Extreme macroeconomic risk, personal expectations and financial decisions: an information experiment on five European countries

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Abstract: To evaluate expectations of future extreme macroeconomic risks –'macroeconomic disasters' and 'inflationary crises'–, and their relation to personal expectations and financial decisions, we conducted an online survey experiment on representative samples of the population in five European countries: France, Germany, Italy, Spain and the UK in September 2023. Exploiting both a between and within-subject design, we provided half of the participants with information about past extreme macroeconomic events in Europe. Our findings indicate that households present high expectations of future extreme macroeconomic events and that the causal effect of information provision on expectations highly depends on the country and the type of extreme risk. Information provision about past events can thus play out in opposite directions; however, it always increases the probability of revising one's expectations. We then find that expectations of extreme macroeconomic risks are transmitted to personal expectations about one's future standard of living and job loss risk, but their impact on expected saving and financial decisions is mixed.

JEL codes: E70, D83, G11, G51.

Keywords: Extreme macroeconomic risk; expectations; information experiment; household finance.

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1 Introduction

Extreme macroeconomic risks have come back in the spotlight in Europe and the rest of the world due to the economic impacts of the COVID-19 crisis. Indeed, countries such as Spain and the UK have faced declines in the growth rate of their real GDP higher than 10% in 2020. In addition, the post-Covid 19 crisis period has also been characterized by high inflation rates. As an illustration, UK consumer prices have increased by 11.1% in annual terms in October 2022, reaching a 41-year high, whereas several countries in Eastern Europe have experienced inflation rates well-above 20%.¹ These recent striking macroeconomic events in terms of both GDP growth and inflation are likely to shape household expectations of future macroeconomic risks, which can in turn affect future personal expectations, and thus, future financial decisions (Isoré and Szczerbowicz, 2017; Ryngaert, 2022).

However, to the best of our knowledge, no study has directly measured household expectations of future extreme macroeconomic risks and investigated their consequences for anticipated individual financial decisions, nor compared them across different countries. The present paper proposes to fill this gap by focusing on two types of rare and extreme macroeconomic events –namely 'macroeconomic disasters' and 'inflationary crises'– relying on an online survey experiment on a representative sample of 1,000 individuals in each of five European countries: France, Germany, Italy, Spain and the UK, conducted in September 2023. We focus on these five countries because they are the biggest countries in Western Europe and they faced contrasting economic situations during the Covid-19 crisis and its aftermath. The survey was conducted in the aftermath of the Covid-19 crisis, in a period of relatively high inflation in Europe. This allows us to assess whether European households tend to form high expectations of rare and extreme events when they were recently observed, consistent with the availability and recency biases that lead individuals to allocate a large attention to recent and salient events (Tversky and Kahneman (1973), Tversky and Kahneman (1974), Plonsky et al. (2015)).

The main objectives of this survey are to evaluate i) how respondents perceive future extreme macroeconomic risks in their respective country in the specific post-pandemic context, ii) how

¹According to the Harmonised Index of Consumer Prices figures published on the ECB Data Portal, inflation reached 25.2% in Estonia in August 2022 and 26.3% in Hungary in January 2023.

these expectations can be shaped by information provision, and iii) how they relate to personal expectations and anticipated individual financial decisions. With this aim in view, all participants were provided with definitions of extreme macroeconomic risks. Specifically, we follow the literature in defining two sorts of events: 'macroeconomic disasters', which are characterized by cumulative declines in GDP higher than 10% over at least a year, from peak to through (Barro and Ursua, 2008), and 'inflationary crises', which are defined as an increase in consumer prices higher than 20% over one year (Qian et al., 2011). Next, half of them received information about past extreme macroeconomic events since the 1950s in 15 large European countries to evaluate the causal effect of information provision on individual expectations and financial decisions.

We rely on both a between-subject comparison (by comparing a control group with no information provision with a treated group) and a within-subject comparison (by comparing prior expectations and post-treatment expectations). In fact, all participants were asked to evaluate the percentage odds that an extreme macroeconomic event occurs in the next 10 years in the country they currently live in, twice (without information provision for the control groups, and before and after information provision in the treated groups). To address our three objectives, we finally asked a number of questions on both future personal expectations –regarding future expected variation in one's own living standard and job loss risk– and anticipated future saving and financial decisions – dealing with expected changes in savings amount, frequency, and allocation between risk-free and risky assets, and with credit and borrowing. This enables us to further investigate whether individual expectations of future extreme macroeconomic risks relate to expected individual financial decisions.

Our main findings are threefold. First, we observe that prior expectations of future extreme macroeconomic events are high among European households. We find that respondents, on average, estimate a 41.1% chance of a macroeconomic disaster and a 54.3% chance of an inflationary crisis happening in their residence country within the next 10 years. However, there is significant variation by country, with estimates for macroeconomic disasters ranging from 33.2% to 45.4%, and for inflationary crises from 49.7% to 59.9%. Second, we show that the causal effect of information provision about past extreme macroeconomic events is strongly heterogeneous among participants. Specifically, the same piece of information can affect expectations in opposite directions, de-

pending on the country and the type of extreme macroeconomic risk. Hence, French respondents revise their expectations regarding macroeconomic disasters downward following the treatment, differently to other respondents. In addition, information provision on past events in Europe is not seen as relevant for the future by survey participants in several cases, particularly for inflationary crises, and for Italy and the UK. Third, we find mixed evidence on how these expectations relate to personal expectations and financial decisions. Expectations on future extreme macroeconomic risks in the next 10 years seem to be robustly linked to expectations of one's change in own living of standard in the next 12 months. Our findings also reveal several correlations between expected extreme macroeconomic risks and anticipated decisions related to credit and borrowing, but caution is called for when discussing the implications in terms of causal effects.

The paper is organized as follows. Section 2 provides details on the related literature and the hypotheses that we elaborate based on previous results in the theoretical and empirical literature. Section 3 describes the survey design whereas section 4 provides descriptive statistics on prior extreme macroeconomic expectations. Section 5 presents the results on the average treatment effect on expected future risks while section 6 describes the results on the relationship between expectations of future extreme macro risks and personal expectations on the one hand, and anticipated individual saving and financial decisions on the other hand. Finally, section 7 concludes and discusses the policy implications of our results.

2 Related literature and hypotheses

2.1 Literature

Our study relates to two different strands of the macro-finance literature. The first one is the theoretical literature on extreme macroeconomic risks. A vast literature in macro-finance emphasized the role of macroeconomic disasters in explaining several empirical puzzles in financial markets – the most famous one being the equity premium puzzle –, highlighting their importance for understanding financial investment decisions, in particular under-investment in risky assets (see e.g., Barro (2006), Gabaix (2012), Gourio (2012), Wachter (2013)). More recently, the theoretical literature also focused on inflation disasters, showing that expectations of inflation disasters are positively associated with spending and purchases of durable goods (Ryngaert, 2022).

The second strand of literature this paper relates to is the recent empirical literature on the role of information in shaping macroeconomic expectations, and the implications for personal expectations and economic and financial decisions. This literature relies on the survey experiment methodology to investigate the impact of different informational treatments and generate exogenous variation in beliefs to assess the causal impact of information provision on household decisions (Fuster and Zafar, 2023). In the macro-finance field, such an approach is theoretically grounded on macroeconomic models with imperfect information (e.g., Maćkowiak and Wiederholt (2015)). Information experiments in macroeconomics and financial crisis (Beutel et al., 2021) or of a natural disaster (Dietrich et al., 2024), to the understanding of inflation (Binetti et al., 2024), or to expectations of macroeconomic or inflation uncertainty (Coibion et al. (2024), Georgarakos et al. (2024)). By generating an exogenous variation in beliefs through the informational treatment, they show that macroeconomic expectations causally affect personal expectations and behavior.

Relative to this literature, the present paper focuses on expectations of long-term extreme macroeconomic risks along two dimensions (namely, GDP growth extreme risk and inflation extreme risk), for which no explicit measure already exists. Thus, we focus on a very rare and uncertain type of macroeconomic risk, for which no existing professional forecasts or official communication are available. Moreover, we investigate the causal role of information about past extreme macroeconomic events on expectations of future similar events, thus focusing on qualitative information that can be interpreted in opposite directions, depending on how it surprises respondents. On the contrary, most of the literature has focused on quantitative information which produces a more trivial and unidirectional effect on beliefs. The main aim of these papers is to use the informational treatment as an artefact to generate clear exogenous variations in beliefs to identify the causal transmission of beliefs to decisions. Therefore, they pre-select a somehow ad hoc informational treatment that is expected to generate a clear difference between the control and treatment groups, as the effect of the informational treatment in itself is not the main point of their analysis.²

²See for instance Roth and Wohlfart (2020) in which the treated group receives the most pessimistic professional

In our case, since there is only scarce literature on expectations of future extreme macroeconomic events, we first aim at understanding how the latter are formed and whether they are affected by the occurrence of similar past events in Europe. Providing information on those events has a potentially ambiguous and non-trivial effect. This is because people could either consider that the frequency of past extreme macroeconomic events provides useful information for the future, or that the frequency of such events has varied over time, and that past events are noninformative for the future. Then, we investigate how posterior extreme macroeconomic risk is associated with personal expectations and with declared anticipated variations in a rich set of financial and saving decisions, to provide new insights on the way expectations of extreme macroeconomic risks relate to individual decisions. This approach is in line with the theoretical literature which emphasizes that future extreme macroeconomic events, despite being very rare, can have strong and persistent implications for financial investment (e.g., Barro (2006), Gabaix (2012), Wachter (2013)).

Finally, and differently to Corgnet et al. (2025) who focus on macroeconomic disasters in a fictive financial investment experiment with financial incentives, we measure *future* expected risk rather than the perception of the past frequency of extreme events, and we also consider inflationary crises. In addition, whereas Corgnet et al. (2025) conduct a comparison between a group of finance professionals and a standard pool of experimental subjects in France, the present survey relies on samples of the general population in five different European countries which faced heterogeneous economic experiences during the recent Covid-19 crisis and subsequent high-inflation episode, which allows us to conduct a cross-country comparison analysis.

2.2 Hypotheses

Our first hypothesis relates to the literature on the psychology of tail events that emphasizes their over-estimation (Barberis, 2013) – especially in the aftermath of troubled time – and with empirical results for professional investors and finance experts regarding stock crashes and macroeconomic disasters (Giglio et al. (2021), Goetzmann et al. (2024), Corgnet et al. (2025)).

forecast from the Survey of Professional Forecasters (SPF) about the probability of a recession in the US whereas the active control group receives one of the most optimistic professional forecasts from the SPF.

Hypothesis 1. *The general population assigns a high probability to extreme macroeconomic risks.*

Our second hypothesis is based on the results from the literature which shows the role of past experiences and past sample description in driving expectations (Malmendier and Nagel (2011), Dietrich et al. (2024)). Relying on these previous results, respondents living in countries with different past economic experiences and past history of extreme macroeconomic events should present different expectations, and react differently to information provision about past events, notably depending on whether their country of residence is cited as having previously experienced such events or not.

Hypothesis 2. *There are cross-country differences in these expectations and in the reaction to the information treatment.*

The literature on information experiments applied to macroeconomic expectations shows that the latter transmit to expectations about one's own future economic situation (Roth and Wohlfart, 2020), which leads us to hypothesize that the same should hold true for *extreme* macroeconomic risk expectations.

Hypothesis 3a. *Expectations of extreme macroeconomic risks transmit to personal expectations in terms of expected change in one's living standard and risk to lose one's job.*

The literature emphasizes that people tend to overweight tail events in their decision process (Barberis, 2013), suggesting that expectations of extreme macroeconomic risks can have different and additional effects on financial and credit decisions relative to standard macroeconomic expectations, such as growth and inflation forecasts. Theoretical models predict that higher expectations of future macroeconomic disasters lead to higher precautionary savings (Isoré and Szczerbowicz, 2017; Douenne, 2020) and decrease the willingness to invest in risky assets (Barro, 2006; Wachter, 2013). As for theoretical models that focus on tail risk in inflation, they predict that households who attribute a higher probability to extreme values of future inflation are more pessimistic about their future possibilities of accessing credit, which implies that they have a higher marginal propensity to consume (Ryngaert, 2022).

Hypothesis 3b. *Expectations of extreme macroeconomic risks transmit to future expected decisions related to savings, risky financial investment and credit, through the precautionary saving motive or the expectation of higher future liquidity constraints.*

We use our survey data to test these *ex-ante* hypotheses one by one.

3 Design of the survey

3.1 Selection of the sample

Our sample consists of 5,000 households in total, equally distributed in 5 main European countries: France, Germany, Italy, Spain and the UK. The 5 largest countries in Western Europe experienced different economic situations during the Covid-19 crisis and its aftermath. For instance, Spain and the UK were particularly affected in terms of economic growth, whereas Germany was more resilient, and France suffered from lower inflation rates relative to the other countries.³ In addition, these countries are characterized by different institutional situations, with the UK not belonging to the European Union, and different policy responses to the Covid-19 turmoil. In each country, the sample of respondents is representative of the general population in terms of gender, age, region, agglomeration category and occupation.⁴ The survey was conducted in September 2023.⁵

3.2 Definition of extreme macroeconomic risks

We focus on two different extreme and rare macroeconomic risks: 'macroeconomic disasters' and 'inflationary crises', to account for two different aspects of tail macroeconomic risks that can di-

³Thus, whereas the real GDP in Spain and the UK decreased by more than 10% in 2020, it decreased by only 4% in Germany. In what regards the inflation rate, the annual growth rate of the Eurostat monthly HIPC peaked at 8.4% in Spain in November 2022, at 9.3% in Germany in April 2023 and at 9.8% in in Italy in May 2023, whereas it never exceeded 6.7% in France.

⁴Access to respondents in the 5 countries and socio-demographic adjustment of the base using the quota method were carried out by IPSOS.

⁵Appendix B provides the exact dates of the survey for each country.

rectly affect households' saving and financial decisions.

On the one hand, macroeconomic disasters were defined as follows in the survey, in the simplest possible terms⁶: "*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.*" We chose the 10% threshold by relying on the existing literature on macroeconomic disasters that provides historical accounts of such extreme events and which shows that the 10% threshold enables identifying major catastrophic events in economic history (Barro and Ursua, 2008).⁷ Furthermore, in our specific sample of European countries, the 10% threshold allows us to distinguish countries in which economic growth was particularly affected by the Covid-19 crisis such as Spain and the UK.

On the other hand, inflationary crises were defined as: "*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.*" The 20% threshold for inflationary crises is based on the literature on extreme inflation episodes, following Qian et al. (2011). Retaining such a high threshold is aimed at focusing on inflationary events that are rare and extreme – and not on all high inflation episodes, to define a counterpart to macroeconomic disasters in terms of inflation.

For each country, half of the sample is randomly allocated to a group who receives the macroeconomic disasters' definition, the other half is randomly allocated to a group who receives the definition of inflationary crises.

⁶Pre-test and pilots have been run before implementing the survey, allowing us to decide on the best wording. Translation and back translations were performed by natives and professionals who were bilingual in French, for each country. We provide the English version of the questionnaire in the Appendix.

⁷Thus, the 10% threshold captures the major economic turmoil related to the Great Depression of the 1930s and World War II in many countries of the world, to the subprime crisis in Iceland and Ireland, to the Eurozone sovereign debt crisis in Greece and Spain and to the Covid-19 crisis in the most affected countries in the world.

3.3 Information treatment: past extreme macroeconomic events in Europe

As we focus on rare and extreme macroeconomic risks, there are no existing professional forecasts or official communication (for instance, from central banks or governments) that measure directly and quantitatively these future risks. Therefore, we provide participants in the treated groups with the main information that is available about these extreme events, that is, the historical account of past events that meet the definition criteria detailed in Subsection 3.2. To make the informational content of the treatment relevant for the participants' assessment of extreme macroeconomic risk in the next 10 years, we focus on a historical period that starts in the 1950s, so that the sample is large enough to include extreme events and to provide sufficient hindsight, but, however, limited to a relatively recent period which might still be informative for the assessment of future risks. For the same reason, we focus on a sample of 15 European economies that includes the 5 countries in our sample and additional countries that are relatively similar.⁸ The detailed informational treatment is presented in the English version of the questionnaire displayed in the Appendix.

The informational treatment consists of qualitative information about the past that participants have to process to infer a quantitative assessment of the future, similar to Dietrich et al. (2024) who focus on the risk of natural disasters in the US. Therefore, the effect of information on expected future extreme macroeconomic risks is nontrivial in comparison with information experiments in which participants are provided with quantitative forecasts of future risks that are directly equivalent to the assessment they have to make. Then, the information effect is likely not to be unidirectional, depending, notably, on prior beliefs and country characteristics. Therefore, this type of informational treatment can generate richer heterogeneous results, which are particularly interesting in a cross-country analysis, but come at the expense of having less neat treatment effects –and potentially no treatment effect in some cases– if respondents do not consider the informational treatment to be relevant for the assessment of future risk (for example, if this risk is perceived as strongly time-varying or if the information is already included in their prior information set).

⁸Thus, we do not include countries from Eastern Europe that faced very different economic situations in the last decades.

Treatment and control group allocation

Half of the sample is randomly allocated into a macroeconomic disaster group (hence receiving the definition of a macroeconomic disaster). This subsample is then randomly allocated either to a control group (without provision of information) or to a treatment group where additional information about macroeconomic disaster is provided. The same reasoning applies to the inflationary crises group. We end up with four groups in total, equally randomly allocated across countries: a macroeconomic disasters control group (MD control), a macroeconomic disasters information treatment group (MD info), an inflationary crises control group (IC control), and an inflationary crises information treatment group (IC info).

Table 1 summarizes the distribution of participants in the different control and treatment groups.

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	Control group	Treated group
Macroeconomic Disasters (N=2,499)	N=1,249, \simeq 250 per country	N=1,250, \simeq 250 per country
Inflationary Crises (N=2,501)	N=1,251, \simeq 250 per country	N=1,250, \simeq 250 per country

3.4 Elicitation of extreme macroeconomic risk expectations

We elicit extreme macroeconomic risk expectations (macroeconomic disasters or inflationary risks according to the allocated group) *before* and *after* receiving information.⁹ This is our main variable of interest. To do so, we ask the following qualitative and quantitative questions:

"1) Do you think there is a risk of a macroeconomic disaster (resp. inflationary crisis) occurring in the next 10 years in the country where you currently live?

-It seems highly likely to me

- -It seems fairly likely to me
- -It seems unlikely to me
- -It seems not at all likely to me

⁹Note that in the control group, respondents are also asked to provide their expectations twice, even though there is no information provision in-between, so that we can exploit within-subject variation.

2) In your view, what are the percentage odds of a macroeconomic disaster 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.

3) To what extent are you certain of the answer you have given to the previous question about the percentage odds of a macroeconomic disaster occurring in the next 10 years in the country where you currently live? Please give a number between 0 and 10, where 0 indicates not at all certain and 10 indicates completely certain."

We elicit expectations in terms of "percentage odds" rather than in terms of "probability", as the literature has shown that the concept of probability is hard to grasp in the general population (Charness et al., 2021; Schlag and Tremewan, 2021). Given that the risks that we consider are rare by definition, we ask participants to evaluate the percentage odds that such risks materialize in the next 10 years (as opposed to the next 12 months) to avoid biases related to very small probabilities and to measure perceived *long-term* risks. The answer to question 3) provides a measure of the respondent's confidence in her prior or posterior estimate. Finally, we insert intermediate questions about inflation and growth forecasts in the next 12 months in all control and treatment groups. This approach aims to prevent the participants to answer the elicitation of the macroeconomic risk expectations just before and right after the provision of information and to blur their memory. In the rest of the paper, we call "prior belief" the response to the first expectations elicitation question provision. Participants are reminded the definition of the extreme macroeconomic event before each block of expectations elicitation questions.

3.5 Additional questions and survey structure

In all groups, respondents are first asked about a number of socio-demographic questions that we use as controls in our estimations: gender, age, place of residence, family situation and house-hold composition, income, diploma level and field, job-related questions, Covid-19 experience, unemployment experience and health issues experience. We also ask questions about their current savings and if any, about the distribution of their savings into different classes of financial

assets, along with their saving's main objectives and current credit and home situation. Then, we provide respondents with a definition of macroeconomic disasters (resp. inflationary crises) (see Subsection 3.2), depending on the allocated group. Next, we ask participants their expectations of future macroeconomic disasters (resp. inflationary crises) in the country they currently live in in the next 10 years. After this, participants allocated to the treatment group receive additional information about past macroeconomic disasters (resp. inflationary crises) in 15 European countries since the 1950s (see Subsection 3.3). After some intermediate questions aimed at alleviating the experimenter-demand effect concerns (Haaland et al., 2023), all respondents are asked again their expectations of future macroeconomic disasters (resp. inflationary crises). Therefore, the design of the survey allows us to exploit both between-subject variation (between the control and the treated groups) and within-subject variation (between prior extreme macroeconomic risk expectations and posterior ones).

Participants are then asked a set of expectations regarding their personal situation and anticipated future saving and financial decisions in the next 12 months. Respondents are asked about two different sorts of expectations regarding their future personal situation, what we call "personal expectations" following Roth and Wohlfart (2020). The first one is about the evolution of one's own standard of living,¹⁰ and the second one about the perception of one's unemployment risk.¹¹

Regarding anticipated future financial and saving decisions, we ask questions about the intended frequency of savings over the next 12 months (never/once/several times/monthly or more frequently), the planned evolution of savings over the next 12 months (Increase the amount you save yearly/keep the amount you save yearly the same or at zero/Reduce the amount you save yearly), and the anticipated evolution of the savings allocation. Thus, participants are asked whether they plan to increase, keep constant or zero, or decrease their risk-free financial investments and their risky financial investments. Eventually, respondents should specify whether they envisaged, in the next 12 months, to take out a loan to buy a property, take out consumer credit, use an overdraft facility at least once, and borrow money from a member of their family or close friend.

¹⁰"During the next 12 months, do you think that your living standard will: 1) Increase 2) Decrease 3) Remain the same 4) You don't know"

¹¹"In your view, what is the risk of your losing your job in the next 12 months? By job loss, we mean redundancy or non-renewal of a contract. Please choose a figure between 0 and 10 where 0 indicates "absolutely no risk of losing my job in the next 12 months" and 10 indicates "an absolutely certain risk of losing my job in the next 12 months".

Finally, we evaluate participants' financial literacy and risk appetite (post-survey questions).¹²





3.6 Outliers and representativeness

The IPSOS panelist automatically excluded answers from "speeders", defined as respondents whose total response time was lower than half of the average response time in each country sample. To deal with additional outliers in our sample, we exclude inconsistent answers from the analysis. We define three types of inconsistent answers. The first one corresponds to participants expecting an increase (resp. a decrease) in prices or economic activity in the next 12 months but providing an expected zero variation rate in these variables. The second one covers respondents who expect the growth rate to be lower than -10% or the inflation rate to be higher than 20% in the next 12 months –cases that fall within the definition of macroeconomic disasters and inflationary crises– but who provide a posterior percentage odds of 0% for these events, or respond that macroeconomic disasters or inflationary crises are "Not at all likely" in the posterior stage.¹³ Finally, the third one measures inconsistency between qualitative and quantitative beliefs, including cases when the quantitative expected percentage odds of an extreme macroeconomic event is set to 100% (resp. 0%) whereas the qualitative answer is "not at all likely" (resp. "highly likely"), either at the prior or posterior stage.

¹²We measure financial literacy by calculating the number of correct answers to the "Big Three" questions (Lusardi and Mitchell, 2011). Financial risk appetite is measured on a Likert scale from 0 to 10 with the following question: "As far as savings and investments are concerned, how willing are you to take risks? Choose a number from 0 to 10. 0 indicates "not at all willing to take risks" as far as savings and investments are concerned, and 10 indicates "extremely willing to take risks". Participants were also asked to evaluate their general risk appetite on a similar scale.

¹³We focus on the posterior stage given that growth and inflation forecasts are collected after the informational treatment for the treated group.

In total, we exclude 75 observations –i.e., 1.5% of our sample–, which are almost identically distributed across the five countries and the two types of extreme macroeconomic risks under consideration.¹⁴

We provide proportions in terms of age, gender, region, agglomeration category and occupation in each of our four groups (MD control, MD info, IC control and IC info) in each country, and compare them to the actual proportions in the general population in the Online Appendix. Overall, the socio-demographic characteristics of our different groups are relatively close to those of the general population in each country. Therefore, in the core of the paper, we focus on estimations in which each observation is allocated the same weight. Indeed, the main aim of the paper is to measure treatment effects and the relation between expectations and decisions, and not primarily to infer results for the general population. Given that a few outliers are dropped in the analysis and some estimations induce a loss of observations, socio-demographic adjustment weights become less meaningful than when used on the full sample. In addition, they could contaminate the experimental treatment by potentially placing a high weight on specific reactions to the treatment, making results more sensitive to outliers. Nevertheless, in the Appendix of the paper, we additionally provide the results of our main estimations when weighting each observation by the adjustment weight calculated by IPSOS according to the quota method.

4 Descriptive statistics: extreme macroeconomic risk expectations in Europe

First, we provide descriptive statistics on prior expectations of extreme macroeconomic risk before any information provision and thus before any treatment contamination. To the best of our knowledge, no such forward-looking measure of individual perceived risk exists in the literature. Therefore, the distribution of prior expectations is an interesting result *per se*.

¹⁴We could also trim prior extreme macroeconomic risk expectations at the 2.5th and 97.5th percentiles, in line with the literature (see for instance Fuster et al. (2022)). However, this is not our preferred method given that our specific variable of interest is bounded between 0 and 100, being a percentage odds. In addition, given that expectations of extreme risks are very high, with a significant share of participants allocating a 100% percentage chance of extreme risk to realize, trimming leads to drop smaller responses, while they are possibly the most realistic ones, but not higher values. What is more, our prior and posterior means are not or only very slightly affected by trimming or winsorization.

Three main results stand out: i) expectations of future macroeconomic disasters and inflationary crises in Europe are very high, all the more so for the latter, ii) there are significant cross-country differences, and iii) there are significant individual differences. Figure 2 shows the answers from the qualitative prior expectations questions (cf. Subsection 3.4) for macroeconomic disasters and inflationary crises. It shows that 64% of respondents evaluate that the risk that a macroeconomic disaster occurring in the next 10 years in the country where they currently live is either "fairly likely" or "highly likely" and this figure even rises to as much as 81% for inflationary crises.



Figure 2: Qualitative prior expectations (% of respondents)

Table 2 presents the distribution of quantitative prior estimates of the percentage odds that a macroeconomic disaster (resp. an inflationary crisis) occurs in the next 10 years in the respondent's country, pooled over the five countries. It shows that the average percentage odd in our sample is 40.8% for macroeconomic disasters, and is, once again, higher for inflationary crises, at 54.4%. However, standard deviations are high, revealing strong heterogeneity in the sample. In addition, respondents seem to be relatively confident about their estimates, in particular for inflationary

crises. Thus, respondents express a mean confidence in their estimate of 5.8 on a 10-point scale for macroeconomic disasters against 6.6 for inflationary crises.

Table 2:	Distribution	of prior	estimates	of extreme	macroeconor	nic risks	(percentage	odds in	the
next 10	years)								

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

Since we ask participants about future extreme macroeconomic risk –which, by nature, is rare and very uncertain, and for which no corresponding professional forecast exists–, it is not possible to interpret the results directly in terms of over- or under-estimation of risk. However, the respondents' estimates appear very high relative to historical standards.¹⁵ High expectations of rare and extreme risks are in line with the results in Corgnet et al. (2025) about the historical frequency of macroeconomic disasters estimated by French finance experts and laypersons, and of Giglio et al. (2021) and Goetzmann et al. (2024) about the likelihood of GDP disasters and catastrophic stock crashes perceived by US investors. This result confirms Hypothesis 1.

Finally, our data also reveals striking country differences in elicited quantitative prior estimates (see Table 3), in line with Hypothesis 2. While French respondents are those who display the highest estimates of the percentage odds for both macroeconomic disasters and inflationary crises, German respondents are those with the lowest priors for macroeconomic disasters, whereas British respondents are those with the lowest priors for inflationary crises.¹⁶

¹⁵If we extrapolate over time the past frequency of extreme macroeconomic events calculated in our sample which consists of 15 European countries since the 1950s, we find that the probability that at least one extreme event occurs in the next 10 years in a given country is 5.5% for macroeconomic disasters and 11% for inflationary crises. This extrapolation relies on the assumption that the probability of these events is not time-varying, whereas participants might expect it to follow an upward trend.

¹⁶T-test results reveal that the mean prior for French respondents is statistically significantly higher of that of all other country respondents at the 1% threshold, except for the mean prior for UK respondents in the case of macroeconomic disasters. The difference in the mean for German respondents and macroeconomic disasters with respect to any other country is statistically significant at the 1% threshold. Finally, the difference in the mean estimate for UK respondents and inflationary crises is statistically significant at the 1% threshold with respect to France and Italy, but not Germany and Spain.

	France	Germany	Italy	Spain	UK
Macroeconomic disaster: mean (in %)	45.5	32.9	40.3	42.2	43.2
	(28.1)	(28.3)	(29.1)	(30.4)	(28.9)
Confidence (10-point Likert scale)	6.2	5.4	5.8	6.2	5.5
	(2.7)	(3.1)	(2.9)	(2.7)	(2.8)
Inflationary crisis: mean (in %)	60.0	53.1	55.3	53.2	50.3
	(28.2)	(32.2)	(30.7)	(31.4)	(29.5)
Confidence (10-point Likert scale)	6.6	6.7	6.7	6.8	6.2
	(2.6)	(2.7)	(2.6)	(2.6)	(2.7)

Table 3: Means of elicited priors and confidence, by country. Standard deviations in parentheses.

5 Causal effect of the information treatment on extreme macroeconomic expectations

5.1 Average treatment effect

Our information experiment design aims at evaluating the causal effect of information provision about past extreme macroeconomic events in Europe on expected future risk. Figures 3 and 4 provide a comparison between mean prior and posterior expectations in control vs. treated groups with 95% confidence intervals in each of the five countries of our sample and for both types of extreme macroeconomic risks.



Figure 3: Average expectations of macroeconomic disasters per country and per group

We see that posterior expectations for macroeconomic disaster risk are heterogeneous, depending on the country and on whether participants received the informational treatment. The most striking difference is between France and Germany, with participants in the treated group revising their expectations downward in France and upward in Germany.



Figure 4: Average expectations of inflationary crises per country and per group

In what regards inflationary crises, participants in the treated group revise their expectations

downward in all countries. However, participants in the control groups also revise their expectations downward for both macroeconomic disasters and inflationary crises, and sometimes more strongly than in the treated group, even though they did not receive any additional information. This result is consistent with the findings of other information experiments with a control group and a within-subject design eliciting both prior and posterior beliefs of respondents (e.g., Beutel et al. (2021), Roth et al. (2022) and Fuster et al. (2022)). This 'spurious mean-reversion' (Fuster et al., 2022) can be explained by potential experimenter-demand effects (Haaland et al. (2023)) or by the fact that respondents reconsider or correct typos in their estimate (Fuster et al. (2022)). In our case, given that the negative sign of the revision in the control group is consistent across specifications, and given that prior expectations are high, this effect is likely to reveal that participants revise their high estimates downward after giving it some more thought. Therefore, the revision observed in the control group due to a reconsideration of the initial appraisal should also occur in the treated group, and any additional or opposite revision in the treated group relative to the control group can be attributed to the treatment.

All in all, the descriptive statistics suggest that the information treatment has heterogeneous effects depending on the country and type of extreme risk considered. We turn to the estimation of a standard difference-in-difference regression model with the fixed-effect estimator.

We measure the average treatment effect both in the full sample and in each country, as the treatment effect could vary across countries, as suggested by the descriptive statistics. Indeed, the different countries in our sample did not experience the same past disasters nor faced a similar economic situation in September 2023, when the survey was conducted. In fact, the five countries are not all cited in the examples given in the information provided in the treatment groups: Spain and the UK did experience macroeconomic disasters since the 1950s as defined by the threshold of a at least 10% drop in GDP (the Eurozone sovereign debt crisis and/or the Covid-19 crisis), whereas France, Germany and Italy did not; Italy, Spain and the UK faced higher than 20% increase in prices in the 1970s/80s, but not France and Germany. Therefore, we assume that there might be country-specific differences in the response to the informational treatment.

Tables 4 and 5 report the difference-in-difference estimation results for macroeconomic disasters and inflationary crises respectively, for both the full sample and the country-per-country estimations. Our main coefficient of interest is the coefficient on the interaction variable between the treatment and the posterior $Treatment \times Post$ which measures the average information treatment effect on expectations.

	(1)	(2)	(2)	(4)	(5)	(6)
	(1)	(2)	(3)	(4)	(\mathbf{J})	(0)
	Full sample	France	Germany	Italy	Spain	UK
Treatment \times Post	1.62**	-3.96**	5.71***	1.40	3.63**	1.34
	(0.81)	(1.80)	(1.92)	(1.64)	(1.77)	(1.85)
Post	-1.97***	0.87	-1.85	-1.57	-4.41***	-2.95**
	(0.54)	(1.23)	(1.32)	(1.01)	(1.22)	(1.19)
Constant	40.81***	45.50***	32.91***	40.29***	42.16***	43.18***
	(0.20)	(0.45)	(0.48)	(0.41)	(0.44)	(0.46)
\mathbb{R}^2	0.01	0.01	0.02	0.00	0.03	0.01
Ν	4,920	990	984	990	982	974

Table 4: Average treatment effect for macroeconomic disasters

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

Tables 4 and 5 show that the results differ depending on i) the country (which confirms Hypothesis 2, and ii) the type of extreme macroeconomic event. First, there is evidence of a significant effect of the treatment on the full sample for macroeconomic disasters but not for inflationary crises. On average, receiving the treatment increases the expected risk of a macroeconomic disaster relative to the control group over the full sample. This positive average treatment effect over the full sample seems to be driven by Germany and Spain. The average estimate of the percentage odds of macroeconomic disasters over the next 10 years increases by 5.71 percentage points (pp) in Germany and by 3.63 pp in Spain in the treated group following the treatment, compared to the control group who does not receive any information.

On the contrary, the average treatment effect is negative and statistically significant for France: the average estimate of the percentage odds of macroeconomic disasters over the next 10 years decreases by 3.96 pp. These results mean that, on average, the informational content of the treatment on past macroeconomic disasters in Europe surprises German and Spanish respondents upwards, whereas it surprises French respondents downwards. This heterogeneity across countries may result from French participants having the highest prior expectations of macroeconomic disasters whereas German participants are the ones with the lowest ones (see Table 3).

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

Table 5: Average treatment effect for inflationary crises

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

Regarding inflationary crises, we only find evidence of a significant negative treatment effect for France. The average estimate of the percentage odds of inflationary crises over the next 10 years decreases by 4.04 pp in France in the treated group following the treatment, compared to the control group who does not receive any information. We see three possible explanations to the absence of an average treatment effect in other countries. First, this result could be explained by the fact that respondents find that the provided informational content does not bring any new information relative to their prior. In particular, participants display higher average confidence in their prior estimate for inflationary crises than for macroeconomic disasters.¹⁷ Second, this could be due to the fact that they do not find that information about the past is useful for predicting the future. Third, this could result from participants from the same country updating their prior in opposite directions in response to the treatment, depending on their own interpretation of the informational treatment, leading to a zero average effect.¹⁸

5.2 Treatment effect at the extensive margin

Given that a large share of participants (49.7%) did not update their expectations when asked a second time in both control and treated groups, Table 6 presents the results of a probit model in which the dependent variable is equal to 1 if a respondent updates her extreme macroeconomic

¹⁷A t-test reveals that these differences in the mean prior confidence are statistically significant with a P-value of 0.00.

¹⁸We provide the difference-in-difference estimates with sample weights in Tables A2 and A3 in the Appendix. We find that our results are robust to the inclusion of the sample weights, with only slight differences in the significance level of treatment effects.

expectations (i.e., the difference between the posterior and the prior is non-zero) and 0 otherwise, estimated on the full sample. Because we can no longer control for individual fixed effects as in the previous difference-in-difference panel specification, we now control for three categories of individual determinants: i) main socio-demographic variables (gender, age, marital status, number of kids under 18 in the household, responsibility for the household's financial situation, employment status, education), ii) measures of economic knowledge and time devoted to the survey to control for characteristics that could drive biases or noise in the responses (financial literacy score, shares holding, economic or mathematics education and total survey response time), and iii) measures of risk and time preferences (financial risk appetite and patience). ¹⁹

For both macroeconomic disasters and inflationary crises, the probability of updating one's expectations significantly increases with information provision. This result reveals that information provision about past extreme events causally varies respondents' expectations about future extreme macroeconomic risks at the extensive margin. The results from the probit estimation also show that the probability of revising one's estimate decreases in the level of confidence expressed in the prior estimate, which is consistent with the fact that more confident participants revise less their estimates on average.

To get insights on whether the increase in the share of respondents who update their estimates in the treated group relative to the control group is driven by upward or downward updating, we now estimate a multinomial probit model in which the polytomic outcome variable takes three values: -1 if the respondent revises her estimation downward, 0 if the respondent does not revise her estimation and 1 if the respondent revises her estimation upward (Table 7).

We find that over the full sample, the impact of the treatment on the probability to revise one's estimate upward or downward is asymmetric. The treatment increases the probability to revise one's estimate upward relative to both not revising and revising downward for macroeconomic disasters. On the contrary, receiving the treatment increases the probability to revise one's estimate downward relative to not revising for inflationary crises.

Therefore, participants seem to be negatively surprised by the treatment on macroeconomic

¹⁹Details on these variables are provided in Table 6. We include income categories only in the per-country estimations given that income categories are based on standard categories specific to each country.

	(1)	(2)
	Probability of revising (MD)	Probability of revising (IC)
Treatment	0.126**	0.130**
	(0.05)	(0.05)
Prior (%)	-0.002	-0.004***
	(0.00)	(0.00)
Prior confidence	-0.025**	-0.039***
	(0.01)	(0.01)
Italy	0.036	0.100
	(0.08)	(0.08)
Germany	-0.099	-0.040
	(0.08)	(0.08)
UK	0.104	0.112
	(0.08)	(0.08)
Spain	0.049	0.127
	(0.08)	(0.08)
Constant	0.208	-0.011
	(0.20)	(0.21)
Main socio-demographic controls	YES	YES
Economic knowledge and attention	YES	YES
Risk and time preferences	YES	YES
N	2,460	2,465

Table 6: Information provision and probability of revising extreme macroeconomic expectations

Note: Robust standard errors in parenthesis. * p < 0.1, ** p < 0.05, *** p < 0.01. We estimate a probit model in which the dependent variable is equal to 1 if the respondent updates her posterior extreme macroeconomic risk expectation relative to her prior, and 0 if her posterior is equal to her prior. We include i) a set of socio-demographic control variables: gender, age, marital status, number of kids under 18 in the household, a dummy equal to 1 if the respondent is at least partly responsible for financial decisions in the household, a dummy equal to 1 if the respondent is currently employed, and a dummy equal to 1 if the respondent has higher education, ii) a set of variables measuring financial/economic knowledge and survey attention: financial literacy score based on the three standard questions from , a dummy equal to 1 if the respondent holds shares, a dummy equal to 1 if the respondent's field of study is economics/finance/management, a dummy equal to 1 if the respondent's field of study is mathematics/IT/statistics, and total survey response time, and iii) a set of variables controlling for risk and time preferences: financial risk appetite and patience measured on a 0 to 10 Likert scale.

disasters, as if they had expected that macroeconomic disasters in Europe were less numerous in the past than in the description they are provided with. On the contrary, receiving information about past inflationary crises in Europe makes more participants less worried about future inflationary crises, as if they had expected that these crises were more frequent in the past. However, the positive effect of the inflationary crisis treatment on the probability of revising downward relative to not revising seems to be mostly driven by France, as suggested by the difference-indifference results. Indeed, we no longer find evidence of this effect when excluding France from the sample. We also note that, consistent with intuition, participants with higher prior estimates in all groups have a higher probability (resp. lower probability) to revise their estimate downward (resp. upward) relative to not revising, in both estimations.

We provide the results of the multinomial probit estimation per country with no revision as the reference category in Tables A4 and A5 in the Appendix. Most results are in line with those of the difference-in-difference estimations (i.e., the results at the intensive margin). Indeed, for macroeconomic disasters, receiving the treatment increases the probability to revise the posterior expectation upward in Germany and Spain relative to not revising, while it consistently caused the posterior estimate to be higher. For inflationary crises, we find that in France, receiving the treatment both causes the posterior estimate to be lower and the probability to revise downward relative to not revising to be higher. However, in the case of France for macroeconomic disasters, even though the treatment causes the posterior estimate to be lower, the treatment does not increase the probability to revise the estimate downward relative to not revising. In addition, we find evidence of an additional positive causal impact of receiving the treatment on the probability to revise downward relative to not revising in the UK for inflationary crises.

	(1)	(2)	(3)	(4)
	MD	MD	IC	IC
Revising downward (-1)				
Treatment	0.050		0.189**	
	(0.08)		(0.08)	
Prior (%)	0.009***		0.004^{***}	
	(0.00)		(0.00)	
Prior confidence	-0.097***		-0.113***	
	(0.02)		(0.02)	
Italy	0.082		0.145	
5	(0.13)		(0.12)	
Germany	-0.137		-0.013	
	(0.13)		(0.12)	
UK	0.098		0.169	
	(0.13)		(0.12)	
Spain	0.152		0.172	
Spant	(0.132)		(0.172)	
No revision (0)	(0.13)		(0.12)	
Treatment		0.050		0.190**
Ireatment		-0.030		-0.169
$\mathbf{D}_{\mathrm{rris}} = r_{\mathrm{rr}} \left(0 \right)$		(0.00)		(0.00)
Prior (%)		-0.009		-0.004
D i mar (i lana)		(0.00)		(0.00)
Prior confidence		0.097		0.113
T. 1		(0.02)		(0.02)
Italy		-0.082		-0.145
		(0.13)		(0.12)
Germany		0.137		0.013
		(0.13)		(0.12)
UK		-0.098		-0.169
		(0.13)		(0.12)
Spain		-0.152		-0.172
		(0.13)		(0.12)
Revising upward (1)				
Treatment	0.286***	0.236***	0.147^{*}	-0.042
	(0.08)	(0.09)	(0.09)	(0.09)
Prior (%)	-0.014***	-0.022***	-0.021***	-0.025***
	(0.00)	(0.00)	(0.00)	(0.00)
Prior confidence	0.031**	0.127***	0.030	0.144^{***}
	(0.02)	(0.02)	(0.02)	(0.02)
Italy	0.007	-0.075	0.137	-0.009
	(0.13)	(0.14)	(0.14)	(0.15)
Germany	-0.153	-0.017	-0.148	-0.135
	(0.13)	(0.15)	(0.14)	(0.15)
UK	0.150	0.052	0.147	-0.022
	(0.13)	(0.14)	(0.14)	(0.15)
Spain	-0.052	-0.204	0.182	0.010
•	(0.13)	(0.14)	(0.14)	(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

Table 7: Information provision and probability of revising extreme macroeconomic expectations downward and upward

Note: Robust standard errors in parenthesis. * p < 0.1, ** p < 0.05, *** p < 0.01. We estimate a multinomial probit model in which the dependent variable is equal to -1 if the respondent revised her posterior extreme macro risk expectation downward (i.e., her posterior estimate is lower than her prior estimate), 0 if the respondent did not update her estimation (i.e., her posterior estimate is equal to her prior estimate) and 1 if the respondent revised her posterior estimate upward (i.e., her posterior estimate is higher than her prior estimate). The control variables are similar to those in Table 6. The empty category in each column is the reference category and the reference country is France.

6 Transmission to personal expectations and financial decisions

We now test the hypothesis that expectations of extreme macroeconomic risks affect individual expectations and decisions. In a first step, we investigate the relationship between expectations of future extreme macro risks and expectations for one's personal situation over the next 12 months. In a second step, we study the relationship between expectations of future extreme macroeconomic risks and anticipated individual saving and financial decisions in the next 12 months.

We rely on a large set of control variables, similar in all estimations, that we gather into different categories. The first three categories are those used in Section 5.2: main socio-demographic controls, measures of economic knowledge and survey attention, and measures of risk and time preferences. They include the exact same variables as those used in the estimations of the previous section. To account for additional individual determinants of personal economic expectations and anticipated financial decisions and limit the potential biases related to missing confounding factors, we include two other groups of financial variables: i) variables controlling for the financial situation of the respondent, ii) variables controlling for her economic expectations, and iii) variables controlling for her life experience.

In the first group of variables, we include a categorical variable measuring the frequency of savings over the past 12 months, a dummy indicating whether the respondent is the owner of her home, a dummy indicating whether the respondent has taken out a homebuyer's loan/mortgage and a dummy equal to 1 if the respondent has taken out any other type of loan. The second group of variables includes the respondent's forecasts of the inflation rate and the growth rate in her country of residence over the next 12 months, and a dummy equal to 1 if the respondent agrees with the idea that the government will take measures to protect her in the event of a macroeconomic disaster (resp. of an inflationary crisis). Finally, in the third additional category of variables, we control for a dummy indicating whether the respondent was unable to work due to disability or needed to take sick leave for more than 6 months, and a categorical variable indicating whether the respondent's not affected or improved by the Covid-19 pandemic.

6.1 Extreme macroeconomic expectations and personal expectations

Table 8 shows that extreme macroeconomic expectations negatively explain the probability to expect an increase in the living standard in the next 12 months whereas they positively explain the expected risk of loosing one's job in the next 12 months, over the full sample and for both types of extreme risk, when controlling for a large set of individual socio-demographic, economic and financial characteristics.²⁰ To account for potential non-linearities in the impact of extreme macroe-conomic risk expectations on the likelihood of the expected variation in one's standard of living (decrease, constancy or increase), Table A6 in the Appendix presents the results of multinomial probit estimations in which we vary the reference category. We find that the positive impact of extreme macroe decrease in the standard of living driven by the positive impact on the probability to expect a decrease in the standard of living relative to expect a constancy or an increase. Few respondents actually expect an increase in their standard of living in the next 12 months (12% of our sample), which could explain this result.

²⁰Note that the expected risk of loosing one's job is associated with a significant loss of observations, which are not randomly distributed throughout our sample, given that the question was addressed only to respondents with a work activity.

	(1)	(2)	(3)	(4)
	Living standard	Living standard	Job loss	Job loss
	(MD)	(IC)	(MD)	(IC)
Extreme macro risk posterior (%)	-0.005***	-0.004***	0.010***	0.010***
_	(0.00)	(0.00)	(0.00)	(0.00)
Italy	0.317***	0.179*	0.171	0.002
-	(0.10)	(0.10)	(0.34)	(0.35)
Germany	0.275***	0.193**	-0.728**	0.101
-	(0.09)	(0.09)	(0.29)	(0.30)
UK	0.335***	0.458***	0.131	-0.312
	(0.09)	(0.09)	(0.30)	(0.29)
Spain	0.475***	0.515***	-0.149	0.127
-	(0.08)	(0.08)	(0.29)	(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
\mathbb{R}^2			0.19	0.18
Ν	2,325	2,324	1,049	1,076

Table 8: Expectations of extreme macroeconomic risks and personal expectations

Note: Robust standard errors are displayed in parenthesis. The outcome variable in specifications (1) and (2) is an ordered categorical variable that measures whether respondents anticipate an increase (1), constancy (0) or decrease (-1) in their standard of living in the next 12 months. Therefore, we estimate an ordered probit in specifications (1) and (2). The outcome variable in specifications (3) and (4) is a continuous measure of expected job loss risk in the next 12 months between 0 and 10; therefore, we rely on OLS estimations. We include the following set of variables controlling for individual characteristics in all estimations: gender, age, marital status, number of children below 18 years old in the household, employment status, part in the household's financial decisions, financial literacy score, stock holdings, education field in economics/finance/management, education field in math/IT/statistics, total survey response time, financial risk appetite, patience, frequency of savings in the past 12 months, home ownership status, current mortgage and credit situation, impact of the Covid-19 crisis on one's household financial situation, unemployment experience, health experience, inflation and growth forecasts for the next 12 months, and confidence in the government's action to protect one in the event of a macroeconomic disaster or inflationary crisis. Growth and inflation forecasts are winsorized at the 2.5th and 97.5th percentile, as these forecasts are not bounded and present some extreme values. The reference country is France.

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

6.2 Extreme macroeconomic expectations and expected financial decisions

We now investigate how expectations of extreme macroeconomic risks relate to anticipated financial decisions. In all estimations, we control for the same variables as in the previous estimations in which the outcome is a measure of some personal expectations. In addition, we control for the anticipated variation in the standard of living, that was an outcome in the previous estimations. Indeed, the expectation of the evolution in one's financial situation is likely to directly affect anticipated changes in saving and financial investment decisions. As this variable is affected by expectations of extreme macroeconomic risks as evidenced in Table 8, we thus test the direct impact of extreme macroeconomic risks on anticipated decisions, and not an indirect impact that would capture its intermediary effect on personal expectations.

6.2.1 Saving and financial investment decisions

Table 9 shows that over the full sample, higher posterior expectations of macroeconomic disasters are positively associated with the probability to anticipate a higher frequency of saving in the next 12 months, consistent with the precautionary saving motive. However, we do not find evidence of a similar effect for the anticipated change in the saved amount over the next 12 months. Secondly, we find that higher posterior expectations of inflationary crises are positively associated with the probability to increase the amount saved through investment in risky assets, consistent with the idea that expected episodes of high inflation decrease the expected real returns on assets, potentially leading to a search for higher yields. Nevertheless, all in all, the relationship between extreme macroeconomic risk posterior expectations and anticipated saving and financial investment decisions remains mixed over the full sample.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Frequency	Frequency	Amount	Amount	Risk-free	Risk-free	Risky	Risky
					assets	assets	assets	assets
	(MD)	(IC)	(MD)	(IC)	(MD)	(IC)	(MD)	(IC)
Extreme macro risk posterior (%)	0.002**	0.000	-0.000	-0.001	-0.000	-0.001	0.001	0.002**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Italy	-0.166*	-0.146	-0.029	0.031	0.107	0.063	0.033	-0.083
	(0.10)	(0.09)	(0.10)	(0.10)	(0.10)	(0.10)	(0.11)	(0.11)
Germany	0.053	0.028	0.129	0.271***	0.071	0.172**	0.274***	0.177**
	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.09)	(0.09)
UK	0.154^{*}	0.080	0.456***	0.488***	0.361***	0.379***	0.165^{*}	0.190**
	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)
Spain	0.087	0.175**	0.194**	0.178^{**}	-0.008	-0.023	0.210**	-0.131
-	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.08)	(0.09)	(0.09)
Main socio-demographic controls	YES	YES	YES	YES	YES	YES	YES	YES
Economic knowledge and attention	YES	YES	YES	YES	YES	YES	YES	YES
Risk and time preferences	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

Table 9: Expectations of extreme macroeconomic risks and anticipated saving decisions

Note: Robust standard errors are displayed in parenthesis. We estimate ordered probit models on four different outcomes. The outcome in specifications (1) and (2) is a categorical variable measuring if the expected saving frequency in the next 12 months is "never", "once", "some times" or "every month or more". The outcome in specifications (3) and (4) is a categorical variable indicating if the expected change in the saved amount in the next 12 months is a decrease, a constancy or an increase. The outcome in specifications (5) to (8) is a categorical variable measuring if the expected change in the amount saved in risk-free assets (resp. risky assets) is a decrease, a constancy or an increase. All estimations include the same control variables as in Table 8. In addition, we control for the anticipated variation in the standard of living over the next 12 months, which is equal to 0 if the expected variation is a decrease, 1 if the expected variation is null, and 2 if the expected variation is an increase. The reference country is France. * p < 0.1, ** p < 0.05, *** p < 0.01.

6.2.2 Borrowing decisions

In what regards expected credit and borrowing decisions (Table 10), we find that higher expectations of future inflationary crises are significantly associated with a higher probability of anticipating to be overdrawn in the next 12 months. Results also reveal that higher expectations of macroeconomic disasters positively explain the probability to anticipate the need to borrow from family or friends in the next 12 months. However, we do not find evidence of additional effects of extreme macroeconomic risk expectations on anticipated borrowing decisions.

	(1)	(2)	(2)	(4)	(E)	(()	(7)	(0)
	. (1)	(2)	(3)	(4)	(5)	(6)	_ (/)	_ (8)
	Housing	Housing	Consum.	Consum.	Overdrawn	Overdrawn	Family	Family
	(MD)	(IC)	(MD)	(IC)	(MD)	(IC)	(MD)	(IC)
Posterior	0.002	0.002	-0.001	-0.002	0.001	0.003***	0.004***	0.002
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Italy	-0.278	0.022	0.239*	0.003	0.148	0.007	0.360**	0.108
	(0.20)	(0.18)	(0.14)	(0.15)	(0.13)	(0.13)	(0.15)	(0.14)
Germany	-0.188	-0.113	-0.306**	-0.357**	0.019	-0.125	0.208	0.156
-	(0.16)	(0.17)	(0.15)	(0.15)	(0.11)	(0.12)	(0.14)	(0.13)
UK	0.114	0.223	0.198	0.129	0.154	0.236**	0.554***	0.301**
	(0.14)	(0.16)	(0.12)	(0.13)	(0.11)	(0.11)	(0.13)	(0.13)
Spain	-0.232	0.147	0.168	0.045	-0.279**	-0.313***	0.267*	0.023
-	(0.16)	(0.16)	(0.13)	(0.13)	(0.12)	(0.11)	(0.14)	(0.13)
Main socio-demographic controls	YES	YES	YES	YES	YES	YES	YES	YES
Economic knowledge and attention	YES	YES	YES	YES	YES	YES	YES	YES
Risk and time preferences	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

Table 10: Expectations of extreme macroeconomic risks and borrowing decisions

Note: Robust standard errors are displayed in parenthesis. We estimate probit models on the following outcomes for the next 12 months: a dummy variable indicating whether the respondent expects to take out a mortgage loan (specifications (1)-(2)), a dummy variable indicating whether the respondent expects to take out a mortgage loan (specifications (3)-(4)), a dummy variable indicating whether the respondent expects to take out a mortgage loan (specifications (3)-(4)), a dummy variable indicating whether the respondent expects to take out a mortgage loan (specifications (3)-(4)), a dummy variable indicating whether the respondent expects to use an overdraft facility at least once (specifications (5)-(6)), and a dummy variable measuring whether the respondent expects to borrow from family or close friends (specifications (7)-(8)). All estimations include the same control variables as in Table 8. In addition, we control for the anticipated variation in the standard of living over the next 12 months, which is equal to 0 if the expected variation is a decrease, 1 if the expected variation is null, and 2 if the expected variation is an increase. The reference country is France.

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

7 Conclusion

We conducted a survey experiment on general population samples in five European countries to provide a measure of previously undocumented individual expectations of two types of extreme macroeconomic risks – macroeconomic disasters and inflationary crises –, and investigate whether providing information about similar past events in Europe affects participants' expectations for the future. First, we find that the average expected probability of these sorts of extreme event for the next 10 years in a given country is high, notably for inflationary crises, and particularly for France. Second, our findings indicate that information provision always increases the probability of revising one's expectations but its impact on the magnitude and sign of the revision is non-trivial and strongly heterogeneous. Information provision causally leads participants to revise their expectations of future extreme macroeconomic risks downward in France and upward in Germany and

Spain for macroeconomic disasters. However, respondents do not causally respond to the informational treatment in a number of cases, revealing strong individual and country heterogeneity in response to information about the past. Third, our results show that expectations of future extreme macroeconomic risks are an important variable to account for to understand expectations about one's own future financial situation, as the former correlate with anticipated change in the living standard in the next 12 months and the risk of losing one's job. However, their relationship with expected future saving, financial investment and borrowing decisions is much more mixed.

The findings of this study thus provide three key insights for the implementation of communication policies aimed at influencing households' expectations of extreme macroeconomic risks and subsequent financial decisions.

First, results on the average treatment effect for France, Germany and Spain in what regards macroeconomic disasters, and for France in what regards inflationary crises, reveal that, on average, respondents in these countries consider that qualitative information about past extreme macroeconomic events in Europe is relevant for the assessment of future risks. In addition, the fact that respondents revise their expectations in response to the treatment implies that this piece of information was not already part of their information set, and that they somehow consider it as new and surprising. Therefore, reminding people about a relevant set of historical events through qualitative accounts can be an appropriate means of affecting expectations of future extreme macroeconomic events, and potentially have them converge across more pessimistic and more optimistic countries.

Second, because, on average, French respondents revise their expectations in opposite directions relative to other respondents following the treatment, our results show that the sign of the treatment effect can vary, depending on the country and the context. In particular, our results suggest that providing the historical account of past events leads people to revise their expectations downwards in countries in which prior beliefs were particularly pessimistic, such as France, and to revise their expectations upwards in countries in which prior beliefs were far less pessimistic, such as Germany. Therefore, the design of communication policies about extreme macroeconomic risks should consider the possibility that information provision can have heterogeneous and countryspecific effects.

Third, there are several possible reasons that could explain why we encountered a number of cases in which the treatment has no effect on average. On the one hand, the information provided could already be included in the respondents' prior information set. Therefore, it would not surprise them, as they do not learn anything new from the treatment, and participants in the treated group would not revise their expectations differently from participants in the control group. Nevertheless, this hypothesis is not the most plausible one, given that we focus on rare events, which are particularly uncertain and prone to forgetting over time. On the other hand, the absence of a treatment effect may be attributed to the fact that respondents do not perceive the informational content of the treatment to be sufficiently informative for the assessment of future risks. Indeed, if participants perceive extreme macroeconomic risks to be time-varying, for instance due to an expected increasing trend, information about the past should not very their expectations about the future. Thus, for inflationary crises in particular, no such events were observed in our sample of 15 European countries since the 1980s, and many structural changes have occurred since then, such as the creation of the euro area. This could explain why participants are not responsive to the treatment for inflationary crises. Finally, respondents could encounter difficulties in translating the qualitative information we provide them about the past into a quantitative assessment about future percentage odds. Consequently, information communication policies on extreme macro risks should possibly go beyond a simple account of facts, and provide a clear stance on the past frequency of extreme macro risks and its expected evolution in the future.

This sort of communication policies matter insofar as the variation in individual expectations of extreme macroeconomic risks in turn affects personal expectations and saving and financial decisions. Then, communication policies about extreme macroeconomic risks can potentially contribute to reduce sub-optimal allocations of household savings. In that respect, our results suggest that high expectations of extreme macroeconomic risks negatively affect expected changes in one's living standard, impacting the anticipated need or ability to save and borrow. In this matter, communication policies can prove efficient as long as they include new information relative to households' prior information set, are perceived as relevant for the future, and are easily understandable.

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Appendix

A Tables

Table A1:	Balance	table
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	Age	Female	Financial literacy	Prior
Control MD	49.44 (16.49)	53.77%	1.77 (1.04)	42.04 (29.33)
Treated MD	49.63 (16.78)	52.48%	1.74 (1.04)	39.50 (29.13)
Control IC	48.92 (16.59)	52.67%	1.77 (1.03)	55.64 (30.90)
Treated IC	49.45 (16.42)	52.52%	1.75 (1.04)	53.10 (30.28)

Note: Standard errors in parenthesis. There are no statistical differences between control and treatment groups (p > 0.05) except for priors for MD (p = 0.03) and IC (p = 0.04), respectively. However, those differences are driven by Germany for which priors differ in control vs. treatment groups (p < 0.01). No significant differences are observed for the other countries. * p < 0.1, ** p < 0.05, *** p < 0.01.

We present detailed balance tables on socio-demographic characteristics per country and per group

as provided by IPSOS in the online Appendix.

	(1)	(2)	(3)	(4)	(5)	(6)
	Full sample	France	Germany	Italy	Spain	UK
Treatment \times Post	1.62*	-3.90**	5.69***	1.14	3.74**	1.43
	(0.85)	(1.86)	(2.19)	(1.82)	(1.80)	(1.81)
Post	-2.09***	0.46	-2.11	-1.61	-4.32***	-2.89**
	(0.59)	(1.25)	(1.61)	(1.22)	(1.27)	(1.20)
Constant	41.08***	45.45***	33.24***	40.99***	42.32***	43.41***
	(0.21)	(0.47)	(0.55)	(0.45)	(0.45)	(0.45)
\mathbb{R}^2	0.01	0.01	0.02	0.00	0.02	0.01
Ν	4,920	990	984	990	982	974

Table A2: Average treatment effect for macroeconomic disasters with sample weights

Note: Robust standard errors are displayed in parenthesis. Observations are weighted by sample weights provided by IPSOS to match the general population proportions in terms of gender, age, region, category of agglomeration and occupation in each country.

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

Table A3: Average treatment effect for inflationary crises with sample weights

	(1)	(2)	(3)	(4)	(5)	(6)
	Full sample	France	Germany	Italy	Spain	UK
Treatment \times Post	0.76	-4.90**	3.29	3.66*	2.83	-1.09
	(0.97)	(2.33)	(2.17)	(2.21)	(2.14)	(2.01)
Post	-4.61***	-2.28	-5.35***	-6.84***	-5.55***	-3.02**
	(0.69)	(1.54)	(1.60)	(1.62)	(1.52)	(1.40)
Constant	54.26***	59.85***	52.83***	55.42***	53.67***	49.56***
	(0.24)	(0.58)	(0.54)	(0.55)	(0.54)	(0.50)
\mathbb{R}^2	0.03	0.05	0.03	0.05	0.03	0.03
Ν	4,930	984	992	980	984	990

Note: Robust standard errors are displayed in parenthesis. Observations are weighted by sample weights provided by IPSOS to match the general population proportions in terms of gender, age, region, category of agglomeration and occupation in each country.

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

	(1)	(2)	(3)	(4)	(5)
	France	Germany	Italy	Spain	UK
Revising downward (-1)					
Treatment	0.210	-0.096	0.073	0.111	-0.050
	(0.19)	(0.19)	(0.18)	(0.18)	(0.18)
Prior (%)	0.003	0.012***	0.008**	0.008**	0.014^{***}
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Prior confidence	-0.055	-0.146***	-0.063*	-0.077*	-0.158***
	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)
Revising upward (1)	$\begin{array}{cccccccccccccccccccccccccccccccccccc$				
Treatment	0.041	0.583***	0.243	0.467**	0.201
	(0.20)	(0.19)	(0.19)	(0.19)	(0.19)
Prior (%)	-0.023***	- 0.011***	-0.012***	-0.014***	-0.012***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Prior confidence	0.061	0.023	0.033	0.039	0.018
	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)
Main socio-demographic controls	YES	YES	YES	YES	YES
Economic knowledge and attention	YES	YES	YES	YES	YES
Risk and time preferences	YES	YES	YES	YES	YES
Ν	495	492	495	491	487

Table A4: Information provision and probability of revising macroeconomic disaster expectations downward and upward per country

Note: Robust standard errors in parenthesis. We estimate a multinomial probit model in which the dependent variable is equal to 1 if the respondent updates her macroeconomic disaster risk estimate upward, 0 if the respondent's posterior estimate is equal to her prior estimate and -1 if the respondent updates her estimate downward. We include i) a set of socio-demographic control variables: gender, age, marital status, number of kids under 18 in the household, a dummy equal to 1 if the respondent is at least partly responsible for financial decisions in the household, a dummy equal to 1 if the respondent is currently employed, a dummy equal to 1 if the respondent has higher education, a categorical variable measuring income category, ii) a set of variables measuring financial/economic knowledge and survey attention: financial literacy score based on the three standard questions from , a dummy equal to 1 if the respondent holds shares, a dummy equal to 1 if the respondent's field of study is economics/finance/management, a dummy equal to 1 if the respondent's field of study is mathematics/IT/statistics, and total survey response time, and iii) a set of variables controlling for risk and time preferences: financial risk appetite and patience measured on a 0 to 10 Likert scale. The reference category is no revision (0).

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

	(1)	(2)	(3)	(4)	(5)
	France	Germany	Italy	Spain	UK
Revising downward (-1)					
Treatment	0.481***	-0.134	-0.303*	0.271	0.621***
	(0.18)	(0.18)	(0.18)	(0.18)	(0.18)
Prior (%)	0.007^{*}	-0.001	0.005	0.006^{*}	0.007**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Prior confidence	-0.122***	-0.101***	-0.181***	-0.118***	-0.081**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Revising upward (1)					
Treatment	0.089	0.156	0.169	0.003	0.324*
	(0.22)	(0.21)	(0.21)	(0.20)	(0.19)
Prior (%)	-0.033***	-0.032***	-0.024***	-0.018***	-0.014***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Prior confidence	0.152***	0.079*	-0.025	-0.004	0.017
	(0.05)	(0.04)	(0.05)	(0.04)	(0.04)
Main socio-demographic controls	YES	YES	YES	YES	YES
Economic knowledge and attention	YES	YES	YES	YES	YES
Risk and time preferences	YES	YES	YES	YES	YES
Ν	492	496	490	492	495

Table A5: Information provision and probability of revising inflationary crisis expectations downward and upward per country

Note: Robust standard errors in parenthesis. We estimate a multinomial probit model in which the dependent variable is equal to 1 if the respondent updates her inflationary crisis risk estimate upward, 0 if the respondent's posterior estimate is equal to her prior estimate and -1 if the respondent updates her estimate downward. We include i) a set of socio-demographic control variables: gender, age, marital status, number of kids under 18 in the household, a dummy equal to 1 if the respondent is at least partly responsible for financial decisions in the household, a dummy equal to 1 if the respondent is currently employed, a dummy equal to 1 if the respondent has higher education, a categorical variable measuring income category, ii) a set of variables measuring financial/economic knowledge and survey attention: financial literacy score based on the three standard questions from , a dummy equal to 1 if the respondent holds shares, a dummy equal to 1 if the respondent's field of study is economics/finance/management, a dummy equal to 1 if the respondent's field of study is mathematics/IT/statistics, and total survey response time, and iii) a set of variables controlling for risk and time preferences: financial risk appetite and patience measured on a 0 to 10 Likert scale. The reference category is no revision (0).

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

	(1)	(2)	(3)	(4)
	MD	MD	IC	IC
Expected decrease (-1)				
Posterior	0.010***		0.009***	
	(0.00)		(0.00)	
Italy	-1.075***		-0.609***	
	(0.16)		(0.16)	
Germany	-0.622***		-0.464***	
5	(0.13)		(0.13)	
UK	-0.616***		-0.699***	
	(0.13)		(0.13)	
Spain	-1.173***		-0.960***	
1	(0.14)		(0.13)	
Expected constancy (0)				
Posterior		-0.010***		-0.009***
		(0.00)		(0.00)
Italy		1.075***		0.609***
5		(0.16)		(0.16)
Germany		0.622***		0.464***
5		(0.13)		(0.13)
UK		0.616***		0.699***
		(0.13)		(0.13)
Spain		1.173***		0.960***
1		(0.14)		(0.13)
Expected increase (1)		. ,		. ,
Posterior	0.005**	-0.006***	0.003	-0.006***
	(0.00)	(0.00)	(0.00)	(0.00)
Italy	-0.975***	0.100	-0.510**	0.098
5	(0.20)	(0.21)	(0.21)	(0.21)
Germany	-0.289*	0.332*	-0.335*	0.129
5	(0.17)	(0.17)	(0.18)	(0.19)
UK	-0.190	0.426***	0.047	0.746***
	(0.16)	(0.16)	(0.17)	(0.18)
Spain	-0.620***	0.553***	-0.153	0.807***
1	(0.17)	(0.17)	(0.17)	(0.18)
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
N	2,325	2,325	2,324	2.324

Table A6: Extreme macro expectations and expected living standard. Multinomial analysis.

Note: Robust standard errors are displayed in parenthesis. We estimate a multinomial probit on a categorical dependent variable that measures whether respondents anticipate an increase (1), constancy (0) or decrease (-1) in their standard of living in the next 12 months. We include the same groups of control variables as in Table 8. The empty category in each column is the reference category and France is the reference country.

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

B Survey instructions

Participants were first asked their age, region and agglomeration category, gender, family situation, household composition, housing status and education with standard questions provided by IPSOS.

To the participants with at least A-level or similar:

- 1. What is/was your main field of study?
 - O Economics/Management/Finance
 - O Law/Administration
 - O Arts/Languages/Humanities and Social Sciences
 - O Healthcare/Medicine
 - O Mathematics/Computer Science/Statistics
 - O Life/Earth Sciences
 - O Physics/Chemistry
 - O Other
- 2. Do you own or rent the home you now occupy? O Owner O Rent O Live with relatives O Other
- 3. Are you responsible or partly responsible for financial decisions in your household? O Yes O No
- 4. Do you currently have a homebuyer's loan/mortgage? O Yes O No
- 5. Do you currently have any other type of loan? O Yes O No
- 6. In your working life, have you ever been unemployed for a period of more than 6 months? O Yes O No
- 7. Have there been any times in your working life when you were unable to work due to disability or needed to take sick leave for more than 6 months (excluding maternity leave)? O Yes O No

- 8. To what extent have you been affected by the Covid-19 pandemic?
 O It has had a detrimental effect on my household's financial situation and/or ability to save
 O It has improved my household's financial situation and/or ability to save
 O My household's financial situation and/or ability to save has/ve not been significantly affected by the Covid-19 pandemic.
- 9. Now, we are going to ask you some questions about your savings. Savings correspond to the share of your disposable income that is not spent. How frequently have you put savings aside during the last 12 months? O Never O Once O Several times O Monthly or more frequently
- 10. Approximately how much have you put into savings during the past 12 months (annual total in pounds)? If you don't know exactly, provide the approximate amount.

.....

11. Today, what is the total amount of savings your household has available (please include cash and all money held in bank accounts, savings products, and investments, as applicable)? If you don't know exactly, provide the approximate amount.

.....

12. What are the main purpose(s) of your savings? Choose the relevant statements (at most three), ranking them from most to least important to you. First, second, third?

O To fund a specific expenditure (purchase of a car, furniture or household appliance, holiday plans, home improvements, etc.)

O To buy property

O To fund a professional project or to retrain

O To cushion the impact of unexpected events or difficult times (precautionary savings)

O To pass on an inheritance, fund your children's future

O To fund your retirement

O To grow your money in the short term (up to 10 years ahead)

O To grow your money in the long term (more than 10 years ahead) O Other

13. Please select all the types of financial investment you hold from the list below, ranking them in order of significance. The first item should correspond to the investment in which you hold the most money and the last, the investment in which you hold the least money.

If you do not hold any of these types of investment, select the response "I do not hold any of these investments" only.

O Savings account(s) and/or short-term savings plan(s)

O Bonds

O Shares

O Collective investments

O Life assurance policy

O Workplace pension

O Personal pension, investments in a pension fund

O Crypto-assets

O Other

O I do not hold any of these investments

14. What is the approximate total that you have in these investments? O Below £1000 O £1000-4,999 O £5000-24,999 O £25,000-49,999 O £50,000-150,000 O Over £150,000

First sub-sample: "Macroeconomic disasters" (half of the participants in each country, 2,500 in total)

Now, we are going to ask you about your perceptions of a specific type of economic event - macroeconomic disasters. Please read the following definition carefully. Definition: 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.

- 15. Do you think there is a risk of a macroeconomic disaster occurring in the next 10 years in the country where you currently live?
 - O It seems highly likely to me
 - O It seems fairly likely to me
 - O It seems unlikely to me
 - O It seems not at all likely to me
- 16. In your view, what are the percentage odds of a macroeconomic disaster 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.

.....

17. To what extent are you certain of the answer you have given to the previous question about the percentage odds of a macroeconomic disaster occurring in the next 10 years in the country where you currently live? Please give a number between 0 and 10, where 0 indicates not at all certain and 10 indicates completely certain.

.....

- 18. Do you agree with the following statement: "In the country in which I currently live, the government will take measures to protect me in the event of a macroeconomic disaster"?
 - O Fully agree
 - O Mostly agree
 - O Do not really agree
 - O Do not agree at all

Second sub-sample: "Inflationary crises" (half of the participants in each country, 2,500 in total)

Now, we are going to ask you about your perceptions of a specific type of economic event - inflationary crises. Please read the following definition carefully. Definition: 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.

- 19. Do you think there is a risk of an inflationary crisis occurring in the next 10 years in the country where you currently live?
 - O It seems highly likely to me
 - O It seems fairly likely to me
 - O It seems unlikely to me
 - O It seems not at all likely to me
- 20. In your view, what are the percentage odds of an inflationary crisis 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.

.....

21. To what extent are you certain of the answer you have given to the previous question about the percentage odds of an inflationary crisis occurring in the next 10 years in the country where you currently live? Please give a number between 0 and 10, where 0 indicates not at all certain and 10 indicates completely certain.

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- 22. Do you agree with the following statement: "In the country in which I currently live, the government will take measures to protect me in the event of an inflationary crisis"?
 - O Fully agree
 - O Mostly agree
 - O Do not really agree
 - O Do not agree at all

Information treatment about macroeconomic disasters (half of the participants in the macroeconomic disasters version get it

-"treated group", half of them do not get additional information - "control group"-)

We are now going to give you additional information about macroeconomic disasters. Please read it carefully.

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:

- (a) 1990-1993 in Finland (national economic crisis) with a downturn in economic activity of 12%.
- (b) 2008-2009 in Ireland (the "sub-prime" financial crisis) with a down-turn in economic activity of 12%.
- (c) 2008-2013 in Greece (Eurozone crisis) with a downturn in economic activity of 26%.
- (d) 2008-2013 in Spain (Eurozone crisis) with a downturn in economic activity of 10%.
- (e) 2020 in the United Kingdom (Covid-19 pandemic) with a down-turn in economic activity of 10%.
- (f) 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.

Information treatment about inflationary crises (half of the participants in the inflationary crisis version get it –"treated group", half of them do not get additional information - "control group"-)

We are now going to give you additional information about inflationary crises. Please read it carefully.

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

- (a) 1951 in Austria (increase in prices of 29%)
- (b) 1974, 1980-82 and 1986 and 1990 in Greece (increases in prices between 20 and 25%)
- (c) 1974-1975, 1977-1979 and 1982-1984 in Portugal (increases in prices between 20 and 28
- (d) 1975 in the United Kingdom (increase in prices of 25%)
- (e) 1975 and 1981 in Ireland (increase in prices of 21% and 20%)
- (f) 1977 in Spain (increase in prices of 25%)
- (g) 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.

To all participants again:

Now, we are going to ask you some questions about your perception of the economic climate.

NB: We randomized the order of the groups of questions (23-24) vs. (25-26).

- 23. In your opinion, how are prices in the country where you currently live going to evolve in the next 12 months?
 - O Prices will increase significantly
 - O Prices will increase a little
 - O Prices will stay the same
 - O Prices will go down a little
 - O Prices will go down significantly
- 24. In your previous answer, you indicated that you think prices will [response to the previous question] in the country where you currently

live in the next 12 months. Please tell us how much you think this [*increase/decrease*] will be as a percentage:

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25. In your opinion, how is economic activity (i.e., output) going to evolve in the country where you currently live in the next 12 months?

O Economic activity will increase significantly

O Economic activity will increase somewhat

O Economic activity will remain constant

- O Economic activity will decline somewhat
- O Economic activity will decline significantly
- 26. In your previous answer, you indicated that you think economic activity will [response to the previous question] in the country where you currently live in the next 12 months. Please tell us how much you think this [increase/decrease] will be as a percentage:

.....

To the participants with the "macroeconomic disasters" version: (both the treated group and the control group)

We are now going to ask you some of the previous questions about macroeconomic disasters again. Reminder: 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.

- 27. Do you think there is a risk of a macroeconomic disaster occurring in the next 10 years in the country where you currently live?
 - O It seems highly likely to me

O It seems fairly likely to me

O It seems unlikely to me

O It seems not at all likely to me

28. In your view, what are the percentage odds of a macroeconomic disaster 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.

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29. To what extent are you certain of the answer you have given to the previous question about the percentage odds of a macroeconomic disaster occurring in the next 10 years in the country where you currently live? Please give a number between 0 and 10, where 0 indicates not at all certain and 10 indicates completely certain.

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To the participants with the "inflationary crises" version: (both the treated group and the control group)

We are now going to ask you some of the previous questions about inflationary crises again. Reminder: 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.

- 30. Do you think there is a risk of an inflationary crisis occurring in the next O 10 years in the country where you currently live?
 - O It seems highly likely to me
 - O It seems fairly likely to me
 - O It seems unlikely to me
 - O It seems not at all likely to me
- 31. In your view, what are the percentage odds of an inflationary crisis 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.

.....

32. To what extent are you certain of the answer you have given to the previous question about the percentage odds of an inflationary crisis occurring in the next 10 years in the country where you currently live? Please give a number between 0 and 10, where 0 indicates not at all certain and 10 indicates completely certain.

.....

To all participants again:

Now, we are going to ask you some questions about your expectations and future decisions.

- 33. During the next 12 months, do you think that your living standard will:
 - O Increase
 - O Decrease
 - O Remain the same
 - O You don't know
- 34. In your view, what is the risk of your losing your job in the next 12 months? By job loss, we mean redundancy or non-renewal of a contract. Please choose a figure between 0 and 10 where 0 indicates "absolutely no risk of losing my job in the next 12 months" and 10 indicates "an absolutely certain risk of losing my job in the next 12 months".

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- 35. How frequently do you intend to put savings aside in the next 12 months?
 - O Never
 - O Once
 - O Several times
 - O Monthly or more frequently

- 36. In the next 12 months, do you plan to:O Increase the amount you save yearlyO To keep the amount you save yearly the same or at zeroO To reduce the amount you save yearly
- 37. In the next 12 months, what changes do you plan to make to the amount of your risk-free financial investments (Savings accounts, home ownership savings plans etc.) or low-risk financial investments (bonds and other fixed-income investments)?

O You plan to increase this amount

O You plan to keep this amount the same

O You plan to reduce this amount

O You don't have risk-free or low-risk financial investments and don't plan to make any

38. In the next 12 months, what changes do you plan to make to the amount of your risky financial investments (shares, collective investments, crypto-assets etc.)?

O You plan to increase this amount

O You plan to keep this amount the same

O You plan to reduce this amount

O You don't have risky financial investments and don't plan to make any

39. In the next 12 months, do you envisage:(please select all responses relevant to you)

O Taking out a loan to buy a property

O Taking out consumer credit

O Using an overdraft facility at least once

O Borrowing money from a member of your family or close friend

NB: We randomized the order of the groups of questions (40-41-42) vs. (43-44-45).

40. In general, how willing are you to take risks? Choose a number from 0 to 10. 0 indicates "not at all willing to take risks" and 10 indicates "extremely willing to take risks".

O Not at all willing 0

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- O 2 O 3 O 4 O 5 O 6 O 7 O 8 O 9 O Extremely willing 10
- 41. As far as savings and investments are concerned, how willing are you to take risks? Choose a number from 0 to 10. 0 indicates "not at all willing to take risks" as far as savings and investments are concerned, and 10 indicates "extremely willing to take risks".
 - O Not at all willing 0
 - O 1
 - O 2
 - O 3
 - O 4
 - O 5
 - O 6
 - O 7
 - O 8
 - O 9
 - O Extremely willing 10
- 42. In general, how patient are you? Choose a number from 0 to 10. 0 indicates "not at all patient" and 10 indicates "extremely patient". O Not at all patient 0
 - O 1
 - O 2
 - O 3
 - O 4
 - O 5
 - 0 6
 - 0 7
 - 08
 - O 9

O Extremely patient 10

Financial literacy test:

- 43. Let's suppose that you have £100 in a savings account and the annual interest rate is 2%. After five years, how much do you think you would have if you left this money to accrue interest?
 - O More than $\pounds102$
 - O Exactly £102
 - O Less than $\pounds102$
 - O You don't know
- 44. Let's suppose that the annual interest rate on your savings account is 1% and the annual inflation rate is 2%. After a one-year period, your savings would enable you to buy ...
 - O More than today
 - O Exactly the same as today
 - O Less than today
 - O Don't know
- 45. Buying shares in a single company will produce a more certain return than an equity mutual fund:
 - O True
 - O False
 - O Don't know