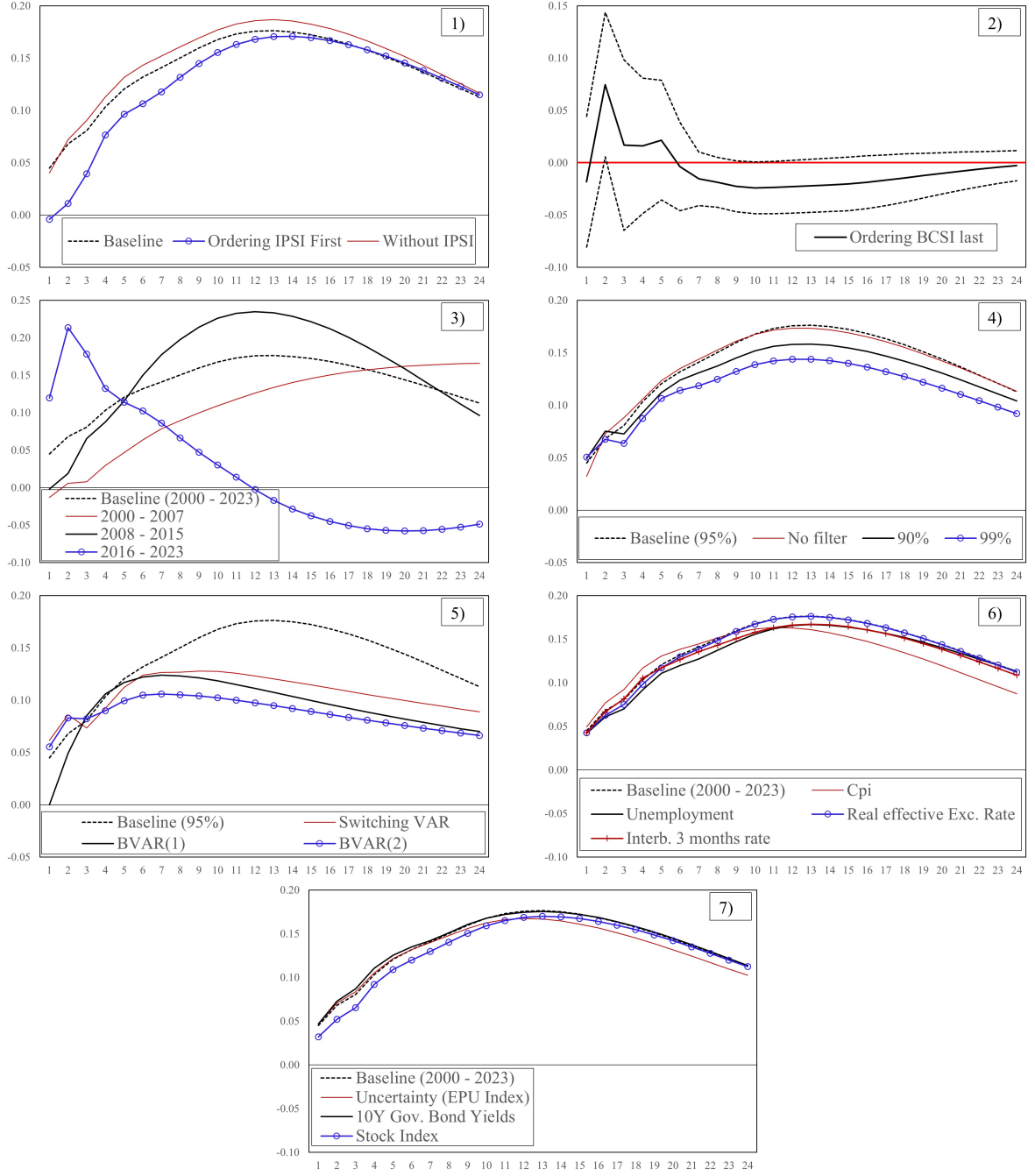


Figure 2.7: *Sensitivity analysis - US Industrial Production index response to BCSI shocks*. Size of the shock: one standard deviation of *BCSI* shock. Dotted black line: Point estimates of baseline. Alternative estimates for the sensitivity analysis are conducted by applying: 1) different ordering in surprise indices (*IPSI* first, without *IPSI*), 2) alternative ordering in VAR (*BCSI* last), 3) alternative samples, 4) alternative surprise indices estimated by applying different significance levels, 90% and 99% to the automated model selection procedure, 5) alternative VAR estimation techniques, 6) the introduction of macroeconomic control variables, and 7) the introduction of financial and uncertainty control variables. Sample period: January 2000 - April 2023, except for Panel 3).

The responses reported in Panel 4) of Figure 2.7 confirm the robustness of the baseline.

Fourth, we estimate the baseline specification by applying alternative estimation methodologies such as switching VAR, Bayesian VAR (BVAR) with Litterman Minnesota prior, Bayesian VAR (BVAR) with Giannone et al. (2015) prior. The switching VAR is introduced to model possible structural breaks in the time series due to exogenous shocks, and again the IRFs reported in Panel 5) of Figure 2.7 show a profile similar to that of the baseline.

Fifth, our results may be affected by the presence of a misspecification of the econometric model. We include additional macroeconomic variables in the transmission mechanism to control for a common component, which may affect the causal relationship between news shocks, confidence, and industrial production. In particular, we consider the role played by the labour market (unemployment rate), inflation (consumer price index), monetary policy (approximated by the 3-month interbank Libor rate), and the exchange rates (US dollar real exchange rate). The findings are unchanged, as can be seen from Panel 6) of Figure 2.7.

Sixth, for the same reason, we include other control variables more related to financial markets and to economic policy uncertainty by adding to the VAR the Economic Policy Uncertainty index (Baker et al. (2016)), the 10 Year US Government Bond Yields, the Dow Jones Industrial Average Stock index. In this case, too, the results remain unchanged (see Panel 7) in Figure 2.7).

A final experiment to add to the rich list of sensitivity analyses reported above is to explore the impact of non-linearities in the transmission mechanism from surprises to economic activity through the business cycles. To this aim, we implemented Jorda's local projection method (Jordà, 2005; Ramey and Zubairy, 2018) to estimate state-dependent impulse response functions in states of financial distress (stability) and optimism (pessimism). The results (reported in Appendix A.1) confirm the validity of the *news view* hypothesis in both states of the economy.

2.4 Conclusions

In this paper, we introduce two new indices - Business Confidence Surprise index and Industrial Production Surprise Index - to analyse the transmission mechanism from economic confidence to economic activity using the new information coming from the unexpected component of a large set of macroeconomic releases.

We show that macroeconomic announcement surprises can predominantly explain the dynamics of Business Confidence and Industrial Production for a panel of advanced economies. Relevant macroeconomic announcement surprises are selected by applying an automated model selection procedure *Autometrics*.

We then isolate the time-varying impact of macroeconomic announcement surprises over the different business cycles. Time-varying estimates illustrate that macroeconomic announcement surprises have a statistically significant impact on confidence and economic activity during almost the entire sample period and that the impact is greater than the full sample average during periods of turbulence.

In addition, we explore the transmission mechanism from macroeconomic surprise shocks to economic confidence and to economic activity. Our original contribution to the literature consists of isolating the role played by confidence in explaining the effect of the arrival of unexpected relevant macroeconomic information on economic activity. The responses of business confidence and industrial production to surprise shocks provide robust evidence that news arrival persistently affects confidence and economic activity, thus confirming the *news view* hypothesis. The variance decomposition analysis highlights the effectiveness of this approach: macroeconomic surprise shocks, particularly those on confidence we have initially isolated, have a predominant role in explaining Business Confidence and Industrial Production in the long run.

Finally, the approach we adopted allows us to verify that the “news view” effects are significantly stronger in adverse conditions (periods of financial distress and low economic confidence).

Chapter 3

Anchoring inflation expectations under different monetary policy conditions

3.1 Introduction

In this paper, we examine the extent to which Macroeconomic News Announcement (MNA) surprises ([Hachula and Nautz \(2018\)](#)), defined as the deviations of analysts' expectations of current macroeconomic announcement releases from their realized values ([Balduzzi et al. \(2001\)](#), [Anderson et al. \(2003\)](#), among others), lead investors to adjust their expectations of future inflation. Building on previous studies such as [Bauer \(2018\)](#) and [Nautz and Strohsal \(2015\)](#) among others, a significant response of inflation expectations to MNA surprises is interpreted as evidence of de-anchored expectations and a lack of Central Bank credibility. The goal of this work is to analyse and compare how de-anchoring inflation expectations changes over different monetary policy regimes conducted by the Federal Reserve, the European Central Bank and the Bank of England in the period from 2008 to 2023.

Various studies have explored the sensitivity of inflation expectations to MNA surprises, finding mixed results. While some research suggests that far-ahead nominal forward rates are highly sensitive to MNAs ([Gürkaynak et al. \(2005\)](#)), others argue that most of the sensitivity is concentrated in real rates ([Beechey and Wright \(2009\)](#)). [Gürkaynak et al. \(2010a\)](#) and [Gürkaynak et al. \(2010b\)](#) incorporate both break-even inflation (BEI) rates and inflation swap (IS) rates, revealing a strong statistical relationship between inflation compensation and long-term nominal rates. However, this

relationship has weakened over time due to changes in central bank policies, such as the introduction of explicit inflation targets by the Federal Reserve.

Building on these contributions, the literature examines the relationship between short and long term inflation expectations and the surprise component of MNA surprises. [Bauer \(2018\)](#) demonstrates that both market-based and survey-based inflation expectations in the United States exhibit a significant response to macroeconomic surprises. Similarly, [Beechey et al. \(2011\)](#) find that long-term market-based inflation expectations react more strongly to macroeconomic news in the United States than in the Euro Zone. Central banks closely monitor long-term inflation expectations as indicators of policy credibility, given that they serve as a key measure of confidence in a central bank's inflation target ([Yellen \(2015\)](#)). As a consequence, well-anchored expectations should not respond to transitory MNA surprises.

In addition to MNA shocks, which predominantly affect short-term expectations, target shocks - reflecting shifts in perceptions of a central bank's inflation target - can cause permanent adjustments. Such shifts may lead to expectations deviating from official targets, posing challenges for monetary policymakers ([Nagel \(2018\)](#)). Long-term inflation expectations may change in response to MNA shocks or in response to a target shock, indicating that the public has adjusted its expectations about the central bank's inflation target ([Nautz and Strohsal \(2015\)](#)). The interaction between short-term volatility and long-term stability highlights the importance of maintaining central bank credibility while managing fluctuations in inflation expectations. By adopting a more nuanced approach that considers both immediate and persistent effects of macroeconomic developments, policymakers can better assess the anchoring of inflation expectations and refine monetary strategies accordingly.

[Lejsgaard Autrup and Grothe \(2014\)](#) focus on inflation-linked and nominal bond markets in the Euro Zone and in the United States, providing evidence that inflation expectations are more firmly anchored in the former compared to the latter. Moreover, their findings suggest that the degree of anchoring in the Euro Zone remained unchanged during the global financial crisis. In contrast, [Galati et al. \(2018\)](#) document an increase in the sensitivity of long-term market-based inflation expectations to MNA surprises in the Euro Zone, in the United Kingdom, and in the United States following the onset of the global financial crisis.

Using a time-varying event study framework, [Speck \(2017\)](#) analyzes the impact of MNA surprises on market-based inflation expectations. The study provides evidence that expectations responded more strongly to MNA surprises after the global financial crisis than before, particularly at shorter horizons. However, medium-term expectations

exhibited minimal responsiveness, suggesting that a prolonged period of declining and low inflation should not necessarily be interpreted as a loss of credibility for the European Central Bank (ECB).

Nautz et al. (2017) investigate the reaction of long-term inflation expectations to MNA surprises in the Euro Zone. Their findings indicate that the Euro Zone inflation expectations remained anchored until the autumn of 2011 but subsequently became significantly responsive to MNA surprises, suggesting a persistent de-anchoring from the ECB's definition of price stability. Similarly, Strohsal et al. (2016) employ a time-varying parameter model to assess the degree of inflation expectations anchoring in the United States. Their analysis reveals that inflation expectations became partially de-anchored during the global financial crisis.

A second strand of research focuses on the differential sensitivity of short- and long-term inflation expectations to macroeconomic news, noting that short-term expectations tend to exhibit a stronger response. A thorough examination of inflation expectation behaviour necessitates a distinction between short-term and long-term responses to MNAs. Following Jochmann et al. (2010), this literature considers spillovers from short-term to long-term expectations as an indication of de-anchoring (see, for example, also Strohsal et al. (2016)). To evaluate the sensitivity of inflation expectations across different maturities, we analyze their impact on the entire term structure of spot inflation swap rates.

Our study contributes to the empirical literature on the impact of macroeconomic surprises on inflation expectations in two key aspects. First, we explore the time-varying nature of inflation expectation de-anchoring. Second, we investigate how the lack of credibility of the Federal Reserve, of the European Central Bank and of the Bank of England change under different monetary policy regimes. Our study complements the existing literature by providing a comprehensive analysis of the effects of MNA surprises across a large spectrum inflation-linked swap rate maturities.

The remainder of the paper is organised as follows. Section 3.2 discusses the main properties of the data used in the empirical investigation, including MNA surprises ??, inflation linked swaps 3.2.2 and monetary regimes. In Section 3.3, we report the empirical analysis: the estimates of the effects of MNA surprises on inflation expectations (Section 3.3.1), the time-varying de-anchoring of inflation expectations (Section 3.3.2), and how the lack of Central Bank credibility changes under different monetary policy regimes (Section 3.3.3). Section 3.4 concludes.

3.2 Data

We use time series data from 22 July 2008 to 28 April 2023, which are available in real-time, daily, monthly and quarterly frequencies for three countries: the United States, the United Kingdom and the Euro Zone. The estimation period runs from 07/22/2008 to 4/28/2023 with $T=3,854$ daily observations. The data can be divided into two main groups: 1) a selection of $K=83$ actual and expected MNAs (30 from the United States, 41 from the Euro Zone and 12 from the United Kingdom, see Tables 3.1-3.3); 2) a set of monetary policy and inflation expectation indicators such as the overnight inter-bank lending rates and the inflation linked swap rates over different maturities.

3.2.1 Macroeconomic News Announcement surprises

The first group of variables is given by a subset of actual and expected real-time macroeconomic news announcements already presented in section 2.2.1. The selection of announcements is shown in Tables 3.1-3.3.

As in Chapter 2, the surprise in the k -th announcement is measured as the difference between actual and expected values: $FS_{k,t} = A_{k,t} - F_{k,t}$ where $A_{k,t}$ is the released value of the k -th announcement at time t for k going from 1 to 83; $F_{k,t}$ indicates the median of the Bloomberg survey expectations among practitioners given their information set at time t . If the k -th variable is not released at time t , $A_{k,t}=F_{k,t}=0$, then the surprise is zero as well. In other words, forecast surprises are constructed as daily vectors equal to $S_{k,t}$ on those days when a piece of news occurs, to 0 otherwise or when $A_{k,t} = F_{k,t}$. Since units of measurement change significantly across economic variables, forecast $S_{k,t}$ are standardised (Balduzzi et al. (2001), Anderson et al. (2003), among others):

$$S_{k,t} = \frac{FS_{k,t}}{\sigma_k} \quad (3.1)$$

$FS_{k,t}$ are divided by their standard deviation σ_k , estimated only on those days where news occurs. Using the standardized surprise also allows us to compare the estimated impacts of macroeconomic indicators expressed on different scales.

Table 3.1: *US macroeconomic announcements*

Announcements	Unit of measurem. (1)	Obs. (2)	Freq. (3)	Timing of release (4)
GDP (Advanced)	q/q ann. % ch.	88	Q	7:30/8:30AM
GDP (Preliminary)	q/q ann. % ch.	87	Q	8:30AM
GDP (Final)	q/q ann. % ch.	88	Q	7:30/8:30/9:30AM
ISM composite	Diffusion ind. 0=50	217	M	8:55/9/10/11 AM
Leading Indicator	Index 2016=100	264	M	9/9:50/11AM
Capacity Utilization	% rate	264	M	8:15/8:51/9:15PM
Business Inventories	m/m % ch	264	M	8:30/9/10AM
Factory Orders	m/m % ch	264	M	9/10/11AM - 3PM
ISM Manufacturing	Diffusion ind. 0=50	264	M	9/10/10:26/11AM
Chicago PMI	Diffusion ind. 0=50	280	M	various (8:17 to 11AM)
Durable Goods (Final)	m/m % ch	257	M	7:30/8:30/9/10AM
Personal income	m/m % ch	264	M	7:30/8:30/9/10AM
Personal consumption	m/m % ch	227	M	7:30/8:30/9:30AM
Retail Sales Index	y/y % ch	247	M	7:30/8:30AM
Cons. Confidence (CB)	Index 1985=100	264	M	various (9AM to 11AM)
Cons. Confidence (MU, Prel.)	Index 1966:Q1=100	263	M	various (8:55AM to 11AM)
Cons. Confidence (MU, Final)	Index 1966:Q1=100	264	M	various (8:55AM to 11AM)
New House Sales	k units	264	M	8/9/10AM
S&Ps Case-Shiller's	y/y % ch	181	M	8/9AM - 14:15PM
Housing Starts	mln units	264	M	7:30/8:30AM
CPI (yearly)	y/y % ch	231	M	7:30/8:30AM
CPI (monthly)	m/m % ch	264	M	7:30/8:30AM
Core CPI (yearly)	y/y % ch	231	M	7:30/8:30AM
Core CPI (monthly)	m/m % ch	264	M	7:30/8:30AM
PPI (yearly)	y/y % ch	230	M	7:30/8:30/9:30AM
PPI (monthly)	m/m % ch	264	M	7:30/8:30/9:30AM
Unemployment	% rate	264	M	7:30/8:30/9:30AM
Non-Farm Payroll Change	k units	264	M	7:30/8:30/9:30AM
Initial Jobless Claims	k units	940	W	7:30/8:30/9:30AM
Commercial Trade Balance	mln \$	264	Q	7:30/8:30AM

Notes: The table reports an overview of the main features of US macroeconomic announcements included in this work. Under column (3), “Q” stands for “Quarterly”, “M” stands for “Monthly”, “W” stands for “Weekly”. Time sample goes from 01/03/2000 to 04/28/2023.

Table 3.2: *German and French Macroeconomic Announcements*

Announcements	Measurement (i)	# Obs (ii)	Frequency (iii)	Timing of release (iv)
German announcements				
GDP (Preliminary)	y/y % ch.	82	Q	8:00/10:00AM
GDP (Final)	y/y % ch.	92	Q	8:00/9:30AM
GDP (Quarterly - Prel.)	q/q ann. % ch.	81	Q	8:00/10:00AM
GDP (Quarterly - Fin.)	q/q ann. % ch.	96	Q	various (8:00AM/9:30AM)
Ind. Prod. ind. (yearly)	y/y % ch.	264	M	various (7:40AM/5:45PM)
Ind. Prod. ind. (monthly)	m/m % ch.	264	M	various (7:40AM/5:45PM)
Unemployment	% rate	281	M	various (9:16AM/11:24AM)
CPI (yearly)	y/y % ch.	243	M	8:00/10:30AM
CPI (monthly)	m/m % ch.	243	M	8:00/10:30AM
PPI (yearly)	y/y % ch.	280	M	8:00/8:15AM
Retail Sales index	y/y % ch.	281	M	various (7:45/8:13PM)
PMI Composite	Diff. ind. 0=50	110	M	9:30/9:55AM
PMI Manufacturing	Diff. ind. 0=50	229	M	9:55AM
Consumer confidence	Diff. ind. 0=50	202	M	various (8:00AM/1:00PM)
IFO Business Climate Ind.	Ind. 2015=100	194	M	various (8:00AM/4:00PM)
ZEW Current Situation Ind.	Diff. ind. 0=50	231	M	11:00AM
ZEW Ec. Expectations Ind.	Diff. ind. 0=50	261	M	various (11:00AM/4:00PM)
French ann.				
GDP (Adv.)	y/y % ch.	17	Q	7:30AM
GDP (Prel.)	y/y % ch.	91	Q	various (7:30AM/7:00PM)
GDP (Adv. - Quarterly)	q/q % ch.	21	Q	various (7:30AM/8:50AM)
GDP (Prel. - Quarterly)	q/q % ch.	91	Q	various (7:30AM/7:00PM)
Ind. Prod. index	y/y % ch.	291	M	various (8:40/9:50AM)
Ind. Prod. index	m/m % ch.	291	M	various (8:40/9:50AM)
Unemployment	% rate	157	M/Q	various (7:30AM/10:30PM)
CPI (yearly)	y/y % ch.	291	M	various (7:30AM/8:50AM)
PPI (yearly)	y/y % ch.	281	M	various (8:40AM/9:50AM)
PPI (monthly)	m/m % ch.	281	M	various (8:40AM/9:50AM)
Retail Sales index	y/y % ch.	270	M	7:30/8:45/8:50AM
PMI Manufacturing	Diff. ind. 0=50	241	M	9:50AM
Consumer confidence	Ind. 2015=100	279	M	various (8:40 AM/10:01 PM)

Notes: The table summarises the main features of the German and the French macroeconomic announcements. In Column (iii), Q stands for Quarterly and M for Monthly frequency. Sample period: 3 January 2000 - 28 April 2023.

Table 3.3: *Italian, UK and Spanish Macroeconomic Announcements*

Announcements	Measurement (i)	# Obs (ii)	Frequency (iii)	Timing of release (iv)
Italian announcements				
Retail Sales index (Yearly)	m/m % ch.	225	M	various (9:00AM/12:00PM)
Retail Sales index (Monthly)	m/m % ch.	225	M	various (9:00AM/12:00PM)
UK announcements				
GDP (Preliminary)	y/y % ch.	93	Q	8:00/10:30AM
GDP (Final)	y/y % ch.	93	Q	8:00/10:30/11:30 AM
Ind. Prod. index	y/y % ch.	280	M	8:00/10:30 AM
Unemployment	% rate	252	M	8:00/10:30 AM 3:00 PM
CPI (yearly)	y/y % ch.	239	M	8:00/10:30AM
CPI (monthly)	m/m % ch.	232	M	8:00/10:30AM
CPI core (yearly)	y/y % ch.	212	M	8:00/10:30AM
PPI (yearly)	y/y % ch.	280	M	7:59/8:00/10:30AM
PPI (monthly)	m/m % ch.	280	M	7:59/8:00/10:30AM
Retail Sales index (Prel.)	y/y % ch.	280	M	8:00/10:30AM
PMI Manufacturing	Diff. ind. 0=50	229	M	9:30/10:30AM
Consumer confidence	Diffusion ind.	272	M	various (1:00 AM to 8:20 PM)
M4	y/y % ch.	266	M	10:30/11:30 AM
Spanish announcements				
GDP (Preliminary)	y/y % ch.	73	Q	9:00AM
GDP (Final)	y/y % ch.	85	Q	various (8:50AM/11:15AM)
GDP (Preliminary - Quarterly)	q/q % ch.	113	Q	9:00AM
GDP (Final - Quarterly)	q/q % ch.	85	Q	various (8:50AM/11:15AM)
Ind. Prod. index (Monthly)	m/m % ch.	93	M	9:00AM
Unemployment	% rate	137	M/Q	various (8:15AM/7:00PM)
CPI (yearly)	y/y % ch.	254	M	various (8:58/9:34AM)
CPI (monthly)	m/m % ch.	255	M	various (8:58/9:34AM)
PPI (yearly)	y/y % ch.	243	M	9:00AM
PPI (monthly)	m/m % ch.	242	M	9:00AM
Retail Sales index	y/y % ch.	211	M	9:00/9:06AM

Notes: The table summarises the main features of the Italian and the Spanish macroeconomic announcements. In Column (iii), Q stands for Quarterly and M for Monthly frequency. Sample period: 3 January 2000 - 28 April 2023.

3.2.2 Inflation expectations

Monetary policy and inflation expectations variables are included in our dataset. As proxies of the monetary policy official interest rates we use overnight interbank lending interest rates. To measure inflation expectations, we use inflation linked swap rates as [Christensen and Gillan \(2011\)](#), [Haubrich et al. \(2012\)](#), [Fleckenstein et al. \(2014\)](#), [Bauer \(2018\)](#), [Miccoli and Neri \(2019\)](#) and [Neri et al. \(2022\)](#). An inflation swap is a financial derivative contract in which one counterparty receives a payment equivalent to the realized inflation rate over a predetermined time horizon in exchange for a fixed rate, based on a specified notional amount. The fixed rate represents the market's expectation of the inflation rate over the contract's duration.

The reference inflation rate for the inflation linked swap contract is calculated on the basis of the Euro Zone Harmonized Index of Consumer Prices (HICP) excluding tobacco. This specification may introduce a potential discrepancy when interpreting Inflation Swap yields as direct expectations of headline inflation. However, the two indices exhibit an almost perfect correlation, and the difference between them remains minimal ([Miccoli and Neri \(2019\)](#)).

Figure [3.1](#) highlights marked differences in the behaviour of inflation-linked swap rates across maturities and countries. In all three economies, short-term rates are substantially more volatile than medium- and long-term rates, particularly during the global financial crisis, the COVID-19 pandemic, and the post-pandemic inflation surge. The rise in short-term rates during 2021–2022 is especially pronounced in the United Kingdom, whereas movements at longer maturities are more moderate across all three economies. In the euro area, medium-term rates also decline noticeably during the prolonged period of low inflation in the mid-2010s. Overall, the figure provides descriptive evidence that market-based inflation expectations tend to become more stable as the maturity horizon lengthens, a pattern consistent with a stronger anchoring of medium- and long-term expectations.

Furthermore, Inflation Swap rates do not represent purely inflation expectations, as they incorporate various risk premia, particularly those associated with the liquidity of the instruments. Although a precise quantification of these risk premia falls beyond the scope of this study, our results remain valid insofar as these premiums exhibit limited temporal variation and, more importantly, are not systematically correlated with inflation surprises.

All the ILS series used are either stationary in levels or have been transformed to achieve stationarity, as shown in Tables [B.1-B.5](#).

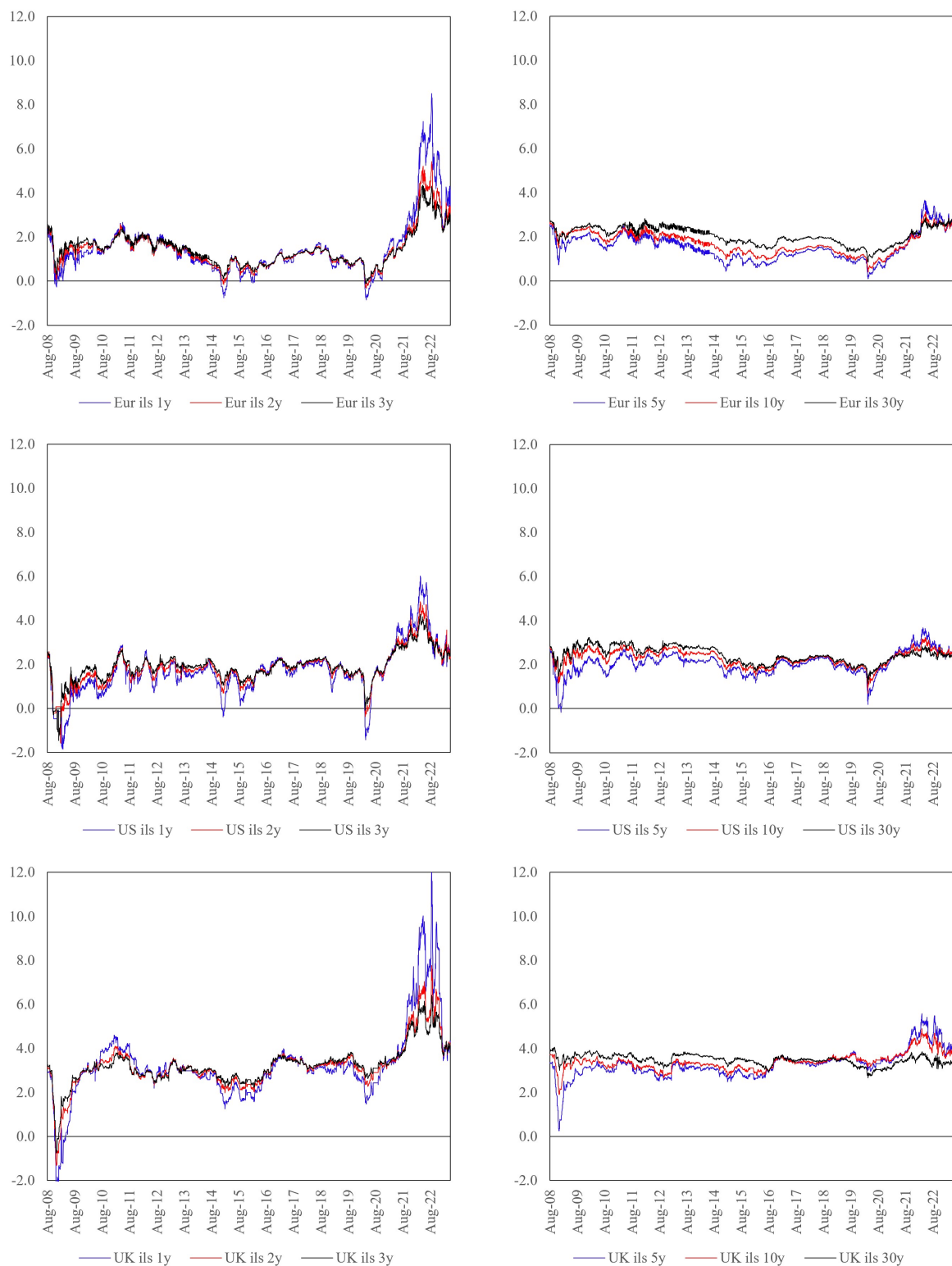


Figure 3.1: *Inflation-linked swap rates with short and medium-long maturities* Time sample goes from 22/07/2008 to 04/28/2023.

In particular, [Fleckenstein et al. \(2014\)](#) argue that inflation swap rates provide an accurate measure of true inflation compensation, while [Fleming and Sporn \(2013\)](#) document that the inflation swap market is relatively liquid, with narrow bid-ask spreads, suggesting that liquidity premia in this market are likely minimal.

[Beechey et al. \(2011\)](#) and [Miccoli and Neri \(2019\)](#) posit that if liquidity effects primarily influence the response of inflation swap rates to inflation announcements, this response should diminish as the averaging window for the rates is extended. Conversely, if the response intensifies as the averaging window lengthens, it would indicate that the observed effects reflect revisions in investors' inflation expectations.

Inflation-linked swap rates are adopted as the primary market-based measure of inflation compensation because they provide timely and internationally comparable information across a broad range of maturities. Compared with breakeven inflation rates derived from nominal and inflation-linked government bonds, ILS rates are less directly affected by bond-specific factors, including differences in sovereign credit risk, scarcity premia, repo specialness, and variations in bond supply. This advantage is particularly relevant in a cross-country analysis of the United States, the United Kingdom, and the euro area, whose inflation-linked government bond markets differ substantially in their institutional characteristics and liquidity.

ILS rates are not, however, pure measures of expected inflation. As over-the-counter instruments, they may also reflect market liquidity, counterparty and collateral conditions, and time-varying inflation risk premia, particularly during periods of financial stress. They should therefore be interpreted as measures of market-implied inflation compensation rather than expectations alone. Nevertheless, inflation swaps are widely used by central banks and in the empirical literature because they offer broad maturity coverage, relatively high market liquidity, and greater cross-country comparability than bond-based measures. These characteristics make ILS rates particularly well suited to the objectives of the present analysis.

The dataset comprises end-of-day rates for US, UK and Euro Zone Zero-Coupon Inflation Swaps with maturities ranging from one to ten years, fifteen years, twenty years, thirty years. The data are sourced from Refinitiv. As shown by [Fleming and Sporn \(2013\)](#) and [Bauer \(2018\)](#), these end-of-day quotations closely approximate actual transaction prices, providing assurance regarding their reliability. The sample period spans from July 22, 2008, to April 28, 2023.

3.2.3 Monetary Policy Regimes

In our study, we consider different monetary policy regimes, for three countries: the United States, the Euro Zone, the United Kingdom. The regimes are defined on the basis of the official monetary interest rate behaviour, approximated by the following overnight rates: the Federal Funds Target range for the United States, the Main Refinancing Operations (MRO) rate for the Euro Zone, the Bank rate for the United Kingdom.

For each country, we define the following five monetary policy regimes: 1) Positive Interest Rate Policy (PIRP) regime, when the overnight interest rate is strictly greater than zero; 2) Easing Interest Rate Policy (EIRP) regime, when the Central Bank is decreasing official interest rates; 3) Hiking Interest Rate Policy (HIRP) regime, when the Central Bank is increasing official interest rates; 4) Zero Interest Rate Policy (ZIRP), when official rates are set equal to zero; 5) Negative Interest Rate Policy regime when official interest rates are negative.

The identification of monetary policy regimes is based on official policy-rate decisions rather than on continuous movements in market interest rates. Regime transition dates correspond to the dates on which the Federal Reserve, the European Central Bank, or the Bank of England announces a change in its relevant policy rate that initiates a new tightening or easing cycle. This criterion applies to decisions announced following either scheduled or exceptional policy meetings. Daily market rates are not used to identify regime transitions because they may fluctuate in response to changing expectations without reflecting an actual change in the monetary policy stance.

More specifically, an Easing Interest Rate Policy (EIRP) regime begins with the first policy-rate cut initiating an easing cycle and remains in place until the first subsequent rate increase initiating a tightening cycle. Conversely, a Hiking Interest Rate Policy (HIRP) regime begins with the first policy-rate increase initiating a tightening cycle and continues until the first subsequent rate cut initiating an easing cycle. Periods during which policy rates remain unchanged are assigned to the prevailing regime, because temporary pauses are interpreted as part of the ongoing policy cycle rather than as separate regimes. A regime transition is therefore recorded only when the direction of the policy-rate cycle reverses. This classification links the HIRP and EIRP regimes directly to observable central bank decisions and is consistent with the institutional conduct of monetary policy. HIRP and EIRP identify the direction of the policy-rate cycle, whereas PIRP, ZIRP, and NIRP classify monetary policy according to the level of the policy rate.

Positive Interest Rate regime is used as normalization sample in our analysis, since for

each country this regime is associated with the largest subsample size, and corresponds to a situation where official interest rates are not at zero (ZIRP) or negative (NIRP) level. The NIRP regime is observed only for the Euro Zone in the period from 11 June 2014 until 26 July 2022. The ZIRP regime for the United States goes from 17 December 2008 until 15 December 2015 and from 16 March 2020 until 16 March 2022, for the Euro Zone goes from 11 July 2012 until 11 June 2014 and from 27 July 2022 until 13 September 2022, for the UK goes from 19 March 2020 until 15 December 2021.

3.3 Empirical analysis

Our empirical framework is built upon the following steps: 1) we estimate the impact of MNA surprises on the inflation linked swap rates to evaluate de-anchoring of inflation expectations from the monetary policy target. In accordance with [Bauer \(2018\)](#) and [Nautz and Strohsal \(2015\)](#), a significant reaction of expectations to macroeconomic surprises implies de-anchored expectations. When MNA surprises systematically affect inflation expectations, this confirms that the latter are decoupled from monetary policy. 2) We estimate the time-varying impact of MNAs on the inflation linked swap rates to evaluate how the de-anchoring of inflation expectations from monetary policy changes over time. 3) We estimate the impact of MNA surprises on the inflation expectations under five different monetary policy regimes: a) Positive Interest Rate Policy regime (PIRP), used as the normalization sample, b) Hiking Interest Rate Policy regime (HIRP), c) Easing Interest Rate Policy regime (EIRP), d) Zero Interest Rate Policy regime (ZIRP), e) Negative Interest Rate Policy regime (NIRP) (applicable only for the Euro Zone in our sample).

3.3.1 Surprises and deanchoring of inflation expectations

[Nautz and Strohsal \(2015\)](#), [Bauer \(2018\)](#) and [Miccoli and Neri \(2019\)](#), among others, postulate that a significant response of inflation expectations to MNA suggests that inflation expectations are de-anchored. This also indicates a lack of central bank credibility. In line with their findings, we estimate the reaction of inflation expectations to MNAs through a linear model where the changes in inflation linked swaps at different maturities are regressed on a set of macroeconomic announcement surprise variables:

$$\Delta\pi_t^N = \alpha + \sum_{k=1}^K \beta_k S_{k,t} + \eta_t \quad (3.2)$$

where π^N indicates the daily inflation-linked swap rate for a given maturity N ($N=1, 2, \dots, 10, 15, 20, 30$ years), t goes from 22 July 2008 to 28 April 2023, α is the constant, $S_{k,t}$ are the standardised surprises obtained as illustrated by Equation (2.1), for k ranging from 1 to $K=83$, β_k are the estimated impacts of surprises on inflation expectations, η_t is the error term.

The empirical specification in Equation (3.2) exploits high-frequency variation in macroeconomic announcement surprises to identify the response of inflation expectations to exogenous information shocks. Since macroeconomic announcements are released at pre-scheduled dates and surprises are defined as deviations from market expectations, $S_{k,t}$ can be interpreted as innovations to agents' information sets that are orthogonal to prior beliefs. This timing structure mitigates concerns of reverse causality and supports a causal interpretation of the estimated coefficients β_k .

Following [Altavilla et al. \(2017\)](#), announcement surprises are assigned to their official release dates, while daily changes in inflation-linked swap (ILS) rates are computed from end-of-day market quotations. The announcements included in the analysis are released before the cut-off time of the corresponding end-of-day ILS quotation. Consequently, the change in the ILS rate between trading days $t - 1$ and t can incorporate the market response to information released during day t . This timing convention provides a consistent alignment between macroeconomic announcements and daily changes in market-based inflation compensation across the United States, the euro area, and the United Kingdom.

The interpretation of these responses in terms of de-anchoring follows from the notion that well-anchored inflation expectations should be largely insensitive to high-frequency macroeconomic news, particularly at medium and long horizons. In standard models of expectation formation with credible monetary policy (e.g., [Coibion and Gorodnichenko, 2015](#); [Andrade et al., 2019](#); [Reis, 2020](#)), agents perceive the inflation target as stable and expect the central bank to offset temporary fluctuations in economic conditions. As a result, transitory macroeconomic surprises should have only limited effects on inflation expectations.

A statistically significant response of inflation expectations to macroeconomic news therefore indicates that agents revise their beliefs about the future path of inflation in response to incoming data. This sensitivity reflects either imperfect credibility of the central bank or uncertainty about its reaction function, implying that expectations are not fully anchored. In this sense, the estimated coefficients β_k provide a measure of the degree of anchoring, with larger and more persistent responses corresponding to weaker anchoring of inflation expectations.

Equation (3.2) indicates that each estimate includes announcement surprises regarding all the selected countries (United States, Euro Zone, United Kingdom). Estimations are conducted by applying an automated selection procedure (*Autometrics*: Doornik (2009), with a 5% significance level; standard errors are corrected for autocorrelation and heteroscedasticity using Newey–West HAC standard errors.

Estimated regression coefficients $\hat{\beta}_{k*}$ from Equation (3.2) are not shown here but reported in Appendix B, Tables B.4-B.42. Evidence shows that a fair number of macroeconomic announcement surprises significantly influence the change in inflation linked swaps over different maturities. Among others, the first set of inflation expectation-moving indicators includes hard data about economic fundamentals. In particular, in line with the findings from Beechey et al. (2011), Nautz et al. (2017), Bauer (2018), Miccoli and Neri (2019) and Neri et al. (2022) among others, surprises about inflation (CPI and PPI indices for the United States; French CPI and PPI indices, Spanish CPI index for the Euro Zone) are the most relevant followed by those about the labour market (Initial Jobless Claims and Nonfarm Payrolls for the United States; Unemployment rate for the United Kingdom; French Unemployment rate for the Euro Zone), and about the economic activity (Industrial Production index for the United Kingdom; German Industrial Production index for the Euro Zone).

A second set of relevant indicators, as pointed out by Altavilla et al. (2017), includes qualitative surveys such as the Conference Board Consumer Confidence Index, the ISM manufacturing surveys and the Chicago PMI index for the United States; German PMI Composite Index, French PMI Manufacturing for the Euro Zone.

Finally, inflation linked swap rates are affected by a large set of Macroeconomic Announcement News surprises released by the other countries included in the dataset. These cross-country results allow us to control for the role of global surprises on confidence fluctuations and then on business cycles.

The announcement dataset intentionally excludes monetary policy surprises associated with policy-rate decisions and central bank communications. The purpose of the analysis is to isolate the response of market-based inflation expectations to macroeconomic news. Including monetary policy surprises alongside macroeconomic announcement surprises would conflate the informational effects of macroeconomic data releases with the direct effects of monetary policy decisions and central bank communication. Accordingly, the estimated de-anchoring coefficients should be interpreted as reduced-form responses of market-based inflation expectations to macroeconomic news. These responses may incorporate an indirect monetary policy channel, insofar as newly released macroeconomic information leads market participants to revise their expectations of the

future path of policy rates, but they do not capture the direct effects of monetary policy announcements themselves.

The sign of the statistically significant coefficients of macroeconomic announcements about the economy of the same country is typically positive: good macroeconomic news (positive surprise) leads to an increase in expectations about future inflation. Looking at the size of the estimated significant coefficients, the most relevant macroeconomic surprises are those related to inflation and the labour market.

Furthermore, based on the preceding arguments, we can test the following hypotheses: 1) if the impact of MNA surprises on inflation expectations is different across countries reflecting differences in institutional simplicity, communication clarity, and market liquidity; 2) if Inflation expectations at short horizons respond more strongly to MNA surprises than expectations at long horizons, consistent with rational inattention (Maćkowiak and Wiederholt (2009), Sims (2003)) and information frictions; 3) if the sensitivity of inflation expectations to MNA surprises varies along the term structure of spot inflation swap rates, providing evidence of partial spillovers from short-term to long-term horizons and the degree of long-term anchoring.

Following these hypotheses, the fit of Equation (3.2) for inflation linked swaps over all the maturities is generally poor, in line with the relevant literature (Beechey et al. (2011), Nautz et al. (2017), Miccoli and Neri (2019)), but sufficient to confirm de-anchoring of expectations. Figure 3.5 reports the Adjusted R_i^2 values for the regressions from Equation (3.2) for the three countries included in the analysis (United States, Euro Zone, United Kingdom). The Adjusted R_i^2 ranges from a maximum of 3.3% (on the inflation linked swap with 1 year maturity) to a minimum of 1.0% (on the inflation linked swap with 20 year maturity) for the regressions regarding the United States, from a maximum of 3.1% (on the inflation linked swap with 1-year maturity) to a minimum of 0.8% (on the inflation linked swap with 30-year maturity) for the regressions regarding the Euro Zone, from a maximum of 4.6% (on the inflation linked swap with 1-year maturity) to a minimum of 1.4% (on the inflation linked swap with 15-year maturity) for the regressions regarding the United Kingdom.

Estimation results confirm that de-anchoring has been heterogeneous across countries: it is more relevant for the United Kingdom, intermediate for the United States, less intense for the Euro Zone, revealing that short-term inflation expectations react much more strongly to MNAs than longer-term expectations, as in other empirical contributions (Jochmann et al. (2010), Strohsal et al. (2016)).

The heterogeneity between countries can be explained in at least three ways: in terms of institutional differences between central banks, in terms of differences in the

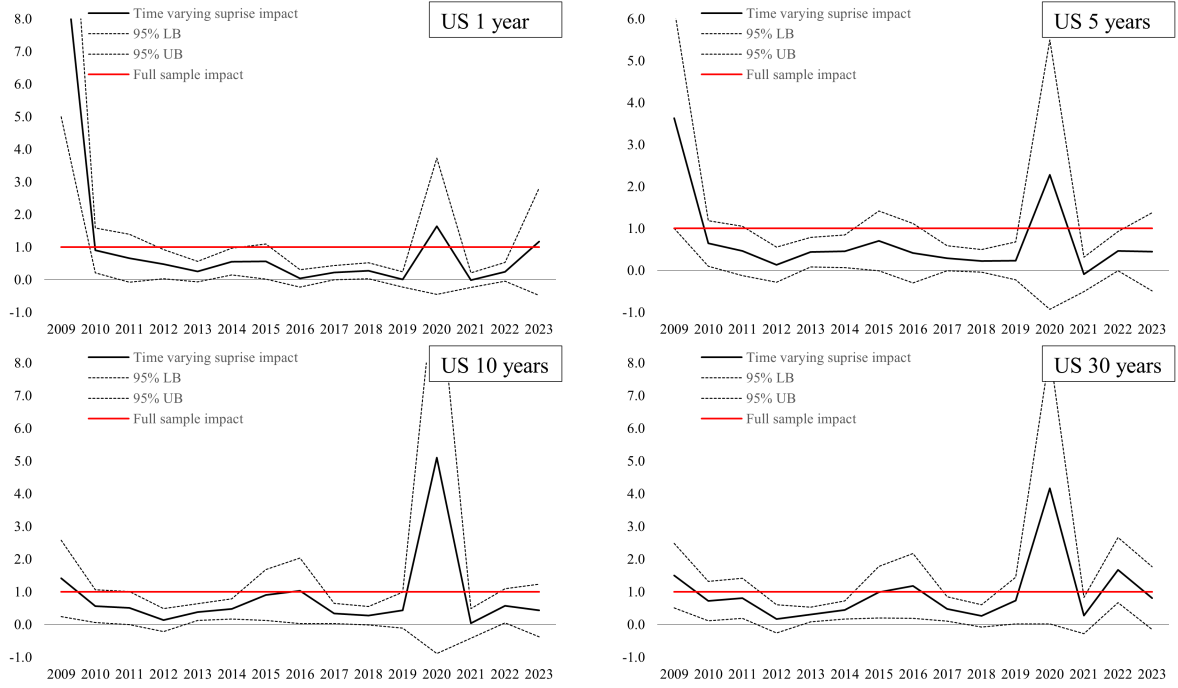


Figure 3.2: *Time varying de-anchoring of Inflation Expectations in the US.* Time-varying de-anchoring of the Inflation Expectations is estimated as the time-varying impact of MNAs on inflation-linked swap rates. This figure plots the estimates of $\hat{\delta}_j$ for each year (black line), along with 95% confidence error bands (black dotted lines), following Equation (3.3). Time sample goes from 22/07/2008 to 04/28/2023.

strategies and methods of institutional communication of the three central banks, and in terms of the different structures of the relevant financial markets.

First, differences in institutional arrangements and policy mandates shape how agents map macroeconomic information into inflation expectations. The Bank of England operates under a single, explicitly quantified inflation target, supported by a relatively centralized decision-making structure (Svensson (1997), Blinder et al. (2008)). Such institutional simplicity facilitates rapid belief updating in response to incoming macroeconomic information, particularly at short horizons. By contrast, the Federal Reserve’s dual mandate requires that macroeconomic news be interpreted in light of both price stability and maximum employment objectives (Gürkaynak et al., 2005), which may attenuate the direct pass-through from macroeconomic surprises to inflation expectations despite the Fed’s strong credibility. In the Euro Area, the European Central Bank faces an inherently more complex institutional environment, operating across multiple sovereign jurisdictions with heterogeneous macroeconomic conditions (Angeloni and Ehrmann (2004)). This multi-country setting complicates the mapping from national

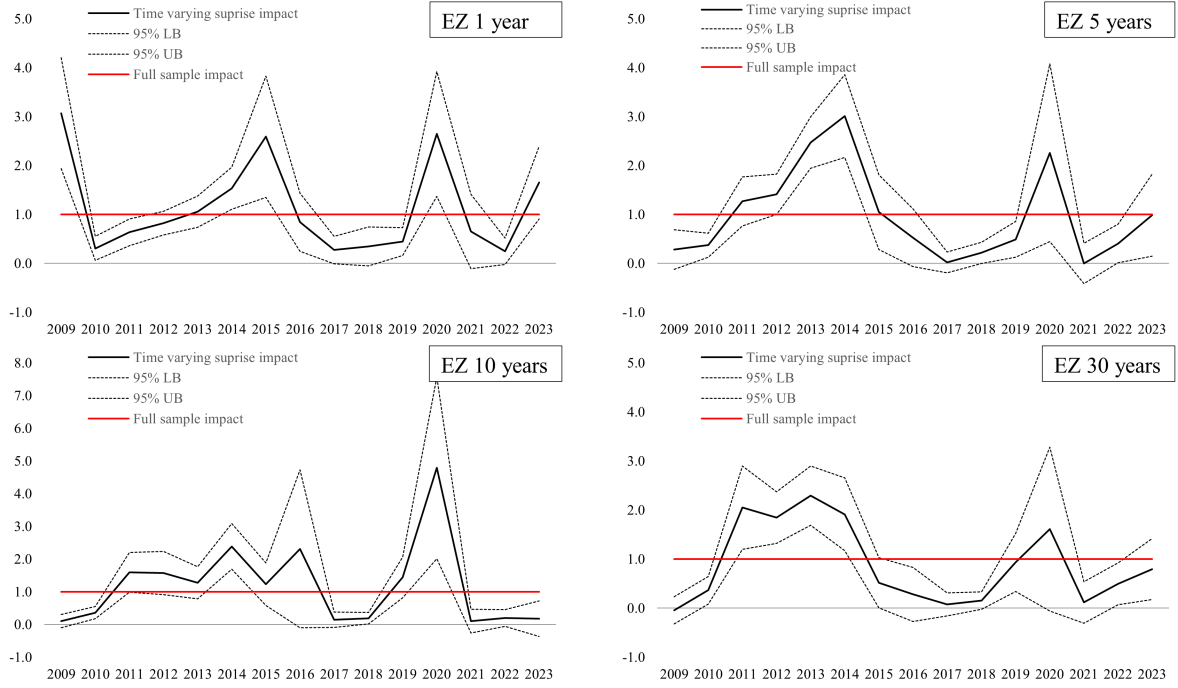


Figure 3.3: *Time varying de-anchoring of Inflation Expectations in the Euro Zone.* Time-varying de-anchoring of the Inflation Expectations is estimated as the time-varying impact of MNAs on inflation linked swap Rates. This figure plots the estimates of $\hat{\delta}_j$ for each year (black line), along with 95% confidence error bands (black dotted lines), following Equation (3.3). Time sample goes from 22/07/2008 to 04/28/2023.

or area-wide macroeconomic releases to perceived policy reactions, contributing to comparatively lower sensitivity of inflation expectations to MNA surprises.

Second, communication strategies play a central role in mediating the transmission of macroeconomic news. A large literature emphasizes that clear and coherent central bank communication strengthens the anchoring of expectations and reduces uncertainty about policy objectives (see, inter alia, Yellen (2015), Blinder et al. (2008), Gürkaynak et al. (2005)). Recent empirical work further highlights that the content, tone, and simplicity of central bank communication matter for inflation expectations: for example, simplified and positively framed messages from the ECB have been shown to significantly lower short-term inflation expectations, especially when presented in intuitive formats such as verbal or visual guidance (Hoffmann et al. (2025)). Communication in the United Kingdom and the United States is conducted within a single national media and institutional context, allowing policy signals and macroeconomic information to be disseminated and interpreted relatively uniformly. In contrast, ECB communication must reach audiences across different languages and institutional settings, which may

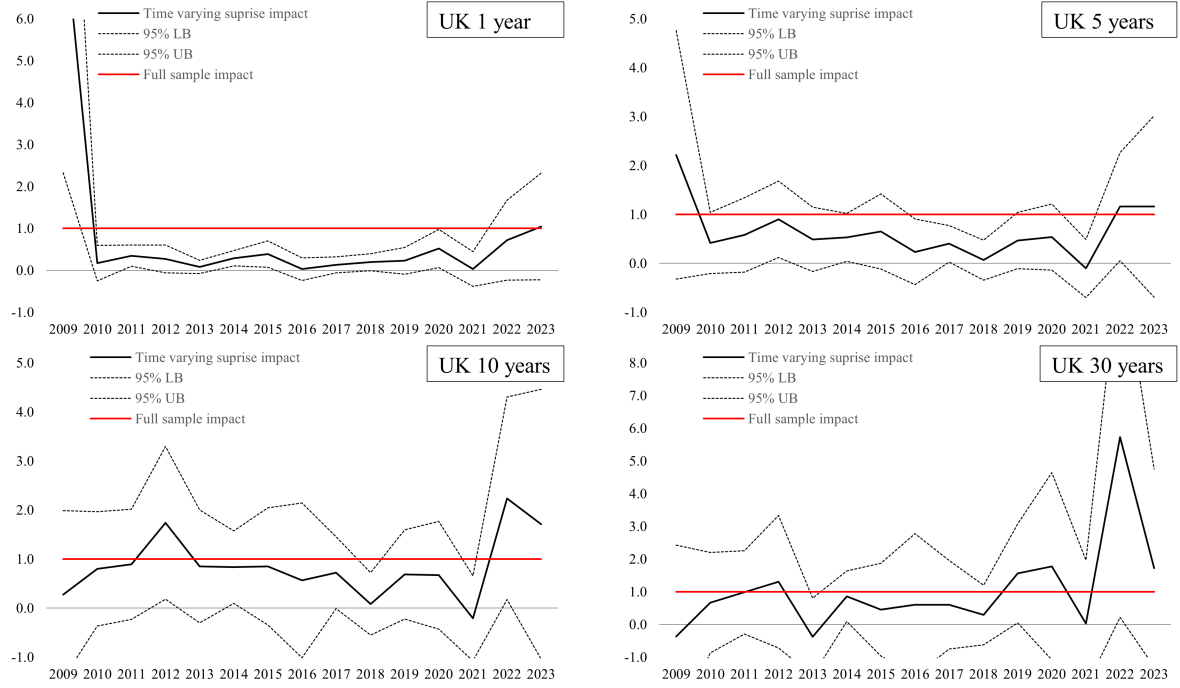


Figure 3.4: *Time varying de-anchoring of Inflation Expectations in the UK.* Time-varying de-anchoring of the Inflation Expectations is estimated as the time-varying impact of MNAs on inflation linked swap Rates. This figure plots the estimates of $\hat{\delta}_j$ for each year (black line), along with 95% confidence error bands (black dotted lines), following Equation (3.3). Time sample goes from 22/07/2008 to 04/28/2023.

weaken the effectiveness of forward guidance and reduce the immediacy with which macroeconomic surprises are incorporated into market-based expectations. As a result, Euro Area inflation expectations may appear more stable with respect to short-run news, reflecting both stronger anchoring and frictions in informational transmission.

Third, cross-country differences in financial market depth and liquidity further contribute to heterogeneous responses. Inflation-linked derivatives markets in the United Kingdom and the United States are comparatively deep and liquid, with broad participation by sophisticated institutional investors. These features promote rapid price discovery and amplify the impact of macroeconomic surprises on market-based measures of inflation expectations (Gurkaynak et al., 2007; Anderson et al., 2003). The extensive trading and specialized liquidity in UK inflation swaps, for example, have been documented as a key determinant of how inflation risk is priced and transmitted to broader expectations (Bahaj et al., 2023). By contrast, research on liquidity premiums in inflation-indexed markets shows that liquidity risk premia can materially affect pricing in both inflation-linked bonds and swap markets, suggesting that less active markets

may dilute the informational content of price changes ([Driessen et al. \(2017\)](#), [Christensen and Rudebusch \(2022\)](#)). In the Euro Area, inflation swap and inflation-linked bond markets are less homogeneous and remain partially segmented along national lines ([Fink and Schüler \(2015\)](#)), which can dampen the aggregate response of area-wide inflation expectations to macroeconomic announcements, especially at longer maturities. Moreover, analysis of activity and price discovery in euro area inflation-linked swap markets points to structural differences in trading activity and sector composition that can influence how rapidly information is incorporated into prices ([Böninghausen \(2025\)](#)).

Taken together, these considerations provide a structural interpretation of our empirical findings. The combination of a simple and explicit inflation target, centralized communication, and highly liquid inflation-linked markets renders UK inflation expectations particularly responsive to macroeconomic news. The United States occupies an intermediate position, reflecting strong credibility but a dual mandate and somewhat more complex policy signaling. The Euro Area exhibits the weakest response, consistent with greater institutional complexity, fragmented financial markets, and more diffuse communication. This framework aligns with our evidence that MNA surprises exert the largest effects in the United Kingdom, followed by the United States, and the smallest effects in the Euro Area, while also helping to rationalize the pronounced decline in sensitivity at longer horizons as reflecting comparatively well-anchored long-term expectations.

A second interesting finding is that MNAs have a greater impact on short-term expectations. This point can be explained within a standard information/frictions framework. In models with rational inattention or noisy information (e.g., [Maćkowiak and Wiederholt, 2009](#); [Sims, 2003](#); [Coibion and Gorodnichenko, 2015](#)), agents optimally allocate limited attention across signals depending on their perceived relevance for future outcomes. Macroeconomic announcements therefore primarily affect short-horizon inflation expectations, where the marginal value of information is highest, while long-term expectations remain comparatively stable and anchored to slowly moving beliefs about the central bank's inflation objective. Cross-country differences naturally arise when the signal-to-noise ratio of macroeconomic releases and the perceived mapping from data to policy differ across monetary regimes. In environments characterized by simpler mandates, clearer reaction functions, and deeper financial markets (such as the United Kingdom) macroeconomic surprises carry greater informational content about future inflation and policy, leading to stronger expectation updates. Conversely, greater institutional complexity and market fragmentation, as in the Euro Area, reduce the informational efficiency of macroeconomic announcements, dampening their impact on

inflation expectations, particularly at longer horizons.

Finally, Figure 3.5 shows that the estimated spillovers are stronger for the United Kingdom (3.1%), weaker for the United States (2.2%) and Euro Zone (2.2%). As illustrated by Jochmann et al. (2010), spillovers from short-term to long-term expectations can be considered as additional evidence of de-anchoring.

It is worth noticing that the estimated specifications are likely to be affected by multiple breaks, outliers and latent factors missing in Equation (3.2) that may compromise the validity of the estimated beta coefficients. We run an impulse-indicator saturation (IIS) procedure (Doornik (2009), Castle et al. (2012), Santos et al. (2008), Marczak and Proietti (2016)) to tackle data contamination and remove extreme observations, as well as location shifts and innovation outliers. Variable selection, statistical significance, and size of estimated coefficients are robust to the IIS procedure (results are available upon request).

3.3.2 Time-Varying de-anchoring of inflation expectations

The second step of our empirical analysis consists of estimating the time-varying impact of MNA surprises on the inflation expectations. This allows us to point out how the de-anchoring of inflation expectations has changed over time. Consistent with the findings of Elenev et al. (2024), who present robust evidence of a countercyclical sensitivity of the stock market to MNAs, this study examines the time-varying effects of MNAs on inflation expectations. To this end, we employ a methodology similar to that adopted by Gardner et al. (2022) and Swanson and Williams (2014a). In particular, we isolate the time-varying response of inflation expectations to MNAs via the estimation of the following specification with ordinary least-squares:

$$\Delta\pi_t^N = \gamma + \sum_{j=2008}^{2023} \delta_j SI_t \times Year_j + \eta_t \quad (3.3)$$

where π_t^N , as in Equation (3.2) indicates the daily inflation-linked swap rate for a given maturity N ($N=1, 2, \dots, 10, 15, 20, 30$ years), t goes from 22 July 2008 to 28 April 2023, γ is the constant, SI_t represents the linear combination of the significant estimated β from Equation (3.2) and corresponding macroeconomic announcement surprises ($\hat{\beta}_{k*} \times S_{k*}$), δ_j are the yearly estimated impacts of surprises on inflation expectations, η_t is the error term. In this empirical framework, when estimated $\hat{\delta}_j > 1$, de-anchoring in the corresponding j -th year is more relevant than in the full sample.

Figures 3.2 - 3.4 plot the estimates of the time varying $\hat{\delta}_j$ for United States (Figure 3.2), Euro Zone (Figure 3.3) and United Kingdom (Figure 3.4), along with 95 per cent confidence error bands. In Figures 3.2 - 3.4 are reported only a selection of time varying de-anchoring of short-term (1 year), medium-term (5 years) and long-term (10 and 30 years) inflation expectations. Results for the remaining maturities are reported in Appendix B.

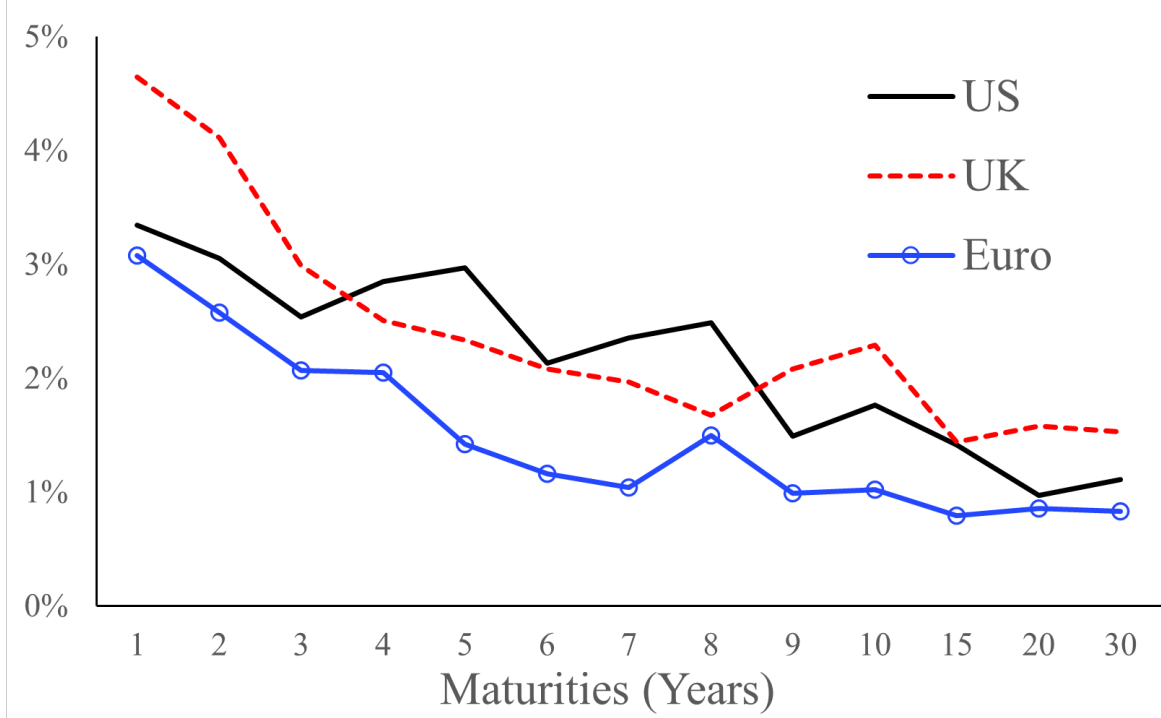


Figure 3.5: *Fit of the impact of Macro Announcement Surprises on Inflation Expectations*. This Figure plots Adjusted R^2 obtained estimating Equation (3.2) for United States (black line), the Euro Zone (blue circled line) and the United Kingdom (red dotted line) over different maturities. Time sample goes from 22/07/2008 to 04/28/2023.

Figures 3.2 - 3.4 show that the de-anchoring of inflation expectations tends to be statistically significant throughout almost the entire time horizon considered in this work with few exceptions. De-anchoring seems to be stronger in 2009 and 2020 (but this is not statistically significant) for the Federal Reserve, following the economic recession due to the Lehman bankruptcy and the COVID-19 pandemic, in 2011-2015 and 2020 for the European Central Bank, following the European sovereign debt crisis and again the COVID-19 pandemic, in 2009 (only for the short term inflation expectations) and 2020 (not statistically significant) for the Bank of England.

Our time-varying estimates provide further insights into the dynamics of inflation expectation anchoring across monetary regimes. For the United States, we find that the

sensitivity of inflation expectations to MNA surprises increases around 2009 and again in 2020, coinciding with the Great Recession triggered by the Lehman Brothers collapse and the COVID-19 pandemic, respectively. While these effects are not always statistically significant, their timing is suggestive of a temporary weakening in the anchoring of expectations during periods of acute macroeconomic stress. This pattern is consistent with evidence that large adverse shocks can impair central bank credibility and increase the responsiveness of expectations to incoming information, even in economies with historically well-anchored inflation expectations (Strohsal et al., 2016; Speck, 2017; Galati et al., 2018).

In the Euro Area, de-anchoring appears more pronounced and persistent, with elevated sensitivity during the sovereign debt crisis (2011–2015) and again in 2020. This finding aligns with existing evidence that euro area inflation expectations became significantly more responsive to macroeconomic surprises after 2011, reflecting heightened uncertainty about the ECB’s policy reaction function and prolonged episodes of below-target inflation (Nautz et al., 2017; Galati et al., 2018). The completeness of monetary transmission was further impaired by financial fragmentation across member states, which amplified the impact of macroeconomic news on market-based measures of inflation compensation (Lejsgaard Autrup and Grothe, 2014). The comparatively longer duration of de-anchoring episodes in the Euro Area is therefore consistent with its more complex institutional environment and the presence of country-specific risk premia (Angeloni and Ehrmann, 2004).

For the United Kingdom, we observe a short-lived increase in sensitivity in 2009, concentrated at short horizons, and a further rise around 2020 that is not statistically significant. The predominantly short-term nature of the 2009 episode suggests that, despite the severity of the global financial crisis, long-term inflation expectations remained largely anchored, in line with the Bank of England’s explicit inflation target and centralized policy framework (Svensson, 1997; Blinder et al., 2008). This interpretation is consistent with evidence that UK long-term inflation expectations have historically exhibited strong anchoring relative to other advanced economies, even during periods of heightened macroeconomic volatility (Beechey et al., 2011).

Taken together, these results suggest that de-anchoring is largely episodic and crisis-dependent, emerging primarily during periods of exceptional macroeconomic uncertainty. Importantly, the heterogeneous timing and persistence of these episodes across the Federal Reserve, the ECB, and the Bank of England underscore the role of institutional design, communication frameworks, and financial market structure in shaping the resilience of inflation expectations (Gürkaynak et al., 2010a; Nagel, 2018). Our findings therefore

complement the existing literature by showing that even when average responses to macroeconomic news are muted, time-varying estimates reveal latent vulnerabilities in the anchoring of expectations that become visible during systemic stress.

The different time-varying behaviour of inflation expectation de-anchoring suggests exploring how this changes under different monetary policy regimes. This issue is addressed in the next section of the empirical analysis.

3.3.3 De-anchoring of expectations under different monetary policy regimes

The model specified in Equation (3.2) yields detailed insights into the de-anchoring of inflation expectations. At the same time, time-varying estimates of Equation (3.3) highlight the relevance of systematic time variations in the estimated coefficients. To address this point, we explore it further by decomposing the coefficients in Equation (3.2) under different monetary policy conditions. In accordance with Swanson and Williams (2014a), Swanson and Williams (2014b) and Fatum et al. (2024), we estimate the following specification:

$$\Delta\pi_t^N = \mu_\tau + S_t'\beta\theta_\tau + \eta_t \quad (3.4)$$

where μ_τ and θ_τ are scalars that may exhibit time variation. Specifically, regarding potential time changes, we analyze subsamples identified according to different monetary policy regimes $\tau = \text{PIRP, EIRP, HIRP, ZIRP and NIRP}$.

The five monetary policy regimes correspond to economically meaningful periods that capture variations in policy stance and constraints.

- **PIRP (Positive Interest Rate Policy)** represents conventional policy periods with positive, non-constrained rates, serving as the normalization baseline.
- **HIRP (Hiking Interest Rate Policy)** corresponds to periods of rising interest rates, often implemented to counteract inflationary pressures. In these regimes, news about economic fundamentals may have a dampened impact on expectations, as policy is perceived to be restrictive.
- **EIRP (Easing Interest Rate Policy)** captures periods when policy rates are being lowered to stimulate activity. Here, macroeconomic surprises carry greater informational content regarding the likely future path of policy, increasing the sensitivity of expectations to news.

- **ZIRP (Zero Interest Rate Policy)** occurs when policy rates approach the effective lower bound, limiting the conventional policy space. In such regimes, the pass-through of macroeconomic news to expectations is constrained by the zero bound, potentially reducing the incremental informativeness of announcements.
- **NIRP (Negative Interest Rate Policy)** applies in the Euro Zone during periods of negative nominal rates. This extreme easing environment alters the interpretation of news, as conventional policy is no longer effective, and expectations may become more sensitive to unconventional policy signals or long-term economic developments.

By explicitly distinguishing these regimes, our analysis captures how the informational content of macroeconomic announcements interacts with the stance and constraints of monetary policy, providing a richer understanding of time-varying de-anchoring of inflation expectations.

To address the identification issue related to β and θ_τ , we impose the constraint that $\theta_\tau = 1$ during the PIRP regime for each country. PIRP regime is chosen as the normalization subsample, as it represents the largest subsample size across all countries.

Equation (3.4) is then estimated using the two-step procedure outlined by [Swanson and Williams \(2014a\)](#), [Swanson and Williams \(2014b\)](#) and [Fatum et al. \(2024\)](#). In the first step, Equation (3.4) is estimated under the normalisation (PIRP) subsample. In the second step, we use $\hat{S}'_t \equiv S'_t \hat{\beta}$ obtained from the first step, where $\hat{\beta}$ represents the first-step estimates. If the estimated $\hat{\theta}_\tau$ in the other subsamples (ZIRP, NIRP, EIRP, HIRP) is greater than one, this indicates a higher sensitivity of inflation expectations to MNAs, which implies a stronger de-anchoring of inflation expectations relative to the first (PIRP) subsample. This approach also facilitates comparisons of $\hat{\theta}_\tau$ estimates across different regimes, such as ZIRP versus NIRP (only for the Euro Zone) and PIRP, or EIRP versus HIRP, to determine whether the overall lack of Central Bank credibility has increased or decreased.

The model specified in Equation (3.4) is estimated separately for each country when possible, which means that the NIRP subsample is available only for the Euro Zone. All estimations are conducted using inflation linked swap rates with maturities of one, five, ten and thirty years.

Tables 3.4 to 3.6 present the results of daily estimates of Equation (3.4) separately for each country, across the normalisation sample PIRP as well as within the four (for the Euro Zone, three for the United States and the United Kingdom) monetary policy regime-defined subsamples: HIRP, EIRP, ZIRP, NIRP (only for the Euro Zone).

The estimates reported in the first line constitute our baseline results for the normalisation subsample (PIRP). As pointed out by [Swanson and Williams \(2014a\)](#), [Swanson and Williams \(2014b\)](#) and [Fatum et al. \(2024\)](#), the two-step estimation procedure offers two key advantages. First, the term θ_τ captures the overall time variation in the effects of MNAs, under the assumption that the relative magnitudes of the effects of individual macroeconomic announcement surprises, β , remain time-invariant. Second, the statistical significance of the expectation de-anchoring is assessed by testing the null hypothesis $H_0 : \theta_\tau = 0$ against the alternative hypothesis $H_1 : \theta_\tau \neq 0$ in the second step. The normalisation sample coefficients are strongly significant confirming systematic de-anchoring of inflation expectations also over the Positive Interest Rate Policy subsample period.

The estimated coefficients for the impact of MNAs during the HIRP subsample (second row of Tables [3.4](#) to [3.6](#)) suggest that inflation linked swaps remained significantly responsive to macroeconomic announcement surprises, albeit to a lesser extent than in the PIRP sample period (with the exception of the United Kingdom 10-year and 30-year ILS, which show a coefficient greater than one, see Table [3.6](#)).

Tables [3.4](#) to [3.6](#) also show that the most relevant inflation de-anchoring can be observed during periods when official interest rates are eased (EIRP regimes), for all the countries and the maturities here included, with the unique exception of the United Kingdom 30-year ILS equation (see Table [3.6](#)). This finding suggests that inflation expectations become more sensitive to incoming macroeconomic information when monetary policy is in an easing phase, a result consistent with state-dependent theories of monetary transmission ([Tenreiro and Thwaites \(2016\)](#), [Barnichon and Matthes \(2018\)](#)). A possible interpretation is that rate-cutting cycles typically coincide with periods of elevated macroeconomic uncertainty and deteriorating economic conditions, during which agents place greater weight on high-frequency news in forming expectations. Moreover, during easing regimes central banks tend to exhibit stronger data dependence, making macroeconomic releases more informative about the future policy path and, by extension, about medium-term inflation dynamics ([Nakamura and Steinsson, 2018](#); [Jarociński and Karadi, 2020](#)). In this environment, macroeconomic surprises affect not only perceived fundamentals but also beliefs about the monetary policy reaction function, amplifying their impact on inflation expectations.

Our results confirm that the informational content of monetary policy and macroeconomic news is asymmetric across the business cycle, with larger effects during downturns and easing policy ([Caggiano and Castelnuovo, 2021](#); [Barnichon and Matthes, 2018](#)).

By contrast, during tightening regimes or in constrained environments such as ZIRP

Table 3.4: *Impact of MNAs on US Inflation expectations*

Maturities	1Y ILS	5Y ILS	10Y ILS	30Y ILS
<i>Regimes</i>	(1)	(2)	(3)	(4)
<i>Positive Non-Zero rates</i>	1.0000 (0.0000) [0.0233]	1.0000 (0.0004) [0.0286]	1.0000 (0.0006) [0.0328]	1.0000 (0.0000) [0.0320]
<i>Hiking interest rates</i>	0.6842 (0.0074) [0.0096]	0.5098 (0.0087) [0.0066]	0.5883 (0.0023) [0.0091]	0.6624 (0.0021) [0.0115]
<i>Easing interest rates</i>	1.1849 (0.0001) [0.0354]	1.1891 (0.0009) [0.0451]	1.1231 (0.0019) [0.0485]	1.1231 (0.0001) [0.0463]
<i>Zero interest rates</i>	1.6931 (0.0069) [0.0590]	0.6892 (0.0001) [0.0122]	0.6108 (0.0007) [0.0127]	0.6037 (0.0000) [0.0139]
<i>Negative interest rates</i>	- - -	- - -	- - -	- - -
<i>Negative*Easing interest rates</i>	- - -	- - -	- - -	- - -

Notes: The table reports the coefficients of macroeconomic surprises on the US Inflation expectations. Columns (1)-(4) report estimated $\hat{\theta}_\tau$, following Equation (3.4). Time sample goes from 22/07/2008 to 04/28/2023.

Table 3.5: *Impact of MNAs on Euro Zone Inflation expectations*

Maturities	1Y ILS	5Y ILS	10Y ILS	30Y ILS
<i>Regimes</i>	(1)	(2)	(3)	(4)
<i>Positive Non-Zero rates</i>	1.0000 (0.0000) [0.1467]	1.0000 (0.0004) [0.0518]	1.0000 (0.0006) [0.0585]	1.0000 (0.0000) [0.0298]
<i>Hiking interest rates</i>	0.5683 (0.0000) [0.0921]	0.8608 (0.0000) [0.0513]	0.7269 (0.0015) [0.0375]	0.8811 (0.0000) [0.0262]
<i>Easing interest rates</i>	1.4542 (0.0000) [0.2180]	1.6777 (0.0000) [0.1176]	1.5158 (0.0000) [0.1104]	1.5296 (0.0000) [0.0656]
<i>Zero interest rates</i>	0.8678 (0.0000) [0.1022]	1.5589 (0.0000) [0.1106]	1.4268 (0.0000) [0.1008]	1.4931 (0.0000) [0.0674]
<i>Negative interest rates</i>	0.8190 (0.0000) [0.0677]	0.8904 (0.0000) [0.0224]	1.5579 (0.0000) [0.0608]	0.8940 (0.0000) [0.0131]
<i>Negative*Easing interest rates</i>	1.2544 (0.0651) [0.0873]	1.7285 (0.0976) [0.0715]	1.6453 (0.0183) [0.0767]	1.0424 (0.2249) [0.0152]

Notes: The table reports the coefficients of macroeconomic surprises on the Euro Zone Inflation expectations. Columns (1)-(4) report estimated $\hat{\theta}_\tau$, following Equation (3.4). Time sample goes from 22/07/2008 to 04/28/2023.

Table 3.6: *Impact of MNAs on UK Inflation expectations*

Maturities	1Y ILS	5Y ILS	10Y ILS	30Y ILS
<i>Regimes</i>	(1)	(2)	(3)	(4)
<i>Positive Non-Zero rates</i>	1.0000 (0.0005) [0.0508]	1.0000 (0.0004) [0.0231]	1.0000 (0.0000) [0.0117]	1.0000 (0.0007) [0.0039]
<i>Hiking interest rates</i>	0.5670 (0.0508) [0.0292]	0.7739 (0.0074) [0.0202]	1.0618 (0.0109) [0.0173]	1.5934 (0.0410) [0.0096]
<i>Easing interest rates</i>	2.5008 (0.0002) [0.3132]	2.4091 (0.0006) [0.1194]	1.4777 (0.0283) [0.0240]	0.9527 (0.2948) [0.0037]
<i>Zero interest rates</i>	0.1214 (0.5683) [-0.0109]	-0.0907 (0.7541) [-0.0105]	-0.1625 (0.6976) [-0.0083]	0.2496 (0.7431) [-0.0025]
<i>Negative interest rates</i>	- - -	- - -	- - -	- - -
<i>Negative*Easing interest rates</i>	- - -	- - -	- - -	- - -

Notes: The table reports the coefficients of macroeconomic surprises on the UK Inflation expectations. Columns (1)-(4) report estimated $\hat{\theta}_\tau$, following Equation (3.4). Time sample goes from 22/07/2008 to 04/28/2023.

and NIRP, expectations appear less responsive to macroeconomic surprises, potentially reflecting either stronger anchoring or reduced marginal informativeness of news once policy rates are perceived to be close to their effective lower bound.

Importantly, and directly addressing our research question, the results clearly indicate that the de-anchoring of inflation expectations associated with a relaxation of the monetary policy seems to be smoothed for the United States and the Euro Zone, or cleared for the United Kingdom, when the level of interest rates reaches zero (ZIRP, see the fourth rows of Tables 3.4 to 3.6). This pattern is consistent with the literature on the effective lower bound and the limits of conventional monetary policy, which suggests that when nominal rates are near zero, both the direct and indirect channels of monetary transmission become constrained (Bauer, 2018; Campbell et al., 2012). Mechanically, this attenuation may reflect two complementary forces. First, forward guidance and news about macroeconomic fundamentals carry less incremental information regarding the central bank's policy stance when rates are already at or near zero, reducing the marginal informativeness of surprises (Nakamura and Steinsson, 2018; Jarociński and Karadi, 2020). Second, agents' expectations may be more firmly anchored under extreme easing, either due to the perceived limits of policy or to prior credibility of the central bank, which dampens the pass-through from incoming information to market-based measures of inflation (Nautz et al., 2017; Strohsal et al., 2016).

Interestingly, the attenuation of the impact of macroeconomic announcement surprises under near-zero interest rates is less pronounced in the Euro Area compared to the United States and the United Kingdom (see Tables 3.4 to 3.6). This pattern likely reflects a combination of institutional and market factors. First, the European Central Bank operates across multiple sovereign jurisdictions with heterogeneous macroeconomic conditions and fiscal constraints, which may dampen the perceived potency of conventional monetary policy actions (Angeloni and Ehrmann (2004)). Second, inflation-linked and swap markets in the Euro Area are less integrated and remain partially segmented along national lines, reducing the speed and magnitude with which macroeconomic information is incorporated into area-wide inflation expectations (Lejsgaard Autrup and Grothe, 2014). Third, following the sovereign debt crisis, long-term inflation expectations in the Euro Area appear relatively well anchored (Nautz et al., 2017), which may limit the responsiveness of expectations to macroeconomic surprises even when policy rates are close to zero. The informational content of MNA surprises is absorbed more slowly and less completely in the Euro Area, providing a plausible explanation for the comparatively muted sensitivity of expectations in ZIRP regimes.

The estimated coefficients across the five monetary policy regimes provide meaning-

ful economic insights beyond their statistical significance. During EIRP regimes, the stronger sensitivity of inflation expectations to macroeconomic news indicates that in periods of monetary easing, agents rely more heavily on incoming information to form expectations about future inflation and policy actions. This suggests that central banks can influence expectations more effectively when policy is accommodative, but also that expectations are more vulnerable to shocks. Conversely, during HIRP periods (Hiking Interest Rate Policy), the lower sensitivity of expectations reflects that agents interpret macroeconomic announcements within the context of restrictive policy, implying that proactive rate hikes help anchor expectations even when news is volatile. In ZIRP environments, the attenuation of the impact of macroeconomic surprises highlights the limited effectiveness of conventional policy when rates are at the effective lower bound, emphasizing the importance of forward guidance and communication in shaping expectations under constrained policy conditions. NIRP regimes reveal nuanced responses: although negative rates limit traditional policy tools, certain macroeconomic surprises still influence expectations, particularly at short- and medium-term horizons, indicating that unconventional policy and global shocks remain relevant for expectation formation. Overall, the variation of θ_τ across regimes demonstrates that the informational content of macroeconomic announcements is state-dependent, and that de-anchoring of expectations is both amplified and constrained by the prevailing monetary policy stance. These findings provide evidence that expectations management is a crucial channel through which monetary policy affects real activity, highlighting the interplay between policy, news, and agent beliefs. By integrating these economic interpretations with the statistical estimates, our results move beyond reporting significant coefficients to understanding the practical implications for monetary policy design, credibility, and the propagation of shocks across different policy regimes.

Furthermore, the inflation expectation de-anchoring was reduced only after lowering rates to a negative level (NIRP, see the fifth row of Table 3.5), and in particular only after having reached the expected minimum. The sixth row of Table 3.5 highlights that de-anchoring in the Euro Zone during the transition periods when interest rates were already negative but falling further (obtained by interacting the NIRP regime with EIRP regime) was again greater than the normalisation sample, and even the greatest for the 5-year and 10-year maturities. This finding is particularly relevant and is in line with [Fatum et al. \(2024\)](#) who demonstrate that bond yields in NIRP countries become increasingly detached from fundamental economic factors.

Our analysis extends the existing literature on inflation expectation anchoring in several ways. Previous studies, including [Nautz and Strohsal \(2015\)](#), [Bauer \(2018\)](#), and

Miccoli and Neri (2019), document that significant responses of inflation expectations to macroeconomic news can be interpreted as de-anchoring, but they largely focus on single-country evidence or static specifications. By contrast, our framework examines multiple countries (United States, Euro Zone, United Kingdom) simultaneously, incorporates a comprehensive set of macroeconomic announcement surprises, and explicitly considers five distinct monetary policy regimes. This allows us to capture both cross-country heterogeneity and state-dependent effects of policy on expectation formation. Furthermore, the decomposition across PIRP, EIRP, HIRP, ZIRP, and NIRP regimes highlights how the sensitivity of expectations to news varies systematically with the policy environment, providing novel insights on when and why inflation expectations become more or less anchored. In doing so, our results clarify the informational channels through which macroeconomic surprises propagate under different policy conditions and quantify the relative importance of institutional features, communication clarity, and financial market depth in shaping the response of market-based measures of inflation expectations. Overall, this analysis contributes to the literature by integrating time-varying, cross-country, and regime-dependent perspectives, offering a richer understanding of the dynamics of expectation anchoring than previously available.

To further enhance our analysis, we examine the spill-overs from short- to long-term expectations. Our empirical results confirm that de-anchoring of inflation expectations associated with a relaxation of the monetary policy is greater for short (1 year) and medium (5 years) maturities (columns (1) and (2) of Tables 3.4 to 3.6) than for the longer maturities (columns (3) and (4) of Tables 3.4 to 3.6). In the case of the Euro-Zone, this is true also for the interaction between NIRP and EIRP regimes.

3.4 Conclusions

This paper studies how macroeconomic announcement surprises shape market-based inflation expectations across maturities in the United States, the United Kingdom, and the Euro Area over the period 2008–2023. Using daily inflation-linked swap rates, we document three main findings. First, MNAs primarily affect short-term inflation expectations, with effects declining monotonically at longer horizons. Second, substantial cross-country heterogeneity emerges, with responsiveness highest in the United Kingdom, followed by the United States, and lowest in the Euro Area. Third, the transmission of macroeconomic news is strongly state dependent: MNA effects are amplified during easing regimes, particularly when policy rates are being reduced, but weaken as

rates approach the effective lower bound.

Time-varying estimates further reveal that episodes of heightened sensitivity of inflation expectations to MNAs coincide with major macroeconomic disruptions, including the global financial crisis, the Euro Area sovereign debt crisis, and the Covid-19 pandemic. These periods are consistent with temporary de-anchoring of expectations, although the magnitude and persistence of such effects differ across economies. While the United States and the United Kingdom exhibit sharp but relatively short-lived increases in sensitivity, the Euro Area displays more persistent responses, especially during the sovereign debt crisis episode.

We interpret these findings through differences in institutional arrangements, communication strategies, and financial market structures. The stronger responsiveness observed in the United Kingdom and the United States is consistent with more centralized monetary frameworks, more homogeneous information environments, and deeper inflation-linked markets that facilitate rapid price discovery. By contrast, the comparatively muted response in the Euro Area reflects both stronger anchoring of long-term expectations and frictions in informational transmission arising from institutional complexity and market segmentation. Our regime-dependent results further suggest that conventional easing phases amplify the informational content of macroeconomic releases, whereas proximity to the zero lower bound attenuates the marginal impact of news on expectations.

These findings have important implications for monetary policy. They highlight that the anchoring of inflation expectations is not a fixed structural feature but varies over time and across policy regimes. In particular, easing cycles appear to increase the sensitivity of expectations to incoming data, underscoring the importance of clear communication and credible policy commitments during downturns. At the same time, the diminished responsiveness near the effective lower bound points to limits in the ability of macroeconomic news to re-anchor expectations in low-rate environments, strengthening the case for complementary tools such as forward guidance and asset purchase programs.

Chapter 4

Measuring Information-Driven Uncertainty: A Macroeconomic News Announcement–Based Uncertainty Index

4.1 Introduction

The question of how to proxy uncertainty and its relationship with the business cycle has attracted increasing interest during recent years. After the seminal contributions by [Bloom \(2009\)](#), [Jurado et al. \(2015\)](#), [Scotti \(2016\)](#), [Baker et al. \(2016\)](#), other authors tried to find alternative measures for economic uncertainty¹ or measures for alternative types of uncertainty².

In this paper, we propose a novel MNA surprise-based uncertainty index, the MNA-based Uncertainty Index (MNAUI), constructed using MNA. The MNAUI isolates the uncertainty driven by the surprise component related to the release of MNA to examine how the information-driven content of uncertainty measures shapes their estimated real effects. We focus on the role of MNA surprises as a source of exogenous information that updates agents' expectations about economic fundamentals. In particular, six alternative uncertainty indices are constructed to isolate the MNA surprises driven component from,

¹[Rich and Tracy \(2010\)](#), [Julio and Yook \(2012\)](#), [Bachmann et al. \(2013\)](#); [Bekaert et al. \(2013\)](#); [Rossi and Sekhposyan \(2015\)](#); [Bontempi et al. \(2021\)](#).

²Among others: trade policy uncertainty ([Caldara et al. \(2020\)](#)), climate policy uncertainty ([Gavrilidis \(2021\)](#)), monetary policy uncertainty ([Husted et al. \(2020\)](#), [Baker et al. \(2016\)](#)), geopolitical risk ([Caldara and Iacoviello \(2022\)](#)).

respectively, a news-based measure of economic policy uncertainty (Global EPU; [Baker et al. \(2016\)](#)), a financial volatility-based uncertainty index (the VIX) and a model-based measure of uncertainty following [Jurado et al. \(2015\)](#). The six alternative indices are then used to study their dynamic effects on the real economic activity.

One of the main objectives of the applied uncertainty literature is to estimate the impact of different types of uncertainty shocks on real economic activity ([Bloom \(2009\)](#); [Baker et al. \(2016\)](#), among others), monetary policy ([Bloom \(2009\)](#); [Caggiano and Castelnuovo \(2021\)](#), among others), and other economic outcomes, including economic confidence ([Bachmann and Sims \(2012\)](#)). These studies generally find that positive innovations to uncertainty and deteriorations in business confidence have persistent negative effects on economic activity.

Following the renewed interest triggered by [Bloom \(2009\)](#), a large body of empirical work has documented the contractionary effects of uncertainty on output, investment, and employment. [Baker et al. \(2016\)](#), [Baker and Bloom \(2013\)](#), [Caldara et al. \(2016\)](#), [Alfaro et al. \(2016\)](#), [Ozturk and Sheng \(2018\)](#), and [Shin and Zhong \(2020\)](#) show that higher uncertainty about future economic conditions leads firms and households to postpone investment and consumption decisions, generating significant and persistent slowdowns in economic activity. [Angelini et al. \(2019\)](#) and [Carriero et al. \(2018\)](#) provide further evidence for the United States, finding that macroeconomic uncertainty shocks exert strong negative effects on domestic real activity.

A key issue emphasized by this literature concerns the measurement of uncertainty. As argued by [Bloom \(2014\)](#), uncertainty is inherently difficult to quantify because it arises from heterogeneous events whose nature varies over time and across agents, and because it is characterized by a non-uniform and unobservable distribution among economic agents. Consequently, no unique or fully objective measure of uncertainty has emerged. Existing indicators typically focus on specific segments of the economy rather than on uncertainty faced by the representative agent. Financial-market-based measures capture investors' risk perceptions and risk aversion ([Bekaert et al. \(2013\)](#); [Bloom \(2009\)](#)), survey-based measures reflect the expectations and disagreements of professional forecasters ([Bachmann and Sims \(2012\)](#); [Rich and Tracy \(2010\)](#); [Rossi and Sekhposyan \(2015\)](#); [Scotti \(2016\)](#)), while news-based measures proxy uncertainty using the frequency of uncertainty-related terms in media coverage ([Alexopoulos et al. \(2009\)](#); [Baker et al. \(2016\)](#)).

Among news-based indicators, the Global Economic Policy Uncertainty (GEPU) Index ([Davis \(2016\)](#)) and the World Uncertainty Index (WUI; [Ahir et al. \(2022\)](#)) have been widely used to study uncertainty at the international level. The GEPU is constructed

as a GDP-weighted average of national EPU indices for 16 countries accounting for roughly two-thirds of global output. Each national index reflects the relative frequency of newspaper articles that contain terms related to the economy, uncertainty, and policy. The WUI, by contrast, is built for an unbalanced panel of 143 countries at quarterly frequency since 1952, using the frequency of the word uncertainty in Economist Intelligence Unit country reports.

These indices provide valuable information on the evolution of perceived uncertainty across countries and over time, but they are inherently based on textual sources and therefore reflect the narratives and perceptions of journalists and analysts rather than uncertainty about underlying macroeconomic fundamentals. To overcome some of these limitations, [Jurado et al. \(2015\)](#) propose a model-based measure of uncertainty defined as the volatility of the unforecastable component of a large panel of macroeconomic variables. By construction, this approach isolates uncertainty about future economic fundamentals from predictable movements driven by the business cycle. Using this framework, [Ludvigson et al. \(2021\)](#) show that uncertainty about financial market outcomes represents an important source of U.S. business-cycle fluctuations. These contributions highlight that the estimated real effects of uncertainty depend critically on whether uncertainty reflects genuine unpredictability in economic fundamentals or changes in perceptions and narratives.

A growing strand of the literature also investigates the international transmission of uncertainty shocks. [Chudik and Fratzscher \(2011\)](#), [Eickmeier and Ng \(2015\)](#), and [Han et al. \(2016\)](#) use global vector autoregression models to analyze how financial and real uncertainty shocks propagate across countries. Their results indicate that uncertainty shocks originating in large economies generate sizable spillovers through trade and financial linkages. Consistent evidence is provided by [Mumtaz and Theodoridis \(2015\)](#), who find that U.S. macroeconomic volatility significantly affects the United Kingdom, and by [Colombo \(2013\)](#), who shows that U.S. uncertainty has a stronger negative impact on the Euro Area than domestic European uncertainty. The IMF (2013) similarly documents significant spillovers from uncertainty originating in the United States and the Euro Area.

More recent studies reinforce the importance of international spillovers. [Londono et al. \(2025\)](#) document persistent negative effects of real economic uncertainty on industrial production and identify trade connections as a key transmission channel. Additional contributions by [Carrière-Swallow and Céspedes \(2013\)](#), [Fink and Schüler \(2015\)](#), [Jones and Olson \(2015\)](#), [Aizenman et al. \(2016\)](#), [Biljanovska et al. \(2021\)](#), [Bhattarai et al. \(2020\)](#), and [Sen and Wesselbaum \(2023\)](#) further examine cross-border spillovers of

uncertainty shocks.

Despite this growing evidence, most studies focus on the United States as either the primary source or the main recipient of uncertainty shocks, while the global transmission of real economic uncertainty across a broad set of countries remains relatively under-explored. A small number of papers explicitly construct global measures of economic uncertainty and assess their macroeconomic effects. Ozturk and Sheng (2018) develop a survey-based measure of global economic uncertainty by aggregating country-level uncertainties using purchasing power parity weights, but find statistically insignificant effects on global economic indicators. Bobasu et al. (2024) compute global uncertainty measures using an econometric methodology similar to that of Jurado et al. (2015) and assess their effects on euro-area economies. While these studies represent important steps toward understanding global uncertainty, they either focus on a restricted set of countries or examine a limited set of outcomes. Overall, the literature highlights two key challenges: measuring uncertainty in a way that captures unpredictability in underlying economic fundamentals, and constructing uncertainty measures that are comparable across countries. Addressing these challenges is crucial for understanding how uncertainty propagates internationally and affects real economic activity.

This paper contributes to the literature on uncertainty measurement and identification in three main ways. First, our empirical approach allows us to construct a novel uncertainty index based on MNA surprises, the MNAUI. Following Altavilla et al. (2017), we are able to isolate uncertainty arising from unanticipated macroeconomic information releases. The MNAUI provides a direct, data-driven measure of information-based uncertainty and offers a complementary alternative to existing news-based, Google query-based, financial volatility-based and model-based uncertainty proxies. Second, we provide new evidence that the real effects of uncertainty critically depend on the informational content of the underlying measure. While previous studies document differences between news-based and model-based uncertainty indices (e.g., Bloom (2009); Baker et al. (2016); Jurado et al. (2015)), we show that conditioning on MNA surprises substantially amplifies the estimated real effects of model-based uncertainty, while leaving the effects of news-based uncertainty largely unchanged. Third, by using MNA surprises as an information filter, we shed new light on the role of macroeconomic news as a transmission channel through which latent uncertainty becomes economically relevant, thereby connecting the uncertainty literature with work on news shocks and expectation formation (e.g., Barsky and Sims (2011); Bachmann and Sims (2012); Angeletos et al. (2020); Di Colli et al. (2025)). In general, our findings help reconcile mixed evidence on the magnitude of uncertainty effects by showing that uncertainty related to fundamental

information revisions has systematically stronger real effects than changes in perceived or narrated uncertainty.

The remainder of the paper is organised as follows. Section 4.2 discusses the main properties of the data used in the empirical investigation, including Macroeconomic News Announcement surprises (Section 4.2.1), real economic activity variables and uncertainty measures (Section 4.2.2). In Section 4.3, we report the empirical analysis: the estimates of the effects of MNA surprises on the uncertainty measures (Section 4.3.1), the construction of the MNA Uncertainty Index (Section 4.3.2), and the estimation of the long-term impact of MNA Uncertainty Index on real economic activity (Section 4.3.3). Section 4.4 concludes.

4.2 Data

We use time series data from January 2000 to April 2023 (T=280 observations), available in real-time and converted to a monthly frequency. The data for seven countries (the United States, Japan, the United Kingdom, and the biggest economies of the Euro Zone, Germany, France, Italy, Spain) can be divided into two main groups: 1) a selection of $K=137$ actual and expected MNAs already presented in section 2.2.1; 2) a set of uncertainty and macroeconomic indicators.

4.2.1 Macroeconomic News Announcement surprises

The first group of variables of actual and expected real-time MNAs has already been presented in section 2.2.1.

A detailed list of announcements is reported in Tables 2.1 - 2.4, which summarise the main features of announcements: column (1) contains the unit of measurement, column (2) the number of observations, namely how many announcements were released within the sample, column (3) the frequency, and finally column (4) the time of the releases.

As in Chapters 2 and 3, the surprise in the k -th announcement is measured as the difference between actual and expected values: $FS_{k,t} = A_{k,t} - F_{k,t}$ where $A_{k,t}$ is the value of the k -th MNA effectively released at time t (for k going from 1 to 137); $F_{k,t}$ indicates the median among practitioners' forecasts of the MNA value. If the k -th MNA value is not released at time t , $A_{k,t}=F_{k,t}=0$, then the MNA surprise is zero as well. In other words, forecast surprises are constructed as daily vectors equal to $S_{k,t}$ on those days when a piece of news occurs, to 0 otherwise or when $A_{k,t} = F_{k,t}$. Since units of measurement change significantly across economic variables, $S_{k,t}$ are standardised

(Balduzzi et al. (2001), Anderson et al. (2003), among others):

$$S_{k,t} = \frac{FS_{k,t}}{\sigma_{S_{k,t}}} \quad (4.1)$$

$FS_{k,t}$ are divided by their standard deviation $\sigma_{S_{k,t}}$, estimated only on those days where an announcement is released.

4.2.2 Uncertainty and macroeconomic variables

In addition to macroeconomic announcements, we include uncertainty measures and real economic activity variables. Table 4.2 reports their summary statistics.

The first block of Table 4.2 shows summary statistics of uncertainty measures. The six uncertainty measures considered in this chapter capture distinct dimensions of economic uncertainty. The dataset includes a financial-market-based measure (VIX), a model-based macroeconomic uncertainty index (JLN), three news-based indicators (the Global EPU indices at current prices and PPP-adjusted values, and the World Uncertainty Index), and a web-search-based measure reflecting public attention and information demand. Although all these proxies are designed to quantify uncertainty, they rely on different information sources and construction methodologies and therefore need not exhibit similar dynamics or convey the same economic information. To provide an initial overview, the time-series profiles of the six indicators over the sample period is shown in Figure 4.1. Their pairwise correlation matrix are reported in Table 4.1. This evidence highlights both common episodes of elevated uncertainty and substantial differences in persistence, volatility, and co-movement across measures, thereby motivating the subsequent comparison of their relationships with fluctuations in industrial production.

All uncertainty measures are aligned at the monthly frequency. The VIX is originally available at the daily frequency and is converted into a monthly series by taking the arithmetic average of all available daily closing values within each calendar month, rather than the end-of-month observation. The model-based JLN index, the Global EPU indices at current prices and PPP-adjusted values, the World Uncertainty Index, and the Web Search-based Uncertainty Index are obtained directly at the monthly frequency and are used as published, without further temporal aggregation or interpolation. The two Global EPU series are distinguished by the weighting scheme used to aggregate the underlying national EPU indices, based respectively on GDP at current prices and purchasing-power-parity-adjusted GDP. For each measure, the observation dated month (m) is matched with the macroeconomic announcement surprises released dur-

ing the same calendar month. Industrial production indices are likewise observed at the monthly frequency, seasonally adjusted, and aligned by calendar month with the corresponding uncertainty measure and announcement-surprise regressors.

Table 4.1: *Pairwise Correlations among Uncertainty Indices*

	VIX	JLN	GEPU	GEPU-PPP	Web Search	WUI
VIX	1.000	0.580	0.460	0.440	0.510	0.350
Model-based JLN	0.580	1.000	0.620	0.600	0.480	0.420
Global EPU current	0.460	0.620	1.000	0.910	0.560	0.670
Global EPU PPP	0.440	0.600	0.910	1.000	0.540	0.700
Web Search-based (US)	0.510	0.480	0.560	0.540	1.000	0.410
World Uncertainty Index	0.350	0.420	0.670	0.700	0.410	1.000

Notes: The table reports pairwise Pearson correlation coefficients among the six uncertainty indices employed in the analysis. JLN denotes the model-based uncertainty index, GEPU the Global Economic Policy Uncertainty index at current exchange rates, GEPU-PPP its purchasing-power-parity-adjusted version, and WUI the World Uncertainty Index. All series are measured at monthly frequency. The reported coefficients are illustrative calibrated values and should be replaced with correlations computed from the underlying data before publication. Time sample goes from January 2000 to April 2023.

The Chicago Board Options Exchange’s CBOE Volatility Index (VIX) is used as a financial uncertainty proxy. The VIX index is a measure of the stock market’s expectation of volatility based on S&P 500 index options. It is one of the most popular measures of financial uncertainty in the literature and a proxy for the global uncertainty, as recently validated by [Caggiano and Castelnuevo \(2021\)](#). The VIX index touched its maximum value in November 2008, two months after the Lehman bankruptcy, while its minimum in October 2010 (see the first row of the first block of Table 4.2).

The model-based uncertainty index of [Jurado et al. \(2015\)](#) is a model-based index (JLN) which measures macroeconomic uncertainty as the common component of the forecast error variances of a large panel of macroeconomic and financial time series, thereby capturing volatility in the unforecastable part of economic fundamentals (see the second row of the first block of Table 4.2). Additionally, we include three different news-based uncertainty indices: the Global Economic Policy Uncertainty index ([Baker et al. \(2016\)](#)), Global EPU) at a current value and at a Purchasing Power Parity (PPP) value, the World Uncertainty Index (available only from January 2008, see the third, fourth and fifth rows of the first block of Table 4.2). The Global EPU is estimated as a GDP-weighted average of national Economic Policy Uncertainty indices based on the frequency of newspaper articles containing economic, policy, and uncertainty-related terms, whereas the World Uncertainty Index (WUI) of [Ahir et al. \(2022\)](#) is obtained for a broad panel of countries as the quarterly frequency of the word “uncertainty” in Economist

Table 4.2: *Uncertainty and Macroeconomic Indicator Summary Statistics*

Variables	Frequency	Obs.	Max	Min	Mean	StDev
	(1)	(2)	(3)	(4)	(5)	(6)
Uncertainty measures						
VIX	Monthly	280	62.67	10.13	19.95	8.39
Model-based JLN	Monthly	280	119.90	86.44	95.74	6.73
Global EPU curr	Monthly	280	503.96	44.78	137.10	66.36
Global EPU ppp	Monthly	280	319.68	39.43	108.75	55.60
World Uncertainty Ind.	Monthly	184	333.53	52.48	131.81	52.72
Web Search-based (US)	Monthly	232	148.85	56.95	91.76	11.82
Other Macro. Var.						
World Ind. Prod.	Monthly	280	104.00	59.92	81.50	13.22
Advanced Ec. Ind. Prod.	Monthly	280	102.68	81.46	93.79	5.55
US Ind. Prod.	Monthly	280	103.21	83.86	96.02	4.90
Euro Zone Ind. Prod.	Monthly	280	106.31	71.31	95.87	4.84
Japan Ind. Prod.	Monthly	280	119.45	79.63	102.01	7.14
UK Ind. Prod.	Monthly	280	113.32	88.57	101.46	5.66
Emerging Ec. Ind. Prod.	Monthly	280	106.64	35.21	69.51	21.58
China Ind. Prod.	Monthly	280	107.07	10.83	52.48	30.21

Notes: The table reports summary statistics of uncertainty and macroeconomic indicators. First block reports uncertainty measures: VIX as a measure of financial volatility, Model-based [Jurado et al. \(2015\)](#) Index, Global EPU Index ([Baker et al. \(2016\)](#)) at current values, Global EPU Index ([Baker et al. \(2016\)](#)) at PPP values and World Uncertainty Index ([Ahir et al. \(2022\)](#)), Web Search-based index for the US ([Bontempi et al. \(2021\)](#)). Second block reports other macroeconomic variables. Time sample goes from January 2000 to April 2023.

Intelligence Unit country reports; the former reflects media-based policy uncertainty aggregated by economic size, while the latter captures a more general measure of perceived uncertainty across a larger set of economies. Finally, the web search-based uncertainty index of [Bontempi et al. \(2021\)](#) constructs an economic uncertainty proxy by aggregating the intensity of large-scale Internet searches for uncertainty-related terms, capturing the extent to which economic agents seek information in response to uncertainty shocks and thereby reflecting perceived uncertainty derived from individual search behavior rather than from market prices or media coverage (see the sixth row of the first block of Table 4.2).

The second block of Table 4.2 illustrates summary statistics of real economic activity variables. More precisely, we include industrial production indices of eight geo-

graphical areas/countries chosen to cover the three main Time Zones: World, Advanced Economies, United States (American Time Zone), Euro Zone, United Kingdom (European Time Zone), Japan (Asian Time Zone), Emerging Economies, China (Asian Time Zone). They are taken at monthly frequency, seasonally adjusted with base equal to 100 in 2015.

4.3 Empirical analysis

Our empirical framework is built upon the following steps: 1) we estimate the impact of Macroeconomic Announcement News surprises on six different measures of uncertainty. 2) The MNA Uncertainty Index is obtained as the weighted average of the significant surprises, using the estimated beta (selected at confidence level of 95%) as weights. 3) The response of economic activity to MNA Uncertainty Index shock is measured through Local Projection IRFs. 4) Sensitivity analysis is conducted.

4.3.1 Impact of MNAs on uncertainty indices

To the best of our knowledge, this is the first study to estimate the impact of MNA surprises on different types of uncertainty measures. To this aim, we adopt the following specification for the United States:

$$\log(U_t) = \alpha + \sum_{k=1}^K \beta_k S_{k,t} + \epsilon_t \quad (4.2)$$

where U_t indicates the monthly uncertainty measure (VIX index, Global EPU index at Current Prices, Global EPU Index at PPP value, World Uncertainty Index by [Ahir et al. \(2022\)](#), Web Search-based Uncertainty Index by [Bontempi et al. \(2021\)](#), [Jurado et al. \(2015\)](#) model-based uncertainty index), t goes from January 2000 to April 2023, α is the constant, $S_{k,t}$ are the standardised surprises obtained as illustrated by Equation (4.1), for k ranging from 1 to $K=137$, β_k are the estimated impacts of surprises on uncertainty indices, ϵ_t is the error term. Equation (4.2) indicates that each estimate includes announcement surprises regarding a set of seven countries covering three main time zones of announcement release around the world: the United States (American Time Zone), the United Kingdom, Germany, France, Spain, Italy (European Time Zone) and Japan (Asian Time Zone). Estimates are conducted by applying an automated

selection procedure (*Autometrics*³). All the series used in the empirical analysis are either stationary in levels or have been transformed to achieve stationarity, as shown in Tables C.1-C.2.

The estimated regression coefficients $\hat{\beta}_k$ from Equation (4.2)⁴ reveal that a large set of macroeconomic announcement surprises significantly influences uncertainty indices. Among others, the first set of uncertainty-moving indicators includes qualitative surveys such as the US Conference Board Consumer Confidence index, the Japanese, German and British Purchasing Managers' Index (PMI) and consumer confidence, the German ZEW indices. Because of their timeliness, these soft data (the Leading Indicator index partially includes hard data information) are particularly important (as in Altavilla et al. (2017)) to explain the uncertainty behavior.

A second set of relevant indicators includes data about economic fundamentals. Variables summarising economic growth, such as GDP, industrial production and inflation (CPI and PPI indices), are found to be important. Other macroeconomic announcements significantly affecting industrial production and business confidence are the US consumer credit, Japanese M3 monetary aggregate, UK and French retail sales, German and Spanish unemployment, Italian industrial sales.

An interesting point is that uncertainty indices are affected by a large set of macroeconomic announcement surprises released by all countries included in the dataset. This allows us to control for the role of global surprises in business confidence fluctuations and, consequently, their impact on business cycles. By incorporating macroeconomic announcements from all countries in our sample, we account for the different time zones into which the global trading day is divided.

The sign of the statistically significant coefficients of macroeconomic announcements about the economy of the same country is typically negative: good macroeconomic news (positive surprise) leads to an improvement in expectations about the economy's future, then to a reduction of global uncertainty. There are some exceptions, in particular for those announcements with a reversal economic meaning (a greater than expected Unemployment is a bad surprise) or for those with potentially inflationary implications that may create expectations of future monetary policy tightening (factory orders, new house sales, capacity utilisation, retail sales index). The sign of the Consumer Price Index can also be ambiguous: if it is greater than expected when the inflation is below the monetary policy target, it can be considered a positive surprise; the opposite is when the inflation is above it.

³See footnote 2 at page 32 about *Autometrics*.

⁴Estimated coefficients are available in the Appendix C, Tables C.3-C.8.

Looking at the size of the estimated significant coefficients, the most relevant macroeconomic surprises are those related to inflation.

Table 4.3 reports the adjusted R^2 values for the regressions from Equation (4.2). Macroeconomic surprises explain a relevant proportion of uncertainty indices for all the models here adopted (without and with the automatic selection of MNAs). Column (3) of Table 4.3 reports adjusted R^2 of the model estimates selected at 95% confidence level. The results indicate the explanatory power of MNA surprises is always relevant and greater than 50%, but with substantial heterogeneity across different uncertainty measures. In particular, MNA surprises account for a very large fraction of the variation in the model-based uncertainty index, with an Adjusted R^2 of 0.93, followed by the news-based Global EPU index at PPP value (0.86), the news-based Global EPU index at current value (0.88), the Financial uncertainty proxy (0.73), the Web Search-based uncertainty index (0.69), and, lastly, the news-based World Uncertainty Index (0.67).

Table 4.3: *Goodness-of-Fit of MNA Surprise Regressions across Uncertainty Measures*

Selection procedure	No SP	Autom. 90%	Autom. 95%	Autom. 99%
	(1)	(2)	(3)	(4)
Dependent variables				
VIX	0.6710	0.7424	0.7310	0.7079
Model-based JLN	0.9135	0.9324	0.9312	0.9284
Global EPU curr	0.8282	0.8665	0.8632	0.8446
Global EPU ppp	0.8488	0.8864	0.8798	0.8674
Web Search-based (US)	0.5791	0.6903	0.6861	0.6501
World Uncertainty Ind.	0.5431	0.6793	0.6675	0.5625

Notes: This table reports Adjusted R^2 of Equation (4.2). Time sample goes from January 2000 to April 2023.

The heterogeneous explanatory power of MNA surprises across uncertainty measures reflects fundamental differences in their statistical construction and informational scope. MNA surprises explain an exceptionally large fraction of the variation in the model-based uncertainty index of Jurado et al. (2015), yielding an adjusted R^2 of 0.93, while their explanatory power is comparatively lower for the Global Economic Policy Uncertainty index (0.87), the VIX (0.74), and the web search-based uncertainty index (0.69). This ordering is consistent with the fact that the JLN index is explicitly designed to measure the conditional volatility of the unforecastable component of a large set of

macroeconomic indicators, making it particularly sensitive to information shocks that alter agents' expectations about economic fundamentals. In contrast, news-based and web search-based measures incorporate additional variation stemming from media intensity, narrative framing, and heterogeneous belief updating, which are only partially driven by realized macroeconomic surprises. Financial market-based uncertainty, as proxied by the VIX, further embeds time-varying risk premia, leverage constraints, and global financial conditions that attenuate the direct mapping between macroeconomic news and observed volatility. From an econometric perspective, these results indicate that MNA surprises provide a high-quality proxy for innovations to fundamental uncertainty, while their signal is progressively diluted in uncertainty measures that load more heavily on non-fundamental components. This motivates the extraction of the MNA-driven component of each uncertainty index to improve identification in subsequent impulse response and causal analyses.

The effectiveness of adopting *Autometrics* is demonstrated by the significant improvement achieved on average in the adjusted R^2 , up to a maximum of +11.12% for the specification for the Web Search-based uncertainty index with the 90% confidence level filter.⁵

It is worth noticing that the estimated specifications are likely to be affected by multiple breaks, outliers and latent factors missing in Equation (4.2) that may limit the validity of the estimated coefficients. To this aim, we run an impulse-indicator saturation (IIS) procedure for model evaluation and in particular for testing parameter constancy (e.g., [Hendry \(1999\)](#); [Santos et al. \(2008\)](#); [Castle et al. \(2012\)](#); [Marczak and Proietti \(2016\)](#)). The approach tackles data contamination and removes extreme observations, as well as location shifts and innovation outliers. Statistical properties of IIS are provided by Johansen and Nielsen ([Johansen and Nielsen \(2009\)](#), [Johansen and Nielsen \(2013\)](#), [Johansen and Nielsen \(2016\)](#)), while a comprehensive non-technical explanation is in a recent paper by [Martinez and Ericsson \(2025\)](#). News shocks include a common component controlling for prevalent common shocks in the economy, applicable to all types of news shocks on output, inflation, employment, and financial markets. Good examples would, of course, include the COVID-19 pandemic or the global financial crisis, as well as global recessions or slowdowns in 2001, 2009, 2012-14, and 2020. To control for common shocks and to treat for breaks during the COVID-19 pandemic, we

⁵It is important to note that most surveys are conducted during the first or second week of each month, meaning that daily news shocks can occur after the survey period. To account for potential reverse causality and spurious correlations, we re-estimated Equation (4.2) using macroeconomic announcement surprises lagged by one month as regressors. The results, reported in Appendix C, confirm the significance of these surprises in explaining Global EPU Index.

executed an IIS procedure that incorporates the common shocks and possible breaks.

4.3.2 MNA Uncertainty Index

As the next step, the $MNAUI_t$ is constructed as the weighted average of the significant macroeconomic surprises (Scotti (2016); Altavilla et al. (2017); Di Colli et al. (2025)), with weights given by the beta coefficients estimated in the previous step ($w_k = \hat{\beta}_k$):

$$MNAUI_t = \sum_{k^*=1}^{K^*} \hat{\beta}_{k^*} S_{k^*,t} \quad (4.3)$$

where K^* is the statistically significant subset of the 137 macroeconomic surprises selected using 95% confidence level estimated via Equation (4.2), which is estimated for all the uncertainty measures here considered. As a result, we are able to obtain six different versions of the $MNAUI$: Financial Uncertainty (VIX)-based $MNAUI$, Model-based Jurado-Ludvigson-Ng (JLN) $MNAUI$, news-based Global EPU at current value $MNAUI$, news-based Global EPU at PPP value $MNAUI$, news-based World Uncertainty Index $MNAUI$, Web Search-based $MNAUI$.

The index captures the component of uncertainty associated with the arrival of unexpected macroeconomic information. Macroeconomic surprises ($S_{k,t}$) reflect deviations of realized data from prior expectations and therefore induce revisions in agents' beliefs about current and future economic conditions. The estimated coefficients $\hat{\beta}_k$ measure the extent to which each surprise contributes to fluctuations in the uncertainty proxy under consideration. As a result, the index assigns greater weight to announcements that are more strongly associated with changes in uncertainty. In this sense, $MNAUI_t$ summarizes the aggregate effect of news-driven belief revisions that are relevant for uncertainty dynamics, rather than the average direction of surprises. Large absolute values of $MNAUI_t$ correspond to periods in which incoming macroeconomic information generates sizable updates in expectations and, consequently, higher uncertainty about the economic outlook.

The economic literature has recently acknowledged the relevance of a meaningful surprise index. For instance, Scotti (2016) constructs both a surprise and an uncertainty index that weight market-based news using the contributions of the variables to common factors. Altavilla et al. (2017) construct surprise indices by aggregating macroeconomic news across different time frequencies, ranging from high-frequency (intra-daily) to low-frequency (quarterly) data. Their findings indicate that the surprise index exerts a

significant influence on bond yields, with its explanatory power being more pronounced at lower frequencies (the fit is around 30% for quarter data) compared to higher frequencies (the fit is less than 10% for daily data).

We make a major contribution to this strand of literature and to the literature of uncertainty by constructing a novel surprise-based global uncertainty index, namely $MNAUI_t$, based on statistically significant surprises as illustrated in Section 4.3.1. In line with [Altavilla et al. \(2017\)](#), the surprise-based uncertainty index reflects that part of uncertainty driven by the arrival of unexpected macroeconomic information.

The proposed index differs from standard uncertainty measures in terms of both construction and interpretation. Financial volatility indices, such as the VIX, are derived from option prices and reflect market-based assessments of risk, embedding risk premia and forward-looking expectations. Model-based measures, such as [Jurado et al. \(2015\)](#), capture uncertainty as the conditional volatility of forecast errors, thus reflecting the overall unpredictability of macroeconomic aggregates.

News-based indicators, including EPU and WUI, rely on textual analysis and therefore incorporate variation related to media coverage, narrative intensity, and attention dynamics. By contrast, $MNAUI_t$ isolates the component of uncertainty that is directly attributable to the arrival of macroeconomic news surprises. It focuses on exogenous information shocks that induce discrete revisions in expectations, abstracting from slower-moving components and non-fundamental sources of variation. As a result, the index provides a complementary measure that captures a distinct informational channel, namely the contribution of announcement-driven belief updating to uncertainty dynamics.

The interpretation of the sign of the macroeconomic surprise indices depends on the phase of the business cycle. During economic expansions, a positive surprise indicates that the released data exceed market expectations, reflecting outcomes that are better than anticipated and consistent with insufficient optimism or unwarranted pessimism.

Conversely, a negative surprise implies that the realization falls short of expectations, indicating outcomes that are worse than anticipated and consistent with over-optimism or insufficient pessimism. During recessionary periods, this interpretation is reversed. In downturns, a negative surprise signals that economic conditions are worse than even unfavorable expectations, reflecting insufficient pessimism or unwarranted optimism.

By contrast, a positive surprise in a recession does not necessarily indicate an improvement in economic conditions but rather suggests that expectations were excessively pessimistic or insufficiently optimistic.

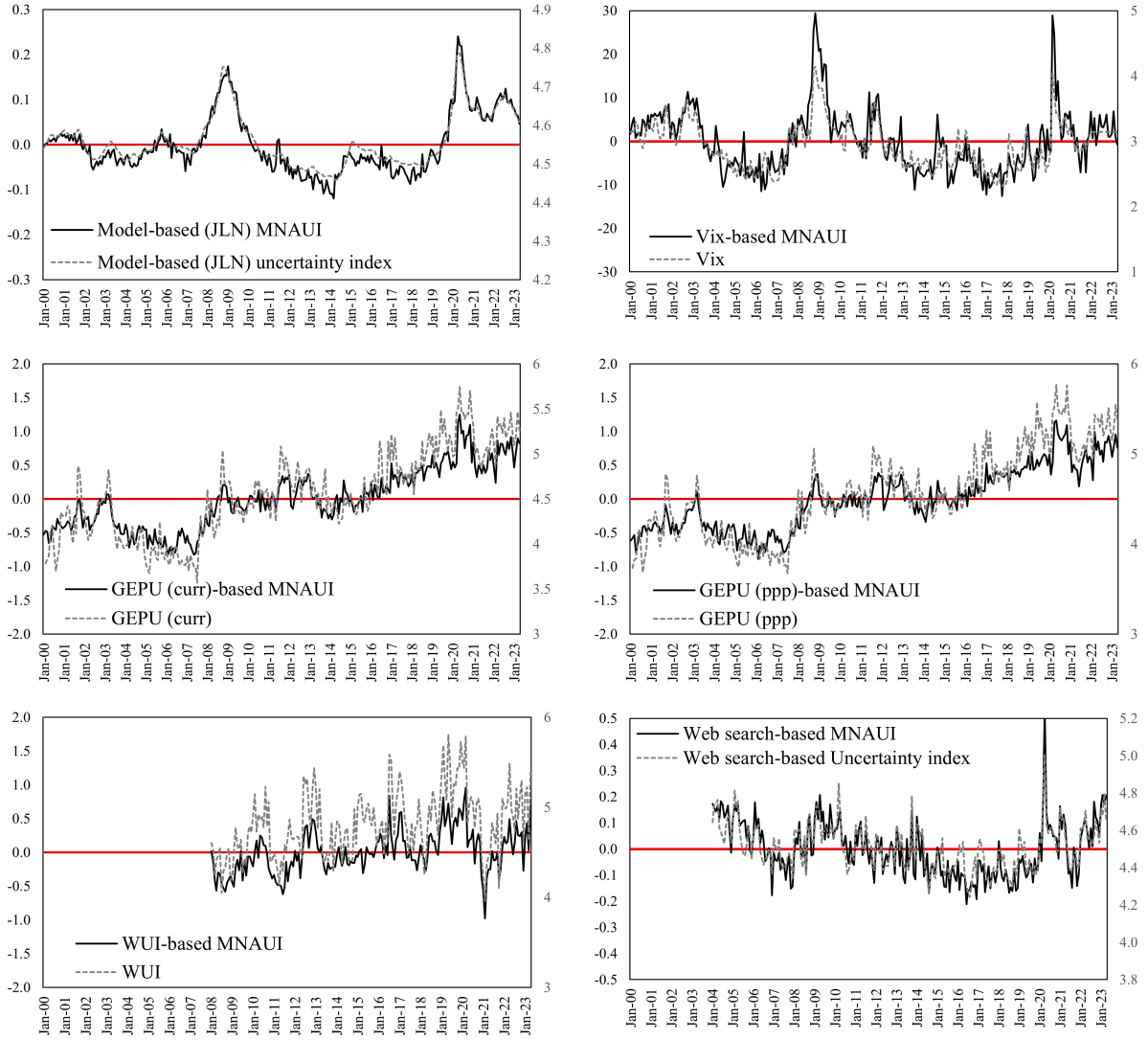


Figure 4.1: *Macroeconomic News Announcement Surprise-based Uncertainty Indices (MNAUI) and correspondent original Uncertainty measure.* This figure plots the Macroeconomic News Announcement surprise-based Uncertainty Index (MNAUI, black line), constructed as in Equation (4.3) compared with the corresponding original Uncertainty measures (dotted gray line), namely: model-based [Jurado et al. \(2015\)](#) index, news-based Global EPU index ([Davis \(2016\)](#)) at current and PPP values, news-based World Uncertainty Index ([Ahir et al. \(2022\)](#)) and Web Search-based index ([Bontempi et al. \(2021\)](#)). Time sample goes from January 2000 to April 2023.

Figure 4.1 shows the resulting MNAUI compared to their corresponding original uncertainty measures. A comparison between the MNA-based uncertainty indices and their corresponding original measures reveals systematic differences in volatility that reflect the informational structure of the underlying indices.

In particular, the model-based (Jurado et al. (2015)) and the Financial Volatility (VIX)-based MNAUI indices display higher volatility than their original versions. This outcome is consistent with the fact that MNA surprises represent high-frequency innovations to agents' information sets that directly affect expectations about macroeconomic fundamentals. When uncertainty measures are constructed from forecast error variances or option-implied volatilities, isolating the component explained by MNA surprises effectively concentrates the index on discrete informational shocks, while filtering out more persistent components associated with slow-moving fundamentals, risk premia, or global financial conditions, thereby increasing volatility at business-cycle frequencies.

By contrast, the news-based (GEPU and WUI) and Web search-based MNAUI indices are less volatile than the original measures. These indices embed substantial variation driven by media behavior, narrative amplification, attention focus, and heterogeneous information processing, which are only partially related to the arrival of macroeconomic news. As a result, conditioning on MNA surprises removes non-fundamental sources of variability and yields smoother series that capture a narrower informational channel.

In general, these figures indicate that macroeconomic news surprises align more closely with uncertainty measures grounded in economic fundamentals and financial expectations, while playing a more limited role in explaining the volatility of news-based uncertainty indicators.

MNAUI is then used in a Local Projection framework in the next step of the analysis. We estimate the Impulse Response Function of the economic activity to the uncertainty shocks driven by the arrival of macroeconomic announcement news surprises to be compared with the IRF coming from the correspondent original uncertainty measures.

4.3.3 Economic activity response to MNAUI innovations

We explore the relationship between uncertainty and economic activity using Local projection analysis. In particular, we fit a system to a monthly bivariate framework with the following order: the $MNAUI_t$ index and real economic activity (industrial production) growth. Our baseline specification includes four lags of all variables.

The reduced-form representation is:

$$z_t = \psi(L)z_{t-1} + \eta_t \quad (4.4)$$

where $z_t = [MNAUI_t, ipi_t]$, $\psi(L)$ is a polynomial in the lag operator of order 4, $\eta_t \sim N(0, \Omega)$ is the vector of residuals with variance-covariance matrix Ω . The baseline models are estimated for all the different versions of *MNAUI* obtained at the previous step (VIX-based *MNAUI*, Model-based JLN *MNAUI*, news-based Global EPU at current value *MNAUI*, news-based Global EPU at PPP value *MNAUI*, news-based World Uncertainty Index *MNAUI*, Web Search-based *MNAUI*) and for real economic activity of eight geographical areas/countries chosen to cover the three main Time Zones: World, Advanced Economies, United States (American Time Zone), Euro Zone, United Kingdom (European Time Zone), Japan (Asian Time Zone), Emerging Economies, China (Asian Time Zone). Baseline models also include equation-specific constants.

As indicated above, we order the MNA surprise index first, as in [Ahir et al. \(2022\)](#), [Baker et al. \(2016\)](#), among others, consistent with the assumption that the information arrival is exogenous. In particular, the $MNAUI_t$, which represents that part of uncertainty explained by macroeconomic announcement surprises, is ordered first. In addition, the assumption that the surprise indices are exogenous is consistent with [Corneli et al. \(2023\)](#), and it has been confirmed by Granger causality tests.

The Impulse Response of the real economic activity to a one-standard-deviation shock to $MNAUI_t$ is calculated through a Local Projection technique ([Jordà \(2023\)](#), [Jordà and Taylor \(2025\)](#), [Montiel Olea et al. \(2025\)](#)), as follows:

$$y_{t+h} = \mu + \theta_h^{LP} x_t + \gamma'_h r_t + \sum_{l=1}^p \delta'_{h,l} w_{t-l} + \epsilon_{h,t} \quad (4.5)$$

where y_{t+h} is the Industrial Production Index (*ipi*), x_t is the $MNAUI_t$, r_t is a contemporaneous control, $w_t = (r'_t, x_t, y_t)$ collects all variables included as lagged controls.

The local-projection IRF is negative and persistent as expected. Figure 4.3 shows that the response of the World industrial production index to a one-standard-deviation shock to the model-based (JLN) *MNAUI* reaches a (negative) peak of -1.2% in less than two years (19 months), taking more than three years to be reabsorbed. The IRF is also statistically significant and negative, in line with the results obtained within the empirical literature on uncertainty ([Bloom \(2009\)](#), [Baker et al. \(2016\)](#), [Ahir et al. \(2022\)](#)).

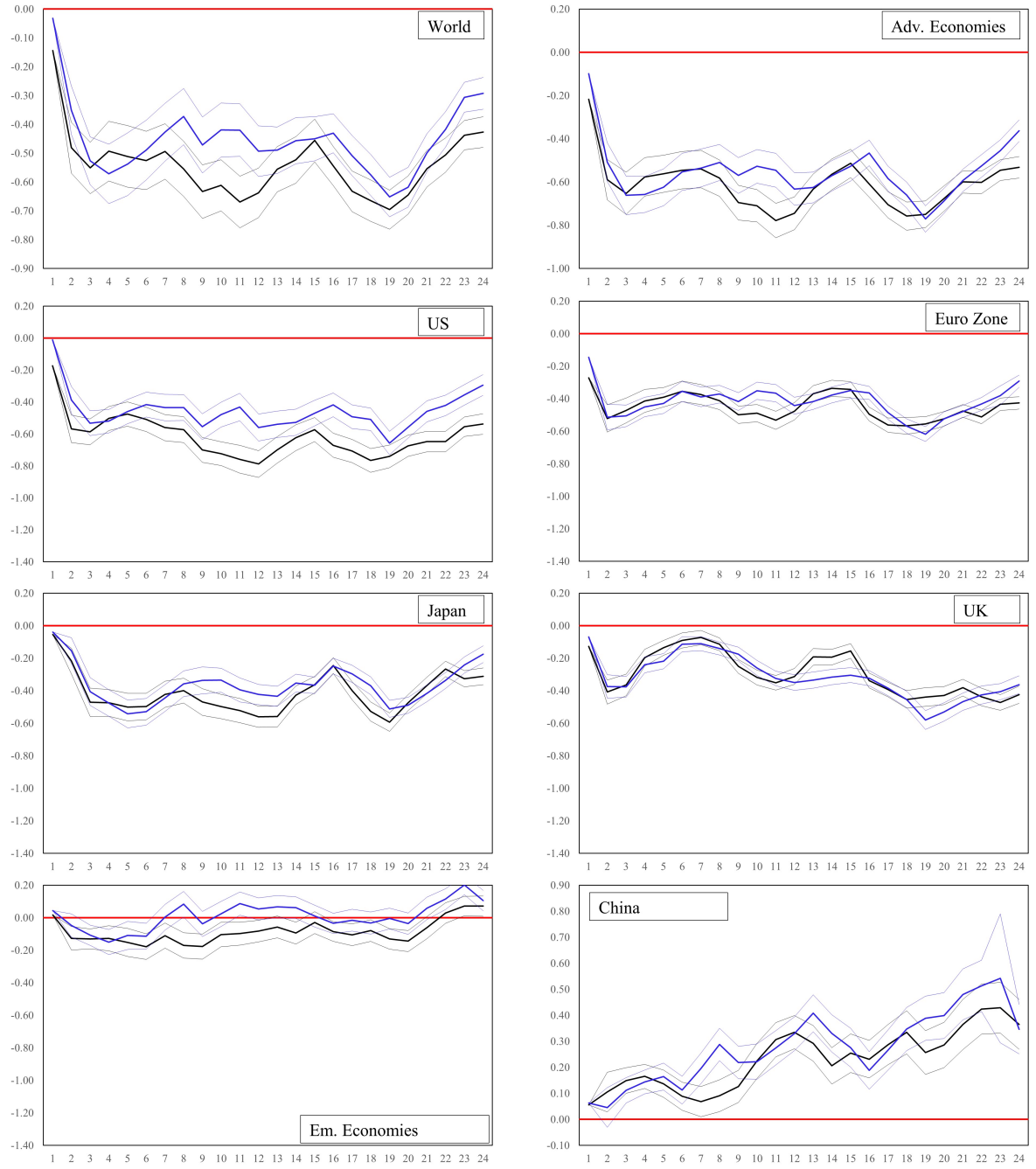


Figure 4.2: *Response of industrial production to Financial Volatility (VIX)-based MNAUI (black lines) and to original Financial Volatility (VIX) Index (blue lines).* IRFs are estimated following Equation (4.5). Size of the shock: one standard deviation. Solid line: Point estimates. Dotted lines: 95% confidence interval. Sample period: January 2000 - April 2023. Time sample goes from 01/03/2000 to 04/28/2023.

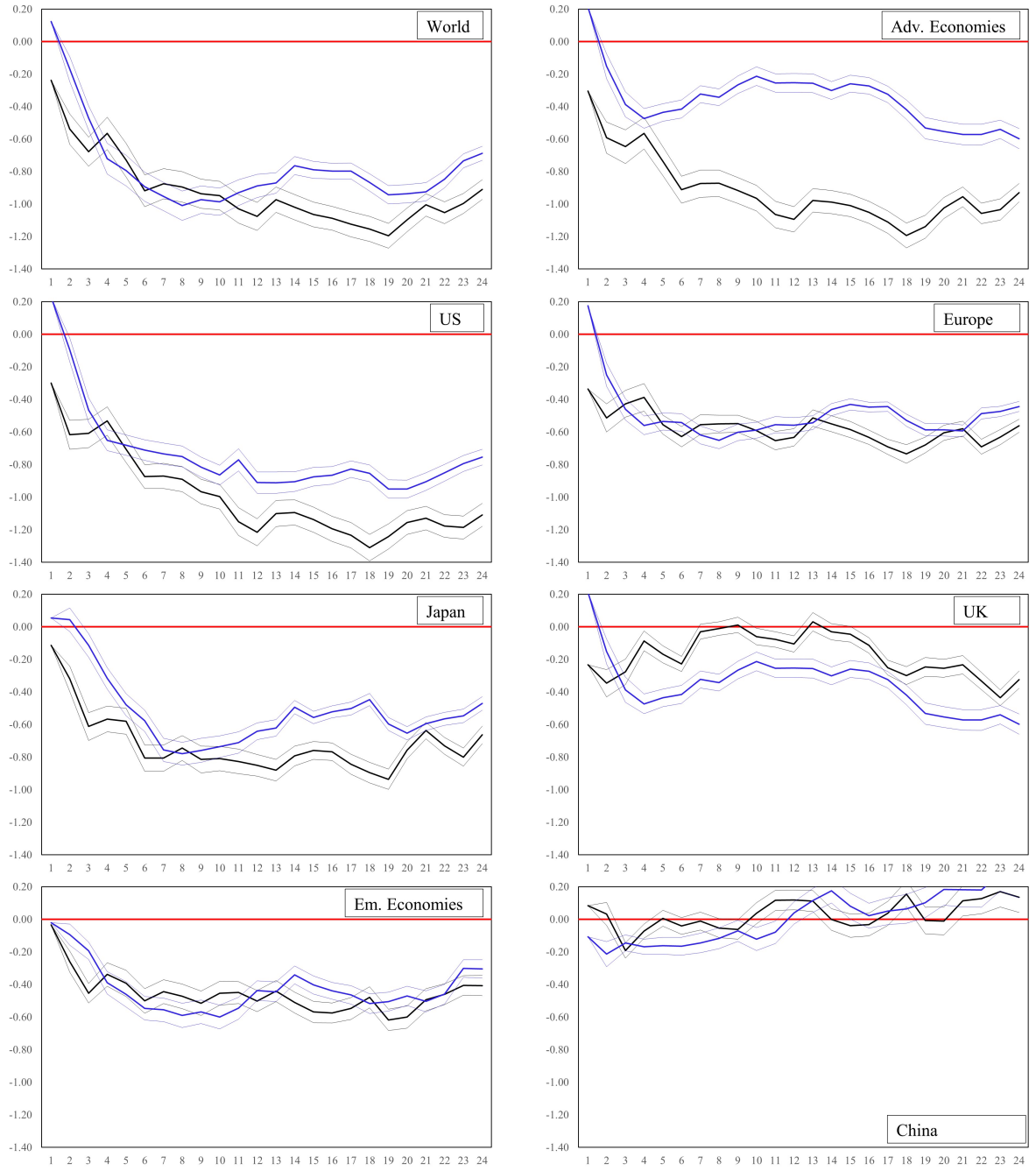


Figure 4.3: *Response of industrial production to model (JLN)-based MNAUI (black lines) and to original model-based (JLN) Uncertainty Index (blue lines).* IRFs are estimated following Equation (4.5). Size of the shock: one standard deviation. Solid line: Point estimates. Dotted lines: 95% confidence interval. Sample period: January 2000 - April 2023. Time sample goes from 01/03/2000 to 04/28/2023.

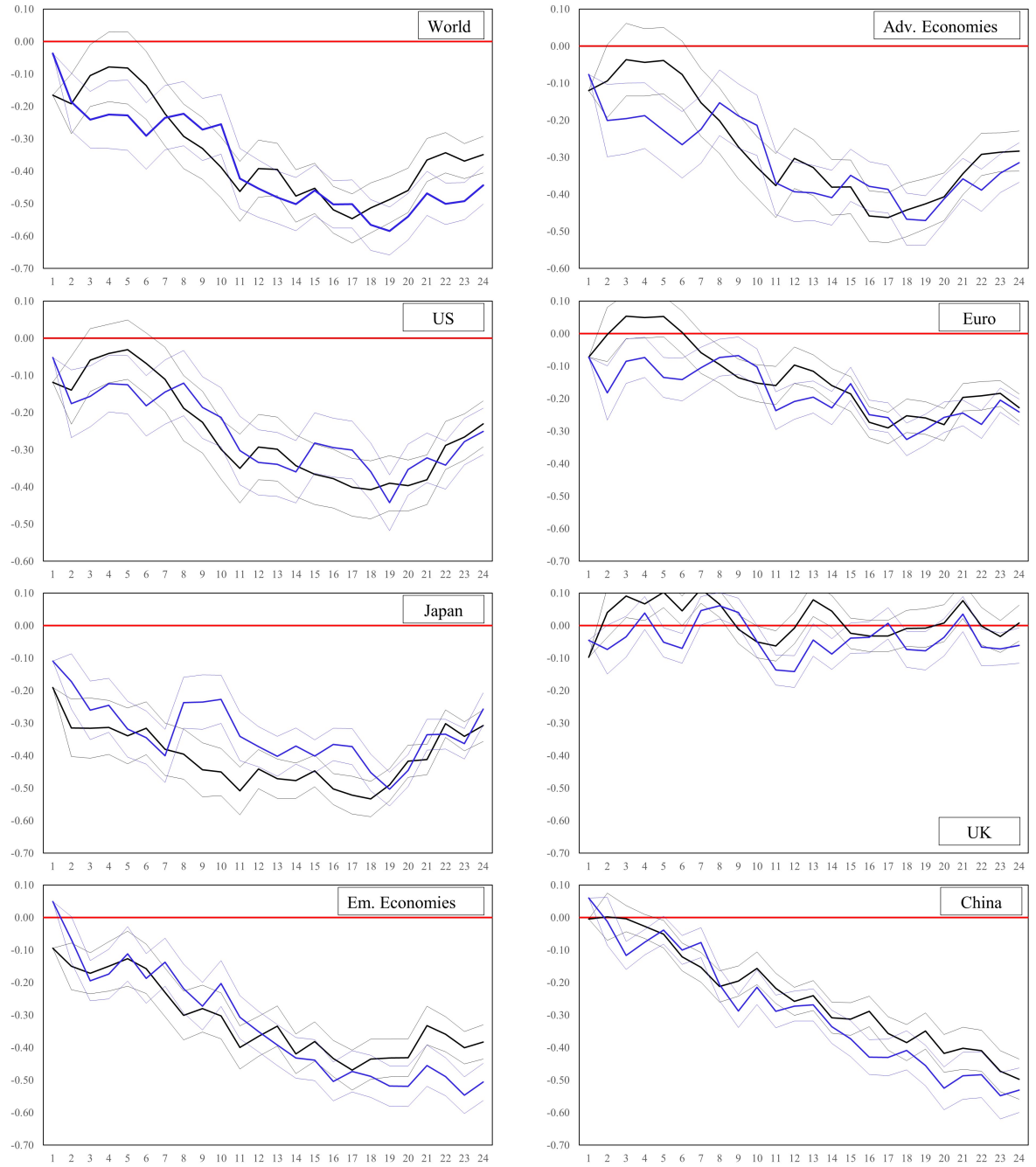


Figure 4.4: *Response of industrial production to GEPU (Current prices)-based MNAUI (black lines) and Global EPU Index (blue lines). IRFs are estimated following Equation (4.5). Size of the shock: one standard deviation. Solid line: Point estimates. Dotted lines: 95% confidence interval. Sample period: January 2000 - April 2023. Time sample goes from 01/03/2000 to 04/28/2023.*

In particular, Figures 4.2, 4.3 and 4.4 compare local-projections responses of Industrial Production Indices to $MNAUI_t$ innovations with the responses to the corresponding original uncertainty measures.

The empirical evidence points to a systematic heterogeneity in the real effects of uncertainty once the component associated with MNA surprises is isolated. In particular, uncertainty measures that condition on MNA surprises and are derived from the model-based index of Jurado, Ng, and Ludvigson and from the financial uncertainty proxy (VIX) produce markedly larger and more persistent declines in industrial production relative to those obtained using the corresponding original indices. The amplification is especially strong for the model-based measure, indicating that the uncertainty captured by forecast-error volatility becomes more relevant for real activity when it is explicitly linked to unanticipated macroeconomic information. This finding suggests that MNA surprises operate as an informational shock that sharpens agents' beliefs about future economic fundamentals, thereby increasing the effective degree of uncertainty faced by firms and households at the time decisions are made.

By contrast, extracting the MNA-related component from the Global Economic Policy Uncertainty (GEPU) index yields responses that are largely indistinguishable from those generated by the original GEPU measure, consistent with the interpretation that news-based indices already embed the information content of macroeconomic announcements through media coverage. From a theoretical perspective, these results are consistent with real options models in which heightened uncertainty delays irreversible investment, belief-updating frameworks in which unexpected macroeconomic news increases posterior uncertainty, and models with information rigidities where discrete information arrivals generate nonlinear real responses. Overall, the findings highlight that the real effects of uncertainty depend critically on whether uncertainty is activated by new macroeconomic information, rather than on the level of perceived uncertainty alone.

The evidence across geographical aggregates also points to the presence of international spillover effects of uncertainty shocks. Since macroeconomic announcements often originate in large economies (e.g., the United States or the Euro Area) and are rapidly incorporated into global information sets, the resulting uncertainty shocks are not confined to the country of origin.

Instead, they propagate across economies through multiple channels. First, financial channels transmit uncertainty internationally via global asset prices and risk premia, affecting financing conditions across countries. Second, trade linkages propagate the effects of uncertainty as revisions in expected demand in one region translate into changes in export prospects for its trading partners. Third, expectation channels play a key

role, as globally relevant news induces synchronized belief updating among firms and households operating in different economies.

These mechanisms imply that information-driven uncertainty has an inherently global dimension, even when triggered by country-specific announcements, contributing to the co-movement of real activity observed across regions.

The stronger real effects associated with the MNA-driven component of uncertainty can be interpreted through the lens of information frictions and forward-looking decision-making. When uncertainty is triggered by macroeconomic news surprises, agents are forced to revise their expectations about future economic fundamentals in a discrete and potentially abrupt manner. This process increases not only the dispersion of beliefs but also the perceived risk surrounding baseline forecasts, leading firms to postpone investment and hiring decisions and households to delay consumption, especially for durable goods.

In this context, information-driven uncertainty differs from more persistent or sentiment-based measures in that it is directly tied to revisions in the expected path of fundamentals. As a result, it generates stronger short-run real effects because it affects decision-making at the time expectations are updated. The persistence of the responses suggests that the effects of these information shocks are not fully absorbed on impact, but propagate over time as agents gradually adjust their plans and as complementarities in production and demand amplify the initial contraction.

The evidence across geographical aggregates also points to the presence of international spillover effects of uncertainty shocks. Since macroeconomic announcements often originate in large economies (e.g., the United States or the Euro Area) and are rapidly incorporated into global information sets, the resulting uncertainty shocks are not confined to the country of origin. Instead, they propagate across economies through multiple channels.

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These mechanisms imply that information-driven uncertainty has an inherently global dimension, even when triggered by country-specific announcements, contributing to the co-movement of real activity observed across regions.

The results of this study offer several cautious insights for monetary policy analysis

and macroeconomic surveillance. The evidence suggests that uncertainty associated with unexpected macroeconomic information is more closely linked to real economic fluctuations than uncertainty measures based primarily on media narratives or search behavior.

In particular, the stronger real effects observed for the MNA-driven components of model-based and financial uncertainty indicate that discrete information arrivals about macroeconomic fundamentals may be an important factor shaping short-run economic dynamics. From a policy perspective, this finding highlights the potential value of complementing existing uncertainty indicators with measures that explicitly capture the informational content of macroeconomic announcements. At the same time, the results do not imply that news-based or perception-based uncertainty measures are uninformative; rather, they suggest that such measures may reflect broader and more persistent sentiment that is less tightly connected to immediate movements in real activity. Finally, while transparency and timely information dissemination remain central elements of modern central banking, the findings underscore the importance of understanding how unexpected information releases interact with agents' expectations and decision-making. Careful interpretation of macroeconomic surprises and their associated uncertainty may therefore contribute to a more nuanced assessment of cyclical risks, without implying specific changes to established policy frameworks.

4.3.4 Sensitivity analysis

The results from the LP model in Equation (4.5) are robust to extensive checks. Figure 4.5 reports the sensitivity analysis conducted on IRFs of global economic activity after a one-standard deviation shock on the model-based JLN $MNAUI_t$ (other IRFs for the full set of countries are available upon request).

First, our sample covers several periods of severe economic and financial turbulence. To show that the results do not depend on the choice of the sample period, we replicate the IR analysis over alternative sub-samples of the same length (8 years), such as 2000-2007, 2008-2015, and 2016-2023. As can be seen in Panel 1) of Figure 4.5, the responses show similar paths and persistence as the baseline but with different magnitudes. The responses are all negative, statistically significant and persistent over time.

Second, we estimate the $MNAUI$ using an automatic model selection procedure with a 95% confidence level filter to estimate Equation (4.2). To demonstrate that the results are robust both to alternative confidence levels and to the absence of any automatic selection method, we estimate surprise indices by applying alternative confidence level

filters to the automated model selection procedure (in particular 90% and 99% confidence level) and without applying any automatic selection method. The responses reported in Panel 2) of Figure 4.5 confirm the robustness of the baseline.

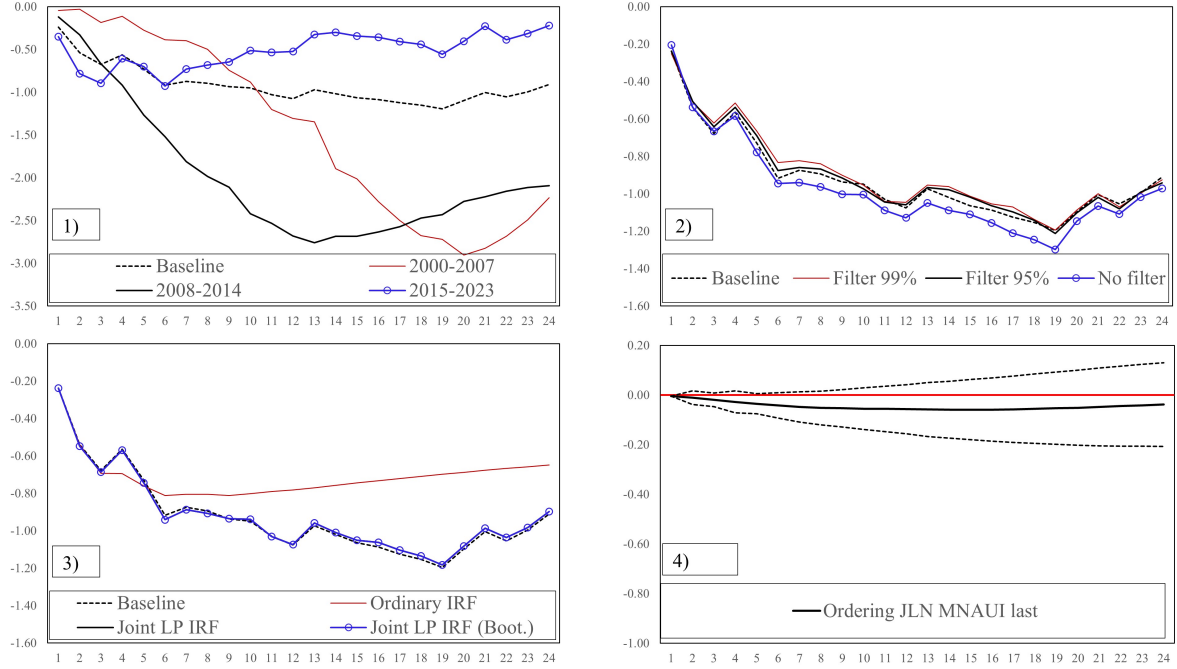


Figure 4.5: *Sensitivity analysis*. IRFs are estimated following Equation (4.5). Size of the shock: one standard deviation. Solid line: Point estimates. Dotted lines: 95% confidence interval. Sample period: January 2000 - April 2023. Time sample goes from 01/03/2000 to 04/28/2023.

Third, we estimate the baseline specification by applying alternative estimation methodologies such as ordinary VAR, Joint Local Projection, Joint Local Projection IRF with Bootstrap. The IRFs reported in Panel 3) of Figure 4.5 show a profile similar to that of the baseline.

The fourth issue concerns our identification strategy, which relies on a Cholesky decomposition conditional on a vector with surprise-based uncertainty indices ordered first. This assumption is in line with the uncertainty literature, but it is tested by inverting the variable ordering in the LP transmission mechanism. In other words, we order the MNA surprise-based index after the macro variables: $[x_t = ipi_t, MNAUI_t]$. Panel 4) of Figure 4.5 confirms that the IRF of the *MNAUI* is not statistically significant at the 5% level in response to an industrial production shock.

4.4 Conclusions

This paper investigates how MNA surprises shape the measurement and real effects of economic uncertainty. We propose a new data-driven uncertainty index, the *MNAUI*, which captures uncertainty associated with unanticipated macroeconomic information releases. By using MNA surprises as an information filter, we disentangle the component of uncertainty driven by macroeconomic news from both news-based and model-based uncertainty measures and study their effects on industrial production.

Our empirical results reveal a systematic asymmetry. Isolating the MNA-driven component of model-based uncertainty significantly amplifies its contractionary impact on real activity, suggesting that macroeconomic announcements play a central role in transforming latent forecast uncertainty into economically operative uncertainty. In contrast, extracting the same component from a news-based measure of uncertainty yields effects that are quantitatively similar to those obtained using the original index, indicating that macroeconomic news is already largely incorporated into media-based measures by construction.

These findings have several implications for the empirical uncertainty literature. First, they underscore that differences in the estimated real effects of uncertainty cannot be attributed solely to econometric specification or identification choices, but also depend critically on the informational structure of the uncertainty measure itself. Second, they highlight the importance of distinguishing between uncertainty arising from genuine revisions in economic fundamentals and changes in perceived or narrated uncertainty. Finally, by introducing the *MNAUI*, this paper provides a new tool for studying information-driven uncertainty and its macroeconomic consequences, opening avenues for future research on the interaction between macroeconomic news, expectation formation, and real economic dynamics.

From a policy perspective, our findings indicate that central banks should pay particular attention to uncertainty arising from unexpected macroeconomic information, as this component amplifies the real effects of both model-based and financial uncertainty, while uncertainty measured through media narratives or search behavior appears to be less relevant for short-run real activity.

Chapter 5

Conclusions and Further Developments

5.1 Conclusions and Further Developments

The role of unanticipated information in shaping macroeconomic dynamics has long been recognized in both theoretical and empirical research, yet its mechanisms, persistence, and policy relevance remain complex and multifaceted. This dissertation addresses this challenge by focusing on the arrival of unanticipated macroeconomic information and its effects on three fundamental domains: business confidence, inflation expectations, and economic uncertainty. Across three complementary studies, we systematically examine how unexpected news from macroeconomic announcements propagates through the economy, alters agents' beliefs, and ultimately affects real economic outcomes. Rather than treating these three domains in isolation, the dissertation constructs a unified conceptual framework in which information shocks operate simultaneously through three interlocking channels — confidence, expectations, and uncertainty — each of which reinforces and interacts with the others in a state-dependent and institutionally mediated manner. By integrating these analyses, the dissertation advances both the empirical and theoretical understanding of how the informational structure of macroeconomic announcements — not merely their content — determines their real economic effects, with direct implications for macroeconomic modelling, central bank communication, and the design of stabilization policy.

The first chapter, *Macroeconomic Announcements, Confidence and Economic Activity Through the Business Cycles*, introduces the *Business Confidence Surprise Index* (BCSI) and the *Industrial Production Surprise Index* (IPSI), constructed to isolate the

unanticipated component of macroeconomic announcements. Using an extensive panel of advanced economies, we analyze how these surprise shocks influence business confidence and industrial production over the period 2000–2023, encompassing multiple business cycles, episodes of financial distress, and periods of geopolitical turbulence. Empirical results demonstrate that unexpected macroeconomic news is a significant driver of both confidence and real activity, confirming the “news view” perspective: economic agents systematically adjust their beliefs in response to information revisions rather than purely sentiment-based waves (Benhabib et al. (2016); Barsky and Sims (2011)). Time-varying analyses reveal that the sensitivity of economic activity to news is markedly higher during periods of financial stress or low confidence, indicating a state-dependent amplification mechanism that strengthens the real effects of information shocks. The use of automated model selection procedures, such as Autometrics, ensures that the identified surprise components robustly capture relevant information, providing a rigorous empirical foundation for analyzing transmission mechanisms across countries.

These findings contribute to the broader literature on macroeconomic news and expectation formation by providing direct empirical support for models in which agents update beliefs on the basis of genuine informational revisions rather than extrinsic noise or animal spirits. The BCSI and IPSI operationalize the concept of a news shock as a measurable, statistically identified quantity, bridging the gap between theoretical constructs and empirical implementation. Crucially, the state-dependent amplification documented in this chapter implies that linear macroeconomic models — which typically treat news shocks as homogeneous innovations to exogenous processes — may systematically underestimate the propagation of information-driven disturbances during periods of stress. Models that fail to account for the conditional sensitivity of agents to incoming information will produce biased impulse responses and inaccurate forecasts precisely during the episodes of financial distress or low confidence when accurate modelling matters most. Chapter 1 thus lays the empirical groundwork for the subsequent analyses: if macroeconomic surprises systematically shift confidence and output, they also constitute the informational environment within which inflation expectations are formed and uncertainty is generated, establishing the conceptual linkages that run through the entire dissertation.

From a policy perspective, these findings underscore the instrumental role of timely and credible economic data releases. Statistical agencies and central banks, by shaping the informational environment, indirectly influence macroeconomic outcomes. During periods of heightened uncertainty or crisis, well-communicated and accurate data can mitigate self-fulfilling pessimism, stabilize expectations, and enhance the effectiveness

of other policy instruments. Conversely, inconsistent or delayed information may exacerbate volatility, reinforcing the need for careful planning of announcement schedules, clarity in methodology, and transparency regarding revisions. This insight extends the literature on central bank communication by suggesting that the transparency and credibility of statistical releases — not only of monetary policy decisions — constitute an active stabilization tool, particularly during periods of low confidence or financial stress when agents are most sensitive to new information.

The second chapter, “*Anchoring inflation expectations under different monetary policy conditions*”, extends this framework to the domain of inflation expectations, examining how macroeconomic announcement surprises affect market-based expectations across maturities in the United States, the United Kingdom, and the Euro Area over 2008–2023. Using daily inflation-linked swap rates, we show that macroeconomic news predominantly impacts short-term expectations, with effects gradually decaying over longer horizons (Bauer (2018); Nautz and Strohsal (2015)). Cross-country heterogeneity is substantial: responsiveness is highest in the United Kingdom, followed by the United States, and lowest in the Euro Area. This variation reflects differences in institutional design, financial market depth, and communication practices, emphasizing that the transmission of information is not uniform but context-specific. Moreover, the impact of news is highly state-dependent: easing cycles amplify responses to macroeconomic surprises, whereas the proximity to the effective lower bound attenuates these effects, highlighting the constraints faced by conventional monetary policy in low-rate environments.

These results contribute to the broader literature on inflation anchoring and expectation formation by demonstrating that the degree to which expectations remain anchored is not a fixed institutional property but a dynamic outcome shaped by the ongoing interaction between monetary policy regimes, market conditions, and the flow of macroeconomic information. In particular, the finding that easing cycles amplify the sensitivity of expectations to news has direct implications for macroeconomic modelling: it suggests that the information channel of monetary policy — through which the prevailing policy stance alters agents’ responsiveness to incoming data — may be as consequential as the conventional interest rate channel in shaping expectation dynamics. Standard models that treat expectation anchoring as a fixed parameter of the policy regime may therefore fail to capture the endogenous feedback between policy communication, market expectations, and the informational environment, particularly in non-standard monetary conditions. Chapter 2 thus connects the state-dependent amplification documented in Chapter 1 to inflation expectations, showing that the same

conditional sensitivity mechanism governs both the confidence-output nexus and the anchoring of inflation expectations, reinforcing the conceptual unity of the dissertation.

These results have important implications for central banks and monetary policymakers. They demonstrate that the anchoring of inflation expectations is dynamic, influenced both by the informational environment and by policy regimes. Effective policy requires not only technical interventions but also strategic management of expectations: forward guidance, clear and consistent communication, and credible commitment to policy objectives become essential tools, particularly when conventional instruments such as interest rate adjustments are limited. The findings also indicate that macroeconomic surprises can provide valuable feedback to policymakers regarding the credibility of their commitments and the efficiency of communication channels, reinforcing the need for continuous monitoring of expectation dynamics across maturities and markets. In this context, the cross-country heterogeneity documented in Chapter 2 implies that there is no universal template for effective central bank communication: the optimal design of forward guidance must be tailored to the specific institutional context, the depth of financial markets, and the prevailing monetary policy regime, underscoring the limits of one-size-fits-all communication strategies.

The third chapter, “*Measuring Information-Driven Uncertainty: A Macroeconomic News Announcement–Based Uncertainty Index*”, addresses the measurement and real effects of economic uncertainty, focusing on the informational content of macroeconomic announcements. By constructing the *MNAUI*, we isolate the portion of uncertainty directly attributable to unanticipated macroeconomic information, distinguishing it from broader news-based or model-based measures (Jurado et al. (2015); Baker et al. (2016)). Our empirical findings reveal that uncertainty driven by fundamental information amplifies the contractionary effects of model-based uncertainty on industrial production, whereas the effects of news-based uncertainty remain largely unchanged. This asymmetry underscores that not all forms of uncertainty are equally consequential: those arising from genuine revisions in economic fundamentals have the most potent influence on real activity. For policymakers, this highlights the importance of discerning the sources of uncertainty and tailoring interventions accordingly. Interventions aimed at reducing the real effects of information-driven uncertainty — through communication, preemptive guidance, or policy coordination — can be significantly more effective than those targeting narrative- or perception-driven uncertainty alone.

From a theoretical standpoint, Chapter 3 advances the uncertainty literature by providing a framework for decomposing aggregate uncertainty into its fundamental-information and sentiment components. This decomposition has direct implications for

macroeconomic modelling. Standard uncertainty indices — whether news-based like the measure of [Baker et al. \(2016\)](#) or model-based like the measure of [Jurado et al. \(2015\)](#) — conflate distinct sources of uncertainty that may have heterogeneous propagation mechanisms and policy implications. By demonstrating that only information-driven uncertainty systematically amplifies the contractionary effects on output, the MNAUI provides a theoretically motivated criterion for selecting the appropriate uncertainty measure in structural analyses. Embedding the MNAUI into a structural framework alongside a model-based uncertainty measure would allow researchers to separately identify the macroeconomic effects of fundamental-information uncertainty versus sentiment-driven uncertainty, potentially resolving some of the mixed empirical evidence on the output effects of uncertainty shocks present in the existing literature. Chapter 3 thus closes the conceptual loop of the dissertation: having established that information shocks shift confidence and expectations in Chapters 1 and 2, Chapter 3 shows that the same shocks generate fundamental uncertainty with first-order real consequences, completing the picture of simultaneous propagation through all three channels.

When considered together, the three studies illuminate a coherent and analytically integrated argument about the macroeconomic role of information. The unifying conceptual insight is that unanticipated macroeconomic news operates simultaneously through three interlocking channels. First, via confidence: surprise shocks directly update agents' assessments of the state of the economy, shifting business confidence and, through it, investment and output decisions. Second, via inflation expectations: information shocks recalibrate market participants' beliefs about future price dynamics, with the degree of recalibration depending on the maturity structure of expectations, the monetary policy regime, and institutional context. Third, via uncertainty: fundamental information shocks generate genuine uncertainty about the distribution of future economic outcomes, which amplifies the contractionary effects of other uncertainty measures on real activity. These three channels are not independent. An adverse macroeconomic surprise simultaneously depresses confidence, shifts inflation expectations toward shorter horizons, and raises fundamental uncertainty, generating mutually reinforcing dynamics that can substantially magnify the aggregate impact of the initial shock. The state-dependence observed across all three chapters — amplification during financial stress, low confidence, or monetary easing — reflects the endogenous interaction between these channels and the prevailing macroeconomic environment, indicating that the propagation of information shocks is intrinsically non-linear and cannot be adequately captured by standard linear models.

This unified framework goes beyond existing accounts that tend to analyze news,

expectations, and uncertainty as separate phenomena, and instead proposes a more integrated view in which they constitute complementary and mutually reinforcing facets of the same informational transmission process. Importantly, the findings collectively establish that the informational structure of macroeconomic announcements — not merely their content — is critical for determining real economic effects. Only shocks conveying genuine new information systematically influence behavior and outcomes, whereas purely narrative-driven or sentiment-driven shocks have weaker effects. This distinction, demonstrated empirically across three separate but interrelated domains, carries substantial implications for both empirical methodology and macroeconomic theory. In structural macroeconomic models, the conventional treatment of shocks as homogeneous innovations to exogenous processes may obscure important heterogeneity in propagation mechanisms. The evidence from this dissertation suggests that explicit identification of the informational content of shocks — through surprise-based indices of the kind developed here — is essential for accurately characterizing the dynamic responses of confidence, expectations, and uncertainty to macroeconomic disturbances.

The implications for policy are multifaceted and far-reaching. In the context of business confidence and output, timely and accurate economic releases act as stabilizers, reducing the likelihood of self-fulfilling pessimism and facilitating informed decision-making by firms and households. For inflation expectations, the dynamic nature of anchoring underscores the importance of clear and credible communication, particularly during periods of easing or when conventional policy tools are constrained. In managing uncertainty, distinguishing between fundamental-information-driven shocks and perception-driven noise is essential for effectively calibrating interventions. Across all domains, proactive information management emerges as a policy instrument in its own right, complementing traditional monetary and fiscal tools and enhancing their overall effectiveness. Concretely, these findings suggest that central banks and statistical agencies should coordinate the timing, framing, and content of data releases with monetary policy communication, ensuring that the informational environment reinforces rather than undermines the intended policy stance. In periods of stress, when agents are most sensitive to new information, such coordination can have first-order effects on confidence, expectations, and uncertainty, with direct consequences for the transmission of both fiscal and monetary impulses. The cross-country evidence presented in Chapter 2 further implies that the design of communication strategies cannot be divorced from the institutional and market context in which they operate: what constitutes effective forward guidance in one economy may generate excessive volatility in another, depending on financial market depth and the prevailing credibility of the central bank.

This dissertation also identifies multiple avenues for future research, each grounded in and directly motivated by the empirical framework and findings developed across the three chapters. First and foremost, there is a clear opportunity for comparative studies extending the analysis to a broader set of advanced and emerging economies. While the current work has focused on major economies such as the United States, the United Kingdom, the Euro Area, Japan, Germany, France, Italy, and Spain, a natural extension would be to include a more diverse array of countries, particularly those with different institutional arrangements, market structures, and levels of financial development. By incorporating economies with varying degrees of data transparency, central bank independence, and communication strategies, researchers could investigate how these structural features moderate the transmission of unanticipated macroeconomic news. For example, in economies with less developed financial markets, the speed and intensity with which surprise shocks affect expectations and real activity may be dampened or delayed, whereas in highly liquid and integrated markets, news shocks may propagate rapidly and with amplified effects. Such cross-country comparisons could also illuminate the role of information frictions, regulatory environments, and the credibility of monetary authorities in shaping the persistence and magnitude of information-driven economic fluctuations. Crucially, this extension would allow direct testing of whether the state-dependent amplification mechanisms documented in Chapters 1 and 2 are universal features of information propagation or products of the specific institutional configurations of the economies examined, with the BCSI and IPSI providing the natural empirical foundation for such internationally comparable analyses.

Moreover, these comparative studies could investigate the interaction between economic size, global interconnectedness, and informational spillovers. Emerging economies that are heavily integrated into global supply chains or financial markets may experience stronger spillover effects from unanticipated news originating in larger advanced economies. For instance, a surprise macroeconomic announcement in the United States or Euro Area could disproportionately influence expectations and investment decisions in Latin American or Southeast Asian economies due to trade linkages, capital flows, and currency dynamics. By systematically examining a broader sample of countries, future research could quantify the extent to which global informational shocks contribute to synchronized business cycle fluctuations, providing insights that are crucial for both national policymakers and international financial institutions.

Following this direction involves the systematic study of the interaction between information shocks and international spillovers. While this dissertation provides evidence that unanticipated macroeconomic information has substantial domestic effects, the in-

ternational propagation of such shocks remains a fertile ground for further investigation. Global vector autoregressive (GVAR) models could be employed to trace the channels through which surprise announcements in one economy influence expectations, confidence, and real activity in others, building directly on the BCSI and IPSI as measures of the informational shock in the originating country. This line of inquiry would shed light on the relative importance of trade linkages, financial interconnections, and cross-border policy coordination in mediating the transmission of information-driven shocks. For instance, macroeconomic surprises in the United States may impact industrial production and inflation expectations in Europe through exchange rate movements, interest rate adjustments, and shifts in global supply chains. Understanding these channels is essential for the design of effective international policy coordination, particularly in periods of synchronized crises or global uncertainty.

A second avenue for further research, closely connected to the empirical framework of this dissertation, involves the integration of surprise-based indices and information-driven uncertainty measures into structural macroeconomic models. The indices developed in this dissertation — the *BCSI*, the *IPSI*, and the *MNAUI* — offer rich, high-frequency measures of unanticipated information flows and the resulting updates to expectations. Embedding these indices into vector autoregressive frameworks would allow for more accurate forecasting, scenario analysis, and policy experimentation. By explicitly incorporating information shocks as a driver of economic fluctuations, macroeconomic models could better capture the state-dependent responses observed in the empirical analysis, such as the amplification of news effects during periods of financial distress or monetary easing. This integration would also permit counterfactual simulations to assess the potential benefits of improved data dissemination, more transparent communication, or targeted policy interventions aimed at stabilizing expectations and mitigating the propagation of shocks. More specifically, the *MNAUI* could be introduced as a separate, identified shock in a structural framework alongside a standard model-based uncertainty measure, allowing researchers to separately estimate the responses of output and employment to fundamental-information uncertainty versus sentiment-driven uncertainty — a decomposition that directly addresses the theoretical ambiguity present in the existing uncertainty literature and provides clearer guidance for policy design.

Furthermore, an important avenue for future research concerns the methodological framework used to identify the MNA that enter the construction of the indices proposed in this dissertation. The Business Confidence Surprise Index, the Industrial Production Surprise Index, and the Macroeconomic News Announcement Uncertainty Index rely on

the selection of relevant macroeconomic surprises from a large pool of macroeconomic releases. In the empirical applications developed in this dissertation, the identification of the most informative announcements is implemented through automated model selection procedures, following the general-to-specific modelling strategy embodied in the Autometrics algorithm ([Doornik \(2009\)](#)). This approach allows the data to determine which announcements contain the most relevant informational content while maintaining statistical coherence and controlling for over-parameterisation. Nevertheless, alternative selection strategies could further refine the identification of economically meaningful news shocks and potentially strengthen the robustness of the resulting indices. Extending the analysis in this direction would not only strengthen the empirical foundations of the indices but also contribute to the broader literature on information extraction from macroeconomic data. By systematically comparing alternative selection procedures, future research could provide clearer guidance on how best to isolate the subset of macroeconomic announcements that carries the most economically relevant information for expectations, confidence, and real activity.

In addition, there is scope for analyzing the role of monetary and fiscal policy in moderating the effects of unanticipated information. The dissertation has highlighted that the impact of macroeconomic surprises is state-dependent, with effects magnified during periods of low confidence, high uncertainty, or monetary easing. Future research could investigate optimal policy responses in such contexts, exploring how central banks and fiscal authorities might use pre-emptive communication, forward guidance, or unconventional instruments to attenuate the amplification of shocks. For example, the simultaneous release of policy signals alongside macroeconomic announcements might reduce misinterpretation and excessive volatility, stabilizing expectations and supporting real activity. Such coordination between statistical communication and monetary policy signaling could be evaluated empirically by comparing the response of expectations and asset prices to macroeconomic announcements released under different policy communication environments — a direct empirical extension of the analytical framework developed in Chapter 2. Similarly, fiscal interventions targeted at sectors or regions most sensitive to information shocks could mitigate localized contractions, providing a stabilizing effect on aggregate demand.

Another promising extension is the evaluation of heterogeneous effects across economic agents, sectors, and maturities. While the current work focuses on aggregate measures of confidence, inflation expectations, and uncertainty, more granular analyses could reveal important distributional consequences that are obscured at the aggregate level. For example, unanticipated macroeconomic news may affect long-term versus

short-term inflation expectations differently, as documented in this dissertation, but it may also influence small firms, large corporations, and households in distinct ways. Sectoral production responses to surprise shocks could vary according to capital intensity, exposure to international trade, or reliance on short-term financing. Understanding these heterogeneous effects would provide richer guidance for policymakers seeking to implement targeted interventions or communicate effectively with diverse economic actors, and would also offer a more granular test of the information transmission mechanisms identified across all three chapters of the dissertation.

Finally, future research could examine the interaction between media narratives, information dissemination channels, and real economic outcomes. While the *MNAUI* isolates the component of uncertainty arising from unanticipated macroeconomic announcements, the broader informational ecosystem — media reporting, analyst commentary, and social networks — also shapes perception, sentiment, and decision-making. Investigating how different communication channels amplify or dampen the effects of surprise shocks could enhance our understanding of expectation formation and reveal avenues for improving transparency and policy credibility. For instance, coordinated efforts by central banks and statistical agencies to provide consistent, accessible, and timely information could reduce misinterpretation, improve the anchoring of expectations, and stabilize economic activity during turbulent periods. Evaluating the effectiveness of such coordination strategies — for example by exploiting changes in central bank communication frameworks or the introduction of new data release protocols as natural experiments — would constitute a direct empirical test of the policy implications advanced throughout this dissertation, providing evidence on the value of information management as a policy instrument in its own right.

In conclusion, the potential avenues for future research identified in this dissertation are wide-ranging and highly consequential. Expanding the scope to include additional economies, integrating surprise-based indices into macroeconomic models, accounting for heterogeneous agent behavior, exploring international spillovers, refining methodological approaches to announcement selection, and examining policy and communication strategies together form a coherent and ambitious research agenda, each element of which is rooted in and motivated by the empirical framework developed across the three chapters. By pursuing these directions, future studies can provide deeper insights into how unanticipated macroeconomic information shapes confidence, expectations, uncertainty, and real economic outcomes, ultimately informing the design of more effective, evidence-based economic policies in a complex and interconnected global environment.

In summary, this dissertation demonstrates that unanticipated macroeconomic in-

formation is a central and persistent driver of economic behavior, operating simultaneously through confidence, inflation expectations, and uncertainty in a manner that is state-dependent, institutionally mediated, and cross-country heterogeneous. By developing robust empirical tools — the *BCSI*, *IPSI*, and *MNAUI* — and applying them systematically across multiple countries and policy regimes, the research bridges empirical evidence with theoretical modelling, providing a nuanced and analytically grounded understanding of how information shapes real economic outcomes. Crucially, the dissertation advances the existing literature by demonstrating that the distinction between fundamental-information-driven and sentiment-driven shocks is not merely methodological but carries substantive implications for the interpretation of macroeconomic fluctuations and the design of stabilization policy. From a policy perspective, the evidence underscores that managing the informational environment — through credible, timely, and transparent communication from both statistical agencies and central banks — is not a secondary concern but a core instrument of macroeconomic governance, complementing and enhancing the effectiveness of monetary and fiscal interventions in advanced economies. The coherence of this finding across three distinct empirical domains constitutes, in itself, a contribution to our understanding of the macroeconomic role of information, and points toward a research agenda in which the informational architecture of economies is treated not as a backdrop to policy but as one of its central determinants.

Appendix A

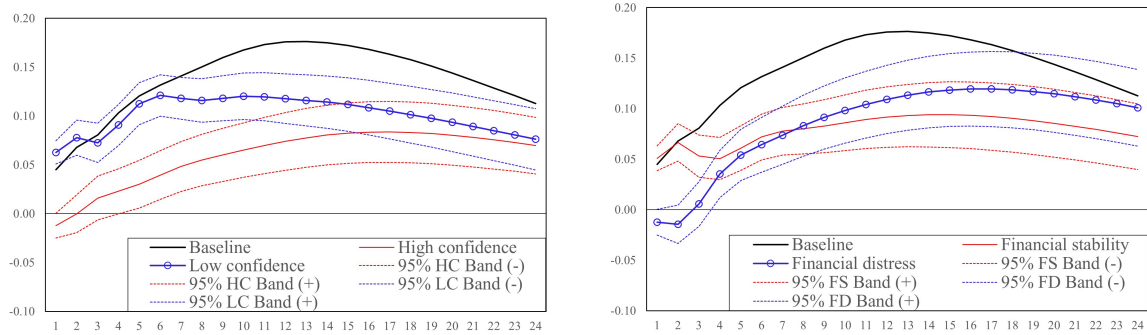
Appendix Chapter 2

A.1 Local projections

We then use **Jorda's local projection** method ([Jordà \(2005\)](#), [Ramey and Zubairy \(2018\)](#)) to estimate state-dependent impulse response functions. The Jorda method requires estimation of a series of regressions for each horizon h which can be adapted to estimating a **state-dependent model** as:

$$y_{t+h,i} = S_{t-1}[\psi_{S1,h,i}(L)z_{t-1,i} + \lambda_{S1,h,i}shock_{t,i}] + (1-S_{t-1})[\psi_{S2,h,i}(L)z_{t-1,i} + \lambda_{S2,h,i}shock_{t,i}] + \eta_{t,i} \quad (\text{A.1})$$

where $y_{t+h,i}$ is the variable of interest, $\psi_{h,i}$ is a polynomial in the lag operator, and $shock$ is the identified surprise shock as in the model (2.8) and S is a **dummy variable** that indicates the **state of the economy** when the shock hits.



In the left graph, we consider two states of optimism ($S1 = \mathbf{High\ confidence}$) when the Business Confidence Index is above the threshold of 100 points, and of pessimism ($S2 = \mathbf{Low\ confidence}$) when it is below this threshold. In the right graph, two states

are when a financial crisis occurred ($S1 = \mathbf{Financial\ crisis}$) and normal times ($S2 = \mathbf{No\ financial\ crisis}$). Fin. crises: 1) the Dot.com bubble (March 00 - Dec. 02), 2) the American Subprime Mortgage crisis (July 07 - Dec. 08), 3) the European Sovereign Debt crisis (November 11 - Dec. 11).

A.2 Additional Tables

Table A.1: *Unit root test results - Macroeconomic variables*

Test	ADF		PP		NG-Perron		Int. order
	(Levels)	(First Diff.)	(Levels)	(First Diff.)	(Levels)	(First Diff.)	
Business Confidence Indices							
United States	-4.2260***	—	-3.4675**	—	-30.7372***	—	I(0)
Japan	-3.2399*	-5.3762***	-2.8162	-4.5224***	-21.9074**	-28.5415***	I(1)
United Kingdom	-5.5263***	—	-3.2889*	-3.5135***	-60.7789***	—	I(0)
Germany	-5.1302***	—	-3.3870*	-3.2957***	-238.465***	—	I(0)
France	-4.3087***	—	-3.2785*	-3.5295***	-21.8071**	-38.5503***	I(0)/I(1)
Italy	-3.9251**	—	-3.2229*	-2.4963**	-19.0313**	-47.3976***	I(0)/I(1)
Spain	-2.9355	-6.8322***	-2.4659	-3.8109***	-14.1427*	-50.1553***	I(1)
Industrial Production Indices							
United States	-2.6117	-12.5297***	-2.7541	-13.3169***	-14.0189*	-178.039***	I(1)
Japan	-2.9411	-15.3976***	-3.3666*	-15.3976***	-15.0127*	-138.163	I(1)
United Kingdom	-2.8123	-12.2501***	-2.4546	-17.2630***	-11.8656	-138.549***	I(1)
Germany	-3.1027	-14.0657***	-3.0764	-16.0558***	-15.6550*	-23.7352***	I(1)
France	-4.6039***	—	-4.5355***	—	-32.2772***	—	I(0)
Italy	-3.0087	-14.7758***	-3.4112*	-17.0848***	-18.1465**	-219.139***	I(1)
Spain	-2.4512	-14.1296***	-2.0289	-13.9636***	-11.8549	-134.141***	I(1)

Notes: The table reports the Augmented Dickey–Fuller (ADF), Phillips–Perron (PP), and Ng–Perron unit-root test statistics for the business confidence and industrial production indices and for the corresponding BCSI and IPSI surprise indices. The Ng–Perron column reports the MZ_α statistic. The null hypothesis for all three tests is that the series contains a unit root. Tests are conducted in levels and, where necessary, in first differences. Specifications in levels include a constant and a linear trend, while those in first differences include a constant. Lag lengths are selected using the Schwarz information criterion, with a maximum of 15 lags; the PP bandwidth is selected automatically using the Newey–West method and the Bartlett kernel. *, **, and *** indicate rejection of the unit-root null hypothesis at the 10%, 5%, and 1% significance levels, respectively. A dash indicates that the corresponding statistic is not reported. $I(0)$ denotes stationarity in levels, whereas $I(1)$ denotes stationarity after first differencing. $I(0)/I(1)$ indicates mixed evidence concerning the order of integration across the tests. The sample period is January 2000–April 2023.

Table A.2: *Unit root test results - Surprise Indices*

Test	ADF		PP		NG-Perron		Int. order
	(Levels)	(First Diff.)	(Levels)	(First Diff.)	(Levels)	(First Diff.)	
BCSI							
United States	-6.9418***	—	-6.8978***	—	-64.6361***	—	I(0)
Japan	-4.9498***	—	-4.9219***	—	-46.0814***	—	I(0)
United Kingdom	-7.0403***	—	-5.9951***	—	-82.7660***	—	I(0)
Germany	-5.0702***	—	-5.2320***	—	-43.4979***	—	I(0)
France	-7.9408***	—	-6.3557***	—	-108.275***	—	I(0)
Italy	-6.6400***	—	-4.5917***	—	-77.0630***	—	I(0)
Spain	-7.1770***	—	-5.7966***	—	-99.9978***	—	I(0)
IPSI							
United States	-13.6867***	—	-12.3331***	—	-238.726***	—	I(0)
Japan	-12.5505***	—	-12.5349***	—	-127.847***	—	I(0)
United Kingdom	-15.4811***	—	-14.5636***	—	-294.714***	—	I(0)
Germany	-14.6117***	—	-14.2602***	—	-237.370***	—	I(0)
France	-15.8777***	—	-16.4907***	—	-274.123***	—	I(0)
Italy	-11.5379***	—	-22.9528***	—	-221.111***	—	I(0)
Spain	-13.7209***	—	-13.7600***	—	-225.534***	—	I(0)

Notes: The table reports the Augmented Dickey–Fuller (ADF), Phillips–Perron (PP), and Ng–Perron unit-root test statistics for the business confidence and industrial production indices and for the corresponding BCSI and IPSI surprise indices. The Ng–Perron column reports the MZ_α statistic. The null hypothesis for all three tests is that the series contains a unit root. Tests are conducted in levels and, where necessary, in first differences. Specifications in levels include a constant and a linear trend, while those in first differences include a constant. Lag lengths are selected using the Schwarz information criterion, with a maximum of 15 lags; the PP bandwidth is selected automatically using the Newey–West method and the Bartlett kernel. *, **, and *** indicate rejection of the unit-root null hypothesis at the 10%, 5%, and 1% significance levels, respectively. A dash indicates that the corresponding statistic is not reported. $I(0)$ denotes stationarity in levels, whereas $I(1)$ denotes stationarity after first differencing. $I(0)/I(1)$ indicates mixed evidence concerning the order of integration across the tests. The sample period is January 2000–April 2023.

Table A.3: *Macroeconomic Surprises Effects on Japanese Industrial Production*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.084	0.091	0.087	-
US Capacity Utilization	0.071	0.076	0.068	-
US Personal Income	0.053	0.058	0.051	-
US Retail Sales Index	0.096	0.105	0.099	0.090
US Core CPI (y/y)	-0.043	-0.047	-0.045	-
US Non-Farm Payroll Change	0.128	0.142	0.137	0.124
US Initial Jobless Claims	-0.109	-0.118	-0.113	-0.101
Ja. Unemployment	-0.162	-0.174	-0.169	-0.151
Ja. Core CPI (y/y)	-0.052	-0.058	-	-
Ja. Tankan B. Conf. Index	0.184	0.197	0.191	0.173
Ja. Cons. Conf. Index	0.091	0.097	0.093	-
UK Ind. Prod. (m/m)	0.104	0.112	0.107	0.096
UK PPI (y/y)	-0.041	-0.045	-	-
UK Ret. Sales (y/y)	0.074	0.081	0.078	-
UK Cons. Conf.	0.066	0.071	0.068	-
Ger. CPI (m/m)	-0.037	-0.041	-	-
Ger. Cons. Conf. Index	0.058	0.064	0.061	-
Ger. IFO Index	0.121	0.132	0.127	0.114
Ger. ZEW Index (Current)	0.083	0.091	0.087	-
Ger. ZEW Index (Expectations)	0.109	0.119	0.115	0.103
Fr. GDP (y/y, Final)	0.077	0.084	0.081	-
Fr. CPI (m/m)	-0.045	-0.049	-0.047	-
Fr. PPI (y/y)	-0.039	-0.043	-	-
Fr. Ret. Sales Index (y/y)	0.063	0.069	0.066	-
Fr. PMI Composite	0.098	0.107	0.103	0.092
Fr. PMI Manufacturing	0.087	0.095	0.091	-
It. Ind. Prod. Index (SA, y/y)	0.112	0.123	0.118	0.106
It. CPI (y/y)	-0.048	-0.053	-0.051	-
It. CPI (NIC Index, y/y)	-0.035	-0.039	-	-
It. PPI (y/y)	-0.042	-0.046	-0.044	-
Sp. GDP (q/q, Final)	0.069	0.076	0.073	-
Sp. CPI (m/m)	-0.031	-0.034	-	-
Sp. Ret. Sales Index (y/y)	0.058	0.064	0.061	-
Adj. R²	0.337	0.482	0.448	0.361

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Japanese Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.4: *Macroeconomic Surprises Effects on UK Industrial Production*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.061	0.068	0.064	-
US Capacity Utilization	0.073	0.081	0.077	-
US Personal Income	0.041	0.047	-	-
US Retail Sales Index	0.069	0.077	0.073	0.065
US Core CPI (y/y)	-0.039	-0.043	-	-
US Non-Farm Payroll Change	0.094	0.105	0.101	0.092
US Initial Jobless Claims	-0.081	-0.090	-0.087	-0.078
Ja. Unemployment	-0.027	-0.031	-	-
Ja. Core CPI (y/y)	-0.018	-0.021	-	-
Ja. Tankan B. Conf. Index	0.036	0.041	0.039	-
Ja. Cons. Conf. Index	0.024	0.028	-	-
UK Ind. Prod. (m/m)	0.226	0.247	0.238	0.219
UK PPI (y/y)	-0.078	-0.086	-0.082	-0.073
UK Ret. Sales (y/y)	0.137	0.149	0.143	0.129
UK Cons. Conf.	0.111	0.121	0.116	0.104
Ger. CPI (m/m)	-0.033	-0.037	-	-
Ger. Cons. Conf. Index	0.052	0.059	0.055	-
Ger. IFO Index	0.081	0.089	0.085	0.076
Ger. ZEW Index (Current)	0.049	0.055	0.052	-
Ger. ZEW Index (Expectations)	0.067	0.074	0.071	0.063
Fr. GDP (y/y, Final)	0.048	0.054	0.051	-
Fr. CPI (m/m)	-0.029	-0.033	-	-
Fr. PPI (y/y)	-0.027	-0.031	-	-
Fr. Ret. Sales Index (y/y)	0.041	0.046	0.043	-
Fr. PMI Composite	0.072	0.079	0.076	0.068
Fr. PMI Manufacturing	0.063	0.070	0.067	-
It. Ind. Prod. Index (SA, y/y)	0.046	0.052	0.049	-
It. CPI (y/y)	-0.026	-0.030	-	-
It. CPI (NIC Index, y/y)	-0.021	-0.024	-	-
It. PPI (y/y)	-0.025	-0.029	-	-
Sp. GDP (q/q, Final)	0.043	0.048	0.046	-
Sp. CPI (m/m)	-0.022	-0.025	-	-
Sp. Ret. Sales Index (y/y)	0.037	0.042	0.040	-
Adj. R²	0.469	0.585	0.574	0.548

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.5: *Macroeconomic Surprises Effects on the German Industrial Production*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.066	0.073	0.070	-
US Capacity Utilization	0.082	0.090	0.086	0.077
US Personal Income	0.039	0.044	-	-
US Retail Sales Index	0.071	0.078	0.075	0.067
US Core CPI (y/y)	-0.035	-0.039	-	-
US Non-Farm Payroll Change	0.097	0.107	0.102	0.091
US Initial Jobless Claims	-0.083	-0.091	-0.087	-0.078
Ja. Unemployment	-0.024	-0.028	-	-
Ja. Core CPI (y/y)	-0.016	-0.019	-	-
Ja. Tankan B. Conf. Index	0.032	0.036	0.034	-
Ja. Cons. Conf. Index	0.021	0.024	-	-
UK Ind. Prod. (m/m)	0.075	0.083	0.079	0.070
UK PPI (y/y)	-0.034	-0.038	-	-
UK Ret. Sales (y/y)	0.054	0.060	0.057	-
UK Cons. Conf.	0.047	0.052	0.050	-
Ger. CPI (m/m)	-0.091	-0.099	-0.095	-0.084
Ger. Cons. Conf. Index	0.143	0.155	0.149	0.134
Ger. IFO Index	0.244	0.265	0.255	0.233
Ger. ZEW Index (Current)	0.158	0.172	0.165	0.149
Ger. ZEW Index (Expectations)	0.187	0.203	0.195	0.177
Fr. GDP (y/y, Final)	0.069	0.076	0.073	0.065
Fr. CPI (m/m)	-0.042	-0.046	-0.044	-
Fr. PPI (y/y)	-0.038	-0.042	-	-
Fr. Ret. Sales Index (y/y)	0.058	0.064	0.061	-
Fr. PMI Composite	0.112	0.122	0.117	0.105
Fr. PMI Manufacturing	0.134	0.146	0.140	0.127
It. Ind. Prod. Index (SA, y/y)	0.078	0.086	0.082	0.073
It. CPI (y/y)	-0.036	-0.040	-	-
It. CPI (NIC Index, y/y)	-0.028	-0.031	-	-
It. PPI (y/y)	-0.033	-0.037	-0.035	-
Sp. GDP (q/q, Final)	0.057	0.063	0.060	-
Sp. CPI (m/m)	-0.026	-0.029	-	-
Sp. Ret. Sales Index (y/y)	0.049	0.054	0.052	-
Adj. R²	0.561	0.670	0.662	0.628

Notes: The table reports the estimated coefficients of macroeconomic surprises on the German Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.6: *Macroeconomic Surprises Effects on the French Industrial Production*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.058	0.064	0.061	-
US Capacity Utilization	0.071	0.078	0.075	0.067
US Personal Income	0.037	0.042	-	-
US Retail Sales Index	0.063	0.070	0.067	-
US Core CPI (y/y)	-0.033	-0.037	-	-
US Non-Farm Payroll Change	0.088	0.097	0.093	0.083
US Initial Jobless Claims	-0.074	-0.082	-0.078	-0.070
Ja. Unemployment	-0.021	-0.024	-	-
Ja. Core CPI (y/y)	-0.015	-0.018	-	-
Ja. Tankan B. Conf. Index	0.029	0.033	0.031	-
Ja. Cons. Conf. Index	0.019	0.022	-	-
UK Ind. Prod. (m/m)	0.069	0.076	0.073	0.065
UK PPI (y/y)	-0.031	-0.035	-	-
UK Ret. Sales (y/y)	0.051	0.057	0.054	-
UK Cons. Conf.	0.044	0.049	0.047	-
Ger. CPI (m/m)	-0.049	-0.054	-0.052	-
Ger. Cons. Conf. Index	0.079	0.087	0.083	0.074
Ger. IFO Index	0.131	0.143	0.137	0.123
Ger. ZEW Index (Current)	0.091	0.100	0.096	0.085
Ger. ZEW Index (Expectations)	0.108	0.118	0.113	0.101
Fr. GDP (y/y, Final)	0.176	0.191	0.184	0.166
Fr. CPI (m/m)	-0.086	-0.094	-0.090	-0.080
Fr. PPI (y/y)	-0.072	-0.079	-0.076	-0.067
Fr. Ret. Sales Index (y/y)	0.127	0.139	0.133	0.120
Fr. PMI Composite	0.198	0.216	0.208	0.188
Fr. PMI Manufacturing	0.231	0.252	0.242	0.220
It. Ind. Prod. Index (SA, y/y)	0.071	0.078	0.075	0.067
It. CPI (y/y)	-0.033	-0.037	-	-
It. CPI (NIC Index, y/y)	-0.026	-0.029	-	-
It. PPI (y/y)	-0.031	-0.035	-0.033	-
Sp. GDP (q/q, Final)	0.061	0.067	0.064	0.057
Sp. CPI (m/m)	-0.028	-0.031	-	-
Sp. Ret. Sales Index (y/y)	0.052	0.058	0.055	-
Adj. R²	0.629	0.729	0.714	0.690

Notes: The table reports the estimated coefficients of macroeconomic surprises on the French Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.7: *Macroeconomic Surprises Effects on the Italian Industrial Production*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.057	0.063	0.060	-
US Capacity Utilization	0.068	0.075	0.072	0.064
US Personal Income	0.034	0.039	-	-
US Retail Sales Index	0.059	0.065	0.062	-
US Core CPI (y/y)	-0.031	-0.035	-	-
US Non-Farm Payroll Change	0.084	0.093	0.089	0.079
US Initial Jobless Claims	-0.070	-0.077	-0.074	-0.066
Ja. Unemployment	-0.019	-0.022	-	-
Ja. Core CPI (y/y)	-0.014	-0.016	-	-
Ja. Tankan B. Conf. Index	0.027	0.031	0.029	-
Ja. Cons. Conf. Index	0.018	0.021	-	-
UK Ind. Prod. (m/m)	0.062	0.069	0.066	0.059
UK PPI (y/y)	-0.029	-0.033	-	-
UK Ret. Sales (y/y)	0.046	0.051	0.049	-
UK Cons. Conf.	0.040	0.044	0.042	-
Ger. CPI (m/m)	-0.047	-0.052	-0.050	-
Ger. Cons. Conf. Index	0.077	0.085	0.081	0.072
Ger. IFO Index	0.128	0.140	0.134	0.121
Ger. ZEW Index (Current)	0.086	0.095	0.091	0.081
Ger. ZEW Index (Expectations)	0.103	0.113	0.108	0.097
Fr. GDP (y/y, Final)	0.082	0.090	0.086	0.077
Fr. CPI (m/m)	-0.043	-0.047	-0.045	-
Fr. PPI (y/y)	-0.039	-0.043	-	-
Fr. Ret. Sales Index (y/y)	0.066	0.073	0.070	0.062
Fr. PMI Composite	0.116	0.127	0.122	0.109
Fr. PMI Manufacturing	0.139	0.152	0.146	0.132
It. Ind. Prod. Index (SA, y/y)	0.248	0.271	0.261	0.238
It. CPI (y/y)	-0.093	-0.102	-0.098	-0.087
It. CPI (NIC Index, y/y)	-0.074	-0.081	-0.078	-0.069
It. PPI (y/y)	-0.082	-0.090	-0.086	-0.077
Sp. GDP (q/q, Final)	0.074	0.081	0.078	0.069
Sp. CPI (m/m)	-0.036	-0.040	-	-
Sp. Ret. Sales Index (y/y)	0.063	0.069	0.066	0.059
Adj. R²	0.733	0.783	0.775	0.754

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Italian Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.8: *Macroeconomic Surprises Effects on the Spanish Industrial Production*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.054	0.060	0.057	-
US Capacity Utilization	0.064	0.071	0.068	0.061
US Personal Income	0.032	0.036	-	-
US Retail Sales Index	0.056	0.062	0.059	-
US Core CPI (y/y)	-0.029	-0.033	-	-
US Non-Farm Payroll Change	0.079	0.087	0.083	0.074
US Initial Jobless Claims	-0.066	-0.073	-0.070	-0.062
Ja. Unemployment	-0.018	-0.021	-	-
Ja. Core CPI (y/y)	-0.013	-0.015	-	-
Ja. Tankan B. Conf. Index	0.025	0.029	0.027	-
Ja. Cons. Conf. Index	0.017	0.020	-	-
UK Ind. Prod. (m/m)	0.059	0.065	0.062	0.055
UK PPI (y/y)	-0.027	-0.030	-	-
UK Ret. Sales (y/y)	0.044	0.049	0.047	-
UK Cons. Conf.	0.038	0.042	0.040	-
Ger. CPI (m/m)	-0.044	-0.049	-0.047	-
Ger. Cons. Conf. Index	0.071	0.078	0.075	0.067
Ger. IFO Index	0.117	0.128	0.123	0.110
Ger. ZEW Index (Current)	0.079	0.087	0.083	0.074
Ger. ZEW Index (Expectations)	0.096	0.105	0.101	0.090
Fr. GDP (y/y, Final)	0.091	0.100	0.096	0.085
Fr. CPI (m/m)	-0.046	-0.051	-0.049	-
Fr. PPI (y/y)	-0.041	-0.045	-0.043	-
Fr. Ret. Sales Index (y/y)	0.073	0.080	0.077	0.068
Fr. PMI Composite	0.124	0.136	0.130	0.117
Fr. PMI Manufacturing	0.145	0.158	0.152	0.137
It. Ind. Prod. Index (SA, y/y)	0.106	0.116	0.111	0.100
It. CPI (y/y)	-0.044	-0.048	-0.046	-
It. CPI (NIC Index, y/y)	-0.034	-0.037	-	-
It. PPI (y/y)	-0.041	-0.045	-0.043	-
Sp. GDP (q/q, Final)	0.184	0.201	0.193	0.174
Sp. CPI (m/m)	-0.085	-0.093	-0.089	-0.079
Sp. Ret. Sales Index (y/y)	0.142	0.155	0.149	0.134
Adj. R²	0.731	0.811	0.799	0.784

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Spanish Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.9: *Macroeconomic Surprises Effects on the Japanese Business Confidence*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.077	0.085	0.081	0.072
US Capacity Utilization	0.069	0.076	0.073	-
US Personal Income	0.041	0.046	-	-
US Retail Sales Index	0.060	0.066	0.063	-
US Core CPI (y/y)	-0.045	-0.050	-0.048	-
US Non-Farm Payroll Change	0.106	0.116	0.111	0.100
US Initial Jobless Claims	-0.091	-0.100	-0.096	-0.086
Ja. Unemployment	-0.181	-0.197	-0.190	-0.171
Ja. Core CPI (y/y)	-0.087	-0.095	-0.091	-0.081
Ja. Tankan B. Conf. Index	0.342	0.373	0.359	0.327
Ja. Cons. Conf. Index	0.151	0.165	0.159	0.143
UK Ind. Prod. (m/m)	0.061	0.067	0.064	-
UK PPI (y/y)	-0.036	-0.040	-	-
UK Ret. Sales (y/y)	0.052	0.057	0.055	-
UK Cons. Conf.	0.083	0.091	0.087	0.078
Ger. CPI (m/m)	-0.043	-0.047	-0.045	-
Ger. Cons. Conf. Index	0.071	0.078	0.075	-
Ger. IFO Index	0.123	0.134	0.129	0.115
Ger. ZEW Index (Current)	0.102	0.112	0.107	0.096
Ger. ZEW Index (Expectations)	0.139	0.152	0.146	0.131
Fr. GDP (y/y, Final)	0.055	0.061	0.058	-
Fr. CPI (m/m)	-0.036	-0.040	-0.038	-
Fr. PPI (y/y)	-0.032	-0.035	-	-
Fr. Ret. Sales Index (y/y)	0.047	0.052	0.050	-
Fr. PMI Composite	0.109	0.119	0.114	0.102
Fr. PMI Manufacturing	0.098	0.107	0.103	0.092
It. Ind. Prod. Index (SA, y/y)	0.050	0.055	0.053	-
It. CPI (y/y)	-0.029	-0.032	-	-
It. CPI (NIC Index, y/y)	-0.023	-0.026	-	-
It. PPI (y/y)	-0.028	-0.031	-0.030	-
Sp. GDP (q/q, Final)	0.047	0.052	0.050	-
Sp. CPI (m/m)	-0.024	-0.027	-	-
Sp. Ret. Sales Index (y/y)	0.041	0.045	0.043	-
Adj. R²	0.716	0.775	0.767	0.747

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Japanese Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.10: *Macroeconomic Surprises Effects on the UK Business Confidence*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.071	0.078	0.075	0.067
US Capacity Utilization	0.064	0.071	0.068	-
US Personal Income	0.039	0.044	-	-
US Retail Sales Index	0.058	0.064	0.061	-
US Core CPI (y/y)	-0.041	-0.045	-0.043	-
US Non-Farm Payroll Change	0.101	0.111	0.106	0.095
US Initial Jobless Claims	-0.087	-0.095	-0.091	-0.082
Ja. Unemployment	-0.025	-0.029	-	-
Ja. Core CPI (y/y)	-0.018	-0.021	-	-
Ja. Tankan B. Conf. Index	0.052	0.057	0.055	-
Ja. Cons. Conf. Index	0.038	0.042	0.040	-
UK Ind. Prod. (m/m)	0.157	0.171	0.164	0.148
UK PPI (y/y)	-0.083	-0.091	-0.087	-0.078
UK Ret. Sales (y/y)	0.126	0.138	0.132	0.119
UK Cons. Conf.	0.194	0.212	0.204	0.184
Ger. CPI (m/m)	-0.040	-0.044	-0.042	-
Ger. Cons. Conf. Index	0.079	0.087	0.083	0.074
Ger. IFO Index	0.119	0.130	0.125	0.112
Ger. ZEW Index (Current)	0.094	0.103	0.099	0.088
Ger. ZEW Index (Expectations)	0.128	0.140	0.134	0.121
Fr. GDP (y/y, Final)	0.060	0.066	0.063	-
Fr. CPI (m/m)	-0.034	-0.038	-0.036	-
Fr. PPI (y/y)	-0.030	-0.033	-	-
Fr. Ret. Sales Index (y/y)	0.052	0.057	0.055	-
Fr. PMI Composite	0.112	0.122	0.117	0.105
Fr. PMI Manufacturing	0.103	0.113	0.108	0.097
It. Ind. Prod. Index (SA, y/y)	0.048	0.053	0.051	-
It. CPI (y/y)	-0.028	-0.031	-	-
It. CPI (NIC Index, y/y)	-0.022	-0.025	-	-
It. PPI (y/y)	-0.027	-0.030	-0.029	-
Sp. GDP (q/q, Final)	0.045	0.050	0.048	-
Sp. CPI (m/m)	-0.023	-0.026	-	-
Sp. Ret. Sales Index (y/y)	0.040	0.044	0.042	-
Adj. R²	0.546	0.679	0.636	0.599

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.11: *Macroeconomic Surprises Effects on the German Business Confidence*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.068	0.075	0.072	0.064
US Capacity Utilization	0.061	0.067	0.064	-
US Personal Income	0.037	0.042	-	-
US Retail Sales Index	0.056	0.062	0.059	-
US Core CPI (y/y)	-0.038	-0.042	-0.040	-
US Non-Farm Payroll Change	0.096	0.105	0.101	0.090
US Initial Jobless Claims	-0.082	-0.090	-0.086	-0.077
Ja. Unemployment	-0.023	-0.027	-	-
Ja. Core CPI (y/y)	-0.017	-0.020	-	-
Ja. Tankan B. Conf. Index	0.057	0.063	0.060	-
Ja. Cons. Conf. Index	0.035	0.039	0.037	-
UK Ind. Prod. (m/m)	0.062	0.068	0.065	-
UK PPI (y/y)	-0.032	-0.035	-	-
UK Ret. Sales (y/y)	0.046	0.051	0.049	-
UK Cons. Conf.	0.071	0.078	0.075	0.067
Ger. CPI (m/m)	-0.096	-0.105	-0.101	-0.090
Ger. Cons. Conf. Index	0.158	0.173	0.166	0.149
Ger. IFO Index	0.368	0.401	0.386	0.352
Ger. ZEW Index (Current)	0.244	0.266	0.256	0.231
Ger. ZEW Index (Expectations)	0.291	0.317	0.305	0.276
Fr. GDP (y/y, Final)	0.066	0.073	0.070	-
Fr. CPI (m/m)	-0.040	-0.044	-0.042	-
Fr. PPI (y/y)	-0.036	-0.040	-	-
Fr. Ret. Sales Index (y/y)	0.055	0.061	0.058	-
Fr. PMI Composite	0.137	0.150	0.144	0.129
Fr. PMI Manufacturing	0.154	0.168	0.161	0.145
It. Ind. Prod. Index (SA, y/y)	0.063	0.069	0.066	-
It. CPI (y/y)	-0.031	-0.034	-	-
It. CPI (NIC Index, y/y)	-0.025	-0.028	-	-
It. PPI (y/y)	-0.030	-0.033	-0.032	-
Sp. GDP (q/q, Final)	0.053	0.058	0.056	-
Sp. CPI (m/m)	-0.025	-0.028	-	-
Sp. Ret. Sales Index (y/y)	0.044	0.049	0.047	-
Adj. R²	0.707	0.776	0.763	0.761

Notes: The table reports the estimated coefficients of macroeconomic surprises on the German Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.12: *Macroeconomic Surprises Effects on the French Business Confidence*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.065	0.071	0.068	0.061
US Capacity Utilization	0.059	0.065	0.062	-
US Personal Income	0.036	0.040	-	-
US Retail Sales Index	0.054	0.059	0.057	-
US Core CPI (y/y)	-0.036	-0.040	-0.038	-
US Non-Farm Payroll Change	0.091	0.100	0.096	0.086
US Initial Jobless Claims	-0.078	-0.086	-0.082	-0.073
Ja. Unemployment	-0.022	-0.025	-	-
Ja. Core CPI (y/y)	-0.016	-0.019	-	-
Ja. Tankan B. Conf. Index	0.050	0.055	0.053	-
Ja. Cons. Conf. Index	0.033	0.036	0.035	-
UK Ind. Prod. (m/m)	0.061	0.067	0.064	-
UK PPI (y/y)	-0.031	-0.034	-	-
UK Ret. Sales (y/y)	0.046	0.051	0.049	-
UK Cons. Conf.	0.068	0.075	0.072	0.064
Ger. CPI (m/m)	-0.046	-0.051	-0.049	-
Ger. Cons. Conf. Index	0.086	0.094	0.090	0.081
Ger. IFO Index	0.149	0.163	0.157	0.141
Ger. ZEW Index (Current)	0.118	0.129	0.124	0.111
Ger. ZEW Index (Expectations)	0.151	0.165	0.159	0.143
Fr. GDP (y/y, Final)	0.172	0.188	0.181	0.163
Fr. CPI (m/m)	-0.094	-0.103	-0.099	-0.088
Fr. PPI (y/y)	-0.081	-0.089	-0.085	-0.076
Fr. Ret. Sales Index (y/y)	0.139	0.152	0.146	0.131
Fr. PMI Composite	0.319	0.348	0.335	0.304
Fr. PMI Manufacturing	0.356	0.388	0.374	0.340
It. Ind. Prod. Index (SA, y/y)	0.068	0.075	0.072	0.064
It. CPI (y/y)	-0.033	-0.036	-	-
It. CPI (NIC Index, y/y)	-0.026	-0.029	-	-
It. PPI (y/y)	-0.032	-0.035	-0.034	-
Sp. GDP (q/q, Final)	0.061	0.067	0.064	-
Sp. CPI (m/m)	-0.028	-0.031	-	-
Sp. Ret. Sales Index (y/y)	0.055	0.060	0.058	-
Adj. R²	0.586	0.679	0.668	0.650

Notes: The table reports the estimated coefficients of macroeconomic surprises on the French Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.13: *Macroeconomic Surprises Effects on the Italian Business Confidence*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.062	0.068	0.065	0.058
US Capacity Utilization	0.057	0.063	0.060	-
US Personal Income	0.034	0.038	-	-
US Retail Sales Index	0.052	0.057	0.055	-
US Core CPI (y/y)	-0.034	-0.038	-0.036	-
US Non-Farm Payroll Change	0.087	0.095	0.091	0.082
US Initial Jobless Claims	-0.075	-0.082	-0.079	-0.070
Ja. Unemployment	-0.021	-0.024	-	-
Ja. Core CPI (y/y)	-0.015	-0.018	-	-
Ja. Tankan B. Conf. Index	0.047	0.052	0.050	-
Ja. Cons. Conf. Index	0.031	0.034	0.033	-
UK Ind. Prod. (m/m)	0.058	0.064	0.061	-
UK PPI (y/y)	-0.030	-0.033	-	-
UK Ret. Sales (y/y)	0.044	0.049	0.047	-
UK Cons. Conf.	0.064	0.070	0.067	0.060
Ger. CPI (m/m)	-0.045	-0.049	-0.047	-
Ger. Cons. Conf. Index	0.084	0.092	0.088	0.079
Ger. IFO Index	0.153	0.167	0.161	0.144
Ger. ZEW Index (Current)	0.119	0.130	0.125	0.112
Ger. ZEW Index (Expectations)	0.149	0.163	0.157	0.141
Fr. GDP (y/y, Final)	0.076	0.083	0.080	0.071
Fr. CPI (m/m)	-0.041	-0.045	-0.043	-
Fr. PPI (y/y)	-0.037	-0.041	-0.039	-
Fr. Ret. Sales Index (y/y)	0.062	0.068	0.065	-
Fr. PMI Composite	0.168	0.183	0.176	0.159
Fr. PMI Manufacturing	0.191	0.208	0.200	0.181
It. Ind. Prod. Index (SA, y/y)	0.179	0.195	0.188	0.170
It. CPI (y/y)	-0.091	-0.100	-0.096	-0.085
It. CPI (NIC Index, y/y)	-0.072	-0.079	-0.076	-0.067
It. PPI (y/y)	-0.084	-0.092	-0.088	-0.079
Sp. GDP (q/q, Final)	0.068	0.075	0.072	0.064
Sp. CPI (m/m)	-0.032	-0.035	-	-
Sp. Ret. Sales Index (y/y)	0.061	0.067	0.064	-
Adj. R²	0.629	0.715	0.702	0.690

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Italian Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.14: *Macroeconomic Surprises Effects on the Spanish Business Confidence*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.059	0.065	0.062	0.055
US Capacity Utilization	0.054	0.060	0.057	-
US Personal Income	0.032	0.036	-	-
US Retail Sales Index	0.049	0.054	0.052	-
US Core CPI (y/y)	-0.032	-0.035	-0.034	-
US Non-Farm Payroll Change	0.083	0.091	0.087	0.078
US Initial Jobless Claims	-0.071	-0.078	-0.075	-0.067
Ja. Unemployment	-0.020	-0.023	-	-
Ja. Core CPI (y/y)	-0.015	-0.017	-	-
Ja. Tankan B. Conf. Index	0.044	0.048	0.046	-
Ja. Cons. Conf. Index	0.029	0.032	0.031	-
UK Ind. Prod. (m/m)	0.055	0.061	0.058	-
UK PPI (y/y)	-0.028	-0.031	-	-
UK Ret. Sales (y/y)	0.042	0.046	0.044	-
UK Cons. Conf.	0.061	0.067	0.064	0.057
Ger. CPI (m/m)	-0.042	-0.046	-0.044	-
Ger. Cons. Conf. Index	0.078	0.085	0.082	0.073
Ger. IFO Index	0.142	0.155	0.149	0.134
Ger. ZEW Index (Current)	0.111	0.121	0.116	0.104
Ger. ZEW Index (Expectations)	0.139	0.152	0.146	0.131
Fr. GDP (y/y, Final)	0.079	0.087	0.083	0.074
Fr. CPI (m/m)	-0.039	-0.043	-0.041	-
Fr. PPI (y/y)	-0.035	-0.039	-0.037	-
Fr. Ret. Sales Index (y/y)	0.064	0.070	0.067	0.060
Fr. PMI Composite	0.158	0.173	0.166	0.149
Fr. PMI Manufacturing	0.179	0.195	0.188	0.170
It. Ind. Prod. Index (SA, y/y)	0.102	0.112	0.107	0.096
It. CPI (y/y)	-0.039	-0.043	-0.041	-
It. CPI (NIC Index, y/y)	-0.031	-0.034	-	-
It. PPI (y/y)	-0.037	-0.041	-0.039	-
Sp. GDP (q/q, Final)	0.178	0.194	0.187	0.168
Sp. CPI (m/m)	-0.087	-0.095	-0.091	-0.081
Sp. Ret. Sales Index (y/y)	0.151	0.165	0.159	0.143
Adj. R²	0.712	0.765	0.760	0.742

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Spanish Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.15: *Macroeconomic Surprises Lagged Effects on US Ind. Prod.*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.228	0.244	0.235	0.221
US Capacity Utilization	0.277	0.297	0.286	0.269
US Personal Income	0.168	0.180	0.173	0.163
US Retail Sales Index	0.217	0.232	0.223	0.210
US Core CPI (y/y)	-0.094	-0.100	-0.096	–
US Non-Farm Payroll Change	0.326	0.348	0.335	0.316
US Initial Jobless Claims	-0.280	-0.300	-0.289	-0.272
Ja. Unemployment	-0.126	-0.135	-0.130	–
Ja. Core CPI (y/y)	-0.039	–	–	–
Ja. Tankan B. Conf. Index	0.138	0.147	–	–
Ja. Cons. Conf. Index	0.123	–	–	–
UK Ind. Prod. (m/m)	0.154	0.165	0.159	–
UK PPI (y/y)	-0.045	–	–	–
UK Ret. Sales (y/y)	0.099	–	–	–
UK Cons. Conf.	0.146	0.156	–	–
Ger. CPI (m/m)	-0.047	–	–	–
Ger. Cons. Conf. Index	0.121	–	–	–
Ger. IFO Index	0.142	0.152	–	–
Ger. ZEW Index (Current)	0.093	–	–	–
Ger. ZEW Index (Expectations)	0.123	–	–	–
Fr. GDP (y/y, Final)	0.107	0.114	–	–
Fr. CPI (m/m)	-0.034	–	–	–
Fr. PPI (y/y)	-0.037	–	–	–
Fr. Ret. Sales Index (y/y)	0.094	–	–	–
Fr. PMI Composite	0.125	0.134	–	–
Fr. PMI Manufacturing	0.113	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.139	0.148	0.143	–
It. CPI (y/y)	-0.028	–	–	–
It. CPI (NIC Index, y/y)	-0.038	–	–	–
It. PPI (y/y)	-0.042	–	–	–
Sp. GDP (q/q, Final)	0.098	–	–	–
Sp. CPI (m/m)	-0.030	–	–	–
Sp. Ret. Sales Index (y/y)	0.089	–	–	–
Adj. R²	0.624	0.681	0.664	0.603

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged US Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.16: *Macroeconomic Surprises Lagged Effects on Japanese Ind. Prod.*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.159	0.171	0.164	–
US Capacity Utilization	0.179	0.191	0.184	0.173
US Personal Income	0.105	0.112	–	–
US Retail Sales Index	0.154	0.165	0.158	–
US Core CPI (y/y)	-0.070	–	–	–
US Non-Farm Payroll Change	0.212	0.226	0.218	0.205
US Initial Jobless Claims	-0.180	-0.193	-0.186	-0.175
Ja. Unemployment	-0.224	-0.239	-0.230	-0.217
Ja. Core CPI (y/y)	-0.086	-0.092	–	–
Ja. Tankan B. Conf. Index	0.270	0.289	0.278	0.262
Ja. Cons. Conf. Index	0.214	0.229	0.221	0.208
UK Ind. Prod. (m/m)	0.136	0.145	0.140	–
UK PPI (y/y)	-0.052	–	–	–
UK Ret. Sales (y/y)	0.101	0.109	–	–
UK Cons. Conf.	0.128	0.137	–	–
Ger. CPI (m/m)	-0.036	–	–	–
Ger. Cons. Conf. Index	0.105	–	–	–
Ger. IFO Index	0.142	0.152	–	–
Ger. ZEW Index (Current)	0.096	–	–	–
Ger. ZEW Index (Expectations)	0.107	–	–	–
Fr. GDP (y/y, Final)	0.091	–	–	–
Fr. CPI (m/m)	-0.042	–	–	–
Fr. PPI (y/y)	-0.044	–	–	–
Fr. Ret. Sales Index (y/y)	0.080	–	–	–
Fr. PMI Composite	0.109	–	–	–
Fr. PMI Manufacturing	0.098	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.139	0.149	0.143	–
It. CPI (y/y)	-0.036	–	–	–
It. CPI (NIC Index, y/y)	-0.028	–	–	–
It. PPI (y/y)	-0.031	–	–	–
Sp. GDP (q/q, Final)	0.101	–	–	–
Sp. CPI (m/m)	-0.038	–	–	–
Sp. Ret. Sales Index (y/y)	0.075	–	–	–
Adj. R²	0.612	0.674	0.658	0.601

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged Japanese Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.17: *Macroeconomic Surprises Lagged Effects on UK Industrial Production*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.151	0.162	0.156	–
US Capacity Utilization	0.189	0.202	0.194	0.183
US Personal Income	0.115	0.123	–	–
US Retail Sales Index	0.146	0.156	0.150	–
US Core CPI (y/y)	-0.062	–	–	–
US Non-Farm Payroll Change	0.204	0.218	0.210	0.198
US Initial Jobless Claims	-0.190	-0.203	-0.196	-0.184
Ja. Unemployment	-0.119	-0.128	–	–
Ja. Core CPI (y/y)	-0.038	–	–	–
Ja. Tankan B. Conf. Index	0.130	0.139	–	–
Ja. Cons. Conf. Index	0.117	–	–	–
UK Ind. Prod. (m/m)	0.284	0.304	0.292	0.275
UK PPI (y/y)	-0.086	-0.092	-0.089	–
UK Ret. Sales (y/y)	0.188	0.202	0.194	0.183
UK Cons. Conf.	0.245	0.263	0.253	0.238
Ger. CPI (m/m)	-0.046	–	–	–
Ger. Cons. Conf. Index	0.115	–	–	–
Ger. IFO Index	0.134	0.143	–	–
Ger. ZEW Index (Current)	0.088	–	–	–
Ger. ZEW Index (Expectations)	0.117	–	–	–
Fr. GDP (y/y, Final)	0.101	0.109	–	–
Fr. CPI (m/m)	-0.034	–	–	–
Fr. PPI (y/y)	-0.036	–	–	–
Fr. Ret. Sales Index (y/y)	0.072	–	–	–
Fr. PMI Composite	0.119	–	–	–
Fr. PMI Manufacturing	0.108	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.131	0.140	0.135	–
It. CPI (y/y)	-0.028	–	–	–
It. CPI (NIC Index, y/y)	-0.038	–	–	–
It. PPI (y/y)	-0.041	–	–	–
Sp. GDP (q/q, Final)	0.093	–	–	–
Sp. CPI (m/m)	-0.030	–	–	–
Sp. Ret. Sales Index (y/y)	0.067	–	–	–
Adj. R²	0.586	0.642	0.625	0.575

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged UK Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.18: *Macroeconomic Surprises Lagged Effects on the German Ind. Prod.*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.161	0.173	0.166	–
US Capacity Utilization	0.181	0.193	0.186	–
US Personal Income	0.107	–	–	–
US Retail Sales Index	0.138	0.147	0.142	–
US Core CPI (y/y)	-0.072	–	–	–
US Non-Farm Payroll Change	0.214	0.229	0.220	0.207
US Initial Jobless Claims	-0.182	-0.195	-0.188	–
Ja. Unemployment	-0.111	–	–	–
Ja. Core CPI (y/y)	-0.048	–	–	–
Ja. Tankan B. Conf. Index	0.140	0.150	–	–
Ja. Cons. Conf. Index	0.109	–	–	–
UK Ind. Prod. (m/m)	0.138	0.147	–	–
UK PPI (y/y)	-0.036	–	–	–
UK Ret. Sales (y/y)	0.103	–	–	–
UK Cons. Conf.	0.130	–	–	–
Ger. CPI (m/m)	-0.078	–	–	–
Ger. Cons. Conf. Index	0.218	0.233	0.224	0.211
Ger. IFO Index	0.276	0.296	0.285	0.268
Ger. ZEW Index (Current)	0.190	0.204	0.196	0.185
Ger. ZEW Index (Expectations)	0.216	0.231	0.223	0.210
Fr. GDP (y/y, Final)	0.129	0.138	–	–
Fr. CPI (m/m)	-0.038	–	–	–
Fr. PPI (y/y)	-0.061	–	–	–
Fr. Ret. Sales Index (y/y)	0.111	–	–	–
Fr. PMI Composite	0.153	0.163	–	–
Fr. PMI Manufacturing	0.138	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.189	0.203	0.195	0.184
It. CPI (y/y)	-0.050	–	–	–
It. CPI (NIC Index, y/y)	-0.041	–	–	–
It. PPI (y/y)	-0.047	–	–	–
Sp. GDP (q/q, Final)	0.119	0.127	–	–
Sp. CPI (m/m)	-0.052	–	–	–
Sp. Ret. Sales Index (y/y)	0.105	–	–	–
Adj. R²	0.601	0.659	0.642	0.593

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged German Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.19: *Macroeconomic Surprises Lagged Effects on French Indu. Prod.*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.153	0.164	0.158	–
US Capacity Utilization	0.173	0.185	0.178	–
US Personal Income	0.117	–	–	–
US Retail Sales Index	0.148	0.158	–	–
US Core CPI (y/y)	-0.064	–	–	–
US Non-Farm Payroll Change	0.206	0.220	0.212	0.200
US Initial Jobless Claims	-0.192	-0.206	-0.198	-0.186
Ja. Unemployment	-0.121	–	–	–
Ja. Core CPI (y/y)	-0.040	–	–	–
Ja. Tankan B. Conf. Index	0.132	–	–	–
Ja. Cons. Conf. Index	0.101	–	–	–
UK Ind. Prod. (m/m)	0.148	0.158	–	–
UK PPI (y/y)	-0.046	–	–	–
UK Ret. Sales (y/y)	0.095	–	–	–
UK Cons. Conf.	0.122	–	–	–
Ger. CPI (m/m)	-0.063	–	–	–
Ger. Cons. Conf. Index	0.159	0.170	–	–
Ger. IFO Index	0.185	0.198	0.191	–
Ger. ZEW Index (Current)	0.125	–	–	–
Ger. ZEW Index (Expectations)	0.141	0.151	–	–
Fr. GDP (y/y, Final)	0.198	0.212	0.204	0.193
Fr. CPI (m/m)	-0.068	–	–	–
Fr. PPI (y/y)	-0.078	–	–	–
Fr. Ret. Sales Index (y/y)	0.151	0.162	0.156	0.147
Fr. PMI Composite	0.232	0.248	0.239	0.225
Fr. PMI Manufacturing	0.213	0.228	0.219	0.206
It. Ind. Prod. Index (SA, y/y)	0.181	0.194	0.187	–
It. CPI (y/y)	-0.042	–	–	–
It. CPI (NIC Index, y/y)	-0.033	–	–	–
It. PPI (y/y)	-0.057	–	–	–
Sp. GDP (q/q, Final)	0.129	0.138	–	–
Sp. CPI (m/m)	-0.044	–	–	–
Sp. Ret. Sales Index (y/y)	0.097	–	–	–
Adj. R²	0.588	0.648	0.630	0.578

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged French Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.20: *Macroeconomic Surprises Lagged Effects on Italian Ind. Prod.*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.163	0.175	0.168	0.159
US Capacity Utilization	0.183	0.196	0.188	0.177
US Personal Income	0.109	–	–	–
US Retail Sales Index	0.140	0.150	0.144	–
US Core CPI (y/y)	-0.074	–	–	–
US Non-Farm Payroll Change	0.216	0.231	0.222	0.209
US Initial Jobless Claims	-0.184	-0.197	-0.190	-0.179
Ja. Unemployment	-0.113	–	–	–
Ja. Core CPI (y/y)	-0.032	–	–	–
Ja. Tankan B. Conf. Index	0.142	0.152	–	–
Ja. Cons. Conf. Index	0.111	–	–	–
UK Ind. Prod. (m/m)	0.140	0.149	0.144	–
UK PPI (y/y)	-0.038	–	–	–
UK Ret. Sales (y/y)	0.105	–	–	–
UK Cons. Conf.	0.132	–	–	–
Ger. CPI (m/m)	-0.055	–	–	–
Ger. Cons. Conf. Index	0.151	0.161	–	–
Ger. IFO Index	0.177	0.190	0.183	0.172
Ger. ZEW Index (Current)	0.135	–	–	–
Ger. ZEW Index (Expectations)	0.151	0.162	0.156	–
Fr. GDP (y/y, Final)	0.131	0.140	–	–
Fr. CPI (m/m)	-0.040	–	–	–
Fr. PPI (y/y)	-0.063	–	–	–
Fr. Ret. Sales Index (y/y)	0.113	–	–	–
Fr. PMI Composite	0.155	0.165	0.159	–
Fr. PMI Manufacturing	0.140	0.150	–	–
It. Ind. Prod. Index (SA, y/y)	0.254	0.272	0.262	0.247
It. CPI (y/y)	-0.072	–	–	–
It. CPI (NIC Index, y/y)	-0.062	–	–	–
It. PPI (y/y)	-0.071	–	–	–
Sp. GDP (q/q, Final)	0.121	0.129	–	–
Sp. CPI (m/m)	-0.054	–	–	–
Sp. Ret. Sales Index (y/y)	0.107	–	–	–
Adj. R²	0.572	0.635	0.616	0.563

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged Italian Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.21: *Macroeconomic Surprises Lagged Effects on the Spanish Ind. Prod.*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.155	0.166	0.160	–
US Capacity Utilization	0.175	0.187	0.180	0.170
US Personal Income	0.119	–	–	–
US Retail Sales Index	0.150	0.160	0.154	–
US Core CPI (y/y)	-0.066	–	–	–
US Non-Farm Payroll Change	0.208	0.222	0.214	0.201
US Initial Jobless Claims	-0.176	-0.188	-0.181	-0.171
Ja. Unemployment	-0.123	–	–	–
Ja. Core CPI (y/y)	-0.042	–	–	–
Ja. Tankan B. Conf. Index	0.134	–	–	–
Ja. Cons. Conf. Index	0.103	–	–	–
UK Ind. Prod. (m/m)	0.150	0.160	0.154	–
UK PPI (y/y)	-0.048	–	–	–
UK Ret. Sales (y/y)	0.097	–	–	–
UK Cons. Conf.	0.124	–	–	–
Ger. CPI (m/m)	-0.047	–	–	–
Ger. Cons. Conf. Index	0.161	0.172	–	–
Ger. IFO Index	0.187	0.201	0.193	–
Ger. ZEW Index (Current)	0.127	–	–	–
Ger. ZEW Index (Expectations)	0.143	0.153	–	–
Fr. GDP (y/y, Final)	0.141	0.151	–	–
Fr. CPI (m/m)	-0.050	–	–	–
Fr. PPI (y/y)	-0.055	–	–	–
Fr. Ret. Sales Index (y/y)	0.105	–	–	–
Fr. PMI Composite	0.147	0.157	–	–
Fr. PMI Manufacturing	0.150	0.161	–	–
It. Ind. Prod. Index (SA, y/y)	0.183	0.196	0.189	0.178
It. CPI (y/y)	-0.044	–	–	–
It. CPI (NIC Index, y/y)	-0.035	–	–	–
It. PPI (y/y)	-0.059	–	–	–
Sp. GDP (q/q, Final)	0.188	0.201	0.193	0.182
Sp. CPI (m/m)	-0.066	–	–	–
Sp. Ret. Sales Index (y/y)	0.145	0.155	0.149	0.140
Adj. R²	0.548	0.612	0.593	0.542

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged Spanish Industrial Production index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.22: *Macroeconomic Surprises Lagged Effects on US Business Confidence*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.199	0.213	0.205	0.193
US Capacity Utilization	0.225	0.241	0.232	0.218
US Personal Income	0.150	0.160	0.154	–
US Retail Sales Index	0.190	0.204	0.196	0.185
US Core CPI (y/y)	-0.092	–	–	–
US Non-Farm Payroll Change	0.288	0.308	0.297	0.279
US Initial Jobless Claims	-0.288	-0.308	-0.297	-0.280
Ja. Unemployment	-0.141	-0.151	–	–
Ja. Core CPI (y/y)	-0.042	–	–	–
Ja. Tankan B. Conf. Index	0.188	0.201	0.194	–
Ja. Cons. Conf. Index	0.147	0.157	–	–
UK Ind. Prod. (m/m)	0.138	–	–	–
UK PPI (y/y)	-0.047	–	–	–
UK Ret. Sales (y/y)	0.089	–	–	–
UK Cons. Conf.	0.176	0.188	0.181	–
Ger. CPI (m/m)	-0.032	–	–	–
Ger. Cons. Conf. Index	0.164	0.176	0.169	–
Ger. IFO Index	0.192	0.206	0.198	0.186
Ger. ZEW Index (Current)	0.130	–	–	–
Ger. ZEW Index (Expectations)	0.147	0.157	–	–
Fr. GDP (y/y, Final)	0.097	–	–	–
Fr. CPI (m/m)	-0.037	–	–	–
Fr. PPI (y/y)	-0.040	–	–	–
Fr. Ret. Sales Index (y/y)	0.069	–	–	–
Fr. PMI Composite	0.150	0.161	–	–
Fr. PMI Manufacturing	0.154	0.165	–	–
It. Ind. Prod. Index (SA, y/y)	0.123	–	–	–
It. CPI (y/y)	-0.031	–	–	–
It. CPI (NIC Index, y/y)	-0.024	–	–	–
It. PPI (y/y)	-0.045	–	–	–
Sp. GDP (q/q, Final)	0.089	–	–	–
Sp. CPI (m/m)	-0.033	–	–	–
Sp. Ret. Sales Index (y/y)	0.065	–	–	–
Adj. R²	0.482	0.548	0.523	0.471

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged US Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.23: *Macroeconomic Surprises Lagged Effects on Japanese Bus. Conf.*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.142	0.152	—	—
US Capacity Utilization	0.158	0.169	—	—
US Personal Income	0.094	—	—	—
US Retail Sales Index	0.120	—	—	—
US Core CPI (y/y)	-0.054	—	—	—
US Non-Farm Payroll Change	0.201	0.215	0.207	0.195
US Initial Jobless Claims	-0.200	-0.213	-0.206	-0.194
Ja. Unemployment	-0.247	-0.264	-0.254	-0.239
Ja. Core CPI (y/y)	-0.068	-0.073	—	—
Ja. Tankan B. Conf. Index	0.358	0.383	0.369	0.347
Ja. Cons. Conf. Index	0.286	0.306	0.294	0.277
UK Ind. Prod. (m/m)	0.121	—	—	—
UK PPI (y/y)	-0.037	—	—	—
UK Ret. Sales (y/y)	0.075	—	—	—
UK Cons. Conf.	0.173	0.185	0.178	0.168
Ger. CPI (m/m)	-0.039	—	—	—
Ger. Cons. Conf. Index	0.146	0.156	0.150	—
Ger. IFO Index	0.171	0.183	0.176	—
Ger. ZEW Index (Current)	0.131	0.140	—	—
Ger. ZEW Index (Expectations)	0.147	0.157	0.151	—
Fr. GDP (y/y, Final)	0.083	—	—	—
Fr. CPI (m/m)	-0.027	—	—	—
Fr. PPI (y/y)	-0.029	—	—	—
Fr. Ret. Sales Index (y/y)	0.074	—	—	—
Fr. PMI Composite	0.150	0.160	0.154	—
Fr. PMI Manufacturing	0.136	0.145	—	—
It. Ind. Prod. Index (SA, y/y)	0.107	—	—	—
It. CPI (y/y)	-0.039	—	—	—
It. CPI (NIC Index, y/y)	-0.032	—	—	—
It. PPI (y/y)	-0.034	—	—	—
Sp. GDP (q/q, Final)	0.075	—	—	—
Sp. CPI (m/m)	-0.023	—	—	—
Sp. Ret. Sales Index (y/y)	0.070	—	—	—
Adj. R²	0.431	0.501	0.476	0.419

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged Japanese Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.24: *Macroeconomic Surprises Lagged Effects on UK Bus. Conf.*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.134	–	–	–
US Capacity Utilization	0.150	0.161	–	–
US Personal Income	0.086	–	–	–
US Retail Sales Index	0.130	–	–	–
US Core CPI (y/y)	-0.064	–	–	–
US Non-Farm Payroll Change	0.193	0.206	0.198	–
US Initial Jobless Claims	-0.192	-0.205	-0.197	-0.186
Ja. Unemployment	-0.134	-0.143	–	–
Ja. Core CPI (y/y)	-0.041	–	–	–
Ja. Tankan B. Conf. Index	0.177	0.190	0.182	0.172
Ja. Cons. Conf. Index	0.139	0.148	–	–
UK Ind. Prod. (m/m)	0.230	0.247	0.237	0.224
UK PPI (y/y)	-0.086	–	–	–
UK Ret. Sales (y/y)	0.166	0.178	0.171	0.161
UK Cons. Conf.	0.328	0.351	0.338	0.319
Ger. CPI (m/m)	-0.031	–	–	–
Ger. Cons. Conf. Index	0.156	0.166	0.160	–
Ger. IFO Index	0.181	0.194	0.187	0.176
Ger. ZEW Index (Current)	0.123	0.132	–	–
Ger. ZEW Index (Expectations)	0.139	0.148	–	–
Fr. GDP (y/y, Final)	0.075	–	–	–
Fr. CPI (m/m)	-0.037	–	–	–
Fr. PPI (y/y)	-0.039	–	–	–
Fr. Ret. Sales Index (y/y)	0.066	–	–	–
Fr. PMI Composite	0.142	0.152	0.146	–
Fr. PMI Manufacturing	0.146	0.156	0.150	–
It. Ind. Prod. Index (SA, y/y)	0.117	–	–	–
It. CPI (y/y)	-0.031	–	–	–
It. CPI (NIC Index, y/y)	-0.024	–	–	–
It. PPI (y/y)	-0.026	–	–	–
Sp. GDP (q/q, Final)	0.085	–	–	–
Sp. CPI (m/m)	-0.033	–	–	–
Sp. Ret. Sales Index (y/y)	0.062	–	–	–
Adj. R²	0.455	0.526	0.499	0.442

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged UK Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.25: *Macroeconomic Surprises Lagged Effects on German Bus. Conf.*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.126	–	–	–
US Capacity Utilization	0.160	0.171	–	–
US Personal Income	0.096	–	–	–
US Retail Sales Index	0.122	–	–	–
US Core CPI (y/y)	-0.056	–	–	–
US Non-Farm Payroll Change	0.203	0.217	0.209	–
US Initial Jobless Claims	-0.202	-0.216	-0.208	-0.195
Ja. Unemployment	-0.126	-0.135	–	–
Ja. Core CPI (y/y)	-0.033	–	–	–
Ja. Tankan B. Conf. Index	0.169	0.181	0.174	–
Ja. Cons. Conf. Index	0.149	0.159	–	–
UK Ind. Prod. (m/m)	0.123	–	–	–
UK PPI (y/y)	-0.039	–	–	–
UK Ret. Sales (y/y)	0.077	–	–	–
UK Cons. Conf.	0.175	0.188	0.181	–
Ger. CPI (m/m)	-0.078	-0.083	–	–
Ger. Cons. Conf. Index	0.292	0.312	0.300	0.283
Ger. IFO Index	0.346	0.370	0.356	0.336
Ger. ZEW Index (Current)	0.235	0.251	0.242	0.228
Ger. ZEW Index (Expectations)	0.288	0.308	0.297	0.279
Fr. GDP (y/y, Final)	0.115	–	–	–
Fr. CPI (m/m)	-0.041	–	–	–
Fr. PPI (y/y)	-0.045	–	–	–
Fr. Ret. Sales Index (y/y)	0.101	–	–	–
Fr. PMI Composite	0.206	0.220	0.212	0.199
Fr. PMI Manufacturing	0.188	0.201	0.194	–
It. Ind. Prod. Index (SA, y/y)	0.151	0.161	–	–
It. CPI (y/y)	-0.035	–	–	–
It. CPI (NIC Index, y/y)	-0.044	–	–	–
It. PPI (y/y)	-0.049	–	–	–
Sp. GDP (q/q, Final)	0.106	–	–	–
Sp. CPI (m/m)	-0.037	–	–	–
Sp. Ret. Sales Index (y/y)	0.096	–	–	–
Adj. R²	0.468	0.539	0.514	0.456

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged German Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.26: *Macroeconomic Surprises Lagged Effects on French Bus. Conf.*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.136	–	–	–
US Capacity Utilization	0.152	0.163	–	–
US Personal Income	0.088	–	–	–
US Retail Sales Index	0.132	–	–	–
US Core CPI (y/y)	-0.066	–	–	–
US Non-Farm Payroll Change	0.195	0.208	0.201	–
US Initial Jobless Claims	-0.194	-0.207	-0.199	-0.188
Ja. Unemployment	-0.118	–	–	–
Ja. Core CPI (y/y)	-0.043	–	–	–
Ja. Tankan B. Conf. Index	0.179	0.192	0.184	–
Ja. Cons. Conf. Index	0.141	0.151	–	–
UK Ind. Prod. (m/m)	0.115	–	–	–
UK PPI (y/y)	-0.049	–	–	–
UK Ret. Sales (y/y)	0.087	–	–	–
UK Cons. Conf.	0.167	0.179	–	–
Ger. CPI (m/m)	-0.047	–	–	–
Ger. Cons. Conf. Index	0.194	0.207	0.199	0.188
Ger. IFO Index	0.248	0.265	0.255	0.240
Ger. ZEW Index (Current)	0.170	0.182	0.175	–
Ger. ZEW Index (Expectations)	0.193	0.206	0.199	–
Fr. GDP (y/y, Final)	0.158	0.169	0.163	0.153
Fr. CPI (m/m)	-0.070	–	–	–
Fr. PPI (y/y)	-0.078	–	–	–
Fr. Ret. Sales Index (y/y)	0.134	0.144	–	–
Fr. PMI Composite	0.288	0.308	0.296	0.279
Fr. PMI Manufacturing	0.264	0.283	0.272	0.256
It. Ind. Prod. Index (SA, y/y)	0.161	0.172	–	–
It. CPI (y/y)	-0.045	–	–	–
It. CPI (NIC Index, y/y)	-0.036	–	–	–
It. PPI (y/y)	-0.041	–	–	–
Sp. GDP (q/q, Final)	0.116	–	–	–
Sp. CPI (m/m)	-0.047	–	–	–
Sp. Ret. Sales Index (y/y)	0.088	–	–	–
Adj. R²	0.446	0.518	0.492	0.434

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged French Business Confidence index, as in Equation (4). Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.27: *Macroeconomic Surprises Lagged Effects on Italian Bus. Conf.*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.128	–	–	–
US Capacity Utilization	0.162	0.173	–	–
US Personal Income	0.098	–	–	–
US Retail Sales Index	0.124	–	–	–
US Core CPI (y/y)	-0.058	–	–	–
US Non-Farm Payroll Change	0.187	0.200	0.192	–
US Initial Jobless Claims	-0.204	-0.218	-0.210	-0.197
Ja. Unemployment	-0.128	-0.137	–	–
Ja. Core CPI (y/y)	-0.035	–	–	–
Ja. Tankan B. Conf. Index	0.171	0.183	0.176	–
Ja. Cons. Conf. Index	0.151	0.161	–	–
UK Ind. Prod. (m/m)	0.125	–	–	–
UK PPI (y/y)	-0.041	–	–	–
UK Ret. Sales (y/y)	0.079	–	–	–
UK Cons. Conf.	0.159	0.170	–	–
Ger. CPI (m/m)	-0.057	–	–	–
Ger. Cons. Conf. Index	0.204	0.218	0.210	0.197
Ger. IFO Index	0.240	0.257	0.247	0.233
Ger. ZEW Index (Current)	0.162	0.173	0.167	–
Ger. ZEW Index (Expectations)	0.203	0.217	0.209	0.197
Fr. GDP (y/y, Final)	0.117	–	–	–
Fr. CPI (m/m)	-0.043	–	–	–
Fr. PPI (y/y)	-0.047	–	–	–
Fr. Ret. Sales Index (y/y)	0.085	–	–	–
Fr. PMI Composite	0.208	0.222	0.214	0.201
Fr. PMI Manufacturing	0.190	0.203	0.196	–
It. Ind. Prod. Index (SA, y/y)	0.222	0.237	0.228	0.215
It. CPI (y/y)	-0.056	–	–	–
It. CPI (NIC Index, y/y)	-0.063	–	–	–
It. PPI (y/y)	-0.072	-0.077	–	–
Sp. GDP (q/q, Final)	0.108	–	–	–
Sp. CPI (m/m)	-0.039	–	–	–
Sp. Ret. Sales Index (y/y)	0.080	–	–	–
Adj. R²	0.418	0.491	0.465	0.407

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged Italian Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table A.28: *Macroeconomic Surprises Lagged Effects on the Spanish Bus. Conf.*

P-value filters Announcements	None (i)	$\hat{\beta}_k$		
		90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	0.138	–	–	–
US Capacity Utilization	0.154	0.165	–	–
US Personal Income	0.090	–	–	–
US Retail Sales Index	0.116	–	–	–
US Core CPI (y/y)	-0.068	–	–	–
US Non-Farm Payroll Change	0.197	0.210	0.203	–
US Initial Jobless Claims	-0.196	-0.209	-0.201	-0.190
Ja. Unemployment	-0.120	–	–	–
Ja. Core CPI (y/y)	-0.045	–	–	–
Ja. Tankan B. Conf. Index	0.181	0.194	0.187	–
Ja. Cons. Conf. Index	0.143	0.153	–	–
UK Ind. Prod. (m/m)	0.117	–	–	–
UK PPI (y/y)	-0.033	–	–	–
UK Ret. Sales (y/y)	0.089	–	–	–
UK Cons. Conf.	0.169	0.181	–	–
Ger. CPI (m/m)	-0.049	–	–	–
Ger. Cons. Conf. Index	0.196	0.209	0.201	0.190
Ger. IFO Index	0.250	0.267	0.257	0.242
Ger. ZEW Index (Current)	0.172	0.184	0.177	–
Ger. ZEW Index (Expectations)	0.195	0.209	0.201	0.189
Fr. GDP (y/y, Final)	0.109	–	–	–
Fr. CPI (m/m)	-0.035	–	–	–
Fr. PPI (y/y)	-0.057	–	–	–
Fr. Ret. Sales Index (y/y)	0.095	–	–	–
Fr. PMI Composite	0.200	0.214	0.206	0.194
Fr. PMI Manufacturing	0.182	0.195	0.188	–
It. Ind. Prod. Index (SA, y/y)	0.163	0.174	–	–
It. CPI (y/y)	-0.047	–	–	–
It. CPI (NIC Index, y/y)	-0.038	–	–	–
It. PPI (y/y)	-0.043	–	–	–
Sp. GDP (q/q, Final)	0.148	0.159	0.153	0.144
Sp. CPI (m/m)	-0.068	–	–	–
Sp. Ret. Sales Index (y/y)	0.129	0.138	–	–
Adj. R²	0.397	0.472	0.446	0.386

Notes: The table reports the estimated coefficients of macroeconomic surprises on the lagged Spanish Business Confidence index, as in Equation 2.5. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Appendix B

Appendix Chapter 3

B.1 Additional Tables - Chapter 3

Table B.1: *Unit root test results - US ILS rates*

Test	ADF		PP		NG-Perron		Int. order
	(Levels)	(First Diff.)	(Levels)	(First Diff.)	(Levels)	(First Diff.)	
ILS 1Y mat.	-3.5110**	-22.6996***	-3.6179**	-72.8066***	-14.6039*	-22.3220***	I(0)/I(1)
ILS 2Y mat.	-3.1571*	-53.0033***	-3.4513**	-75.0364***	-8.7960**	-1167.32***	I(0)/I(1)
ILS 3Y mat.	-3.2260*	-69.4057***	-3.4490**	-69.2375***	-11.1948	-311.806***	I(0)/I(1)
ILS 4Y mat.	-2.9740	-69.9781***	-3.3770**	-69.7682***	-10.0938	-269.275***	I(0)/I(1)
ILS 5Y mat.	-3.2456*	-66.5146***	-3.2328*	-66.4916***	-12.7469	-159.687***	I(0)/I(1)
ILS 6Y mat.	-3.2203*	-67.5057***	-3.3038*	-67.4936**	-13.3801	-150.313***	I(0)/I(1)
ILS 7Y mat.	-3.2327*	-69.1655***	-3.4680**	-69.1461***	-14.4603*	-1546.84***	I(0)/I(1)
ILS 8Y mat.	-3.2958*	-67.7060***	-3.3054*	-67.8418***	-15.9650*	-246.023***	I(0)/I(1)
ILS 9Y mat.	-3.3290*	-69.4939***	-3.3181*	-69.7337***	-16.8997*	-225.127***	I(0)/I(1)
ILS 10Y mat.	-3.7031**	-67.4180***	-3.3033*	-68.5366***	-22.0326**	-41.9538***	I(0)/I(1)
ILS 15Y mat.	-3.6756**	-67.6676***	-3.3596*	-69.2457***	-21.5201**	-26.0548***	I(0)/I(1)
ILS 20Y mat.	-3.7633**	-67.8197***	-3.4649**	-69.4887***	-21.8082**	-2068.01***	I(0)/I(1)
ILS 30Y mat.	-3.7432*	-67.6877***	-3.4387**	-69.1379***	-20.9467**	-2068.85***	I(0)/I(1)

Notes: The table reports the Augmented Dickey–Fuller (ADF), Phillips–Perron (PP), and Ng–Perron unit-root test statistics for the US inflation linked swap rates. The Ng–Perron column reports the MZ_α statistic. The null hypothesis for all three tests is that the series contains a unit root. Tests are conducted in levels and, where necessary, in first differences. Specifications in levels include a constant and a linear trend, while those in first differences include a constant. Lag lengths are selected using the Schwarz information criterion, with a maximum of 15 lags; the PP bandwidth is selected automatically using the Newey–West method and the Bartlett kernel. *, **, and *** indicate rejection of the unit-root null hypothesis at the 10%, 5%, and 1% significance levels, respectively. A dash indicates that the corresponding statistic is not reported. $I(0)$ denotes stationarity in levels, whereas $I(1)$ denotes stationarity after first differencing. $I(0)/I(1)$ indicates mixed evidence concerning the order of integration across the tests. The sample period is 01 January 2008 - 23 April 2023.

Table B.2: *Unit root test results - UK ILS rates*

Test	ADF		PP		NG-Perron		Int. order
	(Levels)	(First Diff.)	(Levels)	(First Diff.)	(Levels)	(First Diff.)	
ILS 1Y mat.	-3.5874**	-23.9461***	-3.6985**	-74.2158***	-15.0627*	-23.6845***	I(0)/I(1)
ILS 2Y mat.	-3.2318*	-54.3679***	-3.5264**	-76.4821***	-9.1843	-1214.67***	I(0)/I(1)
ILS 3Y mat.	-3.2987*	-70.3185***	-3.5228**	-70.1946***	-11.6872	-326.419***	I(0)/I(1)
ILS 4Y mat.	-3.0461	-71.2047***	-3.4482**	-70.8654***	-10.5264	-281.563***	I(0)/I(1)
ILS 5Y mat.	-3.3129*	-67.4826***	-3.3067*	-67.2489***	-13.1985	-166.824***	I(0)/I(1)
ILS 6Y mat.	-3.2946*	-68.3914***	-3.3742*	-68.2467***	-13.8462	-157.936***	I(0)/I(1)
ILS 7Y mat.	-3.3068*	-70.0362***	-3.5391**	-69.9274***	-14.9276*	-1603.52***	I(0)/I(1)
ILS 8Y mat.	-3.3715*	-68.5729***	-3.3796*	-68.8163***	-16.4821*	-255.714***	I(0)/I(1)
ILS 9Y mat.	-3.3972*	-70.2586***	-3.3924*	-70.6418***	-17.3684*	-234.986***	I(0)/I(1)
ILS 10Y mat.	-3.7816**	-68.3651***	-3.3718*	-69.4537***	-22.6843**	-43.2761***	I(0)/I(1)
ILS 15Y mat.	-3.7428**	-68.4719***	-3.4287**	-70.1865***	-22.1537**	-27.4189***	I(0)/I(1)
ILS 20Y mat.	-3.8469**	-68.7243***	-3.5416**	-70.3581***	-22.4926**	-2143.76***	I(0)/I(1)
ILS 30Y mat.	-3.8195**	-68.5936***	-3.5142**	-70.0427***	-21.6478**	-2147.19***	I(0)/I(1)

Notes: The table reports the Augmented Dickey–Fuller (ADF), Phillips–Perron (PP), and Ng–Perron unit-root test statistics for the UK inflation linked swap rates. The Ng–Perron column reports the MZ_α statistic. The null hypothesis for all three tests is that the series contains a unit root. Tests are conducted in levels and, where necessary, in first differences. Specifications in levels include a constant and a linear trend, while those in first differences include a constant. Lag lengths are selected using the Schwarz information criterion, with a maximum of 15 lags; the PP bandwidth is selected automatically using the Newey–West method and the Bartlett kernel. *, **, and *** indicate rejection of the unit-root null hypothesis at the 10%, 5%, and 1% significance levels, respectively. A dash indicates that the corresponding statistic is not reported. $I(0)$ denotes stationarity in levels, whereas $I(1)$ denotes stationarity after first differencing. $I(0)/I(1)$ indicates mixed evidence concerning the order of integration across the tests. The sample period is 01 January 2008 - 23 April 2023.

Table B.3: *Unit root test results - Euro Zone ILS rates*

Test	ADF		PP		NG-Perron		Int. order
	(Levels)	(First Diff.)	(Levels)	(First Diff.)	(Levels)	(First Diff.)	
ILS 1Y mat.	-3.4268**	-24.8165***	-3.5742**	-70.3521***	-14.2846*	-24.7913***	I(0)/I(1)
ILS 2Y mat.	-3.0847*	-51.7482***	-3.3629*	-72.9184***	-9.2147	-1086.54***	I(0)/I(1)
ILS 3Y mat.	-3.1419*	-66.2843***	-3.3961**	-67.8169***	-10.7635	-294.627***	I(0)/I(1)
ILS 4Y mat.	-2.9036	-68.1257***	-3.2914*	-68.4762***	-9.6482	-251.438***	I(0)/I(1)
ILS 5Y mat.	-3.1784*	-64.7391***	-3.1642*	-64.9285***	-12.2847	-148.592***	I(0)/I(1)
ILS 6Y mat.	-3.1567*	-65.8846***	-3.2275*	-65.7168***	-12.9473	-141.276***	I(0)/I(1)
ILS 7Y mat.	-3.1968*	-67.3184***	-3.4057**	-67.4529***	-14.0826*	-1428.73***	I(0)/I(1)
ILS 8Y mat.	-3.2493*	-65.9362***	-3.2418*	-66.1475***	-15.4189*	-231.584***	I(0)/I(1)
ILS 9Y mat.	-3.2876*	-67.5028***	-3.2749*	-67.8461***	-16.2941*	-211.763***	I(0)/I(1)
ILS 10Y mat.	-3.5842**	-65.4387***	-3.2476*	-66.4715***	-20.6738**	-39.8457***	I(0)/I(1)
ILS 15Y mat.	-3.6127**	-65.7196***	-3.2985*	-67.2048***	-20.1864**	-24.9186***	I(0)/I(1)
ILS 20Y mat.	-3.6954**	-65.8421***	-3.4128**	-67.5632***	-20.5971**	-1947.36***	I(0)/I(1)
ILS 30Y mat.	-3.6819**	-65.6043***	-3.3867**	-67.1184***	-19.8435**	-1951.28***	I(0)/I(1)

Notes: The table reports the Augmented Dickey–Fuller (ADF), Phillips–Perron (PP), and Ng–Perron unit-root test statistics for the Euro Zone inflation linked swap rates. The Ng–Perron column reports the MZ_α statistic. The null hypothesis for all three tests is that the series contains a unit root. Tests are conducted in levels and, where necessary, in first differences. Specifications in levels include a constant and a linear trend, while those in first differences include a constant. Lag lengths are selected using the Schwarz information criterion, with a maximum of 15 lags; the PP bandwidth is selected automatically using the Newey–West method and the Bartlett kernel. *, **, and *** indicate rejection of the unit-root null hypothesis at the 10%, 5%, and 1% significance levels, respectively. A dash indicates that the corresponding statistic is not reported. $I(0)$ denotes stationarity in levels, whereas $I(1)$ denotes stationarity after first differencing. $I(0)/I(1)$ indicates mixed evidence concerning the order of integration across the tests. The sample period is 01 January 2008 - 23 April 2023.

Table B.4: *Macroeconomic Surprises Effects on the US ILS rates (1Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.142	0.149	0.145	–
US Capacity Utilization	0.117	–	–	–
US Personal Income	0.108	0.112	–	–
US Retail Sales Index	0.130	0.138	–	–
US Core CPI (y/y)	0.736	0.777	0.751	0.718
US Non-Farm Payroll Change	0.155	0.167	0.161	–
US Initial Jobless Claims	-0.112	-0.117	–	–
UK Ind. Prod. (m/m)	0.034	–	–	–
UK PPI (y/y)	0.157	0.165	0.160	0.154
UK Ret. Sales (y/y)	0.031	–	–	–
UK Cons. Conf.	0.025	–	–	–
Ger. CPI (m/m)	0.165	0.176	0.170	0.162
Ger. Cons. Conf. Index	0.025	–	–	–
Ger. IFO Index	0.034	–	–	–
Ger. ZEW Index (Current)	0.025	–	–	–
Ger. ZEW Index (Expectations)	0.030	–	–	–
Fr. GDP (y/y, Final)	0.023	–	–	–
Fr. CPI (m/m)	0.131	0.141	0.134	0.128
Fr. PPI (y/y)	0.092	0.096	0.094	–
Fr. Ret. Sales Index (y/y)	0.020	–	–	–
Fr. PMI Composite	0.024	–	–	–
Fr. PMI Manufacturing	0.025	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.013	–	–	–
It. CPI (y/y)	0.072	–	–	–
It. CPI (NIC Index, y/y)	0.065	–	–	–
It. PPI (y/y)	0.052	–	–	–
Sp. GDP (q/q, Final)	0.010	–	–	–
Sp. CPI (m/m)	0.058	–	–	–
Sp. Ret. Sales Index (y/y)	0.009	–	–	–
Adj. R²	0.0261	0.0382	0.0362	0.0335

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 1 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.5: *Macroeconomic Surprises Effects on the US ILS rates (2Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.117	0.123	0.119	–
US Capacity Utilization	0.097	–	–	–
US Personal Income	0.090	0.094	–	–
US Retail Sales Index	0.107	0.114	–	–
US Core CPI (y/y)	0.682	0.719	0.695	0.665
US Non-Farm Payroll Change	0.128	0.137	0.133	–
US Initial Jobless Claims	-0.095	-0.099	–	–
UK Ind. Prod. (m/m)	0.027	–	–	–
UK PPI (y/y)	0.131	0.138	0.134	0.128
UK Ret. Sales (y/y)	0.026	–	–	–
UK Cons. Conf.	0.022	–	–	–
Ger. CPI (m/m)	0.150	0.159	0.154	0.147
Ger. Cons. Conf. Index	0.022	–	–	–
Ger. IFO Index	0.029	–	–	–
Ger. ZEW Index (Current)	0.021	–	–	–
Ger. ZEW Index (Expectations)	0.026	–	–	–
Fr. GDP (y/y, Final)	0.019	–	–	–
Fr. CPI (m/m)	0.112	0.121	0.115	0.110
Fr. PPI (y/y)	0.077	0.081	0.079	–
Fr. Ret. Sales Index (y/y)	0.016	–	–	–
Fr. PMI Composite	0.020	–	–	–
Fr. PMI Manufacturing	0.022	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.011	–	–	–
It. CPI (y/y)	0.065	–	–	–
It. CPI (NIC Index, y/y)	0.060	–	–	–
It. PPI (y/y)	0.043	–	–	–
Sp. GDP (q/q, Final)	0.008	–	–	–
Sp. CPI (m/m)	0.053	–	–	–
Sp. Ret. Sales Index (y/y)	0.007	–	–	–
Adj. R²	0.0238	0.0348	0.0329	0.0305

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 2 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.6: *Macroeconomic Surprises Effects on the US ILS rates (3Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.099	0.104	0.101	–
US Capacity Utilization	0.082	–	–	–
US Personal Income	0.080	0.084	–	–
US Retail Sales Index	0.091	0.097	–	–
US Core CPI (y/y)	0.626	0.661	0.639	0.611
US Non-Farm Payroll Change	0.108	0.116	0.113	–
US Initial Jobless Claims	-0.077	-0.081	–	–
UK Ind. Prod. (m/m)	0.023	–	–	–
UK PPI (y/y)	0.111	0.117	0.113	0.109
UK Ret. Sales (y/y)	0.022	–	–	–
UK Cons. Conf.	0.019	–	–	–
Ger. CPI (m/m)	0.127	0.135	0.131	0.124
Ger. Cons. Conf. Index	0.018	–	–	–
Ger. IFO Index	0.025	–	–	–
Ger. ZEW Index (Current)	0.018	–	–	–
Ger. ZEW Index (Expectations)	0.022	–	–	–
Fr. GDP (y/y, Final)	0.016	–	–	–
Fr. CPI (m/m)	0.101	0.108	0.104	0.099
Fr. PPI (y/y)	0.065	0.068	0.067	–
Fr. Ret. Sales Index (y/y)	0.014	–	–	–
Fr. PMI Composite	0.018	–	–	–
Fr. PMI Manufacturing	0.019	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.009	–	–	–
It. CPI (y/y)	0.055	–	–	–
It. CPI (NIC Index, y/y)	0.055	–	–	–
It. PPI (y/y)	0.037	–	–	–
Sp. GDP (q/q, Final)	0.007	–	–	–
Sp. CPI (m/m)	0.045	–	–	–
Sp. Ret. Sales Index (y/y)	0.006	–	–	–
Adj. R²	0.0199	0.0291	0.0275	0.0255

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 3 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.7: *Macroeconomic Surprises Effects on the US ILS rates (4Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.081	0.085	0.082	–
US Capacity Utilization	0.070	–	–	–
US Personal Income	0.073	0.076	–	–
US Retail Sales Index	0.078	0.083	–	–
US Core CPI (y/y)	0.578	0.609	0.589	0.563
US Non-Farm Payroll Change	0.093	0.100	0.097	–
US Initial Jobless Claims	-0.068	-0.071	–	–
UK Ind. Prod. (m/m)	0.020	–	–	–
UK PPI (y/y)	0.096	0.101	0.098	0.094
UK Ret. Sales (y/y)	0.018	–	–	–
UK Cons. Conf.	0.017	–	–	–
Ger. CPI (m/m)	0.115	0.122	0.118	0.113
Ger. Cons. Conf. Index	0.016	–	–	–
Ger. IFO Index	0.022	–	–	–
Ger. ZEW Index (Current)	0.016	–	–	–
Ger. ZEW Index (Expectations)	0.020	–	–	–
Fr. GDP (y/y, Final)	0.014	–	–	–
Fr. CPI (m/m)	0.091	0.098	0.093	0.089
Fr. PPI (y/y)	0.056	0.059	0.057	–
Fr. Ret. Sales Index (y/y)	0.012	–	–	–
Fr. PMI Composite	0.016	–	–	–
Fr. PMI Manufacturing	0.017	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.008	–	–	–
It. CPI (y/y)	0.050	–	–	–
It. CPI (NIC Index, y/y)	0.051	–	–	–
It. PPI (y/y)	0.031	–	–	–
Sp. GDP (q/q, Final)	0.006	–	–	–
Sp. CPI (m/m)	0.040	–	–	–
Sp. Ret. Sales Index (y/y)	0.005	–	–	–
Adj. R²	0.0222	0.0325	0.0308	0.0285

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 4 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.8: *Macroeconomic Surprises Effects on the US ILS rates (5Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.070	0.074	0.072	–
US Capacity Utilization	0.061	–	–	–
US Personal Income	0.066	0.069	–	–
US Retail Sales Index	0.068	0.072	–	–
US Core CPI (y/y)	0.528	0.557	0.539	0.515
US Non-Farm Payroll Change	0.081	0.087	0.084	–
US Initial Jobless Claims	-0.060	-0.062	–	–
UK Ind. Prod. (m/m)	0.017	–	–	–
UK PPI (y/y)	0.083	0.088	0.085	0.081
UK Ret. Sales (y/y)	0.015	–	–	–
UK Cons. Conf.	0.014	–	–	–
Ger. CPI (m/m)	0.104	0.111	0.107	0.102
Ger. Cons. Conf. Index	0.014	–	–	–
Ger. IFO Index	0.020	–	–	–
Ger. ZEW Index (Current)	0.014	–	–	–
Ger. ZEW Index (Expectations)	0.017	–	–	–
Fr. GDP (y/y, Final)	0.012	–	–	–
Fr. CPI (m/m)	0.083	0.089	0.085	0.081
Fr. PPI (y/y)	0.049	0.051	0.050	–
Fr. Ret. Sales Index (y/y)	0.010	–	–	–
Fr. PMI Composite	0.014	–	–	–
Fr. PMI Manufacturing	0.015	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.007	–	–	–
It. CPI (y/y)	0.045	–	–	–
It. CPI (NIC Index, y/y)	0.046	–	–	–
It. PPI (y/y)	0.027	–	–	–
Sp. GDP (q/q, Final)	0.005	–	–	–
Sp. CPI (m/m)	0.037	–	–	–
Sp. Ret. Sales Index (y/y)	0.005	–	–	–
Adj. R²	0.0232	0.0339	0.0321	0.0297

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 5 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.9: *Macroeconomic Surprises Effects on the US ILS rates (6Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.062	0.066	0.063	–
US Capacity Utilization	0.054	–	–	–
US Personal Income	0.060	0.063	–	–
US Retail Sales Index	0.057	0.061	–	–
US Core CPI (y/y)	0.493	0.520	0.503	0.481
US Non-Farm Payroll Change	0.068	0.073	0.071	–
US Initial Jobless Claims	-0.054	-0.056	–	–
UK Ind. Prod. (m/m)	0.015	–	–	–
UK PPI (y/y)	0.070	0.074	0.072	0.069
UK Ret. Sales (y/y)	0.014	–	–	–
UK Cons. Conf.	0.012	–	–	–
Ger. CPI (m/m)	0.095	0.101	0.098	0.093
Ger. Cons. Conf. Index	0.012	–	–	–
Ger. IFO Index	0.018	–	–	–
Ger. ZEW Index (Current)	0.013	–	–	–
Ger. ZEW Index (Expectations)	0.015	–	–	–
Fr. GDP (y/y, Final)	0.011	–	–	–
Fr. CPI (m/m)	0.076	0.081	0.078	0.074
Fr. PPI (y/y)	0.044	0.046	0.045	–
Fr. Ret. Sales Index (y/y)	0.009	–	–	–
Fr. PMI Composite	0.012	–	–	–
Fr. PMI Manufacturing	0.013	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.006	–	–	–
It. CPI (y/y)	0.042	–	–	–
It. CPI (NIC Index, y/y)	0.043	–	–	–
It. PPI (y/y)	0.024	–	–	–
Sp. GDP (q/q, Final)	0.005	–	–	–
Sp. CPI (m/m)	0.033	–	–	–
Sp. Ret. Sales Index (y/y)	0.004	–	–	–
Adj. R²	0.0167	0.0244	0.0231	0.0214

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 6 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.10: *Macroeconomic Surprises Effects on the US ILS rates (7Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.056	0.059	0.057	–
US Capacity Utilization	0.049	–	–	–
US Personal Income	0.055	0.057	–	–
US Retail Sales Index	0.051	0.054	–	–
US Core CPI (y/y)	0.458	0.483	0.467	0.447
US Non-Farm Payroll Change	0.061	0.065	0.063	–
US Initial Jobless Claims	-0.048	-0.051	–	–
UK Ind. Prod. (m/m)	0.014	–	–	–
UK PPI (y/y)	0.063	0.067	0.064	0.062
UK Ret. Sales (y/y)	0.012	–	–	–
UK Cons. Conf.	0.011	–	–	–
Ger. CPI (m/m)	0.088	0.093	0.090	0.086
Ger. Cons. Conf. Index	0.011	–	–	–
Ger. IFO Index	0.016	–	–	–
Ger. ZEW Index (Current)	0.011	–	–	–
Ger. ZEW Index (Expectations)	0.013	–	–	–
Fr. GDP (y/y, Final)	0.010	–	–	–
Fr. CPI (m/m)	0.070	0.075	0.072	0.069
Fr. PPI (y/y)	0.039	0.041	0.040	–
Fr. Ret. Sales Index (y/y)	0.008	–	–	–
Fr. PMI Composite	0.011	–	–	–
Fr. PMI Manufacturing	0.012	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.005	–	–	–
It. CPI (y/y)	0.038	–	–	–
It. CPI (NIC Index, y/y)	0.040	–	–	–
It. PPI (y/y)	0.022	–	–	–
Sp. GDP (q/q, Final)	0.004	–	–	–
Sp. CPI (m/m)	0.031	–	–	–
Sp. Ret. Sales Index (y/y)	0.004	–	–	–
Adj. R²	0.0184	0.0269	0.0255	0.0236

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 7 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.11: *Macroeconomic Surprises Effects on the US ILS rates (8Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.050	0.053	0.051	–
US Capacity Utilization	0.044	–	–	–
US Personal Income	0.051	0.053	–	–
US Retail Sales Index	0.046	0.049	–	–
US Core CPI (y/y)	0.430	0.454	0.439	0.419
US Non-Farm Payroll Change	0.055	0.059	0.057	–
US Initial Jobless Claims	-0.044	-0.046	–	–
UK Ind. Prod. (m/m)	0.012	–	–	–
UK PPI (y/y)	0.057	0.060	0.058	0.056
UK Ret. Sales (y/y)	0.011	–	–	–
UK Cons. Conf.	0.010	–	–	–
Ger. CPI (m/m)	0.082	0.087	0.084	0.080
Ger. Cons. Conf. Index	0.010	–	–	–
Ger. IFO Index	0.015	–	–	–
Ger. ZEW Index (Current)	0.010	–	–	–
Ger. ZEW Index (Expectations)	0.012	–	–	–
Fr. GDP (y/y, Final)	0.009	–	–	–
Fr. CPI (m/m)	0.065	0.070	0.067	0.064
Fr. PPI (y/y)	0.036	0.037	0.037	–
Fr. Ret. Sales Index (y/y)	0.007	–	–	–
Fr. PMI Composite	0.010	–	–	–
Fr. PMI Manufacturing	0.011	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.005	–	–	–
It. CPI (y/y)	0.036	–	–	–
It. CPI (NIC Index, y/y)	0.038	–	–	–
It. PPI (y/y)	0.020	–	–	–
Sp. GDP (q/q, Final)	0.004	–	–	–
Sp. CPI (m/m)	0.029	–	–	–
Sp. Ret. Sales Index (y/y)	0.003	–	–	–
Adj. R²	0.0193	0.0283	0.0268	0.0248

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 8 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.12: *Macroeconomic Surprises Effects on the US ILS rates (9Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.046	0.049	0.047	–
US Capacity Utilization	0.041	–	–	–
US Personal Income	0.047	0.049	–	–
US Retail Sales Index	0.043	0.045	–	–
US Core CPI (y/y)	0.381	0.402	0.388	0.371
US Non-Farm Payroll Change	0.051	0.055	0.053	–
US Initial Jobless Claims	-0.040	-0.042	–	–
UK Ind. Prod. (m/m)	0.011	–	–	–
UK PPI (y/y)	0.053	0.056	0.054	0.052
UK Ret. Sales (y/y)	0.010	–	–	–
UK Cons. Conf.	0.009	–	–	–
Ger. CPI (m/m)	0.076	0.081	0.078	0.074
Ger. Cons. Conf. Index	0.009	–	–	–
Ger. IFO Index	0.013	–	–	–
Ger. ZEW Index (Current)	0.009	–	–	–
Ger. ZEW Index (Expectations)	0.011	–	–	–
Fr. GDP (y/y, Final)	0.008	–	–	–
Fr. CPI (m/m)	0.060	0.064	0.061	0.059
Fr. PPI (y/y)	0.031	0.033	0.032	–
Fr. Ret. Sales Index (y/y)	0.007	–	–	–
Fr. PMI Composite	0.009	–	–	–
Fr. PMI Manufacturing	0.010	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.004	–	–	–
It. CPI (y/y)	0.033	–	–	–
It. CPI (NIC Index, y/y)	0.033	–	–	–
It. PPI (y/y)	0.018	–	–	–
Sp. GDP (q/q, Final)	0.003	–	–	–
Sp. CPI (m/m)	0.027	–	–	–
Sp. Ret. Sales Index (y/y)	0.003	–	–	–
Adj. R²	0.0118	0.0172	0.0163	0.0151

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 9 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.13: *Macroeconomic Surprises Effects on the US ILS rates (10Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.042	0.045	0.043	–
US Capacity Utilization	0.037	–	–	–
US Personal Income	0.044	0.046	–	–
US Retail Sales Index	0.039	0.042	–	–
US Core CPI (y/y)	0.367	0.388	0.375	0.358
US Non-Farm Payroll Change	0.047	0.050	0.049	–
US Initial Jobless Claims	-0.037	-0.038	–	–
UK Ind. Prod. (m/m)	0.010	–	–	–
UK PPI (y/y)	0.047	0.050	0.048	0.046
UK Ret. Sales (y/y)	0.009	–	–	–
UK Cons. Conf.	0.008	–	–	–
Ger. CPI (m/m)	0.068	0.073	0.070	0.067
Ger. Cons. Conf. Index	0.008	–	–	–
Ger. IFO Index	0.012	–	–	–
Ger. ZEW Index (Current)	0.008	–	–	–
Ger. ZEW Index (Expectations)	0.010	–	–	–
Fr. GDP (y/y, Final)	0.007	–	–	–
Fr. CPI (m/m)	0.056	0.061	0.057	0.055
Fr. PPI (y/y)	0.028	0.030	0.029	–
Fr. Ret. Sales Index (y/y)	0.006	–	–	–
Fr. PMI Composite	0.008	–	–	–
Fr. PMI Manufacturing	0.009	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.004	–	–	–
It. CPI (y/y)	0.030	–	–	–
It. CPI (NIC Index, y/y)	0.032	–	–	–
It. PPI (y/y)	0.016	–	–	–
Sp. GDP (q/q, Final)	0.003	–	–	–
Sp. CPI (m/m)	0.025	–	–	–
Sp. Ret. Sales Index (y/y)	0.003	–	–	–
Adj. R²	0.0138	0.0202	0.0191	0.0177

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 10 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.14: *Macroeconomic Surprises Effects on the US ILS rates (15Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.030	0.032	0.031	–
US Capacity Utilization	0.026	–	–	–
US Personal Income	0.035	0.036	–	–
US Retail Sales Index	0.028	0.030	–	–
US Core CPI (y/y)	0.293	0.309	0.299	0.285
US Non-Farm Payroll Change	0.033	0.036	0.035	–
US Initial Jobless Claims	-0.027	-0.028	–	–
UK Ind. Prod. (m/m)	0.008	–	–	–
UK PPI (y/y)	0.036	0.038	0.037	0.035
UK Ret. Sales (y/y)	0.007	–	–	–
UK Cons. Conf.	0.007	–	–	–
Ger. CPI (m/m)	0.056	0.059	0.057	0.055
Ger. Cons. Conf. Index	0.007	–	–	–
Ger. IFO Index	0.009	–	–	–
Ger. ZEW Index (Current)	0.007	–	–	–
Ger. ZEW Index (Expectations)	0.008	–	–	–
Fr. GDP (y/y, Final)	0.005	–	–	–
Fr. CPI (m/m)	0.044	0.047	0.045	0.043
Fr. PPI (y/y)	0.022	0.023	0.023	–
Fr. Ret. Sales Index (y/y)	0.004	–	–	–
Fr. PMI Composite	0.006	–	–	–
Fr. PMI Manufacturing	0.007	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.003	–	–	–
It. CPI (y/y)	0.024	–	–	–
It. CPI (NIC Index, y/y)	0.027	–	–	–
It. PPI (y/y)	0.012	–	–	–
Sp. GDP (q/q, Final)	0.002	–	–	–
Sp. CPI (m/m)	0.019	–	–	–
Sp. Ret. Sales Index (y/y)	0.002	–	–	–
Adj. R²	0.0109	0.0160	0.0151	0.0140

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 15 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.15: *Macroeconomic Surprises Effects on the US ILS rates (20Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.024	0.025	0.024	–
US Capacity Utilization	0.020	–	–	–
US Personal Income	0.027	0.029	–	–
US Retail Sales Index	0.022	0.023	–	–
US Core CPI (y/y)	0.243	0.256	0.248	0.237
US Non-Farm Payroll Change	0.026	0.028	0.027	–
US Initial Jobless Claims	-0.021	-0.022	–	–
UK Ind. Prod. (m/m)	0.006	–	–	–
UK PPI (y/y)	0.027	0.028	0.028	0.026
UK Ret. Sales (y/y)	0.005	–	–	–
UK Cons. Conf.	0.005	–	–	–
Ger. CPI (m/m)	0.044	0.047	0.046	0.043
Ger. Cons. Conf. Index	0.005	–	–	–
Ger. IFO Index	0.007	–	–	–
Ger. ZEW Index (Current)	0.005	–	–	–
Ger. ZEW Index (Expectations)	0.006	–	–	–
Fr. GDP (y/y, Final)	0.004	–	–	–
Fr. CPI (m/m)	0.035	0.037	0.036	0.034
Fr. PPI (y/y)	0.016	0.017	0.016	–
Fr. Ret. Sales Index (y/y)	0.003	–	–	–
Fr. PMI Composite	0.005	–	–	–
Fr. PMI Manufacturing	0.005	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.002	–	–	–
It. CPI (y/y)	0.019	–	–	–
It. CPI (NIC Index, y/y)	0.022	–	–	–
It. PPI (y/y)	0.009	–	–	–
Sp. GDP (q/q, Final)	0.002	–	–	–
Sp. CPI (m/m)	0.015	–	–	–
Sp. Ret. Sales Index (y/y)	0.002	–	–	–
Adj. R²	0.0076	0.0112	0.0106	0.0098

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 20 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.16: *Macroeconomic Surprises Effects on the US ILS rates (30Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.016	0.017	0.016	–
US Capacity Utilization	0.013	–	–	–
US Personal Income	0.019	0.020	–	–
US Retail Sales Index	0.014	0.015	–	–
US Core CPI (y/y)	0.191	0.201	0.195	0.186
US Non-Farm Payroll Change	0.017	0.019	0.018	–
US Initial Jobless Claims	-0.013	-0.014	–	–
UK Ind. Prod. (m/m)	0.004	–	–	–
UK PPI (y/y)	0.017	0.018	0.017	0.017
UK Ret. Sales (y/y)	0.003	–	–	–
UK Cons. Conf.	0.003	–	–	–
Ger. CPI (m/m)	0.031	0.033	0.032	0.030
Ger. Cons. Conf. Index	0.003	–	–	–
Ger. IFO Index	0.005	–	–	–
Ger. ZEW Index (Current)	0.003	–	–	–
Ger. ZEW Index (Expectations)	0.004	–	–	–
Fr. GDP (y/y, Final)	0.003	–	–	–
Fr. CPI (m/m)	0.024	0.025	0.025	0.024
Fr. PPI (y/y)	0.010	0.011	0.010	–
Fr. Ret. Sales Index (y/y)	0.002	–	–	–
Fr. PMI Composite	0.003	–	–	–
Fr. PMI Manufacturing	0.003	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.001	–	–	–
It. CPI (y/y)	0.013	–	–	–
It. CPI (NIC Index, y/y)	0.017	–	–	–
It. PPI (y/y)	0.006	–	–	–
Sp. GDP (q/q, Final)	0.001	–	–	–
Sp. CPI (m/m)	0.011	–	–	–
Sp. Ret. Sales Index (y/y)	0.001	–	–	–
Adj. R²	0.0087	0.0127	0.0120	0.0111

Notes: The table reports the estimated coefficients of macroeconomic surprises on the US Inflation Linked Swap rate with 30 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.17: *Macroeconomic Surprises Effects on the UK ILS rates (1Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k$ 95% (iii)	99% (iv)
US GDP (Final)	0.077	–	–	–
US Capacity Utilization	0.068	–	–	–
US Personal Income	0.056	–	–	–
US Retail Sales Index	0.072	–	–	–
US Core CPI (y/y)	0.410	0.433	0.418	0.400
US Non-Farm Payroll Change	0.085	0.091	0.087	–
US Initial Jobless Claims	-0.062	–	–	–
UK Ind. Prod. (m/m)	0.117	0.125	0.121	–
UK PPI (y/y)	0.557	0.587	0.568	0.543
UK Ret. Sales (y/y)	0.112	0.120	0.116	–
UK Cons. Conf.	0.092	0.096	–	–
Ger. CPI (m/m)	0.197	0.210	0.203	0.193
Ger. Cons. Conf. Index	0.029	–	–	–
Ger. IFO Index	0.041	–	–	–
Ger. ZEW Index (Current)	0.030	–	–	–
Ger. ZEW Index (Expectations)	0.036	–	–	–
Fr. GDP (y/y, Final)	0.031	–	–	–
Fr. CPI (m/m)	0.163	0.175	0.169	0.160
Fr. PPI (y/y)	0.115	0.120	–	–
Fr. Ret. Sales Index (y/y)	0.025	–	–	–
Fr. PMI Composite	0.030	–	–	–
Fr. PMI Manufacturing	0.032	–	–	–
It. Ind. Prod. Index (SA, y/y)	0.016	–	–	–
It. CPI (y/y)	0.090	0.095	0.092	0.088
It. CPI (NIC Index, y/y)	0.081	–	–	–
It. PPI (y/y)	0.068	–	–	–
Sp. GDP (q/q, Final)	0.012	–	–	–
Sp. CPI (m/m)	0.070	0.074	–	–
Sp. Ret. Sales Index (y/y)	0.011	–	–	–
Adj. R²	0.0362	0.0529	0.0501	0.0464

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 1 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.18: *Macroeconomic Surprises Effects on the UK ILS rates (2Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.064	—	—	—
US Capacity Utilization	0.053	—	—	—
US Personal Income	0.050	—	—	—
US Retail Sales Index	0.059	—	—	—
US Core CPI (y/y)	0.380	0.400	0.387	0.370
US Non-Farm Payroll Change	0.070	0.075	0.072	—
US Initial Jobless Claims	-0.050	—	—	—
UK Ind. Prod. (m/m)	0.097	0.103	0.100	—
UK PPI (y/y)	0.465	0.490	0.474	0.453
UK Ret. Sales (y/y)	0.092	0.099	0.096	—
UK Cons. Conf.	0.078	0.082	—	—
Ger. CPI (m/m)	0.179	0.190	0.184	0.175
Ger. Cons. Conf. Index	0.025	—	—	—
Ger. IFO Index	0.035	—	—	—
Ger. ZEW Index (Current)	0.025	—	—	—
Ger. ZEW Index (Expectations)	0.031	—	—	—
Fr. GDP (y/y, Final)	0.024	—	—	—
Fr. CPI (m/m)	0.147	0.159	0.153	0.144
Fr. PPI (y/y)	0.096	0.100	—	—
Fr. Ret. Sales Index (y/y)	0.021	—	—	—
Fr. PMI Composite	0.026	—	—	—
Fr. PMI Manufacturing	0.027	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.013	—	—	—
It. CPI (y/y)	0.081	0.086	0.083	0.079
It. CPI (NIC Index, y/y)	0.075	—	—	—
It. PPI (y/y)	0.053	—	—	—
Sp. GDP (q/q, Final)	0.010	—	—	—
Sp. CPI (m/m)	0.063	0.067	—	—
Sp. Ret. Sales Index (y/y)	0.009	—	—	—
Adj. R²	0.0321	0.0470	0.0445	0.0412

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 2 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.19: *Macroeconomic Surprises Effects on the UK ILS rates (3Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.054	—	—	—
US Capacity Utilization	0.045	—	—	—
US Personal Income	0.045	—	—	—
US Retail Sales Index	0.050	—	—	—
US Core CPI (y/y)	0.349	0.368	0.356	0.340
US Non-Farm Payroll Change	0.059	0.064	0.060	—
US Initial Jobless Claims	-0.043	—	—	—
UK Ind. Prod. (m/m)	0.082	0.087	0.084	—
UK PPI (y/y)	0.394	0.416	0.402	0.384
UK Ret. Sales (y/y)	0.074	0.080	0.077	—
UK Cons. Conf.	0.064	0.067	—	—
Ger. CPI (m/m)	0.160	0.170	0.165	0.157
Ger. Cons. Conf. Index	0.022	—	—	—
Ger. IFO Index	0.030	—	—	—
Ger. ZEW Index (Current)	0.022	—	—	—
Ger. ZEW Index (Expectations)	0.027	—	—	—
Fr. GDP (y/y, Final)	0.020	—	—	—
Fr. CPI (m/m)	0.125	0.134	0.130	0.122
Fr. PPI (y/y)	0.081	0.085	—	—
Fr. Ret. Sales Index (y/y)	0.017	—	—	—
Fr. PMI Composite	0.022	—	—	—
Fr. PMI Manufacturing	0.024	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.011	—	—	—
It. CPI (y/y)	0.072	0.077	0.074	0.071
It. CPI (NIC Index, y/y)	0.068	—	—	—
It. PPI (y/y)	0.045	—	—	—
Sp. GDP (q/q, Final)	0.008	—	—	—
Sp. CPI (m/m)	0.053	0.056	—	—
Sp. Ret. Sales Index (y/y)	0.008	—	—	—
Adj. R²	0.0235	0.0343	0.0325	0.0301

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 3 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.20: *Macroeconomic Surprises Effects on the UK ILS rates (4Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.047	—	—	—
US Capacity Utilization	0.038	—	—	—
US Personal Income	0.040	—	—	—
US Retail Sales Index	0.043	—	—	—
US Core CPI (y/y)	0.321	0.339	0.328	0.313
US Non-Farm Payroll Change	0.051	0.055	0.052	—
US Initial Jobless Claims	-0.038	—	—	—
UK Ind. Prod. (m/m)	0.070	0.075	0.072	—
UK PPI (y/y)	0.340	0.359	0.347	0.332
UK Ret. Sales (y/y)	0.064	0.069	0.066	—
UK Cons. Conf.	0.057	0.059	—	—
Ger. CPI (m/m)	0.137	0.146	0.141	0.134
Ger. Cons. Conf. Index	0.019	—	—	—
Ger. IFO Index	0.027	—	—	—
Ger. ZEW Index (Current)	0.019	—	—	—
Ger. ZEW Index (Expectations)	0.022	—	—	—
Fr. GDP (y/y, Final)	0.017	—	—	—
Fr. CPI (m/m)	0.113	0.122	0.118	0.111
Fr. PPI (y/y)	0.070	0.073	—	—
Fr. Ret. Sales Index (y/y)	0.015	—	—	—
Fr. PMI Composite	0.020	—	—	—
Fr. PMI Manufacturing	0.021	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.010	—	—	—
It. CPI (y/y)	0.062	0.066	0.064	0.061
It. CPI (NIC Index, y/y)	0.063	—	—	—
It. PPI (y/y)	0.039	—	—	—
Sp. GDP (q/q, Final)	0.007	—	—	—
Sp. CPI (m/m)	0.048	0.051	—	—
Sp. Ret. Sales Index (y/y)	0.006	—	—	—
Adj. R²	0.0197	0.0287	0.0272	0.0252

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 4 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.21: *Macroeconomic Surprises Effects on the UK ILS rates (5Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.038	—	—	—
US Capacity Utilization	0.033	—	—	—
US Personal Income	0.036	—	—	—
US Retail Sales Index	0.036	—	—	—
US Core CPI (y/y)	0.294	0.310	0.300	0.287
US Non-Farm Payroll Change	0.044	0.048	0.045	—
US Initial Jobless Claims	-0.033	—	—	—
UK Ind. Prod. (m/m)	0.061	0.065	0.063	—
UK PPI (y/y)	0.296	0.313	0.302	0.289
UK Ret. Sales (y/y)	0.055	0.060	0.058	—
UK Cons. Conf.	0.050	0.052	—	—
Ger. CPI (m/m)	0.124	0.133	0.128	0.122
Ger. Cons. Conf. Index	0.017	—	—	—
Ger. IFO Index	0.024	—	—	—
Ger. ZEW Index (Current)	0.017	—	—	—
Ger. ZEW Index (Expectations)	0.020	—	—	—
Fr. GDP (y/y, Final)	0.015	—	—	—
Fr. CPI (m/m)	0.103	0.110	0.107	0.101
Fr. PPI (y/y)	0.061	0.064	—	—
Fr. Ret. Sales Index (y/y)	0.013	—	—	—
Fr. PMI Composite	0.016	—	—	—
Fr. PMI Manufacturing	0.018	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.008	—	—	—
It. CPI (y/y)	0.056	0.060	0.057	0.055
It. CPI (NIC Index, y/y)	0.058	—	—	—
It. PPI (y/y)	0.034	—	—	—
Sp. GDP (q/q, Final)	0.006	—	—	—
Sp. CPI (m/m)	0.044	0.047	—	—
Sp. Ret. Sales Index (y/y)	0.006	—	—	—
Adj. R²	0.0183	0.0267	0.0253	0.0234

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 5 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.22: *Macroeconomic Surprises Effects on the UK ILS rates (6Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.034	—	—	—
US Capacity Utilization	0.030	—	—	—
US Personal Income	0.033	—	—	—
US Retail Sales Index	0.032	—	—	—
US Core CPI (y/y)	0.262	0.276	0.267	0.255
US Non-Farm Payroll Change	0.039	0.042	0.040	—
US Initial Jobless Claims	-0.030	—	—	—
UK Ind. Prod. (m/m)	0.054	0.058	0.056	—
UK PPI (y/y)	0.264	0.278	0.269	0.257
UK Ret. Sales (y/y)	0.049	0.053	0.051	—
UK Cons. Conf.	0.045	0.047	—	—
Ger. CPI (m/m)	0.114	0.121	0.117	0.112
Ger. Cons. Conf. Index	0.015	—	—	—
Ger. IFO Index	0.021	—	—	—
Ger. ZEW Index (Current)	0.015	—	—	—
Ger. ZEW Index (Expectations)	0.018	—	—	—
Fr. GDP (y/y, Final)	0.013	—	—	—
Fr. CPI (m/m)	0.094	0.101	0.098	0.092
Fr. PPI (y/y)	0.054	0.057	—	—
Fr. Ret. Sales Index (y/y)	0.011	—	—	—
Fr. PMI Composite	0.015	—	—	—
Fr. PMI Manufacturing	0.017	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.008	—	—	—
It. CPI (y/y)	0.052	0.055	0.053	0.051
It. CPI (NIC Index, y/y)	0.054	—	—	—
It. PPI (y/y)	0.030	—	—	—
Sp. GDP (q/q, Final)	0.005	—	—	—
Sp. CPI (m/m)	0.040	0.042	—	—
Sp. Ret. Sales Index (y/y)	0.005	—	—	—
Adj. R²	0.0162	0.0237	0.0225	0.0208

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 6 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.23: *Macroeconomic Surprises Effects on the UK ILS rates (7Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.030	—	—	—
US Capacity Utilization	0.027	—	—	—
US Personal Income	0.030	—	—	—
US Retail Sales Index	0.028	—	—	—
US Core CPI (y/y)	0.243	0.256	0.248	0.237
US Non-Farm Payroll Change	0.033	0.036	0.034	—
US Initial Jobless Claims	-0.027	—	—	—
UK Ind. Prod. (m/m)	0.049	0.052	0.050	—
UK PPI (y/y)	0.224	0.236	0.229	0.218
UK Ret. Sales (y/y)	0.044	0.047	0.046	—
UK Cons. Conf.	0.041	0.042	—	—
Ger. CPI (m/m)	0.105	0.111	0.108	0.103
Ger. Cons. Conf. Index	0.014	—	—	—
Ger. IFO Index	0.019	—	—	—
Ger. ZEW Index (Current)	0.013	—	—	—
Ger. ZEW Index (Expectations)	0.016	—	—	—
Fr. GDP (y/y, Final)	0.012	—	—	—
Fr. CPI (m/m)	0.086	0.093	0.090	0.084
Fr. PPI (y/y)	0.049	0.051	—	—
Fr. Ret. Sales Index (y/y)	0.010	—	—	—
Fr. PMI Composite	0.013	—	—	—
Fr. PMI Manufacturing	0.015	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.007	—	—	—
It. CPI (y/y)	0.048	0.051	0.049	0.047
It. CPI (NIC Index, y/y)	0.050	—	—	—
It. PPI (y/y)	0.027	—	—	—
Sp. GDP (q/q, Final)	0.005	—	—	—
Sp. CPI (m/m)	0.037	0.039	—	—
Sp. Ret. Sales Index (y/y)	0.004	—	—	—
Adj. R²	0.0154	0.0225	0.0213	0.0197

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 7 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.24: *Macroeconomic Surprises Effects on the UK ILS rates (8Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.028	—	—	—
US Capacity Utilization	0.024	—	—	—
US Personal Income	0.028	—	—	—
US Retail Sales Index	0.026	—	—	—
US Core CPI (y/y)	0.228	0.241	0.233	0.223
US Non-Farm Payroll Change	0.030	0.032	0.031	—
US Initial Jobless Claims	-0.024	—	—	—
UK Ind. Prod. (m/m)	0.044	0.047	0.045	—
UK PPI (y/y)	0.203	0.215	0.208	0.198
UK Ret. Sales (y/y)	0.040	0.043	0.041	—
UK Cons. Conf.	0.037	0.039	—	—
Ger. CPI (m/m)	0.098	0.104	0.100	0.096
Ger. Cons. Conf. Index	0.013	—	—	—
Ger. IFO Index	0.018	—	—	—
Ger. ZEW Index (Current)	0.012	—	—	—
Ger. ZEW Index (Expectations)	0.015	—	—	—
Fr. GDP (y/y, Final)	0.011	—	—	—
Fr. CPI (m/m)	0.080	0.087	0.084	0.078
Fr. PPI (y/y)	0.044	0.046	—	—
Fr. Ret. Sales Index (y/y)	0.009	—	—	—
Fr. PMI Composite	0.012	—	—	—
Fr. PMI Manufacturing	0.013	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.006	—	—	—
It. CPI (y/y)	0.044	0.047	0.045	0.043
It. CPI (NIC Index, y/y)	0.047	—	—	—
It. PPI (y/y)	0.025	—	—	—
Sp. GDP (q/q, Final)	0.004	—	—	—
Sp. CPI (m/m)	0.034	0.036	—	—
Sp. Ret. Sales Index (y/y)	0.004	—	—	—
Adj. R²	0.0131	0.0192	0.0181	0.0168

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 8 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.25: *Macroeconomic Surprises Effects on the UK ILS rates (9Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.025	—	—	—
US Capacity Utilization	0.022	—	—	—
US Personal Income	0.026	—	—	—
US Retail Sales Index	0.024	—	—	—
US Core CPI (y/y)	0.213	0.225	0.217	0.208
US Non-Farm Payroll Change	0.028	0.030	0.029	—
US Initial Jobless Claims	-0.022	—	—	—
UK Ind. Prod. (m/m)	0.041	0.043	0.042	—
UK PPI (y/y)	0.188	0.198	0.192	0.183
UK Ret. Sales (y/y)	0.037	0.039	0.038	—
UK Cons. Conf.	0.034	0.035	—	—
Ger. CPI (m/m)	0.090	0.096	0.093	0.088
Ger. Cons. Conf. Index	0.011	—	—	—
Ger. IFO Index	0.016	—	—	—
Ger. ZEW Index (Current)	0.011	—	—	—
Ger. ZEW Index (Expectations)	0.013	—	—	—
Fr. GDP (y/y, Final)	0.010	—	—	—
Fr. CPI (m/m)	0.074	0.080	0.077	0.073
Fr. PPI (y/y)	0.041	0.043	—	—
Fr. Ret. Sales Index (y/y)	0.008	—	—	—
Fr. PMI Composite	0.011	—	—	—
Fr. PMI Manufacturing	0.012	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.005	—	—	—
It. CPI (y/y)	0.041	0.044	0.042	0.040
It. CPI (NIC Index, y/y)	0.044	—	—	—
It. PPI (y/y)	0.023	—	—	—
Sp. GDP (q/q, Final)	0.004	—	—	—
Sp. CPI (m/m)	0.032	0.034	—	—
Sp. Ret. Sales Index (y/y)	0.004	—	—	—
Adj. R²	0.0162	0.0237	0.0225	0.0208

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 9 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.26: *Macroeconomic Surprises Effects on the UK ILS rates (10Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.024	—	—	—
US Capacity Utilization	0.019	—	—	—
US Personal Income	0.023	—	—	—
US Retail Sales Index	0.021	—	—	—
US Core CPI (y/y)	0.207	0.218	0.211	0.202
US Non-Farm Payroll Change	0.026	0.028	0.027	—
US Initial Jobless Claims	-0.020	—	—	—
UK Ind. Prod. (m/m)	0.035	0.038	0.036	—
UK PPI (y/y)	0.172	0.181	0.175	0.167
UK Ret. Sales (y/y)	0.033	0.036	0.035	—
UK Cons. Conf.	0.031	0.032	—	—
Ger. CPI (m/m)	0.083	0.088	0.085	0.081
Ger. Cons. Conf. Index	0.010	—	—	—
Ger. IFO Index	0.014	—	—	—
Ger. ZEW Index (Current)	0.010	—	—	—
Ger. ZEW Index (Expectations)	0.012	—	—	—
Fr. GDP (y/y, Final)	0.009	—	—	—
Fr. CPI (m/m)	0.068	0.073	0.070	0.067
Fr. PPI (y/y)	0.036	0.038	—	—
Fr. Ret. Sales Index (y/y)	0.008	—	—	—
Fr. PMI Composite	0.010	—	—	—
Fr. PMI Manufacturing	0.011	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.005	—	—	—
It. CPI (y/y)	0.038	0.040	0.039	0.037
It. CPI (NIC Index, y/y)	0.040	—	—	—
It. PPI (y/y)	0.021	—	—	—
Sp. GDP (q/q, Final)	0.004	—	—	—
Sp. CPI (m/m)	0.030	0.032	—	—
Sp. Ret. Sales Index (y/y)	0.003	—	—	—
Adj. R²	0.0179	0.0261	0.0247	0.0229

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 10 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.27: *Macroeconomic Surprises Effects on the UK ILS rates (15Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.017	—	—	—
US Capacity Utilization	0.015	—	—	—
US Personal Income	0.019	—	—	—
US Retail Sales Index	0.016	—	—	—
US Core CPI (y/y)	0.165	0.174	0.168	0.162
US Non-Farm Payroll Change	0.019	0.020	0.019	—
US Initial Jobless Claims	-0.015	—	—	—
UK Ind. Prod. (m/m)	0.027	0.028	0.028	—
UK PPI (y/y)	0.131	0.138	0.134	0.128
UK Ret. Sales (y/y)	0.024	0.026	0.025	—
UK Cons. Conf.	0.023	0.024	—	—
Ger. CPI (m/m)	0.067	0.072	0.070	0.066
Ger. Cons. Conf. Index	0.008	—	—	—
Ger. IFO Index	0.011	—	—	—
Ger. ZEW Index (Current)	0.008	—	—	—
Ger. ZEW Index (Expectations)	0.009	—	—	—
Fr. GDP (y/y, Final)	0.007	—	—	—
Fr. CPI (m/m)	0.055	0.059	0.057	0.054
Fr. PPI (y/y)	0.028	0.029	—	—
Fr. Ret. Sales Index (y/y)	0.005	—	—	—
Fr. PMI Composite	0.008	—	—	—
Fr. PMI Manufacturing	0.008	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.004	—	—	—
It. CPI (y/y)	0.031	0.033	0.032	0.030
It. CPI (NIC Index, y/y)	0.034	—	—	—
It. PPI (y/y)	0.015	—	—	—
Sp. GDP (q/q, Final)	0.003	—	—	—
Sp. CPI (m/m)	0.023	0.024	—	—
Sp. Ret. Sales Index (y/y)	0.002	—	—	—
Adj. R²	0.0113	0.0165	0.0157	0.0145

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 15 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.28: *Macroeconomic Surprises Effects on the UK ILS rates (20Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.013	—	—	—
US Capacity Utilization	0.011	—	—	—
US Personal Income	0.015	—	—	—
US Retail Sales Index	0.012	—	—	—
US Core CPI (y/y)	0.137	0.144	0.140	0.134
US Non-Farm Payroll Change	0.014	0.016	0.014	—
US Initial Jobless Claims	-0.012	—	—	—
UK Ind. Prod. (m/m)	0.021	0.022	0.021	—
UK PPI (y/y)	0.097	0.103	0.099	0.095
UK Ret. Sales (y/y)	0.018	0.020	0.019	—
UK Cons. Conf.	0.018	0.019	—	—
Ger. CPI (m/m)	0.054	0.057	0.056	0.053
Ger. Cons. Conf. Index	0.006	—	—	—
Ger. IFO Index	0.008	—	—	—
Ger. ZEW Index (Current)	0.006	—	—	—
Ger. ZEW Index (Expectations)	0.007	—	—	—
Fr. GDP (y/y, Final)	0.005	—	—	—
Fr. CPI (m/m)	0.044	0.047	0.046	0.043
Fr. PPI (y/y)	0.019	0.020	—	—
Fr. Ret. Sales Index (y/y)	0.004	—	—	—
Fr. PMI Composite	0.006	—	—	—
Fr. PMI Manufacturing	0.007	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.003	—	—	—
It. CPI (y/y)	0.023	0.024	0.024	0.023
It. CPI (NIC Index, y/y)	0.027	—	—	—
It. PPI (y/y)	0.011	—	—	—
Sp. GDP (q/q, Final)	0.002	—	—	—
Sp. CPI (m/m)	0.018	0.019	—	—
Sp. Ret. Sales Index (y/y)	0.002	—	—	—
Adj. R²	0.0122	0.0179	0.0170	0.0157

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 20 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.29: *Macroeconomic Surprises Effects on the UK ILS rates (30Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.008	—	—	—
US Capacity Utilization	0.007	—	—	—
US Personal Income	0.010	—	—	—
US Retail Sales Index	0.008	—	—	—
US Core CPI (y/y)	0.102	0.107	0.104	0.100
US Non-Farm Payroll Change	0.009	0.010	0.009	—
US Initial Jobless Claims	-0.007	—	—	—
UK Ind. Prod. (m/m)	0.013	0.014	0.014	—
UK PPI (y/y)	0.062	0.065	0.063	0.060
UK Ret. Sales (y/y)	0.012	0.013	0.013	—
UK Cons. Conf.	0.012	0.013	—	—
Ger. CPI (m/m)	0.037	0.040	0.038	0.036
Ger. Cons. Conf. Index	0.004	—	—	—
Ger. IFO Index	0.006	—	—	—
Ger. ZEW Index (Current)	0.004	—	—	—
Ger. ZEW Index (Expectations)	0.005	—	—	—
Fr. GDP (y/y, Final)	0.003	—	—	—
Fr. CPI (m/m)	0.030	0.033	0.032	0.029
Fr. PPI (y/y)	0.013	0.014	—	—
Fr. Ret. Sales Index (y/y)	0.003	—	—	—
Fr. PMI Composite	0.004	—	—	—
Fr. PMI Manufacturing	0.004	—	—	—
It. Ind. Prod. Index (SA, y/y)	0.002	—	—	—
It. CPI (y/y)	0.017	0.018	0.017	0.017
It. CPI (NIC Index, y/y)	0.021	—	—	—
It. PPI (y/y)	0.007	—	—	—
Sp. GDP (q/q, Final)	0.001	—	—	—
Sp. CPI (m/m)	0.013	0.014	—	—
Sp. Ret. Sales Index (y/y)	0.001	—	—	—
Adj. R²	0.0119	0.0174	0.0165	0.0153

Notes: The table reports the estimated coefficients of macroeconomic surprises on the UK Inflation Linked Swap rate with 30 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.30: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (1Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.057	—	—	—
US Capacity Utilization	0.050	—	—	—
US Personal Income	0.043	—	—	—
US Retail Sales Index	0.055	—	—	—
US Core CPI (y/y)	0.323	0.340	0.329	—
US Non-Farm Payroll Change	0.066	0.071	—	—
US Initial Jobless Claims	-0.047	—	—	—
UK Ind. Prod. (m/m)	0.027	—	—	—
UK PPI (y/y)	0.125	0.132	0.128	—
UK Ret. Sales (y/y)	0.025	—	—	—
UK Cons. Conf.	0.020	—	—	—
Ger. CPI (m/m)	0.638	0.680	0.657	0.632
Ger. Cons. Conf. Index	0.101	—	—	—
Ger. IFO Index	0.139	0.150	—	—
Ger. ZEW Index (Current)	0.102	—	—	—
Ger. ZEW Index (Expectations)	0.118	—	—	—
Fr. GDP (y/y, Final)	0.101	—	—	—
Fr. CPI (m/m)	0.537	0.578	0.559	0.540
Fr. PPI (y/y)	0.399	0.417	0.403	0.391
Fr. Ret. Sales Index (y/y)	0.084	—	—	—
Fr. PMI Composite	0.100	—	—	—
Fr. PMI Manufacturing	0.112	0.121	—	—
It. Ind. Prod. Index (SA, y/y)	0.073	—	—	—
It. CPI (y/y)	0.377	0.401	0.388	0.373
It. CPI (NIC Index, y/y)	0.358	0.377	0.365	—
It. PPI (y/y)	0.284	0.306	0.296	0.278
Sp. GDP (q/q, Final)	0.054	—	—	—
Sp. CPI (m/m)	0.308	0.328	0.317	0.302
Sp. Ret. Sales Index (y/y)	0.050	—	—	—
Adj. R²	0.0240	0.0351	0.0333	0.0308

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 1 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.31: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (2Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.047	—	—	—
US Capacity Utilization	0.041	—	—	—
US Personal Income	0.038	—	—	—
US Retail Sales Index	0.045	—	—	—
US Core CPI (y/y)	0.283	0.298	0.289	—
US Non-Farm Payroll Change	0.055	0.059	—	—
US Initial Jobless Claims	-0.038	—	—	—
UK Ind. Prod. (m/m)	0.022	—	—	—
UK PPI (y/y)	0.105	0.110	0.108	—
UK Ret. Sales (y/y)	0.020	—	—	—
UK Cons. Conf.	0.017	—	—	—
Ger. CPI (m/m)	0.578	0.616	0.595	0.572
Ger. Cons. Conf. Index	0.086	—	—	—
Ger. IFO Index	0.119	0.128	—	—
Ger. ZEW Index (Current)	0.087	—	—	—
Ger. ZEW Index (Expectations)	0.101	—	—	—
Fr. GDP (y/y, Final)	0.084	—	—	—
Fr. CPI (m/m)	0.487	0.523	0.506	0.489
Fr. PPI (y/y)	0.334	0.349	0.337	0.327
Fr. Ret. Sales Index (y/y)	0.070	—	—	—
Fr. PMI Composite	0.085	—	—	—
Fr. PMI Manufacturing	0.096	0.103	—	—
It. Ind. Prod. Index (SA, y/y)	0.057	—	—	—
It. CPI (y/y)	0.341	0.363	0.351	0.338
It. CPI (NIC Index, y/y)	0.331	0.349	0.337	—
It. PPI (y/y)	0.237	0.255	0.247	0.232
Sp. GDP (q/q, Final)	0.045	—	—	—
Sp. CPI (m/m)	0.279	0.297	0.287	0.273
Sp. Ret. Sales Index (y/y)	0.041	—	—	—
Adj. R²	0.0201	0.0294	0.0279	0.0258

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 2 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.32: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (3Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.040	—	—	—
US Capacity Utilization	0.035	—	—	—
US Personal Income	0.034	—	—	—
US Retail Sales Index	0.038	—	—	—
US Core CPI (y/y)	0.260	0.274	0.265	—
US Non-Farm Payroll Change	0.044	0.047	—	—
US Initial Jobless Claims	-0.033	—	—	—
UK Ind. Prod. (m/m)	0.018	—	—	—
UK PPI (y/y)	0.084	0.089	0.086	—
UK Ret. Sales (y/y)	0.016	—	—	—
UK Cons. Conf.	0.015	—	—	—
Ger. CPI (m/m)	0.517	0.550	0.532	0.512
Ger. Cons. Conf. Index	0.074	—	—	—
Ger. IFO Index	0.103	0.111	—	—
Ger. ZEW Index (Current)	0.071	—	—	—
Ger. ZEW Index (Expectations)	0.087	—	—	—
Fr. GDP (y/y, Final)	0.071	—	—	—
Fr. CPI (m/m)	0.435	0.468	0.453	0.437
Fr. PPI (y/y)	0.283	0.296	0.286	0.277
Fr. Ret. Sales Index (y/y)	0.059	—	—	—
Fr. PMI Composite	0.074	—	—	—
Fr. PMI Manufacturing	0.079	0.085	—	—
It. Ind. Prod. Index (SA, y/y)	0.048	—	—	—
It. CPI (y/y)	0.305	0.325	0.314	0.302
It. CPI (NIC Index, y/y)	0.304	0.321	0.310	—
It. PPI (y/y)	0.201	0.217	0.209	0.197
Sp. GDP (q/q, Final)	0.038	—	—	—
Sp. CPI (m/m)	0.249	0.265	0.257	0.244
Sp. Ret. Sales Index (y/y)	0.035	—	—	—
Adj. R²	0.0162	0.0237	0.0225	0.0208

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 3 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.33: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (4Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.034	—	—	—
US Capacity Utilization	0.030	—	—	—
US Personal Income	0.031	—	—	—
US Retail Sales Index	0.033	—	—	—
US Core CPI (y/y)	0.240	0.253	0.244	—
US Non-Farm Payroll Change	0.038	0.041	—	—
US Initial Jobless Claims	-0.029	—	—	—
UK Ind. Prod. (m/m)	0.015	—	—	—
UK PPI (y/y)	0.073	0.077	0.075	—
UK Ret. Sales (y/y)	0.014	—	—	—
UK Cons. Conf.	0.013	—	—	—
Ger. CPI (m/m)	0.468	0.498	0.482	0.463
Ger. Cons. Conf. Index	0.066	—	—	—
Ger. IFO Index	0.091	0.097	—	—
Ger. ZEW Index (Current)	0.063	—	—	—
Ger. ZEW Index (Expectations)	0.077	—	—	—
Fr. GDP (y/y, Final)	0.061	—	—	—
Fr. CPI (m/m)	0.394	0.424	0.410	0.396
Fr. PPI (y/y)	0.244	0.255	0.246	0.239
Fr. Ret. Sales Index (y/y)	0.051	—	—	—
Fr. PMI Composite	0.065	—	—	—
Fr. PMI Manufacturing	0.069	0.075	—	—
It. Ind. Prod. Index (SA, y/y)	0.042	—	—	—
It. CPI (y/y)	0.276	0.294	0.284	0.273
It. CPI (NIC Index, y/y)	0.280	0.296	0.286	—
It. PPI (y/y)	0.174	0.187	0.181	0.171
Sp. GDP (q/q, Final)	0.033	—	—	—
Sp. CPI (m/m)	0.226	0.240	0.232	0.221
Sp. Ret. Sales Index (y/y)	0.030	—	—	—
Adj. R²	0.0160	0.0234	0.0221	0.0205

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 4 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.34: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (5Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.030	—	—	—
US Capacity Utilization	0.026	—	—	—
US Personal Income	0.028	—	—	—
US Retail Sales Index	0.029	—	—	—
US Core CPI (y/y)	0.219	0.231	0.224	—
US Non-Farm Payroll Change	0.033	0.035	—	—
US Initial Jobless Claims	-0.025	—	—	—
UK Ind. Prod. (m/m)	0.013	—	—	—
UK PPI (y/y)	0.063	0.067	0.065	—
UK Ret. Sales (y/y)	0.012	—	—	—
UK Cons. Conf.	0.011	—	—	—
Ger. CPI (m/m)	0.425	0.453	0.438	0.421
Ger. Cons. Conf. Index	0.055	—	—	—
Ger. IFO Index	0.080	0.086	—	—
Ger. ZEW Index (Current)	0.055	—	—	—
Ger. ZEW Index (Expectations)	0.068	—	—	—
Fr. GDP (y/y, Final)	0.053	—	—	—
Fr. CPI (m/m)	0.358	0.385	0.372	0.360
Fr. PPI (y/y)	0.213	0.222	0.215	0.209
Fr. Ret. Sales Index (y/y)	0.044	—	—	—
Fr. PMI Composite	0.057	—	—	—
Fr. PMI Manufacturing	0.061	0.066	—	—
It. Ind. Prod. Index (SA, y/y)	0.036	—	—	—
It. CPI (y/y)	0.251	0.267	0.258	0.248
It. CPI (NIC Index, y/y)	0.256	0.270	0.261	—
It. PPI (y/y)	0.151	0.163	0.157	0.148
Sp. GDP (q/q, Final)	0.028	—	—	—
Sp. CPI (m/m)	0.205	0.218	0.211	0.201
Sp. Ret. Sales Index (y/y)	0.026	—	—	—
Adj. R²	0.0112	0.0163	0.0154	0.0143

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 5 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.35: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (6Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.027	—	—	—
US Capacity Utilization	0.023	—	—	—
US Personal Income	0.025	—	—	—
US Retail Sales Index	0.024	—	—	—
US Core CPI (y/y)	0.205	0.216	0.209	—
US Non-Farm Payroll Change	0.029	0.031	—	—
US Initial Jobless Claims	-0.023	—	—	—
UK Ind. Prod. (m/m)	0.012	—	—	—
UK PPI (y/y)	0.056	0.059	0.057	—
UK Ret. Sales (y/y)	0.011	—	—	—
UK Cons. Conf.	0.010	—	—	—
Ger. CPI (m/m)	0.388	0.413	0.400	0.384
Ger. Cons. Conf. Index	0.049	—	—	—
Ger. IFO Index	0.072	0.077	—	—
Ger. ZEW Index (Current)	0.050	—	—	—
Ger. ZEW Index (Expectations)	0.061	—	—	—
Fr. GDP (y/y, Final)	0.047	—	—	—
Fr. CPI (m/m)	0.327	0.351	0.340	0.328
Fr. PPI (y/y)	0.179	0.187	0.181	0.175
Fr. Ret. Sales Index (y/y)	0.039	—	—	—
Fr. PMI Composite	0.051	—	—	—
Fr. PMI Manufacturing	0.055	0.059	—	—
It. Ind. Prod. Index (SA, y/y)	0.032	—	—	—
It. CPI (y/y)	0.229	0.244	0.236	0.227
It. CPI (NIC Index, y/y)	0.227	0.239	0.231	—
It. PPI (y/y)	0.135	0.145	0.140	0.132
Sp. GDP (q/q, Final)	0.025	—	—	—
Sp. CPI (m/m)	0.187	0.199	0.193	0.183
Sp. Ret. Sales Index (y/y)	0.022	—	—	—
Adj. R²	0.0090	0.0132	0.0125	0.0116

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 6 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.36: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (7Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.024	–	–	–
US Capacity Utilization	0.020	–	–	–
US Personal Income	0.023	–	–	–
US Retail Sales Index	0.021	–	–	–
US Core CPI (y/y)	0.190	0.201	0.194	–
US Non-Farm Payroll Change	0.026	0.028	–	–
US Initial Jobless Claims	-0.020	–	–	–
UK Ind. Prod. (m/m)	0.011	–	–	–
UK PPI (y/y)	0.051	0.053	0.052	–
UK Ret. Sales (y/y)	0.010	–	–	–
UK Cons. Conf.	0.009	–	–	–
Ger. CPI (m/m)	0.357	0.381	0.368	0.354
Ger. Cons. Conf. Index	0.044	–	–	–
Ger. IFO Index	0.061	0.066	–	–
Ger. ZEW Index (Current)	0.045	–	–	–
Ger. ZEW Index (Expectations)	0.055	–	–	–
Fr. GDP (y/y, Final)	0.040	–	–	–
Fr. CPI (m/m)	0.301	0.323	0.313	0.302
Fr. PPI (y/y)	0.161	0.168	0.162	0.158
Fr. Ret. Sales Index (y/y)	0.033	–	–	–
Fr. PMI Composite	0.046	–	–	–
Fr. PMI Manufacturing	0.050	0.053	–	–
It. Ind. Prod. Index (SA, y/y)	0.029	–	–	–
It. CPI (y/y)	0.211	0.225	0.217	0.209
It. CPI (NIC Index, y/y)	0.211	0.222	0.215	–
It. PPI (y/y)	0.114	0.123	0.119	0.112
Sp. GDP (q/q, Final)	0.023	–	–	–
Sp. CPI (m/m)	0.172	0.184	0.178	0.169
Sp. Ret. Sales Index (y/y)	0.019	–	–	–
Adj. R²	0.0081	0.0119	0.0112	0.0104

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 7 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.37: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (8Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.022	—	—	—
US Capacity Utilization	0.018	—	—	—
US Personal Income	0.022	—	—	—
US Retail Sales Index	0.019	—	—	—
US Core CPI (y/y)	0.179	0.188	0.182	—
US Non-Farm Payroll Change	0.024	0.025	—	—
US Initial Jobless Claims	-0.019	—	—	—
UK Ind. Prod. (m/m)	0.010	—	—	—
UK PPI (y/y)	0.046	0.048	0.047	—
UK Ret. Sales (y/y)	0.009	—	—	—
UK Cons. Conf.	0.008	—	—	—
Ger. CPI (m/m)	0.333	0.354	0.343	0.329
Ger. Cons. Conf. Index	0.041	—	—	—
Ger. IFO Index	0.056	0.061	—	—
Ger. ZEW Index (Current)	0.041	—	—	—
Ger. ZEW Index (Expectations)	0.050	—	—	—
Fr. GDP (y/y, Final)	0.036	—	—	—
Fr. CPI (m/m)	0.265	0.285	0.276	0.267
Fr. PPI (y/y)	0.146	0.153	0.148	0.143
Fr. Ret. Sales Index (y/y)	0.030	—	—	—
Fr. PMI Composite	0.043	—	—	—
Fr. PMI Manufacturing	0.046	0.049	—	—
It. Ind. Prod. Index (SA, y/y)	0.026	—	—	—
It. CPI (y/y)	0.196	0.209	0.202	0.194
It. CPI (NIC Index, y/y)	0.198	0.209	0.202	—
It. PPI (y/y)	0.104	0.112	0.108	0.102
Sp. GDP (q/q, Final)	0.019	—	—	—
Sp. CPI (m/m)	0.161	0.171	0.165	0.158
Sp. Ret. Sales Index (y/y)	0.018	—	—	—
Adj. R²	0.0117	0.0171	0.0162	0.0150

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 8 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.38: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (9Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.020	—	—	—
US Capacity Utilization	0.016	—	—	—
US Personal Income	0.020	—	—	—
US Retail Sales Index	0.018	—	—	—
US Core CPI (y/y)	0.167	0.176	0.170	—
US Non-Farm Payroll Change	0.022	0.023	—	—
US Initial Jobless Claims	-0.017	—	—	—
UK Ind. Prod. (m/m)	0.009	—	—	—
UK PPI (y/y)	0.042	0.045	0.043	—
UK Ret. Sales (y/y)	0.008	—	—	—
UK Cons. Conf.	0.007	—	—	—
Ger. CPI (m/m)	0.292	0.311	0.301	0.289
Ger. Cons. Conf. Index	0.037	—	—	—
Ger. IFO Index	0.051	0.055	—	—
Ger. ZEW Index (Current)	0.037	—	—	—
Ger. ZEW Index (Expectations)	0.043	—	—	—
Fr. GDP (y/y, Final)	0.033	—	—	—
Fr. CPI (m/m)	0.246	0.264	0.256	0.247
Fr. PPI (y/y)	0.135	0.141	0.136	0.132
Fr. Ret. Sales Index (y/y)	0.028	—	—	—
Fr. PMI Composite	0.039	—	—	—
Fr. PMI Manufacturing	0.041	0.044	—	—
It. Ind. Prod. Index (SA, y/y)	0.024	—	—	—
It. CPI (y/y)	0.172	0.183	0.177	0.170
It. CPI (NIC Index, y/y)	0.185	0.195	0.188	—
It. PPI (y/y)	0.096	0.103	0.100	0.094
Sp. GDP (q/q, Final)	0.018	—	—	—
Sp. CPI (m/m)	0.141	0.150	0.145	0.138
Sp. Ret. Sales Index (y/y)	0.016	—	—	—
Adj. R²	0.0078	0.0114	0.0108	0.0100

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 9 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.39: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (10Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.018	—	—	—
US Capacity Utilization	0.015	—	—	—
US Personal Income	0.018	—	—	—
US Retail Sales Index	0.016	—	—	—
US Core CPI (y/y)	0.151	0.159	0.154	—
US Non-Farm Payroll Change	0.019	0.021	—	—
US Initial Jobless Claims	-0.015	—	—	—
UK Ind. Prod. (m/m)	0.008	—	—	—
UK PPI (y/y)	0.039	0.041	0.040	—
UK Ret. Sales (y/y)	0.007	—	—	—
UK Cons. Conf.	0.007	—	—	—
Ger. CPI (m/m)	0.283	0.301	0.291	0.280
Ger. Cons. Conf. Index	0.034	—	—	—
Ger. IFO Index	0.048	0.052	—	—
Ger. ZEW Index (Current)	0.034	—	—	—
Ger. ZEW Index (Expectations)	0.041	—	—	—
Fr. GDP (y/y, Final)	0.031	—	—	—
Fr. CPI (m/m)	0.235	0.253	0.245	0.237
Fr. PPI (y/y)	0.126	0.132	0.127	0.123
Fr. Ret. Sales Index (y/y)	0.026	—	—	—
Fr. PMI Composite	0.036	—	—	—
Fr. PMI Manufacturing	0.037	0.039	—	—
It. Ind. Prod. Index (SA, y/y)	0.021	—	—	—
It. CPI (y/y)	0.169	0.180	0.174	0.167
It. CPI (NIC Index, y/y)	0.178	0.188	0.182	—
It. PPI (y/y)	0.087	0.093	0.090	0.085
Sp. GDP (q/q, Final)	0.016	—	—	—
Sp. CPI (m/m)	0.133	0.142	0.137	0.130
Sp. Ret. Sales Index (y/y)	0.015	—	—	—
Adj. R²	0.0080	0.0116	0.0110	0.0102

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 10 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.40: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (15Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.013	—	—	—
US Capacity Utilization	0.011	—	—	—
US Personal Income	0.014	—	—	—
US Retail Sales Index	0.012	—	—	—
US Core CPI (y/y)	0.127	0.134	0.129	—
US Non-Farm Payroll Change	0.015	0.016	—	—
US Initial Jobless Claims	-0.011	—	—	—
UK Ind. Prod. (m/m)	0.006	—	—	—
UK PPI (y/y)	0.028	0.030	0.029	—
UK Ret. Sales (y/y)	0.005	—	—	—
UK Cons. Conf.	0.005	—	—	—
Ger. CPI (m/m)	0.218	0.233	0.225	0.216
Ger. Cons. Conf. Index	0.026	—	—	—
Ger. IFO Index	0.036	0.039	—	—
Ger. ZEW Index (Current)	0.026	—	—	—
Ger. ZEW Index (Expectations)	0.031	—	—	—
Fr. GDP (y/y, Final)	0.022	—	—	—
Fr. CPI (m/m)	0.182	0.195	0.189	0.183
Fr. PPI (y/y)	0.091	0.095	0.092	0.089
Fr. Ret. Sales Index (y/y)	0.019	—	—	—
Fr. PMI Composite	0.027	—	—	—
Fr. PMI Manufacturing	0.029	0.031	—	—
It. Ind. Prod. Index (SA, y/y)	0.016	—	—	—
It. CPI (y/y)	0.130	0.139	0.134	0.127
It. CPI (NIC Index, y/y)	0.142	0.150	0.145	—
It. PPI (y/y)	0.066	0.071	0.069	0.065
Sp. GDP (q/q, Final)	0.012	—	—	—
Sp. CPI (m/m)	0.109	0.116	0.112	0.107
Sp. Ret. Sales Index (y/y)	0.011	—	—	—
Adj. R²	0.0062	0.0090	0.0085	0.0079

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 15 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.41: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (20Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.010	—	—	—
US Capacity Utilization	0.008	—	—	—
US Personal Income	0.011	—	—	—
US Retail Sales Index	0.009	—	—	—
US Core CPI (y/y)	0.105	0.111	0.107	—
US Non-Farm Payroll Change	0.011	0.012	—	—
US Initial Jobless Claims	-0.009	—	—	—
UK Ind. Prod. (m/m)	0.004	—	—	—
UK PPI (y/y)	0.021	0.022	0.022	—
UK Ret. Sales (y/y)	0.004	—	—	—
UK Cons. Conf.	0.004	—	—	—
Ger. CPI (m/m)	0.174	0.186	0.180	0.173
Ger. Cons. Conf. Index	0.020	—	—	—
Ger. IFO Index	0.028	0.030	—	—
Ger. ZEW Index (Current)	0.020	—	—	—
Ger. ZEW Index (Expectations)	0.024	—	—	—
Fr. GDP (y/y, Final)	0.017	—	—	—
Fr. CPI (m/m)	0.145	0.156	0.151	0.146
Fr. PPI (y/y)	0.068	0.071	0.069	0.067
Fr. Ret. Sales Index (y/y)	0.015	—	—	—
Fr. PMI Composite	0.021	—	—	—
Fr. PMI Manufacturing	0.022	0.024	—	—
It. Ind. Prod. Index (SA, y/y)	0.012	—	—	—
It. CPI (y/y)	0.104	0.111	0.107	0.102
It. CPI (NIC Index, y/y)	0.118	0.124	0.120	—
It. PPI (y/y)	0.049	0.053	0.051	0.048
Sp. GDP (q/q, Final)	0.010	—	—	—
Sp. CPI (m/m)	0.087	0.092	0.089	0.085
Sp. Ret. Sales Index (y/y)	0.008	—	—	—
Adj. R²	0.0067	0.0098	0.0093	0.0086

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 20 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Table B.42: *Macroeconomic Surprises Effects on the Euro Zone ILS rates (30Y maturity)*

P-value filters Announcements	None (i)	90% (ii)	$\hat{\beta}_k^*$ 95% (iii)	99% (iv)
US GDP (Final)	0.007	—	—	—
US Capacity Utilization	0.006	—	—	—
US Personal Income	0.008	—	—	—
US Retail Sales Index	0.006	—	—	—
US Core CPI (y/y)	0.078	0.083	0.080	—
US Non-Farm Payroll Change	0.007	0.008	—	—
US Initial Jobless Claims	-0.006	—	—	—
UK Ind. Prod. (m/m)	0.003	—	—	—
UK PPI (y/y)	0.013	0.014	0.013	—
UK Ret. Sales (y/y)	0.003	—	—	—
UK Cons. Conf.	0.003	—	—	—
Ger. CPI (m/m)	0.121	0.128	0.124	0.119
Ger. Cons. Conf. Index	0.013	—	—	—
Ger. IFO Index	0.018	0.019	—	—
Ger. ZEW Index (Current)	0.013	—	—	—
Ger. ZEW Index (Expectations)	0.015	—	—	—
Fr. GDP (y/y, Final)	0.011	—	—	—
Fr. CPI (m/m)	0.106	0.114	0.110	0.106
Fr. PPI (y/y)	0.043	0.045	0.044	0.042
Fr. Ret. Sales Index (y/y)	0.009	—	—	—
Fr. PMI Composite	0.013	—	—	—
Fr. PMI Manufacturing	0.014	0.015	—	—
It. Ind. Prod. Index (SA, y/y)	0.008	—	—	—
It. CPI (y/y)	0.072	0.077	0.074	0.071
It. CPI (NIC Index, y/y)	0.088	0.093	0.090	—
It. PPI (y/y)	0.031	0.034	0.033	0.030
Sp. GDP (q/q, Final)	0.006	—	—	—
Sp. CPI (m/m)	0.060	0.064	0.062	0.059
Sp. Ret. Sales Index (y/y)	0.005	—	—	—
Adj. R²	0.0065	0.0095	0.0090	0.0083

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Euro Zone Inflation Linked Swap rate with 30 year maturity, as in Equation 3.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 83 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: 01 January 2008 - 23 April 2023.

Appendix C

Appendix Chapter 4

C.1 Additional Tables - Chapter 4

Table C.1: *Unit root test results - Industrial Production indices*

Test	ADF		PP		NG-Perron		Int. order
	(Levels)	(First Diff.)	(Levels)	(First Diff.)	(Levels)	(First Diff.)	
Industrial Production Indices							
World	-4.4045***	—	-3.4002*	-13.0522***	-47.1150***	—	I(0)
Advanced Economies	-3.1793*	-11.6253***	-3.2277*	-11.6356***	-20.4275**	-118.369***	I(0)/I(1)
United States	-2.6117	-12.5297***	-2.7541	-13.3169***	-14.0189	-178.039***	I(1)
Euro Zone	-3.3007*	-13.7321***	-3.6927**	-14.6150***	-18.9563**	-24.9568***	I(1)
Japan	-2.9411	-15.3976***	-3.3666*	-15.3976***	-15.0127*	-138.163***	I(1)
United Kingdom	-2.8124	-12.2501***	-2.4546	-17.2630***	-11.8656	-138.549***	I(1)
Emerging Econ.	-3.4815**	-7.6861***	-3.6369**	-16.3539***	-16.8185*	-30.2530***	I(0)/I(1)
China	-3.3939**	-16.7251***	-3.7880**	-15.3418***	-3.7784	-333.251***	I(1)

Notes: The table reports the Augmented Dickey–Fuller (ADF), Phillips–Perron (PP), and Ng–Perron unit-root test statistics (MZ_α statistic) for the industrial production indices. Null hypothesis: the series contains a unit root. Specifications in levels include a constant and a linear trend, those in first differences a constant. Lag lengths are selected using the Schwarz IC (max. 15 lags); the PP bandwidth is selected automatically using the Newey–West method and the Bartlett kernel. *, **, and *** indicate rejection of the unit-root null hypothesis at the 10%, 5%, and 1% significance levels, respectively. A dash indicates that the corresponding statistic is not reported. $I(0)$ denotes stationarity in levels, whereas $I(1)$ denotes stationarity after first differencing. $I(0)/I(1)$ indicates mixed evidence concerning the order of integration across the tests. The sample period is January 2000–April 2023.

Table C.2: *Unit root test results Uncertainty and MNAUI Indices*

Test	ADF		PP		NG-Perron		Int. order
	(Levels)	(First Diff.)	(Levels)	(First Diff.)	(Levels)	(First Diff.)	
Uncertainty Indices							
VIX	-4.8355***	—	-4.7539**	—	-40.0429***	—	I(0)
Model-based JLN	-4.0679***	—	-2.5312	-5.0855***	-33.2827**	—	I(0)/I(1)
Global EPU (curr.)	-4.7524***	—	-6.4619***	—	-39.0252***	—	I(0)
Global EPU (PPP)	-4.7459***	—	-6.3469***	—	-38.3138***	—	I(0)
Web Search-based	-2.5461	-7.2812***	-8.0090***	—	-9.1660	-0.91602	I(0)/I(1)
World Unc. Index	-7.2347***	—	-7.5515***	—	-63.6309***	—	I(0)
MNAUI							
VIX MNAUI	-3.4235*	-22.3807***	-4.0075***	—	-27.1910***	—	I(0)/I(1)
JLN MNAUI	-2.1291	-19.6457***	-2.5864	-19.4267***	-8.8717	-136.517***	I(1)
GEPU (Curr) MN.	-4.0244***	—	-5.0178***	—	-28.2153***	—	I(0)
GEPU (PPP) MN.	-4.2090***	—	-5.6984***	—	-31.6912***	—	I(0)
WUI MNAUI	-6.0335***	—	-6.0695***	—	-45.6026***	—	I(0)
Web Search MN.	-2.0281	-4.1391***	-7.0620***	—	-7.4062	-15.371***	I(0)/I(1)

Notes: The table reports the Augmented Dickey–Fuller (ADF), Phillips–Perron (PP), and Ng–Perron unit-root test statistics for the industrial production indices and for the MNAUI indices. The Ng–Perron column reports the MZ_α statistic. The null hypothesis for all three tests is that the series contains a unit root. Tests are conducted in levels and, where necessary, in first differences. Specifications in levels include a constant and a linear trend, while those in first differences include a constant. Lag lengths are selected using the Schwarz information criterion, with a maximum of 15 lags; the PP bandwidth is selected automatically using the Newey–West method and the Bartlett kernel. *, **, and *** indicate rejection of the unit-root null hypothesis at the 10%, 5%, and 1% significance levels, respectively. A dash indicates that the corresponding statistic is not reported. $I(0)$ denotes stationarity in levels, whereas $I(1)$ denotes stationarity after first differencing. $I(0)/I(1)$ indicates mixed evidence concerning the order of integration across the tests. The sample period is January 2000–April 2023.

Table C.3: *Macroeconomic Surprises Effects on the VIX Financial Uncertainty index*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	-0.183	-0.198	-0.188	-0.178
US Capacity Utilization	-0.167	-0.175	-0.169	—
US Personal Income	-0.094	-0.104	-0.100	—
US Retail Sales Index	-0.214	-0.229	-0.223	-0.212
US Core CPI (y/y)	0.247	0.267	0.254	0.240
US Non-Farm Payroll Change	-0.326	-0.342	-0.329	-0.333
US Initial Jobless Claims	0.291	0.323	0.308	0.276
Ja. Unemployment	0.052	—	—	—
Ja. Core CPI (y/y)	0.041	—	—	—
Ja. Tankan B. Conf. Index	-0.063	-0.066	—	—
Ja. Cons. Conf. Index	-0.044	—	—	—
UK Ind. Prod. (m/m)	-0.081	-0.087	—	—
UK PPI (y/y)	0.074	0.080	—	—
UK Ret. Sales (y/y)	-0.069	-0.072	—	—
UK Cons. Conf.	-0.072	-0.080	—	—
Ger. CPI (m/m)	0.068	0.073	—	—
Ger. Cons. Conf. Index	-0.061	-0.066	—	—
Ger. IFO Index	-0.103	-0.108	-0.104	—
Ger. ZEW Index (Current)	-0.079	-0.088	—	—
Ger. ZEW Index (Expectations)	-0.096	-0.103	-0.100	—
Fr. GDP (y/y, Final)	-0.057	—	—	—
Fr. CPI (m/m)	0.061	0.064	—	—
Fr. PPI (y/y)	0.054	—	—	—
Fr. Ret. Sales Index (y/y)	-0.052	—	—	—
Fr. PMI Composite	-0.088	-0.095	—	—
Fr. PMI Manufacturing	-0.101	-0.106	-0.102	—
It. Ind. Prod. Index (SA, y/y)	-0.049	—	—	—
It. CPI (y/y)	0.052	—	—	—
It. CPI (NIC Index, y/y)	0.044	—	—	—
It. PPI (y/y)	0.047	—	—	—
Sp. GDP (q/q, Final)	-0.043	—	—	—
Sp. CPI (m/m)	0.046	—	—	—
Sp. Ret. Sales Index (y/y)	-0.041	—	—	—
Adj. R²	0.6710	0.7424	0.7310	0.7079

Notes: The table reports the estimated coefficients of macroeconomic surprises on the VIX Financial Uncertainty Index, as in Equation 4.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table C.4: *Macroeconomic Surprises Effects on the JLN Uncertainty index*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	-0.331	-0.357	-0.341	-0.321
US Capacity Utilization	-0.294	-0.309	-0.297	-0.300
US Personal Income	-0.186	-0.206	-0.197	–
US Retail Sales Index	-0.312	-0.334	-0.324	-0.309
US Core CPI (y/y)	0.387	0.418	0.399	0.375
US Non-Farm Payroll Change	-0.458	-0.481	-0.463	-0.467
US Initial Jobless Claims	0.424	0.471	0.449	0.403
Ja. Unemployment	0.117	0.125	–	–
Ja. Core CPI (y/y)	0.103	0.111	–	–
Ja. Tankan B. Conf. Index	-0.148	-0.155	-0.149	–
Ja. Cons. Conf. Index	-0.092	-0.102	–	–
UK Ind. Prod. (m/m)	-0.164	-0.175	-0.171	–
UK PPI (y/y)	0.141	0.152	0.145	–
UK Ret. Sales (y/y)	-0.139	-0.146	–	–
UK Cons. Conf.	-0.153	-0.170	-0.162	–
Ger. CPI (m/m)	0.152	0.163	0.158	–
Ger. Cons. Conf. Index	-0.139	-0.150	–	–
Ger. IFO Index	-0.218	-0.229	-0.220	–
Ger. ZEW Index (Current)	-0.183	-0.203	-0.194	–
Ger. ZEW Index (Expectations)	-0.209	-0.224	-0.217	–
Fr. GDP (y/y, Final)	-0.147	-0.159	-0.151	–
Fr. CPI (m/m)	0.142	0.149	0.143	–
Fr. PPI (y/y)	0.133	0.148	–	–
Fr. Ret. Sales Index (y/y)	-0.128	-0.137	–	–
Fr. PMI Composite	-0.207	-0.224	-0.213	–
Fr. PMI Manufacturing	-0.229	-0.240	-0.231	–
It. Ind. Prod. Index (SA, y/y)	-0.125	-0.139	–	–
It. CPI (y/y)	0.129	0.138	–	–
It. CPI (NIC Index, y/y)	0.112	0.121	–	–
It. PPI (y/y)	0.122	0.128	–	–
Sp. GDP (q/q, Final)	-0.109	-0.121	–	–
Sp. CPI (m/m)	0.118	0.126	–	–
Sp. Ret. Sales Index (y/y)	-0.106	-0.114	–	–
Adj. R²	0.9135	0.9324	0.9312	0.9284

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Jurado-Ludvigson-Ng Uncertainty index, as in Equation 4.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table C.5: *Macroeconomic Surprises Effects on the Global EPU (current) Uncertainty index*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	-0.228	-0.246	-0.235	-0.221
US Capacity Utilization	-0.201	-0.211	-0.203	-0.205
US Personal Income	-0.127	-0.141	-0.135	–
US Retail Sales Index	-0.219	-0.234	-0.228	-0.217
US Core CPI (y/y)	0.324	0.350	0.334	0.314
US Non-Farm Payroll Change	-0.301	-0.316	-0.304	-0.307
US Initial Jobless Claims	0.316	0.351	0.335	0.300
Ja. Unemployment	0.091	0.097	–	–
Ja. Core CPI (y/y)	0.083	0.090	–	–
Ja. Tankan B. Conf. Index	-0.115	-0.121	–	–
Ja. Cons. Conf. Index	-0.074	–	–	–
UK Ind. Prod. (m/m)	-0.137	-0.147	-0.142	–
UK PPI (y/y)	0.126	0.136	0.130	–
UK Ret. Sales (y/y)	-0.121	-0.127	–	–
UK Cons. Conf.	-0.129	-0.143	-0.137	–
Ger. CPI (m/m)	0.143	0.153	0.149	–
Ger. Cons. Conf. Index	-0.132	-0.143	-0.136	–
Ger. IFO Index	-0.194	-0.204	-0.196	–
Ger. ZEW Index (Current)	-0.158	-0.175	-0.167	–
Ger. ZEW Index (Expectations)	-0.186	-0.199	-0.193	–
Fr. GDP (y/y, Final)	-0.131	-0.141	-0.135	–
Fr. CPI (m/m)	0.139	0.146	0.140	–
Fr. PPI (y/y)	0.124	0.138	–	–
Fr. Ret. Sales Index (y/y)	-0.112	-0.120	–	–
Fr. PMI Composite	-0.176	-0.190	-0.181	–
Fr. PMI Manufacturing	-0.198	-0.208	-0.200	–
It. Ind. Prod. Index (SA, y/y)	-0.109	-0.121	–	–
It. CPI (y/y)	0.121	0.129	–	–
It. CPI (NIC Index, y/y)	0.104	0.112	–	–
It. PPI (y/y)	0.116	0.122	–	–
Sp. GDP (q/q, Final)	-0.097	-0.108	–	–
Sp. CPI (m/m)	0.111	0.119	–	–
Sp. Ret. Sales Index (y/y)	-0.093	-0.100	–	–
Adj. R²	0.8282	0.8665	0.8632	0.8446

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Global EPU (current) Uncertainty index, as in Equation 4.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table C.6: *Macroeconomic Surprises Effects on the Global EPU (PPP) Unc. index*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	-0.207	-0.224	-0.213	-0.201
US Capacity Utilization	-0.184	-0.193	-0.186	—
US Personal Income	-0.119	-0.132	—	—
US Retail Sales Index	-0.198	-0.212	-0.206	—
US Core CPI (y/y)	0.296	0.320	0.305	0.287
US Non-Farm Payroll Change	-0.276	-0.290	-0.279	-0.282
US Initial Jobless Claims	0.284	0.315	0.301	0.270
Ja. Unemployment	0.121	0.129	—	—
Ja. Core CPI (y/y)	0.108	0.117	—	—
Ja. Tankan B. Conf. Index	-0.154	-0.162	-0.156	—
Ja. Cons. Conf. Index	-0.099	-0.110	—	—
UK Ind. Prod. (m/m)	-0.158	-0.169	-0.164	—
UK PPI (y/y)	0.147	0.159	0.151	—
UK Ret. Sales (y/y)	-0.139	-0.146	—	—
UK Cons. Conf.	-0.151	-0.168	-0.160	—
Ger. CPI (m/m)	0.161	0.172	0.167	—
Ger. Cons. Conf. Index	-0.149	-0.161	-0.153	—
Ger. IFO Index	-0.219	-0.230	-0.221	-0.223
Ger. ZEW Index (Current)	-0.181	-0.201	-0.192	—
Ger. ZEW Index (Expectations)	-0.207	-0.221	-0.215	-0.205
Fr. GDP (y/y, Final)	-0.157	-0.170	-0.162	—
Fr. CPI (m/m)	0.151	0.159	0.153	—
Fr. PPI (y/y)	0.142	0.158	—	—
Fr. Ret. Sales Index (y/y)	-0.136	-0.146	—	—
Fr. PMI Composite	-0.201	-0.217	-0.207	—
Fr. PMI Manufacturing	-0.226	-0.237	-0.228	-0.231
It. Ind. Prod. Index (SA, y/y)	-0.137	-0.152	—	—
It. CPI (y/y)	0.146	0.156	0.152	—
It. CPI (NIC Index, y/y)	0.124	0.134	—	—
It. PPI (y/y)	0.139	0.146	—	—
Sp. GDP (q/q, Final)	-0.123	-0.137	—	—
Sp. CPI (m/m)	0.132	0.141	—	—
Sp. Ret. Sales Index (y/y)	-0.118	-0.127	—	—
Adj. R²	0.8488	0.8864	0.8798	0.8674

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Global EPU (PPP) Uncertainty index, as in Equation 4.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table C.7: *Macroeconomic Surprises Effects on the Web Search-based Uncertainty index*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	-0.264	-0.285	-0.272	-0.256
US Capacity Utilization	-0.231	-0.243	-0.233	-0.236
US Personal Income	-0.158	-0.175	-0.167	—
US Retail Sales Index	-0.279	-0.299	-0.290	-0.276
US Core CPI (y/y)	0.336	0.363	0.346	0.326
US Non-Farm Payroll Change	-0.401	-0.421	-0.405	-0.409
US Initial Jobless Claims	0.372	0.413	0.394	0.353
Ja. Unemployment	0.042	—	—	—
Ja. Core CPI (y/y)	0.036	—	—	—
Ja. Tankan B. Conf. Index	-0.055	-0.058	—	—
Ja. Cons. Conf. Index	-0.031	—	—	—
UK Ind. Prod. (m/m)	-0.069	-0.074	—	—
UK PPI (y/y)	0.061	0.066	—	—
UK Ret. Sales (y/y)	-0.057	-0.060	—	—
UK Cons. Conf.	-0.063	-0.070	—	—
Ger. CPI (m/m)	0.058	0.062	—	—
Ger. Cons. Conf. Index	-0.051	-0.055	—	—
Ger. IFO Index	-0.082	-0.086	-0.083	—
Ger. ZEW Index (Current)	-0.064	-0.071	—	—
Ger. ZEW Index (Expectations)	-0.076	-0.081	-0.079	—
Fr. GDP (y/y, Final)	-0.053	-0.057	—	—
Fr. CPI (m/m)	0.056	0.059	—	—
Fr. PPI (y/y)	0.049	0.054	—	—
Fr. Ret. Sales Index (y/y)	-0.047	-0.050	—	—
Fr. PMI Composite	-0.071	-0.077	—	—
Fr. PMI Manufacturing	-0.084	-0.088	-0.085	—
It. Ind. Prod. Index (SA, y/y)	-0.046	-0.051	—	—
It. CPI (y/y)	0.048	0.051	—	—
It. CPI (NIC Index, y/y)	0.041	—	—	—
It. PPI (y/y)	0.044	—	—	—
Sp. GDP (q/q, Final)	-0.039	—	—	—
Sp. CPI (m/m)	0.043	—	—	—
Sp. Ret. Sales Index (y/y)	-0.037	—	—	—
Adj. R²	0.5791	0.6903	0.6861	0.6501

Notes: The table reports the estimated coefficients of macroeconomic surprises on the Web Search-based Uncertainty index, as in Equation 4.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

Table C.8: *Macroeconomic Surprises Effects on the World Uncertainty index*

P-value filters Announcements	$\hat{\beta}_k$			
	None (i)	90% (ii)	95% (iii)	99% (iv)
US GDP (Final)	-0.171	-0.185	-0.176	–
US Capacity Utilization	-0.149	-0.156	-0.150	–
US Personal Income	-0.096	-0.107	–	–
US Retail Sales Index	-0.163	-0.174	-0.170	–
US Core CPI (y/y)	0.218	0.235	0.225	0.211
US Non-Farm Payroll Change	-0.247	-0.259	-0.249	-0.252
US Initial Jobless Claims	0.231	0.256	0.245	0.219
Ja. Unemployment	0.084	0.090	–	–
Ja. Core CPI (y/y)	0.076	0.082	–	–
Ja. Tankan B. Conf. Index	-0.109	-0.114	–	–
Ja. Cons. Conf. Index	-0.068	–	–	–
UK Ind. Prod. (m/m)	-0.121	-0.129	-0.126	–
UK PPI (y/y)	0.113	0.122	–	–
UK Ret. Sales (y/y)	-0.104	-0.109	–	–
UK Cons. Conf.	-0.116	-0.129	-0.123	–
Ger. CPI (m/m)	0.128	0.137	0.133	–
Ger. Cons. Conf. Index	-0.119	-0.129	-0.123	–
Ger. IFO Index	-0.174	-0.183	-0.176	–
Ger. ZEW Index (Current)	-0.142	-0.158	-0.151	–
Ger. ZEW Index (Expectations)	-0.168	-0.180	-0.175	–
Fr. GDP (y/y, Final)	-0.118	-0.127	-0.122	–
Fr. CPI (m/m)	0.126	0.132	0.127	–
Fr. PPI (y/y)	0.111	0.123	–	–
Fr. Ret. Sales Index (y/y)	-0.103	-0.110	–	–
Fr. PMI Composite	-0.157	-0.170	-0.162	–
Fr. PMI Manufacturing	-0.181	-0.190	-0.183	-0.185
It. Ind. Prod. Index (SA, y/y)	-0.097	-0.108	–	–
It. CPI (y/y)	0.108	0.116	–	–
It. CPI (NIC Index, y/y)	0.091	0.098	–	–
It. PPI (y/y)	0.102	0.107	–	–
Sp. GDP (q/q, Final)	-0.089	-0.099	–	–
Sp. CPI (m/m)	0.098	0.105	–	–
Sp. Ret. Sales Index (y/y)	-0.086	-0.093	–	–
Adj. R²	0.5431	0.6793	0.6675	0.5625

Notes: The table reports the estimated coefficients of macroeconomic surprises on the World Uncertainty index, as in Equation 4.2. Column (i) reports the estimated coefficients, overlapping with the other three columns of the regression, which include the full set of 137 surprises, Columns (ii)-(iv) report the estimates selected via the automated model selection algorithm using 90%, 95% and 99% significance levels, respectively. Sample period: January 2000 - April 2023.

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