

# Extreme macro risk, personal expectations, and financial decisions. A survey experiment on 5 European countries.

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- ▶ **Extreme macroeconomic risks** back into the spotlight in Europe since the Covid-19 crisis
    - ▶ Decline in the growth rate of real GDP higher than 10% in Spain and the UK in 2020
    - ▶ Followed by episodes of high inflation in 2022-2023, with e.g. inflation reaching a 11.1% high in the UK, and well-above 20% in several countries in Eastern Europe
  - ▶ Likely to shape household expectations of **future risks**, and therefore their **personal expectations** and **financial decisions**, which can ultimately hamper economic recovery
- ⇒ How are these tail macro risks perceived by European households and do they matter for their financial decisions?

# Definitions of extreme economic risks in our survey

**2 types of extreme and rare risks** are considered:

## Macroeconomic Disasters (MD)

“A macroeconomic disaster is a major and long-lasting period of decline in a country’s economic activity, in other words, its output. It may be a consequence of a financial crisis, war, an epidemic or other natural disaster. More specifically, economists define a macroeconomic disaster in a given country as an **accumulated downturn in economic activity of more than 10% lasting a minimum period of one year from the start of the downturn until there is a return to growth.**“ (Barro & Ursua, 2008)

## Inflationary crises (IC)

“An inflationary crisis is a long-lasting period of high price increases. More specifically, economists define an inflationary crisis as an **increase in prices of at least 20% over the course of a year** in a given country.” (Qian, Reinhart & Rogoff, 2010)

We focus on **particularly extreme and rare** events  $\Rightarrow$  we do not focus on high inflation episodes such as the one recently experienced in Europe due to the Ukraine invasion.

Our paper relates to :

▶ **The theoretical literature on extreme macro risks**

- ▶ Macroeconomic disaster risk and empirical puzzles in financial markets (Barro, 2006; Gabaix, 2012; Wachter, 2013) or precautionary savings (Isoré and Szczerbowicz, 2015; Douenne, 2020)
- ▶ Expectations of inflation disasters positively associated with spending and durable good purchases (Ryngaert, 2022)

▶ **The literature on the role of information in shaping macroeconomic expectations**

- ▶ Macroeconomic models with imperfect information (e.g. Mackowiak and Wiederholt, 2015)
- ▶ Information experiments on the perceived likelihood of recessions (Roth and Wohlfart, 2020), financial crises (Beutel et al. 2021), natural disasters (Dietrich et al., 2024)

▶ **Measuring tail risk expectations in survey data:** in the stock market (Goetzmann et al., 2024), or in GDP for US investors (Giglio et al., 2021), French finance experts (Corgnet, Cornand, and Gandré, 2025), German firms (Menkhoff, 2025) or German households (Beutel and Stockerl, 2025)

# What we do

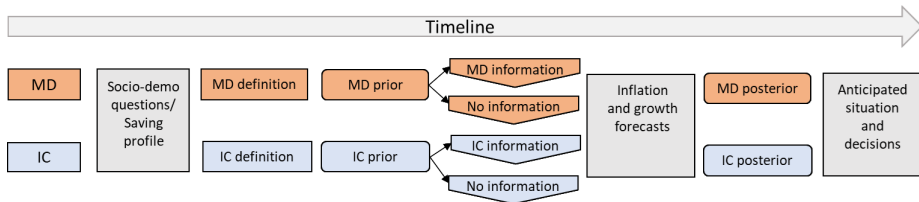
- ▶ In line with this research trend, we conducted an **online survey with information provision** on representative samples of the population (1,000 per country) in 5 European countries (France, Germany, Italy, Spain and the UK) with IPSOS in September 2023
- ▶ Our specific contributions:
  - ▶ We focus on more extreme events, also consider tail risks in inflation, and provide a **cross-country comparison** of household expectations in Europe
  - ▶ We examine the causal role of information provision about past extreme macro events on expectations of future similar events
  - ▶ We investigate how expected extreme macroeconomic risk is associated with a rich set of personal expectations and declared financial decisions

# Methodology and survey structure

⇒ We exploit both a between-subject variation (Control vs. Treated Group) and a within-subject variation (Prior vs. Posterior expectations of extreme macro risks)

**Table:** Sample size in each treatment group (  $\approx 250$  per country)

	Control group	Treated group	Common information
MD(N=2,499)	N=1,249	N=1,250	MD definition
IC (N=2,501)	N=1,251	N=1,250	IC definition



# MD information

From a sample of 15 European countries, including the country where you currently live, the following episodes of macroeconomic disaster have been observed since 1950:

- 1 1990-1993 in Finland (national economic crisis) with a downturn in economic activity of 12%.
- 2 2008-2009 in Ireland (the "sub-prime" financial crisis) with a downturn in economic activity of 12%.
- 3 2008-2013 in Greece (Eurozone crisis) with a downturn in economic activity of 26%.
- 4 2008-2013 in Spain (Eurozone crisis) with a downturn in economic activity of 10%.
- 5 2020 in the United Kingdom (Covid-19 pandemic) with a downturn in economic activity of 10%.
- 6 2020 in Spain (Covid-19 pandemic) with a downturn in economic activity of 11%.

Source: Updated data from the Barro and Ursua database (2008), World Development Indicators of the World Bank and Penn World Tables. List of the 15 countries in the European sample (1950-2022): Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Ireland, Italy, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland.

Since 1951, in a sample of 15 European countries, including the country where you currently live, the following inflationary crises have been observed:

- 1 1951 in Austria (increase in prices of 29%)
- 2 1974, 1980-82 and 1986 and 1990 in Greece (increases in prices between 20 and 25%)
- 3 1974-1975, 1977-1979 and 1982-1984 in Portugal (increases in prices between 20 and 28%)
- 4 1975 in the United Kingdom (increase in prices of 25%)
- 5 1975 and 1981 in Ireland (increase in prices of 21% and 20%)
- 6 1977 in Spain (increase in prices of 25%)
- 7 1980 in Italy (increase in prices of 21%)

Source: Monnet and Puy database (2019) and national statistical sources. List of the 15 countries in the European sample (1951-2022): Germany, Austria, Belgium, Denmark, Spain, Finland, France, Greece, Ireland, Italy, the Netherlands, Portugal, the United Kingdom, Sweden, Switzerland.

## Sample description

	Control MD	Treated MD	Control IC	Treated IC
Age	49,45	49,62	48,93	49,44
Female (%)	53.70	52.48	52.63	52.52
Household composition	2,52	2,54	2,60	2,59
Financial literacy (/3)	1,77	1,74	1,77	1,75
N	1,249	1,250	1,251	1,250

Exclusion of outliers (N=75 (1.5% of our sample)):

- ▶ IPSOS automatically excluded answers from “speeders”
- ▶ Inconsistencies :
  - ▶ Participants expecting an increase (or a decrease) in prices or economic activity in the next 12 months but providing an expected zero variation rate in these variables.
  - ▶ Expectations of growth rate lower than -10% or the inflation rate to be higher than 20% in the next 12 months but who provide a posterior percentage odds of 0% for these events, or “Not at all likely” in the posterior stage
  - ▶ between qualitative and quantitative beliefs

# Results 1: Prior expectations of extreme macroeconomic risks

- ▶ Expectations of future macroeconomic disasters and inflationary crises in Europe are very high, all the more so for the latter [Table](#) [Table](#)
- ▶ There are significant cross-country differences: France is the most pessimistic, Germany the least [Table](#)
- ▶ There is notable individual heterogeneity.

## Results 2: Causal effect of the information treatment (MD)

Table: Average treatment effect for **macroeconomic disasters** (DiD with FE) [Graph](#)

	(1) Full sample	(2) France	(3) Germany	(4) Italy	(5) Spain	(6) UK
Treatment $\times$ Post	1.62** (0.81)	-3.96** (1.80)	5.71*** (1.92)	1.40 (1.64)	3.63** (1.77)	1.34 (1.85)
Post	-1.97*** (0.54)	0.87 (1.23)	-1.85 (1.32)	-1.57 (1.01)	-4.41*** (1.22)	-2.95** (1.19)
Constant	40.81*** (0.20)	45.50*** (0.45)	32.91*** (0.48)	40.29*** (0.41)	42.16*** (0.44)	43.18*** (0.46)
R <sup>2</sup>	0.01	0.01	0.02	0.00	0.03	0.01
N	4,920	990	984	990	982	974

Note: Robust standard errors are displayed in parenthesis. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

- ▶ Over the full sample, on average, the treatment causes the respondents to **increase** their expectations of future macroeconomic disasters of 1.6% relative to the control group
- ▶ Significant **positive** effect of the treatment in Germany and Spain, whereas significant **negative** effect in France (have the most pessimistic prior expectations)

# Causal effect of the information treatment (IC)

Table: Average treatment effect for **inflationary crises** (DiD with FE) [Graph](#)

	(1) Full sample	(2) France	(3) Germany	(4) Italy	(5) Spain	(6) UK
Treatment $\times$ Post	0.55 (0.91)	-4.04** (2.01)	2.40 (1.97)	3.45 (2.11)	2.46 (2.11)	-1.53 (2.02)
Post	-4.52*** (0.64)	-3.02** (1.27)	-4.60*** (1.47)	-6.79*** (1.53)	-5.15*** (1.53)	-3.03** (1.35)
Constant	54.36*** (0.23)	60.00*** (0.50)	53.10*** (0.49)	55.31*** (0.53)	53.16*** (0.53)	50.26*** (0.50)
R <sup>2</sup>	0.03	0.06	0.03	0.05	0.03	0.03
N	4,930	984	992	980	984	990

Note: Robust standard errors are displayed in parenthesis. \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ ..

- ▶ For inflationary crises, on average, the treatment only causes **French** respondents to lower their expectations by 4% relative to the control group

# Additional results

We also look at:

- ▶ The extensive margin: For both macroeconomic disasters and inflationary crises, the probability of updating one's expectations significantly increases with information provision.
- ▶ The direction the participants update (upward, downward) or not:
  - ▶ The treatment increases the probability to revise one's expectation upward relative to both not revising and revising downward for **macroeconomic disasters**. [Table](#)
  - ▶ On the contrary, receiving the treatment increases the probability to revise one's expectation downward relative to not revising for **inflationary crises**. [Table](#)

## Results 3: Extreme macro expectations and personal expectations

	(1) Living standard (MD)	(2) Living standard (IC)	(3) Job loss (MD)	(4) Job loss (IC)
Extreme macroeconomic risk posterior (%)	-0.005*** (0.00)	-0.004*** (0.00)	0.010*** (0.00)	0.010*** (0.00)
Italy	0.317*** (0.10)	0.179* (0.10)	0.171 (0.34)	0.002 (0.35)
Germany	0.275*** (0.09)	0.193** (0.09)	-0.728** (0.29)	0.101 (0.30)
UK	0.335*** (0.09)	0.458*** (0.09)	0.131 (0.30)	-0.312 (0.29)
Spain	0.475*** (0.08)	0.515*** (0.08)	-0.149 (0.29)	0.127 (0.29)
Main socio-demographic controls	YES	YES	YES	YES
Economic knowledge and attention	YES	YES	YES	YES
Risk and time preferences	YES	YES	YES	YES
Financial situation	YES	YES	YES	YES
Economic expectations	YES	YES	YES	YES
Life experience	YES	YES	YES	YES
R <sup>2</sup>			0.19	0.18
N	2,325	2,324	1,049	1,076

Note: Robust se in parenthesis. Ordered probit for columns (1) and (2), OLS for columns (3) and (4) on Likert scale from 0 to 10 (likelihood to lose job). \*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

- ▶ Extreme macroeconomic expectations are **negatively** associated with the probability of an expected increase in one's living standard and **positively** associated with one's expected job loss risk in the next 12 months.

# Expectations of extreme macroeconomic risks and anticipated changes in saving

	(1) Frequency (MD)	(2) Frequency (IC)	(3) Amount (MD)	(4) Amount (IC)	(5) Risk-free assets (MD)	(6) Risk-free assets (IC)	(7) Risky assets (MD)	(8) Risky assets (IC)
Extreme macroeconomic risk posterior (%)	0.002** (0.00)	0.000 (0.00)	-0.000 (0.00)	-0.001 (0.00)	-0.000 (0.00)	-0.001 (0.00)	0.001 (0.00)	0.002** (0.00)
Italy	-0.166* (0.10)	-0.146 (0.09)	-0.029 (0.10)	0.031 (0.10)	0.107 (0.10)	0.063 (0.10)	0.033 (0.11)	-0.083 (0.11)
Germany	0.053 (0.08)	0.028 (0.08)	0.129 (0.08)	0.271*** (0.08)	0.071 (0.09)	0.172** (0.08)	0.274*** (0.09)	0.177** (0.09)
UK	0.154* (0.08)	0.080 (0.08)	0.456*** (0.08)	0.488*** (0.08)	0.36*** (0.09)	0.379*** (0.09)	0.165* (0.09)	0.190** (0.09)
Spain	0.087 (0.08)	0.175** (0.08)	0.194** (0.08)	0.178** (0.08)	-0.008 (0.09)	-0.023 (0.08)	0.210** (0.09)	-0.131 (0.09)
Main socio-demo controls	YES	YES	YES	YES	YES	YES	YES	YES
Economic knowledge	YES	YES	YES	YES	YES	YES	YES	YES
Risk and time pref.	YES	YES	YES	YES	YES	YES	YES	YES
Financial situation	YES	YES	YES	YES	YES	YES	YES	YES
Economic expectations	YES	YES	YES	YES	YES	YES	YES	YES
Life experience	YES	YES	YES	YES	YES	YES	YES	YES
Expected change in living standard	YES	YES	YES	YES	YES	YES	YES	YES
N	2,325	2,324	2,325	2,324	2,325	2,324	2,325	2,324

Note: Robust standard errors are displayed in parenthesis. Ordered probit.

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ .

- ▶ Expectations of MD are **positively** associated with the probability of a higher expected saving frequency in the next 12 months and expectations of IC are **positively** associated with the probability of expecting to increase the amount invested in risky assets

# Expectations of extreme macroeconomic risks and anticipated borrowing decisions

	(1) Housing Credit (MD)	(2) Housing Credit (IC)	(3) Other borrowing (MD)	(4) Other borrowing (IC)
Extreme macroeconomic risk posterior (%)	0.002 (0.002)	0.002 (0.002)	0.002 (0.001)	0.002** (0.001)
Italy	-0.278 (0.20)	0.022 (0.18)	0.317*** (0.10)	0.036 (0.10)
Germany	-0.188 (0.16)	-0.113 (0.17)	-0.028 (0.10)	-0.138 (0.10)
UK	0.114 (0.14)	0.223 (0.16)	0.348*** (0.09)	0.278*** (0.09)
Spain	-0.232 (0.16)	0.147 (0.16)	0.044 (0.09)	-0.148 (0.09)
Main socio-demographic controls	YES	YES	YES	YES
Economic knowledge and attention	YES	YES	YES	YES
Risk and time preferences	YES	YES	YES	YES
Financial situation	YES	YES	YES	YES
Economic expectations	YES	YES	YES	YES
Life experience	YES	YES	YES	YES
Expected change in living standard	YES	YES	YES	YES
N	2,325	2,324	2,325	2,324

- ▶ Expectations of inflationary crises are **positively** associated with the probability of needing to borrow in the next 12 months

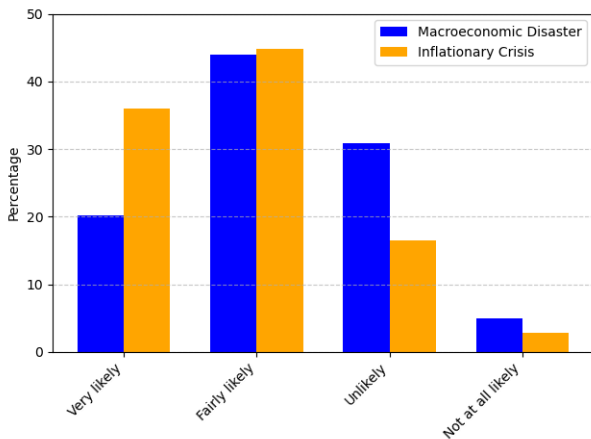
## Conclusion and public policy implications

- ▶ Household expectations of extreme (yet rare) macro risks in **the next 10 years** are **very high** and **heterogeneous** in Europe following the Covid-19 crisis
- ▶ The same piece of information can affect expectations in opposite directions, depending on the country and the type of extreme macroeconomic risk.
- ▶ **Information provision on past events** can be used by financial authorities to affect expectations and decisions, as individuals are imperfectly informed about rare and extreme events and extrapolate into the future
- ▶ More likely to drive expectations down in more pessimistic countries and when last examples of past event occurrences are less recent

Thank you!

# Prior expectations of extreme macroeconomic risks (qualitative)

*Do you think there is a risk of a macroeconomic disaster/inflationary crisis occurring in the next 10 years in the country where you currently live? (% of respondents)*



# Prior estimates of extreme macroeconomic risks (percentage odds in the next 10 years)

*In your view, what are the **percentage odds** of a MD/IC occurring in the next 10 years in the country where you currently live? Please give a percentage between 0 and 100, where 0 indicates absolutely no likelihood and 100 indicates absolute certainty.*

	Mean	sd	P25	P50	P75	N
<b>Macroeconomic disaster</b> (in %)	41.1	29.3	15	40	60	2,460
Confidence (10-point Likert scale)	5.8	2.9	5	6	8	
<b>Inflationary crisis</b> (in %)	54.3	30.6	30	50	80	2,465
Confidence (10-point Likert scale)	6.6	2.6	5	7	9	

# Prior estimates of extreme macroeconomic risks, by country

*In your view, what are the **percentage odds** of a MD occurring in the next 10 years in the country where you currently live? Please give a percentage between 0 and 100, where 0 indicates absolutely no likelihood and 100 indicates absolute certainty.*

	France	Germany	Italy	Spain	UK
<b>MD</b> mean (in %)	<b>45.5</b>	<b>32.9</b>	40.3	42.2	43.2
	(28.1)	(28.3)	(29.1)	(30.4)	(28.9)
Confidence (10-point scale)	6.2	5.4	5.8	6.2	5.5
	(2.7)	(3.1)	(2.9)	(2.7)	(2.8)
<b>IC</b> mean (in %)	<b>60.0</b>	53.1	55.3	53.2	50.3
	(28.2)	(32.2)	(30.7)	(31.4)	(29.5)
Confidence (10-point scale)	6.6	6.7	6.7	6.8	6.2
	(2.6)	(2.7)	(2.6)	(2.6)	(2.7)

# Extensive margin: Information treatment and probability of revising upward

**Table:** Information treatment and probability of revising extreme macroeconomic expectations upward relative to no update ((1) &(3)) and relative to revising downward ((2) & (4)). Multinomial probit model. [back](#)

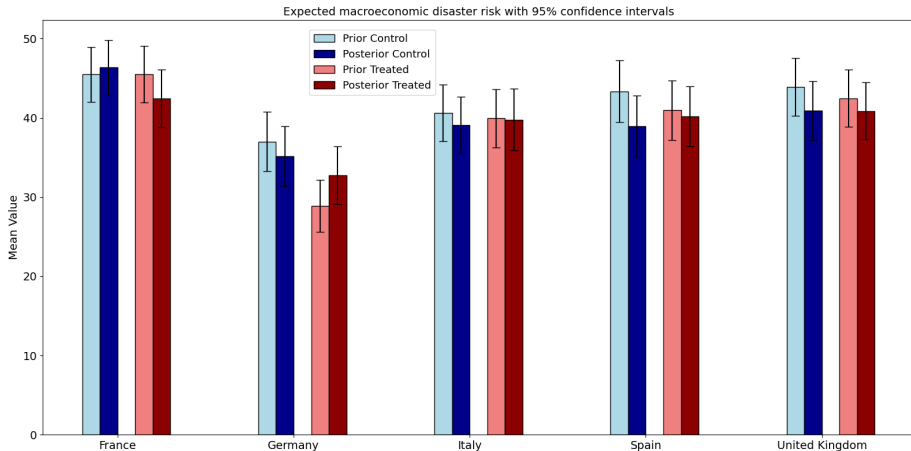
	(1) MD	(2) MD	(3) IC	(4) IC
<b>Revising upward (1)</b>				
Treatment	0.286*** (0.08)	0.236*** (0.09)	0.147* (0.09)	-0.042 (0.09)
Prior (%)	-0.014*** (0.00)	-0.022*** (0.00)	-0.021*** (0.00)	-0.025*** (0.00)
Prior confidence	0.031** (0.02)	0.127*** (0.02)	0.030 (0.02)	0.144*** (0.02)
Italy	0.007 (0.13)	-0.075 (0.14)	0.137 (0.14)	-0.009 (0.15)
Germany	-0.153 (0.13)	-0.017 (0.15)	-0.148 (0.14)	-0.135 (0.15)
UK	0.150 (0.13)	0.052 (0.14)	0.147 (0.14)	-0.022 (0.15)
Spain	-0.052 (0.13)	-0.204 (0.14)	0.182 (0.14)	0.010 (0.15)
Main socio-demographic controls	YES	YES	YES	YES
Economic knowledge and attention	YES	YES	YES	YES
Risk and time preferences	YES	YES	YES	YES
N	2,460	2,460	2,465	2,465

# Information treatment and probability of revising downward

**Table:** Information treatment and probability of revising extreme macroeconomic expectations downward relative to not updating [back](#)

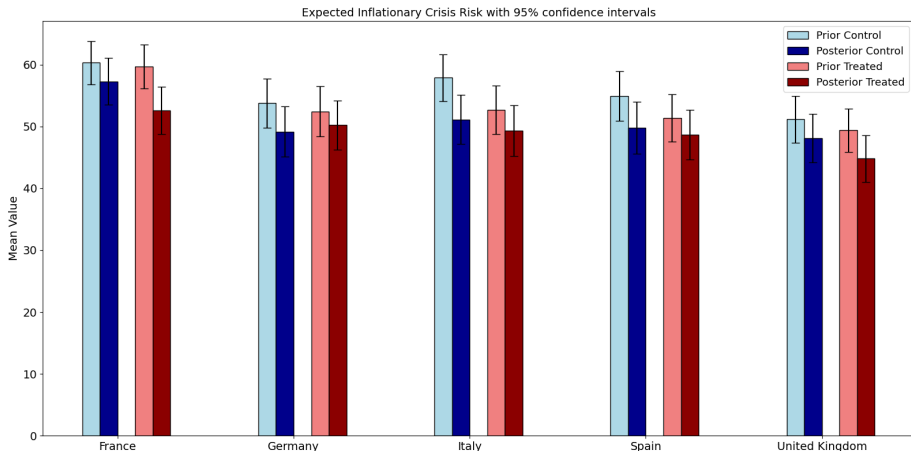
	(1)	(2)	(3)	(4)
	MD	MD	IC	IC
<b>Revising downward (-1)</b>				
Treatment	0.050 (0.08)		0.189** (0.08)	
Prior (%)	0.009*** (0.00)		0.004*** (0.00)	
Prior confidence	-0.097*** (0.02)		-0.113*** (0.02)	
Italy	0.082 (0.13)		0.145 (0.12)	
Germany	-0.137 (0.13)		-0.013 (0.12)	
UK	0.098 (0.13)		0.169 (0.12)	
Spain	0.152 (0.13)		0.172 (0.12)	
Main socio-demographic controls	YES	YES	YES	YES
Economic knowledge and attention	YES	YES	YES	YES
Risk and time preferences	YES	YES	YES	YES
N	2,460	2,460	2,465	2,465

# Expectations of macroeconomic disasters



⇒ Expectations of extreme macro risk the **highest** in France, the **lowest** for macroeconomic disasters in Germany

# Expectations of inflationary crisis



⇒ Expectations of extreme macro risk the **lowest** for inflationary crises in the UK