Subjective Expectations and Financial Intermediation*

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Abstract

Using a customized survey and an information-provision experiment, we establish that loan officers' individual subjective expectations about inflation, GDP growth, and policy rates vary substantially within and across bank types and have a sizable causal effect on credit-supply decisions. Decisions about loan issuance and pricing exhibit large heterogeneity based on loan officers' subjective expectations even for the same borrower assessed at the same time. Moreover, officers with rosier macroeconomic expectations penalize less borrowers with worsening fundamentals than do officers with more pessimistic expectations. Our findings have implications for theories of credit allocation and credit cycles and reveal an overlooked human-based friction to the transmission of monetary policy.

Keywords: Credit Supply, Financial Frictions, Behavioral Macroeconomics, Behavioral Finance, Monetary Policy, Banking, Micro-to-Macro, Randomized Control Trials, Surveys.

JEL classification: D84, D91, E44, G21.

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1 Introduction

All over the world, individual agents inside financial intermediaries (*loan officers*) make credit-supply choices, including whether to issue loans and at what conditions (Heider and Inderst, 2012).[1] These choices, which collectively determine access to finance and aggregate credit allocation, are highly heterogeneous within and across financial institutions and relate to loan-officer-level characteristics (for instance, see Bushman et al., 2021; Carvalho et al., 2023; Dagostino et al., 2023).

In this paper, we ask whether loan officers' subjective macroeconomic expectations can help explain heterogeneous lending decisions. Lending decisions require forecasting the cash flows borrowers will produce, and hence their ability to repay, as well as setting the appropriate discount rate to account for the time value of money and borrowers' credit risk. Future cash flows and discount rate assessments should in turn depend on expected inflation, GDP growth, and nominal interest rates. If expectations about these variables vary across loan officers, this variation might lead to heterogeneous credit-supply choices even for observationally identical borrowers. Moreover, heterogeneous subjective expectations might lead loan officers to revise their credit supply decisions differently when facing the same change in borrowers' characteristics.

Mounting evidence shows that households' and firm managers' subjective expectations depart systematically from the rational expectations paradigm (Mankiw et al., 2003; Bruine de Bruin et al., 2010; Coibion and Gorodnichenko, 2015b; Coibion et al., 2018), are highly dispersed within and across countries (Andrade et al., 2022; Hajdini et al., 2024; D'Acunto and Weber, 2023), and drive economically relevant choices (Coibion et al., 2020; Giglio et al., 2021; Weber et al., 2022; D'Acunto et al., 2022; Kamdar and Ray, 2023). If loan officers' expectations displayed similar properties, they could generate heterogeneous credit allocation unexplained by borrowers' characteristics, credit supply cycles, as well as frictions to the transmission of monetary policy above and beyond the intermediary-level frictions caused by regulation and institutional incentives.

[1] Although part of the decision-making process has been automated in a few realms, such as mortgage lending, in most markets, loan officers are the crucial decision makers and make independent supply choices.

And yet, so far, research in economics and finance has barely studied lenders' subjective expectations, likely because they do not feature in standard macroeconomic or microeconomic models of financial intermediation. On the empirical side, research has mostly focused on institution-level expectations given the available data (Ma et al., 2021). Our first contribution is producing data on the subjective expectations and decisions of a large sample of loan officers. In June and October 2024, we fielded two rounds of pre-registered customized surveys in collaboration with a large Chinese financial services platform on which firms apply for credit and loan officers from several intermediaries allocate credit. We source loan officers from this platform and elicit their subjective expectations about inflation, GDP growth, and policy rates. We show that subjective expectations vary substantially across loan officers. Moreover, the variation across loan officers within similar types of financial intermediaries is several orders of magnitude larger than the variation across financial intermediaries. Professional lenders thus hold highly dispersed subjective expectations despite frequent access to homogeneous economic information from public sources and intra-bank communication.

To dismiss concerns about external validity, we verify that our loan officers' expectations display standard properties documented consistently for households and firm managers in the US and abroad. First, perceptions about past realizations are strongly correlated with expectations about the future (Jonung, 1981). Moreover, the levels of expectations vary systematically with officers' education (Das et al., 2020), gender (D'Acunto et al., 2021), and exposure to price signals from local rather than aggregate economic environments (D'Acunto, Malmendier, and Weber, 2021; D'Acunto and Weber, 2023).

We measure credit supply decisions by having loan officers assess applications based on data from true applications on the platform. We elicit both the extensive margin of credit supply (whether a loan application should be approved) and the intensive margin (the minimum and maximum interest rates officers would charge if approving a loan).[2] We elicit subjective expectations *after* the first credit assessment to eliminate the concern that our questions make loan officers think about a relationship between macroeconomic

[2]Because the actual loan issuance process might involve interest-rate negotiations between the bank and the borrower, we elicit the two thresholds within which loan officers plan to negotiate.

variables and credit supply decisions they would not consider if unprompted.

We find that credit-supply decisions for the *same* loan application vary substantially across loan officers and that subjective expectations contribute to explaining this heterogeneity both economically and statistically. Lenders incorporate (partially) their inflation expectations in lending decisions by charging higher rates when expecting higher inflation. A one-standard-deviation higher inflation expectations is related to about 70 basis-point higher interest rate ceilings, without shifting significantly the willingness to lend. One explanation is that expected high inflation leads lenders to mark up nominal rates, while not significantly shifting their forecast of borrower delinquency.

Moving on to GDP growth expectations, an increase by one standard deviation raises the willingness to lend by about 7–11 percentage points (3%–5% of its sample standard deviation), and pushes up loan rates by 68–98 basis points. The positive relation between expected GDP growth and the willingness to lend is perhaps unsurprising: when expecting good economic growth, officers expect borrowers to have a stronger ability to repay. Yet, based on the positive correlation between GDP growth expectations and loan rates, officers seem to believe they can extract rents from borrowers that are expected to produce higher cash flows in good times. They do not focus on borrowers' lower riskiness in good times, which would lead them to charge lower interest rates. And, a one-standard-deviation higher policy rate expectations leads to about 275 basis points higher rates, suggesting that loan officers might account for a deterioration of borrowers' fundamentals under monetary tightening. We do not find policy rate expectations to relate to officers' willingness to lend.

Because officers make decisions based on idiosyncratic subjective expectations, the dispersion in their expectations leads to heterogeneity in credit allocation that is not explained by borrowers' fundamentals. This means that the decisions can be inefficient and even result in substantial capital misallocation in the aggregate.

These results raise a natural follow-up question: Can loan officers' expectations be managed with targeted information interventions? If such interventions can reduce the cross-sectional variation in expectations, can they also lead to more homogeneous capital

allocation decisions based on borrower fundamentals? Answering these questions speaks to the policy implications of our inquiry and allows us to assess the causal effect of subjective expectations on credit supply decisions. To tackle these questions, we exploit an information-provision experiment that creates exogenous variation in subjective expectations (Coibion et al., 2018, 2022; Haaland et al., 2023; Stantcheva, 2023; Galashin et al., 2024; Jiang et al., 2024). We randomly assign loan officers to one of nine experimental arms: a control group that receives no information and eight information-treatment arms, each of which provides truthful and verifiable information about one or more of the macroeconomic variables we consider. Two treatments provide GDP growth forecasts—a low rate (*Slowdown*) or a stable rate (*Stable Growth*);[3] two treatments provide inflation forecasts—either a point estimate (*Inflation Level*) or a value range (*Inflation Range*), which has been shown to affect expectations more than point estimates (Kostyshyna and Petersen, 2023); two treatments combine inflation and GDP growth forecasts—inflation range and low GDP growth (*Stagflation*) and inflation range and stable GDP growth (*Inflationary Growth*); and, two treatments provide policy rate forecasts—a high value (*Monetary Tightening*) and a low value (*Monetary Easing*).

Loan officers' subjective expectations react significantly. Graphically, all the relationships between priors (pre-treatment) and posteriors (post-treatment) are flatter relative to the the control group, which implies that the average treated officer puts a lower-than-one weight on their priors when forming posteriors. Consistently, in multivariate analyses, we find that all interaction coefficients of priors with treatment-condition dummies, controlling for dummies and priors in levels, range between -1 and 0. We also find that several treatments affect expectations about multiple variables. Loan officers thus, on average, understand that the three variables are related, which stresses the importance of studying them jointly.

This exogenous variation in beliefs inspires information treatments that banks and/or regulators could use to reduce heterogeneity in loan officers' beliefs. It also allows us to

[3]We assign labels to treatment conditions in the paper for ease of exposition but these labels never appeared in the survey experiment and loan officers never saw these terms. See our complete original and translated survey instrument in the Online Appendix.

implement an instrumental-variable (IV) strategy whereby posterior subjective expectations are instrumented by indicators for each treatment and their interactions with prior beliefs (Coibion et al., 2018). The IV analysis confirms the baseline results: higher inflation, GDP growth, and policy rate expectations increase loan rates (the intensive margin of lending) in an economically and statistically significant way. At the extensive margin, GDP growth expectations positively affect the willingness to lend. Consistent with the OLS analysis, inflation or policy rates expectations do not relate to the extensive margin in an economically or statistically significant manner.

The result that information about a variable often affects beliefs about other variables motivates us to dig deeper into understanding how officers believe the three variables relate to each other (*subjective models of the macroeconomy*, Andre et al. (2022)) and whether there is any heterogeneity in these subjective models among professionals like loan officers. Agents might hold a stagflationary view of the economy, whereby high inflation rates are associated with times of low GDP growth, high policy rates, and a depressed state of economic activity ("bad times") or a standard inflationary-growth view of the economy, whereby high inflation rates are more common in times of high GDP growth and a heightened state of economic activity ("good times"). In the second wave of the survey, we thus designed closed-ended questions to elicit officers' subjective models of the macroeconomy (D'Acunto et al., 2024).

We find that loan officers hold heterogeneous subjective models of the economy, which drive how their macroeconomic beliefs shape lending decisions. Officers who hold a stagflationary view of the economy set substantially higher interest rate ceilings when expecting higher inflation relative to other loan officers who have the same subjective inflation expectations and decide on the same application.

After studying loan officers' static credit supply decisions, we move on to consider how loan officers change their decisions when the characteristics of the borrowers they assess (*borrower fundamentals*) change and whether subjective expectations also help explain these dynamic decisions. For instance, suppose that two loan officers set the same interest rates for the same borrower. If the borrower's profitability suddenly drops by 20%, one

loan officer might update her proposed interest rate differently from another and, if so, subjective expectations might help us also understand this heterogeneous lending behavior. To tackle this question, in the third part of the survey, we gave loan officers six credit assessment scenarios. Each scenario asked loan officers to revisit or keep unchanged their choices as we changed one borrower characteristic at a time, keeping all else equal: an increase or decrease in profitability, debt-to-assets ratio (leverage), or credit score. We selected these three fundamentals based on asking a subset of loan officers about the three most relevant fundamentals they consider when assessing borrowers on the platform.

In line with our conjecture, although the vast majority of officers respond to a change in a borrower's characteristic in the same direction, the magnitudes of responses vary widely across officers. We document that the sensitivity of lending choices to changes in borrowers' fundamentals depends on subjective expectations. More specifically, dire macroeconomic expectations make lenders' loan pricing decisions more sensitive to changes of borrower fundamentals. It is easier to interpret this finding in light of worsening fundamental: We find that lenders who expect higher inflation raise interest rates more when borrower profitability declines, compared to lenders who expect lower inflation. Lenders who expect worse GDP growth also become more sensitive to a drop in borrower profitability or an increase in debt ratio. Finally, expectations of monetary tightening lead to greater interest rate responses to all three characteristics, i.e., profitability, leverage, and credit score.

Overall, we provide direct evidence that loan officers' subjective macroeconomic expectations are a relevant determinant of credit supply decisions. Our results have implications for research and policy in both macroeconomics and microeconomics. At the macro level, understanding the nature and size of frictions to monetary policy transmission within financial intermediaries is important. So far, most theoretical and empirical work has focused on frictions deriving from intermediaries' incentives and regulations (Adrian and Shin, 2010; Brunnermeier et al., 2013; Drechsler et al., 2017; Di Maggio et al., 2017). By opening the black box of within-intermediary choices made by individual loan officers, we document a novel source of financial friction—heterogeneous subjective expectations—

that shapes monetary transmissions. In this regard, we complement contemporaneous empirical studies that document "human frictions" to the transmission of economic policies (D'Acunto et al., 2021; Gao et al., 2023) and provide new microfoundations for such frictions. Moreover, if average subjective expectations vary systematically alongside business cycles, our results imply that they can contribute to producing credit cycles that are detached from economic fundamentals.

At the micro level, our results suggest that financial intermediaries could monitor and manage officers' subjective expectations to avoid inconsistencies in credit supply, which might lead to inefficient capital allocation. For instance, intermediaries could communicate their preferred macroeconomic forecasts to officers regularly to manage expectations like in our information provision experiment. Moreover, the differential treatment of borrowers with the same fundamentals by loan officers of the same intermediary at the same point in time and under the same macroeconomic conditions might lead to legal recourse on the part of borrowers. Managing expectations would tame this source of litigation risk for intermediaries.

2 Related Literature

This paper contributes to at least three strands of research in economics and finance. We build on research on the formation and update of subjective expectations and how subjective expectations shape economic choices. Research in this area halted with the rational-expectations revolution but was recently revived by the mounting evidence that agents' expectations depart from the postulates of the full-information rational expectations (FIRE) paradigm (Coibion and Gorodnichenko, 2015a; Stantcheva, 2023). This area has developed in two methodological directions. First, empirical settings that allow matching individual-level information on beliefs with same individuals' economic decisions are crucial for a meaningful assessment of the effects (or lack thereof) of subjective expectations on choice (D'Acunto and Weber, 2024). Second, information-provision experiments are increasingly used to generate exogenous variation in beliefs to ask whether

beliefs causally affect choices (Coibion et al., 2020; Kryvtsov and Petersen, 2021; Haaland et al., 2023; Stantcheva, 2023; Hajdini et al., 2022; Galashin et al., 2024; Jiang et al., 2024). In contrast, field exposure to alternative macroeconomic conditions cannot rule out that unobserved determinants of agents' exposure affect both expectations and choices. We are among the first to use this framework to understand credit supply decisions. These decisions by financial intermediaries (and the loan officers that set credit conditions for firms and households) determine the effectiveness of the transmission of monetary policy to the real economy.

Moreover, we contribute to research in applied microeconomics, banking, and finance on how intermediaries allocate capital to alternative risky projects. Traditionally, this area has focused on how credit allocation varies depending on borrowers' characteristics or the incentives of financial intermediaries, such as their varying risk profiles across states of the economy (Keys et al., 2010), the competitiveness of local lending markets (Dell'Ariccia and Marquez, 2006; Buchak and Jørring, 2023; Bustamante and D'Acunto, 2024), or intangible relationship capital (Hertzberg et al., 2010; Drexler and Schoar, 2014; Bird et al., 2023). A recent strand of literature studies the role of loan officers' individual-level traits and incentives (Berg, 2015; Berg et al., 2020; Bushman et al., 2021; Herpfer, 2021; Carvalho et al., 2023; Dagostino et al., 2023; Frame et al., 2024; Huang et al., 2024), including using experimental methods that allow testing the causal effects of loan-officers' incentives on their credit supply decisions (Cole et al., 2015). While Carvalho et al. (2023) examine the effect of loan officer optimism on credit spreads, we are the first to directly elicit officers' subjective expectations and examine their effects on lending decisions. Methodologically, our information-provision experiment builds on studies in which real-world loan officers are recruited to make credit supply decisions in laboratory-in-the-field settings (Cole et al., 2015; Brock and De Haas, 2023; Gornall and Strebulaev, 2020).

Third, we contribute to macroeconomics and macro-finance research on how intermediaries affect the transmission of monetary policy to the real economy. See Woodford (2010) for a review and Drechsler et al. (2017); Di Maggio et al. (2017); Xiao (2020);

Malherbe (2020), among others, for recently documented channels of transmission. As we discussed above, this area of research has mostly focused on the frictions arising from intermediary-level characteristics. Our work relates in particular to Ma et al. (2021), who study the role of intermediary-level beliefs on lending and the transmission of monetary policy. Our work contributes to this literature by speaking to frictions that might arise from the idiosyncratic beliefs of the loan officers who make credit supply decisions within intermediaries. We do not study the effects of incentives set by compensation contracts or frictions in the labor market, but rather the effects of subjective expectations. The implications are quite different because, whereas incentives can be adjusted with compensation contract design to align officers' choices with intermediaries' preferred choices, subjective expectations cannot be managed through incentives and contract design. Expectations-driven distortions can only be adjusted by managing expectations directly (D'Acunto et al., 2022), that is, convincing officers that their subjective beliefs should change.

3 Framework, Setting, and Data

Standard capital budgeting theory suggests that lenders make loan issuance and pricing decisions based on a net-present-value (NPV) rule, computed as the present value of all future repayments from borrowers minus the loan amount:

$$\widehat{NPV}_{l,b} = -D + \mathop{\mathbb{E}}_{l}\left[\sum_{t=1}^{T} \frac{CF_{b,t}}{(1+d_l)^t}\right], \tag{1}$$

where b indicates a borrower, l indicates a loan officer, D denotes loan amount, and T loan maturity. Consistent with our setting, we assume that loan amount and maturity are determined in the loan application and not determined by the loan officer. CF represents borrower's repayment cash flow, consisting of interest payment ($= D \times r$, where r is the interest rate) and principal payment (D) at maturity. d represents the discount rate, which is determined by the loan officer's opportunity cost of funding in nominal terms. The expectation operator $\mathbb{E}$ accounts for the probability that the borrower may default, which reduces expected repayment (CF).

Simply put, the NPV rule states that loan officer l should issue the loan if $NPV > 0$. Thus, the loan officer is more likely to approve the loan if expected cash flows are high and the discount rate is low. Upon issuance, the officer sets a nominal interest rate r that determines the loan repayment amount (CF). When the loan officer perceives a higher default risk by the borrower, it can increase r to keep NPV above zero. It can charge a higher r when expecting high inflation, so as to maintain the same level of real return. Finally, s/he may also increase r to increase revenue (and the NPV of the loan), but only to the extent that the borrower does not have other loan offers that charge lower rates.

In this framework, different loan officers may perceive a different subjective NPV even for the same loan application at the same point in time, leading to different loan issuance and pricing decisions, which is indeed what we find in the data.

Moving on to how subjective macroeconomic expectations may shape lenders' subjective NPV, we first consider inflation expectations. Higher inflation expectations should lead to officers charging higher nominal interest rates but have ambiguous effects on loan approval. Depending on whether lenders link inflationary periods with good or bad times, inflation expectations can increase or decrease loan approval.

GDP growth expectations affect expectations about the borrower's default risk, i.e., the likelihood that the borrower may miss a payment. Since borrowers are less likely to generate sufficient cash flows to cover debt obligations during recessions, lenders who expect lower GDP growth should be more likely to reject a loan. Yet, GDP growth expectations have conflicting effects on interest rates. On the one hand, higher GDP growth reduces default risk and thus reduces the risk premium component of interest rates. On the other hand, lenders expecting good times may charge higher rates to boost income, as borrowers can sustain a higher debt burden in good times.[4]

Finally, higher policy rate expectations should increase the opportunity cost of capital of issuing the loan (d), which reduces NPV. Lenders may charge a higher rate to

[4]Lenders can only extract rents in this way if lending markets are not fully competitive, which was documented for small business credit in the US (for instance, see Chakraborty et al. (2018); Bustamante and D'Acunto (2024)).

compensate for the higher cost of funding.

Ultimately, loan officers' individual subjective macroeconomic expectations should be crucial drivers of their choices even though they have been mostly neglected in theories of financial intermediation and empirical evidence on credit issuance and allocation choices thus far. To the extent that expectations may be heterogeneous across loan officers, such heterogeneity might lead to heterogeneous credit allocation decisions even for observationally identical borrowers.

3.1 Survey and Experimental Design

To assess the relationship between loan officers' subjective macroeconomic expectations and their credit supply choices, we designed a customized survey on a large population of loan officers. We recruited survey participants in June and October 2024 among the 6,871 loan officers across 775 banks on a Chinese financial services platform with which we cooperate. The platform facilitates the matching of potential borrowing firms with credit suppliers by providing credit reports of applicant borrowers based on credit-registry-like information collected from the central and local governments and making them available to loan officers. The banks that operate on the platform have various sizes and geographic scopes, ranging from the big-four government-owned Chinese banks (Industrial and Commercial Bank of China, Agricultural Bank of China, Bank of China, and China Construction Bank) to local commercial banks and rural cooperative banks.

To recruit loan officers, we restricted the pool to corporate business officers in charge of assessing loan applications by small- and medium-sized firms. In this segment, in the US and abroad the diffusion of algorithmic loan screening is growing but still limited (Howell et al., 2024) and loan officers play a crucial role in credit-supply decisions. In addition to loan screening, officers on this platform review the application materials to confirm their completeness and authenticity, conduct a due diligence investigation including background checks and credit history checks, and submit reports to their banks with complete credit assessments to be reviewed by other (human) officers for credit evaluation and risk control purposes, among other actions. During the loan-screening process, the

application temporarily disappears from the platform. If the loan is approved, the loan officer signs the loan contract, arranges for the disbursement of the loan, and monitors borrowers' repayment. Loan officers' compensation has a variable component that is a function of metrics such as the volume of loans issued, loan quality (e.g., delinquency rates and bad debt rates), and customer satisfaction, which aims to incentivize a careful and effective assessment of loan applications.

In addition to being approved by Georgetown University's Institutional Review Board (IRB), our survey was pre-registered in the AEA RCT Registry (AEARCTR-0013662). The survey was administered online and loan officers could access the survey platform using any device. The target size for our working sample was 1,500 loan officers. To meet this target, and considering that some respondents would likely be excluded based on our attention filters, we recruited more officers (1,682 in the first wave and 1,962 in the second wave). From the original sample, we excluded officers who spent one minute or less on the loan decision questions, officers who reported identical numbers in at least two thirds of the prior and posterior beliefs questions, and officers who, when asked to report a maximum and minimum value for the same variable, indicated a higher value for the minimum. These cleaning steps lead to a final working sample size of 1,320 loan officers in the first wave and 1,893 in the second wave, far exceeding our original target.

We report the survey instrument (translated in English) in the Online Appendix (Appendix E). The survey consisted of five parts.

In the first part, we asked loan officers to make a credit supply decision on the same loan application, that is, about the same potential firm borrower. We then elicited perceptions and (prior) beliefs about our three macroeconomic variables of interest: inflation, GDP growth, and policy interest rates.

The second part of the survey executed the information-treatment experiment. Upon accessing the survey platform, loan officers were randomly assigned to one of nine groups—a control group, which received no information, and eight treatment conditions, each of which provided truthful pieces of information related to one or more of the macroeconomic variables of interest. We discuss the experimental treatments in Section 3.5.1. In

this part, loan officers also repeated their credit supply decisions.

In the third part, we elicited subjective expectations again but, as is customary in the literature, using a different question format relative to the priors elicitation to reduce concerns about demand effect, as we discuss in more detail below. Loan officers also re-evaluated their lending decision.

The fourth part of the survey consisted of an additional set of credit supply decisions that asked loan officers to update their choices based on scenarios that varied one borrower characteristic at a time. We chose the three borrower characteristics that loan officers on our platform stated are the most important ones on which they focus when making lending decisions, that is, profitability, debt ratios, and credit scores. Profitability is a proxy for the borrower's ability to generate enough cash flows to be able to meet their debt payments going forward. Debt ratios capture the riskiness of borrowers' cash and hence predict their likelihood of default. Credit scores are proxies for the borrower's ability to repay based on their past debt repayment behavior.

In the second wave, we added an intermediate step between the fourth and last parts, which includes questions to elicit loan officers' subjective models of the macroeconomy. For example, we asked them whether they thought high inflation is typically accompanied by high or low GDP growth and whether it is more likely to be observed in conjunction with high or low policy rates.

Finally, the last part of the survey elicited a set of relevant loan officers' characteristics—their gender, age, years of experience as loan officers, education levels, numeracy, self-reported cognitive abilities, exposure to economic information from local vs. aggregate information sources, and time preferences based on the questions in Falk et al. (2018). We keep these characteristics constant across loan officers in all our multivariate analyses.

3.2 Measuring Subjective Expectations and Credit Supply

To elicit subjective perceptions and expectations, we use question designs that are standard in the literature (D'Acunto, Malmendier, and Weber, 2023). For the perceptions of inflation, GDP growth, and policy rates, we asked officers for a point estimate of the

value of these variables over the 12 months before the survey. For subjective expectations, we used two alternative designs to elicit priors and posteriors around the information treatment experiment to reduce concerns about demand effects (Haaland et al., 2023). We elicited priors as point estimates of the believed realizations of each macroeconomic variable in the 12 months following the survey.

For posteriors, we used the question introduced by Guiso et al. (2002), which allows recovering both the first and second moments of beliefs under some parametric assumptions about the belief distribution (namely, that beliefs follow an asymmetric triangular distribution). For each macroeconomic variable, we asked for: (i) the minimum value of the variable the respondent believed could realize over the following 12 months; (ii) the maximum value that could realize over the following 12 months; and, (iii) the probability that the realized value would fall above the midpoint between (i) and (ii). We compute the point estimate of loan officers' expectations for the future macroeconomic variables as the weighted average between the minimum and maximum values. The weights are the probabilities they assign to those variables being above or below the median. Specifically $Expectation = Maximum \times Prob + Minimum \times (1 - Prob)$, whereby $Prob$ represents the subjective probability that the realized value falls above the midpoint. Because our analysis does not focus on the second or higher moment of respondents' beliefs, we chose this question rather than richer but more cognitively-involved alternatives, such as the "Manski question" (Armantier et al., 2013), to avoid cognitive overload.

Using two alternative questions to elicit prior and posterior beliefs limits the scope for demand effects because officers cannot anchor their posteriors to the numbers they provided when asked about priors. At the same time, it might raise concerns that the average estimate computed based on a triangular distribution differs systematically from the agents' intended point estimate, which would lead to an imperfect correlation between priors and posteriors mechanically. The presence of a control group dismisses this concern because potential mechanical effects would be captured by this group. Moreover, we find that the correlation between officers' priors and posteriors varies systematically across treatment conditions. The fact that being exposed to different information signals leads

to different correlations between priors and posteriors is prima facie evidence that the relationship between posteriors and priors depends on the information signal respondents read rather than being mechanically induced by the question design.

To elicit credit supply decisions, we propose a loan application and present it to officers in the same structure that they routinely assess every day on the platform with which we cooperate. The borrower's characteristics are sourced directly from a real application on the platform. For each credit supply decision, loan officers saw the panel of borrower characteristics they see for any other applications they assess on the platform. Characteristics include the firm's type, requested loan amount and maturity, the loan's purpose, the industry of operation, the nature and value of collateral, whether the firm had any ongoing litigation, and a three-year snapshot of basic balance sheet data for the firm including yearly revenues, assets, profitability ratios, financial leverage ratios, and liquidity management ratios (current ratio, quick ratio, and inventory turnover).

For each credit supply decision, we asked loan officers the likelihood that they would approve the application (i.e., willingness to lend, or the "extensive margin" of lending) and the minimum and maximum interest rates they would consider assigning to the application (interest rate, or the "intensive margin" of lending). In a real-world setting, lenders would offer an interest rate to borrowers, who could then counteroffer and negotiate the rate with lenders in several rounds. Because we could not reproduce this negotiation in our setting, we elicited the maximum and minimum interest rates, which can be interpreted as the price below which the supply side would not issue the loan (minimum rate) and the price above which the officer thinks the borrower would not accept the loan (maximum rate).

Loan officers made the first credit supply decision at the onset of the experiment before any perceptions or beliefs were elicited. This feature of our survey design dismisses the concern that loan officers' choices might be correlated with subjective beliefs only because we alerted them to think about the role of macroeconomic variables, about which the same loan officers might not think when making lending decisions in the field. We have no concern that starting with a credit supply choice might appear surprising to our

respondents because they make such choices for hours every day.

3.3 Summary Statistics and Data Properties

Summary statistics of the key variables in our study, including loan officers' choices and their subjective beliefs, are reported in Table 1.

TABLE 1 ABOUT HERE

Before receiving any information, the average loan officer sets a maximum interest rate of 6.7% and a minimum of 4.5%. After the information treatments are administered, the average interest rates for the same loan application shift upwards (7.1% and 4.8%). At the same time, the average willingness to lend is around 7.0 out of a full score of 10 both before and after the information treatments.

Loan officers' subjective expectations regarding future macroeconomic conditions also shift around the information treatments. Before the treatments, the average loan officer believes that inflation will be 4.8% over the following 12 months. This average is adjusted downward to 4.2% after the information treatments. GDP growth expectations also move downward, from an average value of 5.4% to 5.0%. In contrast, the average expectation regarding the 12-month ahead *Loan Prime Rate* (LPR) is 3.5% before the experimental intervention and increases to 3.9% afterward. Notably, the standard deviations of all three expectations drop after the information treatments.

We report summary statistics separately by survey waves in Table B1 in the Online Appendix. The table shows that the baseline descriptive statistics of the main variables in our analysis are similar across survey waves.

Methodologically, measuring loan-officer-level subjective expectations and linking them to the same officers' credit supply decisions is the main contribution of our analysis. This contribution would not be relevant if the expectations and choices of loan officers who make decisions within the same financial institutions were homogeneous and hence most of the variation in expectations and choices was driven by institution-level differences rather than within-institution differences.

To assess the nature of the variation in our raw data, in Figure 1, we plot the distribution of subjective expectations (Panel A) and credit supply choices (Panel B) separately across the four types of financial intermediaries that employ our loan officers, that is, state-owned commercial banks (CB), joint-stock CB (whose shareholders are a plurality of individuals and entities), rural CB, and urban CB.[5] For each variable and bank type, the horizontal segment indicates the median value, the box indicates the interquantile range, and the vertical segment indicates the range of adjacent observations. In terms of subjective expectations, we can see that, across bank types, median values, interquantile ranges, and overall ranges vary minimally relative to the size of those ranges, which captures within-bank-type variation. GDP growth expectations are the most vivid example in that median expectations and ranges are almost identical across bank types but each within-bank-type interquantile range is about two percentage points (based on a 5% median value)[6] and each range is about 8 percentage points. Moving on to credit-supply decisions, Panel B of Figure 1 reveals similar patterns. Although in this case we detect more systematic variation in proposed interest rate values and ranges across bank types, and specifically when comparing state-owned CB to other institutions, the within-bank-type variation is large relative to the across-bank-type variation. In our multivariate analysis, we will propose specifications that allow both sources of variation to identify our estimates as well as restrict the variation within bank types to assess the role of each source of variation separately.

Our setting also differs from most earlier studies using survey-based subjective expectations in terms of both the agents we consider (loan officers rather than households, firm managers, professional forecasters, or academic experts) and the institutional environment (China). The potential lack of external validity of our setting is a concern. To assess this concern, we check whether standard facts about survey-based subjective

[5]Unfortunately, our NDA does not allow us to use bank-level indicators in our analysis for privacy concerns. We are instead allowed to pool officers across four bank types designed by the platform, which include homogeneous institutions in terms of governance, incentives, and ownership.

[6]The PRC's official GDP growth target rate was 5% at the time of our survey waves. Although the median loan officer's GDP growth forecast aligns with the target, we detect substantial cross-sectional variation in expectations, which is prima facie evidence that loan officers are willing to provide genuine forecasts rather than reporting a stated target in which they do not believe.

macroeconomic expectations that have been documented across countries and over time arise in our setting. We consider the set of facts described in recent reviews (Weber et al., 2022; D'Acunto and Weber, 2024).[7]

First, loan officers' subjective expectations display a large degree of cross-sectional dispersion: the standard deviation of inflation expectations is 5.3 percentage points and that of GDP growth expectations is 3.8 percentage points. In both cases, the standard deviation and the sample mean have similar sizes. LPR beliefs are much tighter around the mean, which is not surprising given that loan officers are regularly exposed to information about current LPR that feeds directly into their credit supply decisions.

Second, we show in Figure 2 that officers' perceptions of a macroeconomic variable over the previous 12 months are highly correlated with their expectations about the same variables over the subsequent 12 months.

Third, we examine how offices' demographic characteristics predict differences in their perceptions of past realizations and the prior beliefs about future realizations. Results in Table C1 suggest that female officers and those actively involved in their households' shopping duties have significantly higher perceptions and expectations regarding inflation and GDP growth, consistent with De Bruin et al. (2010), D'Acunto et al. (2021) and Reiche (2023). Highly educated individuals and those with higher match skills tend to have lower perceptions of inflation and GDP growth, consistent with Das et al. (2020) and D'Acunto et al. (2022). Cross-group differences in LPR beliefs tend to be statistically insignificant. This is unsurprising given that LPR beliefs are less dispersed across officers in the first place.

4 Subjective Expectations and Lending Decisions

We move on to examine the relationship between loan officers' subjective macroeconomic expectations and their credit supply decisions.

[7] In this assessment, we compare loan officers' expectations to those of households because officers are not professional forecasters and do not make wage-setting decisions, hiring/layoff decisions, or product pricing decisions for their firms. Thus, information about variables such as product prices, unemployment rates, or industry-specific inflation might not come to their mind when forming their subjective macroeconomic expectations (Coibion et al., 2018; Andrade et al., 2022; Link et al., 2023).

4.1 Multivariate Analysis

We start with the correlational evidence between subjective expectations and lending decisions by regressing officers' lending decisions on their beliefs about inflation, GDP growth, and LPR. We first consider the relation between loan decisions made at the onset of the survey and prior beliefs, that is, subjective expectations elicited before the information treatments. We estimate the following linear specification by OLS:

$$Lending_{i,pre} = \beta Inflation_{i,pre} + \gamma GDP_{i,pre} + \delta LPR_{i,pre} + X_i\zeta + \epsilon_i, \tag{2}$$

where *Lending* is one of loan officer's i choices: the maximum/minimum interest rate they would charge (in percentage points) or their willingness to issue the loan (measured on a scale from 1 to 10). The vector X represents survey-wave fixed effects and fixed effects for multiple loan officer characteristics, including gender, education, math skills, time preferences, location (province), age range, and the type of bank for which they work. Coefficients $\{\beta, \gamma, \delta\}$ capture the conditional correlation between expectations of each macroeconomic variable and lending decisions.

Panel A of Table 2 reports the results. Columns (1) and (2) consider the maximum interest rates officers assign to the application. Columns (3) and (4) focus on the minimum interest rates, and Columns (5) and (6) on officers' willingness to issue the loan. For each dependent variable, we present the results with and without controlling for officer-level characteristics. We find that all three sets of subjective expectations are significantly and positively correlated with officers' interest rate choices. For their willingness to lend, only GDP growth expectations display a significant positive correlation.

Table 2 About Here

Loan officers' beliefs display similar relations with the interest rate ceilings as with interest rate floors, so we focus the rest of our discussion on the interest rate ceilings. Based on estimates from column (2), a one-standard-deviation increase in officers' inflation expectations (5.3) is associated with about 0.7 percentage points ($= 5.3 \times 0.134$)

higher maximum interest rates charged, representing a 11% increase relative to the sample average of maximum interest rate. As discussed in Section **??**, GDP growth expectations have two conflicting effects on interest rates, as higher GDP growth expectations reduce expected borrower default risk (thus reducing rates) and also provide opportunities for lenders to increase revenue by charging higher rates. Our estimates suggest that the latter effect seems to prevail, on average: a one-standard-deviation higher expected GDP growth (3.83) is associated with 0.6 percentage points higher interest rates charged ($= 0.383 \times 0.178$). Finally, a one-standard-deviation increase in LPR expectations is associated with a 2.73 percentage points higher interest rates.

Moving on to loan officers' willingness to lend, we find that, before controlling for officer characteristics, this extensive-margin choice declines with inflation expectations. The sign of this relationship is consistent with the possibility that a substantial fraction of loan officers hold a stagflationary view of the economy, whereby high inflation relates to bad aggregate economic conditions, and hence they reduce their credit allocation when expecting higher inflation. Note, though, that this conditional correlation becomes statistically insignificant once we control for officer characteristics. Higher GDP growth expectations significantly increase officers' willingness to lend, which is consistent with the idea that expecting good economic conditions might lead to expecting higher cash flows for borrowers going forward. In terms of magnitude, a one-standard-deviation increase in GDP expectations is associated with a 11.5 percentage points increase in the willingness to lend, or a 1.6% change relative to the sample average. Contrary to the results for loan pricing, we find no clear association between the willingness to lend and LPR expectations: loan officers seem to transmit their policy-rates expectations to lending decisions almost exclusively through the intensive margin.

Our setting allows us to validate these baseline results by associating loan officers' expectations and decisions after the information treatments, which, as we discuss in the next section, affect their subjective expectations. We control directly for pre-treatment choices by the same loan officers on the same loan application, which is likely to absorb the effect of many unobservable time-invariant loan-officer characteristics and borrower

characteristics. We consider the following linear specification:

$$Lending_{i,post} = \beta Inflation_{i,post} + \gamma GDP_{i,post} + \delta LPR_{i,post} + \phi Lending_{i,pre} + X_i\zeta + \epsilon_i, \quad (3)$$

where ϕ represents the within-officer correlation between lending decisions before and after the information treatment and all other variables and coefficients are interpreted as in Equation (**??**). Again, we focus on coefficients $\{\beta, \gamma, \delta\}$.

Panel B of Table 2 reports the estimates. First, we note that, consistent with our conjecture, these specifications allow us to explain a sizable share of the cross-sectional variation in choices, with R^2 values ranging between 26% and 60% across specifications. Second, for all lending outcomes, the within-officer correlation between each pair of outcomes ($\hat{\phi}$) is highly statistically significant but, economically, substantially smaller than 1, suggesting that lending decisions change after the information-treatment experiment.[8]

TABLE 2 ABOUT HERE

In terms of conditional correlations between subjective expectations and choices, we detect results that are qualitatively similar to those we found for pre-treatment choices and beliefs. As we include pre-treatment lending choices in the regressions, coefficients generally become larger and more statistically significant, which if anything indicates that unobserved loan-officer-level determinants of choices were biasing our estimated coefficients down in the analysis of pre-treatment choices. The exception is that the correlation between LPR expectations and interest rate decisions weakens in the posterior setting.

Overall, results in this section suggest that officers' subjective expectations are strongly related to their lending decisions. To the extent that loan officers' belief display substantial heterogeneity, our results imply that different loan officers may charge different rates to the same loan application under the same macroeconomic environment.

[8] In principle, coefficients lower than one could also arise if lenders make decisions with noise when asked more than once. Below, we show that, instead, beliefs and choices reacted in the direction of the information treatments for the average loan officer.

4.2 Views and Loan Officer Characteristics

The baseline conditional correlations between subjective macroeconomic expectations and lending decisions are likely to mask substantial heterogeneity across loan officers. In this section, we explore various sources of heterogeneity in the belief-choice relationship, including officers' subjective economic model and demographics.

4.2.1 Subjective Models: Standard vs. Stagflationary Views

Different agents hold different views regarding how macroeconomic variables are related (Andre et al., 2022). For example, some may believe that high inflation is associated with "bad times," i.e., negative economic states characterized by slower GDP growth, higher unemployment, etc. (the "stagflationary" view), while others think higher future inflation means good times to come (the "standard view"). We examine how officers' subjective models of the macroeconomy influence the belief-lending choice relationship, as those opposing views may lead officers to exhibit different reactions to changes in macroeconomic expectations, especially inflation expectations.

To assess the role of subjective economic models, in the second round of our survey we asked loan officers to rate their level of agreement with each of two sentences about inflation and the macroeconomy, one capturing a standard view and one a stagflationary view, on a scale from 0 to 10. We compute the difference between the agreement score that officers assign to the stagflationary view and the standard view, and use this difference as a proxy for the extent that loan officers agree with the stagflationary view of the economy (i.e., *Stagflationary View*). In addition, we asked loan officers to what extent they agreed that inflation typically comoves (or counter-moves) with policy rates. We find that 18% of loan officers presented with these questions lean towards a stagflationary view (*Stagflationary View*> 0), 35% towards a stark standard view (*Stagflationary View*< 0), and the rest indifferent between the two. Moreover, officers with stronger stagflationary views are also more likely to believe that high inflation is usually accompanied by monetary tightening. This means that loan officers expecting GDP growth to slow down during high inflation periods also tend to expect monetary tightening during

those periods.

We conjecture that loan officers who hold stronger stagflationary views increase interest rates to a greater extent when they expect higher inflation and higher LPR, compared to officers with the standard view. This is because stagflationary officers likely associate higher inflation with greater loan default rates and, based on our evidence, monetary tightening. Thus, when anticipating higher inflation, those officers should raise interest rates more to compensate for the expected higher default risk from borrowers. When anticipating monetary tightening, they raise rates not only to catch up with the benchmark rate, but also to keep up with inflation in order to maintain a level of real return.

We then estimate a linear specification of the following form:

$$Lending_{i,post} = \beta' Inflation_{i,post} \times Z_i + \gamma' GDP_{i,post} \times Z_i + \delta' LPR_{i,post} \times Z_i + \beta Inflation_{i,post} + \gamma GDP_{i,post} + \delta LPR_{i,post} + \phi Z_i + \phi Lending_{i,pre} + X_i\zeta + \epsilon_i, \quad (4)$$

where Z represents *Stagflationary View*, the extent to which loan office i agrees with the stagflationary view relative to the standard view of the economy. All other variables are defined as in Equation (2).

Column (1) of Table 3 reports the estimates focusing on the intensive margin of lending decisions (maximum interest rate).[9] We find evidence consistent with our hypotheses: loan officers who hold a stronger stagflationary view of the economy charge an economically and statistically higher interest rate to the same loan application as they expect higher inflation, relative to other loan officers. Those officers also adjust interest rate more with regards to LPR expectations. Regardless of economic models, GDP growth expectations generate the same effect on interest rates, likely because a good economic state is reassuring to lenders, irrespective of other macro variables.

TABLE 3 ABOUT HERE

[9]Because both the baseline results for the maximum and minimum proposed interest rates are similar, we only present the estimates for the maximum interest rate for brevity.

4.2.2 Sophistication and Exposure to Local Economic Environments

We then move on to consider officers' experience and exposure to local economic information using qualitative scales and categorical questions. We expect officers with longer work experience to be less sensitive to subjective expectations, as they have witnessed more ups and downs in their job span. On the other hand, we expect officers with more exposure to local economic information to be more informed about inflation, and thus incorporate inflation expectations into lending decisions to a greater extent.

We define an officer to have *High Experience* if he/she has more than three years of experience on the job. Following existing literature on households' awareness to inflation information (D'Acunto and Weber, 2024), we use officers' gender and shopping behaviors to capture exposure to local economic information. *Female* represents female officers, while *Main Shopper* is an indicator that turns to one if the respondent reports being the main grocery shopper for their households. We estimate a set of specifications shown in Equation (4), while switching *Stagflationary* with one loan officer characteristic at a time (*High Experience*, *Female*, and *Main Shopper*).

Results are reported in Columns (2)-(4) of Table 3. Consistent with our conjectures, more experienced loan officers rely less on their inflation expectations, but do not differ from others in the reliance on their policy-rate expectations. In contrast, female loan officers and main shoppers rely more heavily on their inflation expectations when pricing loans, likely because inflation is more salient to them.

5 Managing Subjective Expectations and Credit-Supply Decisions

Our results so far suggest that heterogeneous subjective macroeconomic expectations relate to variation in credit allocation decisions that is not justified by borrower characteristics and hence is likely to be inefficient. This result raises a natural question: Can loan officers' subjective expectations be managed and, if so, do their credit-supply decisions react to changes in expectations? Answering this question is crucial to assess the policy

implications of our results as it speaks to how financial institutions and/or regulators can implement interventions to reduce this source of inefficiency in credit markets.

To address this important question, we implement an information-provision experiment and evaluate how respondents change their beliefs and lending decisions after the treatment. This analysis also allows us to tackle the endogeneity concerns related to our baseline evidence. For example, unobserved loan-officer-level characteristics and local business cycles may drive both beliefs and choices. The information treatment generates exogenous variation in officers' beliefs that is orthogonal to those confounding factors.

5.1 Information Provision Experiment

Respondents were assigned randomly to one of nine groups (a control group that received no information and eight treatment arms). For ease of exposition, in the paper we label each treatment condition but respondents were blind to labels to reduce the scope for demand effects. The first wave of the survey was conducted in the second quarter of 2024, when the Chinese economy experienced a quarter of GDP growth below most analysts' expectations. The second wave started in October 2024, after the Chinese government announced and implemented a bundle of economic stimulus policies, which aimed at an overall GDP growth of 5% for 2024 and included measures such as cutting bank reserve requirements, lowering policy rates, and subsidies. Our analyses include survey wave fixed effects to capture systematic differences in beliefs and choices across these two periods. Moreover, we adapted the truthful information in each treatment to wave-specific values.

The eight information treatments were as follows:

1. *Inflation Level*: In the first survey wave, we provided the following statement: "In 2023, pork price inflation was -13.6%, that is, pork prices decreased by 13.6% in 2023." This treatment reported the change in the price of the good that is most commonly mentioned in China to assess consumer-price inflation. Because pork prices had dropped substantially in the year before our survey and agents barely report negative inflation expectations in surveys (Gorodnichenko and Sergeyev, 2021), this treatment was expected to reduce inflation expectations.

In the second wave, we provided the following statement: "Large financial institutions such as Vanguard expect China's inflation in 2024 to be low, around 0.8%."

2. *Inflation Range*: In the first wave, we said "By March 2024, the inflation rate in China is 0.1%. The inflation rate the People's Bank of China aims to achieve every year, including in 2024, is 3%. That is, prices on average are expected to increase by 3% every year." This treatment is inspired by Kostyshyna and Petersen (2023), who find that communicating both inflation levels and ranges affects inflation expectations more than information about levels alone. This treatment was expected to push inflation posteriors towards the communicated range and hence in opposite directions for subjects who expected inflation below 0.1% or above 3%. Official and unofficial inflation readings just before our survey ranged around zero, including negative values, so that the range we proposed indicated a higher value of future inflation than the realization at the time of the survey.

   In the second wave, the statement read "In August 2024, Yiping Huang, a famous economist, argues that China should stick to an inflation goal of 2% to 3%. This fits the long-term People's Bank of China's inflation target of 3%."

3. *Slowdown* (Low GDP growth): In the first wave, we wrote: "According to the IMF, GDP growth in China (excluding the effects of inflation) will slow down to 4.6% in 2024." This treatment aimed to lower respondents' GDP growth posterior beliefs with a forecast below the official GDP growth target (5%).

   In the second wave, we stated: "In September 2024, many global financial institutions such Bank of America, BBVA, and Citigroup, predict that China's GDP growth will be well under the growth target and as low as 4.2%. The series of economic stimulus policies launched by the Chinese government in late September did not sway their views. They continue to see rising risk and downside growth in several sectors."

4. *Stable Growth* (High GDP growth): In the first wave, the treatment was: "In the last Year of the Dragon (2012) GDP growth in China (excluding the effects of

inflation) was 7.9%, which is higher than GDP growth in 2023." To provide an information treatment that would push GDP growth posterior beliefs upward but at the same time include truthful information, in the absence of credible forecasts, we exploited the widespread Chinese superstition that years associated with the Dragon Chinese zodiac sign, such as the year about which respondents form expectations (2024) are similarly lucky years (Johnson and Nye, 2011), paired with the fact that in the previous such year GDP growth was high.

Given that the policies launched in late September 2024 prominently highlighted the objective of pushing GDP growth to 5%, many forecasters updated their expectations to center around 5%. Thus, in the second wave, our treatment was: "The Chinese government launched a series of economic stimulus policies in late September of 2024. These stimulus policies are expected to boost China's GDP growth to 5%. or more according to several institutions, such as the IMF."

5. *Stagflation* (2 + 3): This treatment combined the statements in the *Inflation Range* and *Slowdown (Low GDP growth)* conditions.

6. *Inflationary Growth* (2 + 4): This treatment combined the statements in the *Inflation Range* and *Stable Growth* conditions.

7. *Monetary Easing*: This treatment proposed information about a potential cut in the policy rate by the People's Bank of China. For the first wave, when most professional forecasters expected monetary easing, we selected the following statement: "Some experts think that the People's Bank of China might lower the medium-term lending facility (MLF) rate in 2024 by as much as 2 percentage points, moving from 2.5% to 0.5%."

   When we launched the second wave, the PBOC had just announced a policy-rate cut. We thus leveraged the stated policy intention of the central bank for this treatment: "China's LPR has been trending down over the past decade, reaching around 3.35% in late September of 2024. Chairman of PBOC expects LPR to further go down by 20—25 bps in the near future."

8. *Monetary Tightening*: In the first wave, we stated: "Some experts think that the People's Bank of China might end up keeping the medium-term lending facility (MLF) rate constant in 2024 at 2.5% without further cuts (zero change)." This treatment proposes information about no policy rate decrease by the People's Bank of China in 2024 in a time when most professional forecasters expected monetary easing. For this reason, we interpret this treatment as providing information about a higher-than-expected policy rate at the end of 2024.

   In the second wave, we proposed a scenario under which the policy rate might have reverted to the historical median: "The median LPR in the past five years is 4.2%. Today's rate is far below the historical median, which indicates that, as soon as macroeconomic conditions improve, rates might increase."

We assign 1/7 of all treated loan officers to each of Treatment Arm 1, 2, 3, 4, 7, and 8. Treatments 5 and 6 (*Stagflation* and *Inflationary Growth*) were collectively assigned the same quota as one treatment arm (i.e., 1/14 each), because they represented "sub-scenarios" of the *Inflation Range* arm. The control group consists of 558 officers.

5.2 Beliefs Updating After Information Treatments

We do not detect any systematic patterns of priors across officers assigned to different treatments (see Figure D1), which reassures us about the validity of our randomization process. We then test whether the information treatments affected loan officers' beliefs. Once provided with a new signal about future realizations of a macroeconomic variable, a Bayesian updater should form posterior beliefs about that variable by assigning a positive weight between zero and one on the new signal and a weight below one on prior beliefs, as long as the agent finds the signal informative. We therefore expect that the average loan officer exposed to the information treatments reduces reliance on their priors when forming posteriors.

We depict the updating process by plotting fitted regression lines of officers' posterior and prior beliefs in Figure 3. In each panel, the black solid line refers to officers in the control group, who did not receive any information. The red solid lines refer to officers

exposed to information about the variable indicated in each panel. For example, in Panel A, which plots Inflation Expectations, red lines refer to officers in the following treatment conditions: *Inflation Level*, *Inflation Range*, *Stagflation*, and *Inflationary Growth*. Finally, the gray dashed lines correspond to officers exposed to information about other macroeconomic variables.

FIGURE 3 ABOUT HERE

The regression line for the control group captures potential mean reversion in beliefs and mechanical differences due to using different question formats to elicit priors and posteriors, which would be the same for control and treated subjects. Across all variables, the relationship between posteriors on priors is flatter for treated subjects relative to the control group, which suggests that treated officers lower the weights on their priors when forming posteriors. Treatments reduce the correlation between posteriors and priors more than in the control group even when the information is not about the variable of interest, which suggests that loan officers understand that the three macroeconomic variables are related and stresses the importance of studying all three expectations jointly. To assess the economic and statistical significance of these results, we estimate the following:

$$\begin{aligned} Posterior_{i,k,j} = &+ \sum_{j=2}^{9} \beta_{1,j}\ Treatment_j + \beta_2\ Prior_{i,k,j} \\ &+ \sum_{j=2}^{9} \gamma_j\ Treatment_j \times Prior_{i,k,j} + X'_{i,k,j}\ \delta + \epsilon_{i,k,j}, \end{aligned} \tag{5}$$

where $Posterior_{i,k,j}$ and $Prior_{i,k,j}$ are the elicited posterior and prior beliefs of loan officer i exposed to condition j about variable k, $Treatment_j$ are the treatment conditions (the control group being the excluded category), and X is the same set of loan-officer level controls in the baseline analysis. Our coefficients of interest are $\{\hat{\gamma}_j\}$, which capture the extent to which loan officers changed the weight they assigned to their priors when forming their posteriors. Based on the discussion above, we expect these coefficients to be negative and to lie within the interval [-1, 0] if the information treatments successfully affected the beliefs of the average loan officer.

Table 4 reports the results. Consistent with the univariate patterns, information treatments had a significant impact on expectations and the average treated officer updated her expectations more than the control group for each variable and treatment condition. The differences are both economically and statistically significant in most cases. For beliefs about variables not mentioned in the treatments, most point estimates are also negative even though statistical significance varies from case to case. For instance, information about GDP growth affects not only GDP growth expectations but also LPR expectations; information about future policy rates affects not only LPR expectations but also GDP growth expectations. At the same time, information about GDP growth does not appear to change the average loan officer's inflation expectations significantly relative to the control group.

TABLE 4 ABOUT HERE

In additional analyses, we verify that beliefs converge to the signals by assessing each treatment group separately. Figure D2 illustrates this point for inflation expectations: the inflation level treatment shifted expectations downward, while the range treatment narrowed their range. For a formal test, we classify treated officers' priors as being above or below the information signal. Officers in the inflation range arm are categorized into three groups: below, within, and above the range. We then regress posteriors on the interaction between indicators for whether priors are above or below (or within) the signal, and treatment indicators. Table D1 reports the results. All information treatments significantly altered officers' beliefs and, interestingly, the effects are stronger among officers with prior beliefs above the signals (range).

5.3 Instrumental-Variable Analysis

The exogenous variation in expectations induced by our experiment can be used to examine if officers' expectations affect lending decisions causally. Following the literature, we propose a two-stage least squares specification in which the treatment indicators in levels and interacted with priors instrument officers' inflation, GDP growth, and LPR

posteriors (Coibion et al., 2018). This means estimating a system of three first-stage regressions, each regressing a posterior on all included and excluded instruments, and a second-stage regression in which posteriors are instrumented from the first stage.

We report the estimates in Table 5. The IV results confirm our OLS results: officers' subjective expectations about inflation, GDP growth, and LPR affect positively and significantly; GDP growth expectations also affect the willingness to lend. The IV estimates' magnitudes are similar to the OLS ones: a one-percentage-point increase in inflation expectations leads to a 10 basis-points increase in interest rates. The same increase in GDP growth (LPR) expectations leads to a 30-40 (70-150) basis-points increase in interest rates. The first-stage Cragg-Donald F-statistics are all close to the conventional threshold to dismiss the concern of weak instruments.[10]

TABLE 5 ABOUT HERE

6 Elasticity of Credit to Borrowers' Fundamentals

In the last part of the paper, we assess if and how subjective expectations shape reactions to changes in borrower fundamentals. We can measure reactions by fixing decision-makers' and borrowers' characteristics, which observational data do not allow.

6.1 Lending Elasticities to Borrowers' Fundamentals

Our survey considered three borrower characteristics that the loan officers on the platform deemed most relevant for lending decisions: *Profitability*, measured as gross profit margin, net profit margin, and return on equity; *Credit Score*, a composite credit score produced by the platform based on a proprietary formula; and *Debt Ratio*, the ratio of liabilities divided by total assets. We created three pairs of scenarios to measure the elasticity of loan decisions to each borrower fundamental at the officer level. The scenarios varied profitability and debt ratios by 20% and credit scores by 100 points upward and

[10] Our first stage includes all treatments, even those that did not affect expectations substantially (such as LPR treatments for GDP growth expectations) because we do not have ex-ante predictions to select the treatments that should matter and those that should not (see Table 4).

downward. In the first wave, loan officers updated their lending decisions for all three pairs of scenarios. To reduce survey fatigue,[11] in the second wave, we randomly assigned loan officers to only one pair. Due to the issues in the first wave, we use data elicited in the second wave as our main sample for this analysis.

We compute lender-level elasticities of lending decisions as follows:

$$E_{Lending,C} = \frac{\%d(Lending)}{\%d(C)} = \frac{\frac{Lending_{C\uparrow} - Lending_{C\downarrow}}{Lending_{C\downarrow}}}{\frac{C\uparrow - C\downarrow}{C\downarrow}} \tag{6}$$

where *Lending* represents the interest rates or willingness to lend choices. C represents one of the three characteristics, i.e., *Profitability*, *Credit Score*, and *Debt Ratio*. *%d(Lending)* represents the percentage change in lending decisions when C goes up relative to when C goes down. *%d(C)* represents the percentage change in C, which equals 40% for profitability and debt ratio and $\frac{200}{629}$ for credit score.

Panel A of Table 6 reports the summary statistics of the elasticities of each lending choice to changes in borrowers' fundamentals, which can be relevant for many quantitative applications. The unit of observation is a survey response. All mean and median elasticities have signs consistent with intuition. For example, interest rate elasticities to profitability and credit scores are negative in the vast majority of responses, while the elasticities of the willingness to lend relatively to profitability and credit scores are positive. THhus, when borrowers' fundamentals improve, officers charge lower rates and are more willing to issue the loan. Debt ratios generate the opposite response. Because a higher debt ratio implies a lower ability to repay, most loan officers respond by charging higher rates and being less willing to issue a loan.

TABLE 6 ABOUT HERE

At the same time, Table 6 reveals that the standard deviations of most elasticities are high relative to the sample means—loan officers differ substantially in how they respond to changes in borrower fundamentals.

[11] Several loan officers complained about the length of the scenario analysis at the end of the first wave and their choices were identical across scenarios, perhaps indicating that they tried to finish as quickly as possible.

This heterogeneity opens the possibility that subjective expectations might not only affect loan officers' average choices but also the extent to which their choices are sensitive to changes in borrowers' fundamentals.

6.2 Subjective Expectations and Lending Elasticities

To assess if and how the elasticities of lending decisions to borrowers' fundamentals are influenced by subjective expectations, we estimate the following:

$$|E_{Lending,C,i}| = \alpha + \beta Inflation_{i,post} + \gamma GDP_{i,post} + \delta LPR_{i,post} + X_i' \, \delta + \epsilon_i, \qquad (7)$$

where $|E_{Lending,C,i}|$ is the absolute value of the elasticity of lending decisions to borrowers' characteristic C by loan officer i. We use the absolute value of elasticities for ease of interpretation, because the average elasticities have different signs across fundamentals and between the extensive and intensive margins of lending decisions. Positive estimates of $\{\alpha, \beta, \gamma\}$ suggest that higher subjective expectations lead lending decisions to be more sensitive to changes in C, while negative estimates indicate that loan officers with higher expectations are insensitive to changes in C.[12] Our analysis focuses on interest rates because this is the decision most influenced by subjective expectations in levels (see Table 2).

We report the results in Panel B of Table 6. Column (1) considers profitability. If loan officers expect good times, lending decisions should be less sensitive to borrowers' profitability, because good times indicate greater customer demand, lower input costs, etc. Even low-profit borrowers may generate sufficient cash flows to cover their debt repayment. Consistently, we find that lending choices are less sensitive to borrowers' profitability for loan officers that have higher GDP growth expectations, whereas they are more sensitive for those that expect monetary tightening and higher inflation.

The same logic applies to interest rate elasticities to debt ratios and credit scores. Higher debt ratios indicate higher default risks. So do lower credit scores. Results from

[12] Note that, to reduce survey fatigue, we were only allowed to ask officers about loan decision scenarios after the information experiment, so we do not have elasticities measured both before and after the treatments as we do for loan choices

columns (2) and (3) reveal that lenders expecting monetary tightening penalize higher-leverage and lower-credit-score borrowers more, whereas lenders expecting higher GDP growth penalize them less. For inflation expectations, we fail to reject the null that the estimated relationship is zero either economically or statistically.

7 Conclusions

Using a unique customized survey and an information-provision experiment, we show that individual loan officers' subjective expectations causally affect their lending decisions, which leads to highly heterogeneous choices even when assessing the same borrower at the same time. Moreover, loan officers' subjective expectations affect their response to changes in borrower fundamentals: Those with more optimistic expectations penalize borrowers with worsening fundamentals less than those with pessimistic expectations.

Our results open several questions for future research. On the theory side, to the best of our knowledge, heterogeneous subjective expectations within intermediaries have not been introduced in macroeconomic or microeconomic models that feature financial intermediation. These heterogeneous subjective expectations can represent a "human friction" to the transmission of monetary policy that is orthogonal to the incentive- and regulation-based frictions at the intermediary level typically studied in the literature.

On the empirical side, several questions are also open. For instance, to what extent can intermediaries manage the subjective expectations of their loan officers? How much would managing expectations homogenize credit-supply decisions within and across intermediaries? Also, to what extent are booms and busts in credit cycles explained by loan officers' subjective expectations rather than the expectations of households and firms? Answering these questions would help the design of policies and intermediary-level interventions that manage credit supply and credit allocation over time. These and many other questions can only be tackled if increasingly more microdata on the expectations and choices of credit-supply decision makers are collected and studied across space and over time.

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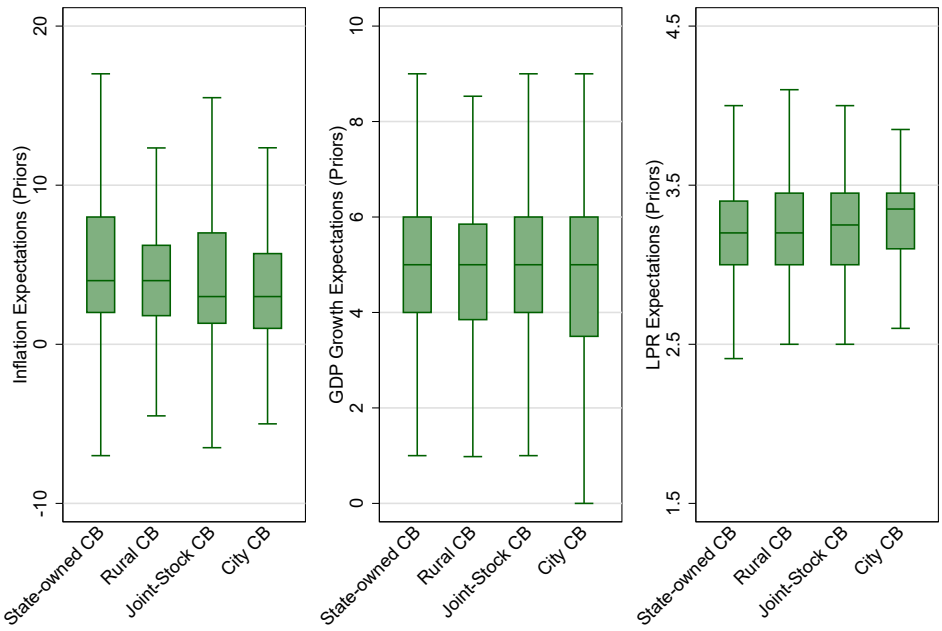
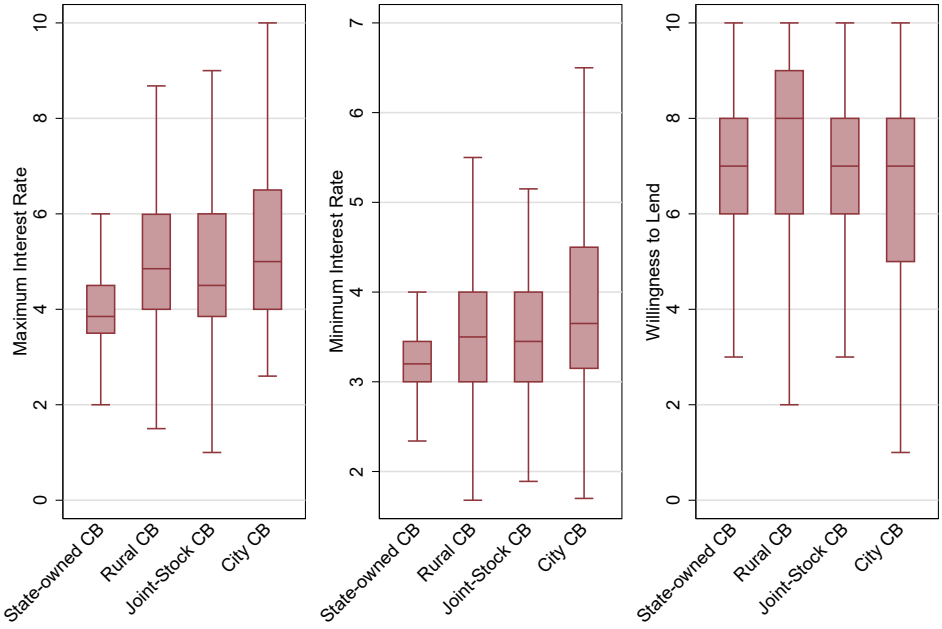
Figure 1. Distribution of Subjective Beliefs and Credit Supply Decisions: Variation Within vs. Across Bank Types

The figure plots the median (horizontal segments), interquantile range (boxes), and range (vertical segments) of the three subjective macroeconomic expectations (Panel A) and three credit supply decisions (Panel B) we elicit in our survey waves across and within bank types.

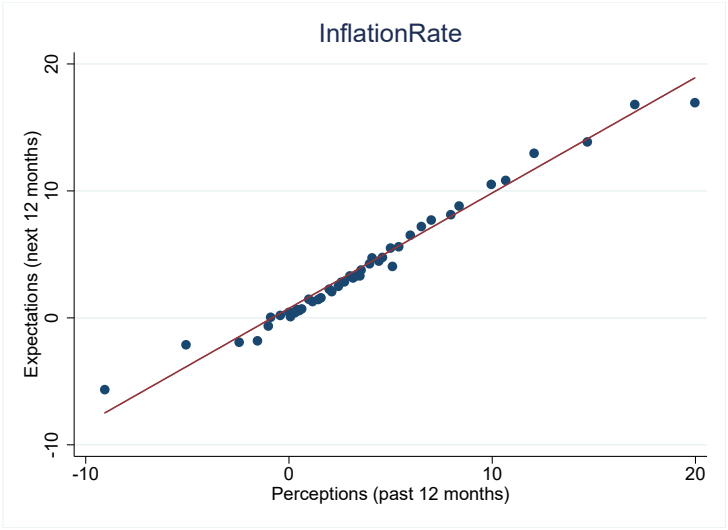


Panel A. Subjective Macroeconomic Expectations

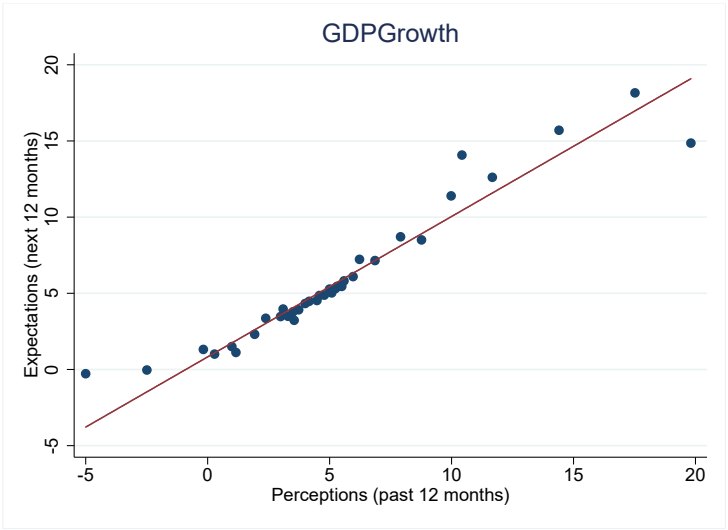


Panel B. Credit Supply Decisions

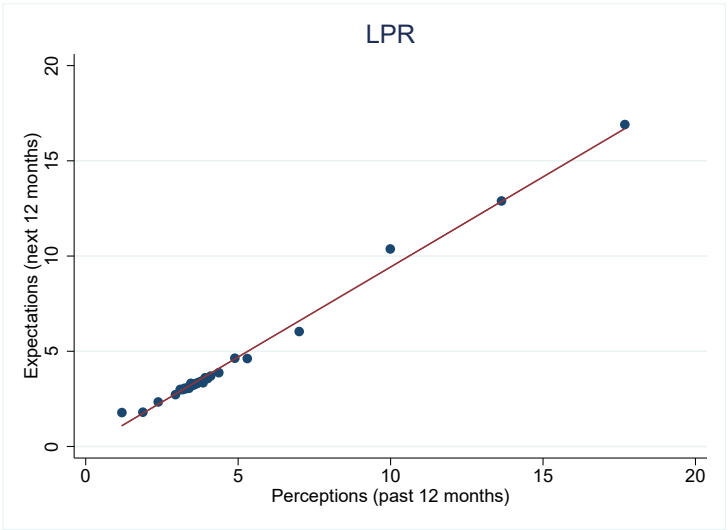
Figure 2. Subjective Perceptions and Beliefs About Macroeconomic Variables
The figure plots the correspondence between loan officers' perceptions regarding macroeconomic variables during the past 12 months and their forecasts of the same variable over the following 12 months.



Panel A. Inflation Rate



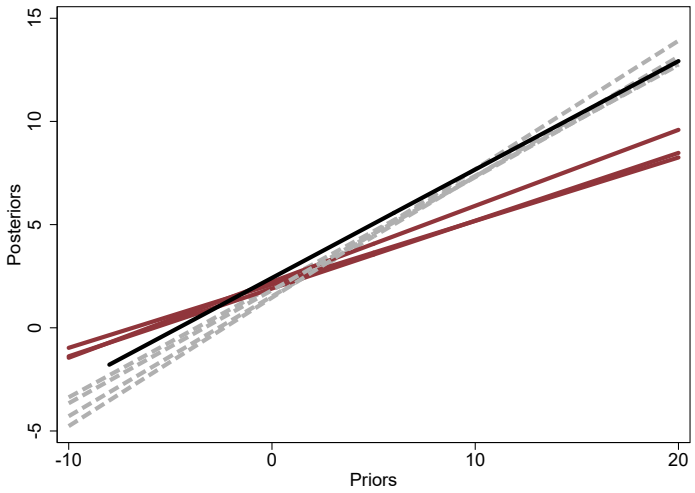
Panel B. GDP Growth Rate



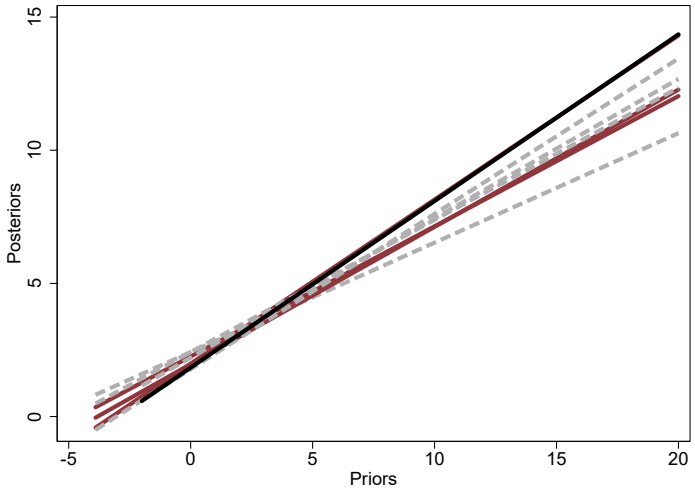
Panel C. LPR

Figure 3. Beliefs Updating by Information Treatment Conditions
Each panel plots the fitted regression lines between loan officers' prior and posterior beliefs about Inflation (panel A), GDP Growth (panel B), and LPR (panel C) by information treatment condition. In each panel, there are nine lines representing each of the eight treatment groups and one control group. the thick black lines refers to respondents in the control group; red lines refer to respondents in treatment conditions whose information mentions the variable of interest directly; gray dashed lines refer to respondents in treatment conditions whose information does not mention the variable of interest directly (but could affect beliefs about such variable indirectly). For example, for inflation expectations (Panel A), the red lines represent "inflation level," "inflation range," "stagflation" and "inflationary boom", while the gray lines represent "slowdown", "stable growth", "monetary tightening", and "monetary easing."

Panel A. Inflation



Panel B. GDP Growth



Panel C. LPR

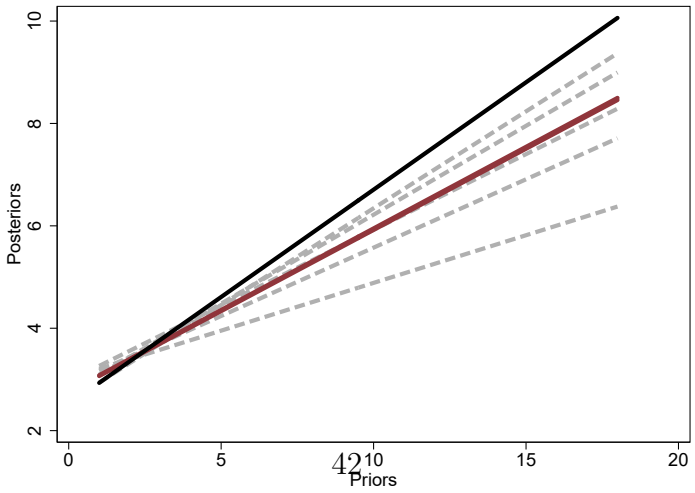


Table 1
Summary Statistics
This table reports the summary statistics for the main variables used in our study. Detailed variable definitions are provided in Appendix A.

Variable	Mean	Median	SD	p25	p75
Lending Decisions					
Max. Interest Rate (Prior)	6.72	4	8.80	3.56	5
Min. Interest Rate (Prior)	4.45	3.25	5.20	3	3.65
Willingness to Lend (Prior)	6.98	7	2.27	6	8
Max. Interest Rate (Posterior)	7.13	4	9.21	3.5	5
Min. Interest Rate (Posterior)	4.84	3.25	5.90	3	3.75
Willingness to Lend (Posterior)	7.02	7	2.14	6	8
Subjective Perceptions & Expectations					
Inflation Perceptions, Past 12m	4.44	3.55	5.06	1.6	6.9
Inflation Expectations, Next 12m (Prior)	4.78	4	5.30	1.8	7.2
Inflation Expectations, Next 12m (Posterior)	4.20	3.5	4.12	1.55	5.91
GDP Growth Perceptions, Past 12m	5.04	5	3.51	4	5.4
GDP Growth Expectations, Next 12m (Prior)	5.44	5	3.83	4	6
GDP Growth Expectations, Next 12m (Posterior)	4.98	4.65	3.10	3.54	5.56
LPR Perceptions, Past 12m	3.71	3.45	2.15	3.35	3.5
LPR Expectations, Next 12m (Prior)	3.48	3.2	2.20	3	3.42
LPR Expectations, Next 12m (Posterior)	3.85	3.41	1.77	3.08	3.99
Observations	2,770				

Table 2
Subjective Expectations and Lending Decisions
This table examines the effect of loan officers' beliefs regarding macroeconomic conditions on their lending decisions. The dependent variables are the lending decisions that we survey, including the maximum and minimum interest rates officers recommend to charge for the loan, and their willingness to issue the loan at a 10 point scale. The macroeconomic beliefs we study are about *Inflation*, *GDP Growth*, and *LPR*. The most restrictive specifications include full sets of survey-wave and bank type fixed effects and officer demographics. Demographics include *Same Province*, an indicator for whether the loan officer is located in Anhui, the province of the platform. indicators for the type of banks they work in, indicators for education levels, gender, indicators for mathematical skills, indicators for whether a person is impulsive, indicators for officers' age range (below 30, 30-34, 35-40, and above 40), and indicators for an officer having more than three years of experience. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

Panel A. Unprompted Decisions

	Max. Interest Rate		*Min. Interest Rate*		*Willingness to Lend*	
	(1)	(2)	(3)	(4)	(5)	(6)
Inflation Expectations (Prior)	0.124***	0.134***	0.062***	0.065***	-0.020**	-0.015
	(0.032)	(0.034)	(0.019)	(0.020)	(0.009)	(0.009)
GDP Growth Expectations (Prior)	0.199***	0.178***	0.143***	0.140***	0.022*	0.030**
	(0.046)	(0.049)	(0.027)	(0.030)	(0.013)	(0.014)
LPR Expectations (Prior)	1.275***	1.243***	0.828***	0.782***	-0.013	-0.008
	(0.088)	(0.093)	(0.051)	(0.056)	(0.024)	(0.026)
Survey Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank Type FE	No	Yes	No	Yes	No	Yes
Officer Demographics	No	Yes	No	Yes	No	Yes
Observations	2,770	2,355	2,770	2,355	2,770	2,355
R-squared	0.106	0.144	0.126	0.141	0.008	0.037

Panel B. Post-Treatment Decisions

	Max. Interest Rate		*Min. Interest Rate*		*Willingness to Lend*	
	(1)	(2)	(3)	(4)	(5)	(6)
Inflation Expectations (Posterior)	0.158***	0.165***	0.117***	0.125***	-0.007	-0.004
	(0.040)	(0.042)	(0.025)	(0.028)	(0.007)	(0.007)
GDP Growth Expectations (Posterior)	0.311***	0.316***	0.232***	0.202***	0.021**	0.022**
	(0.053)	(0.056)	(0.033)	(0.037)	(0.009)	(0.010)
LPR Expectations (Posterior)	0.462***	0.406***	0.372***	0.339***	0.012	0.010
	(0.090)	(0.099)	(0.058)	(0.065)	(0.015)	(0.017)
Max. Interest Rate (Unprompted)	0.441***	0.419***				
	(0.018)	(0.020)				
Min. Interest Rate (Unprompted)			0.462***	0.451***		
			(0.019)	(0.021)		
Willingness to Lend (Unprompted)					0.729***	0.726***
					(0.011)	(0.013)
Survey Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank Type FE	No	Yes	No	Yes	No	Yes
Officer Demographics	No	Yes	No	Yes	No	Yes
Observations	2,768	2,353	2,769	2,354	2,770	2,355
R-squared	0.257	0.267	0.269	0.270	0.602	0.599

Table 3
Heterogeneous Effects of Subjective Expectations on Lending Decisions
This table examines the heterogeneous effect of loan officers' beliefs regarding macroeconomic conditions on their lending decisions across loan officer characteristics (Z). Loan officer characteristics include *High Experience*, an indicator for loan officers having at least 5 years of work experience; *Main Shopper*, an indicator that equals to one if the loan officer is the main shopper for their household; and *Female*, an indicator for female loan officers. *Inflation*, *GDP Growth*, and *LPR* are officers' numerical subjective expectations about 12-month-ahead inflation, GDP growth over the 12 months after the survey, and the loan prime rate 12 months after the survey. The most restrictive specifications include full sets of survey-wave and bank type fixed effects and officer demographics. Demographics include *Same Province*, an indicator for whether the loan officer is located in Anhui, the province of the platform. indicators for the type of banks they work in, indicators for education levels, gender, indicators for mathematical skills, indicators for whether a person is impulsive, indicators for officers' age range (below 30, 30-34, 35-40, and above 40), and indicators for an officer having more than three years of experience. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

Dep. Var.: *Max. Interest Rate*	(1)	(2)	(3)	(4)
Z:	Stagflationary View	High Experience	Main Shopper	Female
Inflation Expectations (Posterior) $\times Z$	0.035*	-0.170**	0.188*	0.208**
	(0.019)	(0.083)	(0.108)	(0.086)
GDP Expectations (Posterior) $\times Z$	-0.018	0.178	0.115	-0.178
	(0.030)	(0.115)	(0.133)	(0.111)
LPR Expectations (Posterior) $\times Z$	0.114**	-0.001	0.309	0.543***
	(0.052)	(0.200)	(0.227)	(0.189)
Inflation Expectations (Posterior)	0.127*	0.243***	0.134***	0.096*
	(0.067)	(0.055)	(0.046)	(0.052)
GDP Expectations (Posterior)	0.344***	0.244***	0.270***	0.367***
	(0.087)	(0.070)	(0.063)	(0.076)
LPR Expectations (Posterior)	0.608***	0.395***	0.333***	0.151
	(0.147)	(0.119)	(0.110)	(0.130)
Max. Interest Rate (Unprompted)	0.314***	0.418***	0.409***	0.416***
	(0.033)	(0.020)	(0.020)	(0.020)
Z in Level	Yes	Yes	Yes	Yes
Survey Wave FE	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Observations	1,099	2,353	2,353	2,353
R-squared	0.218	0.268	0.273	0.272

Table 4
Effect of Information Treatments on Beliefs Updating

This table examines the effect of information treatment on loan officers' beliefs of macroeconomic variables. The dependent variable is posterior beliefs regarding *LPR*, *Inflation*, and *GDP Growth*. *Slowdown, Boom, Inflation Level, Inflation Range, Stagflation, Inflationary Boom, Monetary Easing,* and *Monetary Tightening* represent indicators for each of the eight information treatments, defined in Section 5.1. Prior beliefs of the corresponding variable are included in the regression but their coefficients are omitted for brevity. Colored cells are those in which the outcome is the posterior of a variable that is mentioned explicitly in the information treatment. The most restrictive specifications include full sets of survey-wave and bank type fixed effects and officer demographics. Demographics include *Same Province*, an indicator for whether the loan officer is located in Anhui, the province of the platform. indicators for the type of banks they work in, indicators for education levels, gender, indicators for mathematical skills, indicators for whether a person is impulsive, indicators for officers' age range (below 30, 30-34, 35-40, and above 40), and indicators for an officer having more than three years of experience. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

Posterior Beliefs wrt.	*Inflation*		*GDP Growth*		*LPR*	
Treatment:	(1)	(2)	(3)	(4)	(5)	(6)
Slowdown × Priors	0.050	0.013	-0.145***	-0.122**	-0.139**	-0.217***
	(0.044)	(0.049)	(0.048)	(0.054)	(0.058)	(0.059)
Stable Growth × Priors	0.009	-0.041	-0.030	-0.078	-0.179***	-0.244***
	(0.045)	(0.050)	(0.049)	(0.055)	(0.065)	(0.066)
Inflation Level × Priors	-0.154***	-0.193***	-0.106**	-0.057	-0.023	-0.149**
	(0.043)	(0.048)	(0.049)	(0.056)	(0.054)	(0.060)
Inflation Range × Priors	-0.219***	-0.255***	-0.259***	-0.273***	-0.152*	-0.237***
	(0.043)	(0.048)	(0.045)	(0.049)	(0.081)	(0.081)
Stagflation × Priors	-0.231***	-0.277***	-0.228***	-0.235***	0.013	-0.037
	(0.054)	(0.059)	(0.058)	(0.062)	(0.097)	(0.096)
Inflationary Growth × Priors	-0.260***	-0.309***	0.025	0.038	-0.043	-0.126*
	(0.059)	(0.065)	(0.076)	(0.081)	(0.073)	(0.073)
Monetary Easing × Priors	0.110**	0.048	-0.062	-0.082*	-0.003	-0.025
	(0.044)	(0.049)	(0.043)	(0.048)	(0.058)	(0.062)
Monetary Tightening × Priors	0.029	-0.027	-0.043	-0.077	-0.131**	-0.362***
	(0.042)	(0.047)	(0.044)	(0.049)	(0.058)	(0.067)
Priors	0.537***	0.571***	0.643***	0.648***	0.425***	0.490***
	(0.026)	(0.031)	(0.027)	(0.032)	(0.032)	(0.036)
Treatment Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Survey Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank Type FE	No	Yes	No	Yes	No	Yes
Officer Demographics	No	Yes	No	Yes	No	Yes
Observations	2,770	2,355	2,770	2,355	2,770	2,355
R-squared	0.420	0.422	0.429	0.429	0.157	0.204

Table 5
Subjective Expectations and Lending Decisions: IV Analysis
This table examines the effect of loan officers' beliefs regarding macroeconomic conditions on their lending decisions, whereby their beliefs are instrumented by information treatment, prior beliefs regarding the three macroeconomic variables, *Inflation*, *GDP Growth*, and *LPR*, and the interaction of the two sets of variables. The most restrictive specifications include full sets of survey-wave and bank type fixed effects and officer demographics. Demographics include *Same Province*, an indicator for whether the loan officer is located in Anhui, the province of the platform. indicators for the type of banks they work in, indicators for education levels, gender, indicators for mathematical skills, indicators for whether a person is impulsive, indicators for officers' age range (below 30, 30-34, 35-40, and above 40), and indicators for an officer having more than three years of experience. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

Dep. Var.:	*Max. Interest Rate*		*Min. Interest Rate*		*Willingness to Lend*	
	(1)	(2)	(3)	(4)	(5)	(6)
Inflation Expectations (Posterior)	0.088	0.131*	0.053	0.080*	0.003	0.013
	(0.069)	(0.072)	(0.043)	(0.047)	(0.011)	(0.013)
GDP Growth Expectations (Posterior)	0.419***	0.341***	0.281***	0.276***	0.032**	0.037**
	(0.093)	(0.101)	(0.059)	(0.065)	(0.015)	(0.018)
LPR Expectations (Posterior)	1.500***	1.388***	0.919***	0.706***	-0.022	-0.045
	(0.271)	(0.291)	(0.175)	(0.189)	(0.041)	(0.046)
Max. Interest Rate (Prior)	0.388***	0.370***				
	(0.021)	(0.023)				
Min. Interest Rate (Prior)			0.418***	0.419***		
			(0.023)	(0.025)		
Willingness to Lend (Prior)					0.730***	0.726***
					(0.011)	(0.013)
First-Stage CD F-statistic	10.17	8.90	9.79	8.88	12.15	10.60
Survey Wave FE	Yes	Yes	Yes	Yes	Yes	Yes
Bank Type FE	No	Yes	No	Yes	No	Yes
Officer Demographics	No	Yes	No	Yes	No	Yes
Observations	2,768	2,353	2,769	2,354	2,770	2,355
R-squared	0.218	0.206	0.233	0.242	0.528	0.514

Table 6
Subjective Expectations and Elasticities of Lending Decisions to Changes in Borrower Fundamentals

This table examines the elasticities of lending decisions to changes in borrower fundamentals, and how such elasticities vary with officers' subjective expectations. Panel A reports summary statistics for the distributions of the loan-officer-level elasticities of credit-supply decisions (Maximum Interest Rate, Minimum Interest Rate, Loan Issuance) to changes in three borrowers' fundamentals: *Profitability*, *Credit Score*, and *Debt Ratio*. We compute the elasticities based on scenarios in the second survey round in which we asked loan officers to update their credit-supply choices based on changes in each aspect of borrower conditions. We increase and decrease profitability and debt ratio by 20% and increase/decrease credit score by 100 points. In Panel B, we examine how the interest rate elasticities to borrower fundamental vary with subjective expectations. The outcome variable is the absolute value of each elasticity so that positive coefficient estimates imply that lending choices are more sensitive to changes in fundamentals when loan officers' subjective expectations are higher while negative coefficient estimates that lending choices are less sensitive to changes in fundamentals when loan officers' subjective expectations are higher.

Panel A: Summary Statistics of Elasticities

Elasticities by Type of Lending Decisions	Mean	Median	St.dev.	25^{th} perc	75^{th} perc
Max. Interest Rate					
Profitability	-0.026	-0.068	0.795	-0.25	0
Debt Ratio	0.362	0.139	0.82	0	0.5
Credit Score	-0.139	-0.129	0.815	-0.349	0
Min. Interest Rate					
Profitability	-0.045	-0.078	0.694	-0.25	0
Debt Ratio	0.324	0.145	0.716	0	0.5
Credit Score	-0.098	-0.163	1.137	-0.399	0
Willingness to Lend					
Profitability	1.165	0.714	1.887	0	1.5
Debt Ratio	-0.943	-0.938	0.992	-1.875	0
Credit Score	1.704	0.899	2.855	0	2.1

Panel B: Subjective Expectations and Elasticities

Dep. Var.: |Elasticity Max. Int. Rate|	(1)	(2)	(3)
	Profitability	Debt Ratio	Credit Score
Inflation Expectations (Posterior)	0.018***	-0.001	0.008
	(0.006)	(0.007)	(0.007)
GDP Growth Expectations (Posterior)	-0.019**	-0.017*	-0.007
	(0.008)	(0.009)	(0.009)
LPR Expectations (Posterior)	0.056***	0.040***	0.030**
	(0.014)	(0.014)	(0.014)
Survey Wave FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Observations	640	621	630
R-squared	0.093	0.039	0.077

Appendix A Variable Definitions

- *Inflation/GDP/LPR Perceptions, Past 12m*: Loan officers' answer to the questions regarding the past realization of macroeconomic variables in the past 12 months.
- *Inflation/GDP/LPR Beliefs, Next 12m*: Loan officers' answer to the questions regarding their expectations of macroeconomic variables over the next 12 months.
- *Same Province*, an indicator for whether the loan officer is located in Anhui, the province of the platform.
- *Bank Type*: A set of five indicators for the type of banks they work in, including state-owned commercial banks, rural commercial banks, joint-stock commercial banks, city commercial banks, and other.
- *Education*: A set of three indicators for officers' highest education levels, with the first indicating below-bachelor degrees, the second indicating bachelor degrees, and the third indicating post-graduate degrees.
- *High Education*: An indicator for an officer having a post-graduate degree.
- *Female*: An indicator for whether the loan officer is female
- *Math Skill*: Four indicators for each answer regarding their own perceived mathematical skills, with the fourth being very good at math and the first indicating poor math skills.
- *High Math*: An indicator that equals one if an officer's answer to Math Skill is 3 or 4
- *Impulsive*: A set of four indicators for the extent that a person is impulsive in purchasing decisions, with the fourth indicating very impulsive and the first indicating not impulsive at all.
- *High Experience*: An indicator for whether an officer has more than three years of experience.
- *Main Shopper*: An indicator for whether an officer answers "I do all of the grocery shopping in the household."
- *Profitability*: Ratios including ROA, Profit Margin, and Gross Profit Margin. We vary all three when increasing and decreasing a borrower's profitability.
- *Debt Ratio*: The ratio of total debt over total assets.
- *Credit Score*: A composite score provided by the platform using proprietary formula to gauge borrowers' creditworthiness. Higher values indicate lower credit risk.

Appendix B Summary Statistics by Survey Waves

Table B1
Summary Statistics by Survey Waves
This table reports the summary statistics for the main variables used in our study separately for respondents in the first survey wave (Panel A) and the second survey wave (Panel B). Detailed variable definitions are provided in Appendix A.

Panel A. First Survey Wave

Variable	Mean	Median	SD	p25	p75
Lending Decisions					
Max. Interest Rate (Prior)	7.10	4.18	8.86	3.70	5.65
Min. Interest Rate (Prior)	4.66	3.45	5.30	3	3.85
Willingness to Lend (Prior)	6.91	7	2.22	6	8
Max. Interest Rate (Posterior)	7.02	4.10	8.76	3.7	5.5
Min. Interest Rate (Posterior)	5.00	3.45	5.99	3	3.90
Willingness to Lend (Posterior)	6.86	7	2.16	6	8
Subjective Perceptions & Expectations					
Inflation Perceptions, Past 12m	4.20	3.20	5.44	1.20	6.54
Inflation Expectations, Next 12m (Prior)	4.48	3.50	5.44	1.20	6.54
Inflation Expectations, Next 12m (Posterior)	3.83	3	4.15	1.19	5.28
GDP Growth Perceptions, Past 12m	5.49	5	3.93	4	6
GDP Growth Expectations, Next 12m (Prior)	5.49	5	3.60	4	5.5
GDP Growth Expectations, Next 12m (Posterior)	5.00	4.71	3.05	3.5	5.56
LPR Perceptions, Past 12m	3.74	3.45	2.10	3.45	3.55
LPR Expectations, Next 12m (Prior)	3.61	3.4	2.13	3.25	3.45
LPR Expectations, Next 12m (Posterior)	3.91	3.51	1.59	3.23	4.02
Observations	1,286				

Panel B. Second Survey Wave

Variable	Mean	Median	SD	p25	p75
Lending Decisions					
Max. Interest Rate (Prior)	6.39	4	8.74	3.5	5
Min. Interest Rate (Prior)	4.27	3.10	5.11	3	3.5
Willingness to Lend (Prior)	7.13	8	2.28	6	9
Max. Interest Rate (Posterior)	7.21	4	9.59	3.5	5
Min. Interest Rate (Posterior)	4.69	3.1	5.82	3	3.55
Willingness to Lend (Posterior)	7.15	8	2.11	6	8
Subjective Perceptions & Expectations					
Inflation Perceptions, Past 12m	4.65	4	4.88	2	7
Inflation Expectations, Next 12m (Prior)	5.03	4	5.16	2	8
Inflation Expectations, Next 12m (Posterior)	4.52	3.7	4.06	2	6.52
GDP Growth Perceptions, Past 12m	4.96	5	3.44	4	5.25
GDP Growth Expectations, Next 12m (Prior)	5.40	5	3.74	4	6
GDP Growth Expectations, Next 12m (Posterior)	4.96	4.6	3.14	3.55	5.54
LPR Perceptions, Past 12m	3.68	3.4	2.18	3.3	3.5
LPR Expectations, Next 12m (Prior)	3.37	3.1	2.26	3	3.2
LPR Expectations, Next 12m (Posterior)	3.80	3.27	1.91	3	3.88
Observations	1,484				

Appendix C External Validity: Loan Officer Characteristics and Subjective Expectations

Table C1
Subjective Perceptions and Expectations (Priors) by Demographic Characteristics
This table reports the summary statistics for subjective macroeconomic priors based on loan officers' characteristics. Detailed variable definitions are provided in Appendix A. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

Panel A. Gender

	(1) Male (N = 1679)	(2) Female (N = 1000)	Diff (1 - 2)
Inflation Perceptions, Past 12m	4.26	4.83	-0.57***
Inflation Expectations, Next 12m	4.67	5.11	-0.43**
GDP Growth Perceptions, Past 12m	4.85	5.57	-0.72***
GDP Growth Expectations, Next 12m	5.25	6.01	-0.76***
LPR Perceptions, Past 12m	3.64	3.96	-0.33***
LPR Expectations, Next 12m	3.44	3.75	-0.31***

Panel B. Shopping Duties

	(1) No (N = 2701)	(2) Yes (N = 512)	Diff (1 - 2)
Inflation Perceptions, Past 12m	4.49	4.98	-0.49**
Inflation Expectations, Next 12m	4.85	5.35	-0.50**
GDP Growth Perceptions, Past 12m	5.09	5.37	-0.28*
GDP Growth Expectations, Next 12m	5.49	5.83	-0.34*
LPR Perceptions, Past 12m	3.76	3.82	-0.06
LPR Expectations, Next 12m	3.55	3.58	-0.03

Panel C. Education

	(1) Low (N = 2741)	(2) High (N = 472)	Diff (1 - 2)
Inflation Perceptions, Past 12m	4.73	3.62	1.11***
Inflation Expectations, Next 12m	5.08	4.03	1.06***
GDP Growth Perceptions, Past 12m	5.23	4.62	0.61***
GDP Growth Expectations, Next 12m	5.68	4.76	0.92***
LPR Perceptions, Past 12m	3.77	3.75	0.02
LPR Expectations, Next 12m	3.55	3.57	-0.02

Panel D. Math Skills

	(1) Low (N = 1354)	(2) High (N = 1859)	Diff (1 - 2)
Inflation Perceptions, Past 12m	4.98	4.26	0.72***
Inflation Expectations, Next 12m	5.31	4.65	0.65***
GDP Growth Perceptions, Past 12m	5.35	4.98	0.36***
GDP Growth Expectations, Next 12m	5.81	5.35	0.46***
LPR Perceptions, Past 12m	3.81	3.74	0.08
LPR Expectations, Next 12m	3.59	3.52	0.07

Appendix D Information Treatment and Belief Updating

This section provides auxiliary evidence and results regarding the effect of information treatment on loan officers' subjective expectations.

Figure D1 plots the average macroeconomic expectations across loan officers receiving each information treatment. Panel A reports average inflation expectations, Panel B presents average GDP growth expectations, and Panel C plots LPR expectations. Overall, there is no clear relation between the assignment of information treatment and officers' prior expectations, which reassures us about the validity of our randomization procedure.

Figure D2 illustrates the updating process of loan officers' beliefs by plotting the distribution of prior and posterior inflation expectations for officers receiving the corresponding treatments. Panels A and C report the distribution of prior and posterior inflation expectations for the inflation level forecast treatment, while Panels B and D for the inflation range forecast treatment. Consistent with the aim and the design of the two treatments, the inflation level treatment shifted the whole prior distribution to the left while keeping its shape largely unchanged. By contrast, the inflation range forecast narrowed beliefs dramatically toward the provided range from both directions, flattening both tails of the priors distribution. This effects is consistent with Kostyshyna and Petersen (2023), based on which the treatment was designed.

In Table D1, we provide results from a multivariate analysis that examines whether loan officers' inflation, GDP, and LPR expectations move closer to the point forecasts and forecast ranges provided in the information experiment.

We start by defining the following indicators that categorize how an officer's prior beliefs compare with the signals tha they receive:

1. *Inf Prior Above Signal Range*: An indicator that equals one if an officer's prior belief regarding future inflation is above 3% in the first and second wave.

2. *Inf Prior Within Signal Range*: An indicator that equals one if an officer's prior inflation belief is between 0.1% and 3% in the first wave, and between 2% and 3% in the second wave.

3. *Inf Prior Below Signal Range*: An indicator that equals one if an officer's prior belief regarding future inflation is below 0.1% in the first wave and below 2% in the second wave.

4. *Inf Prior Below Level*: An indicator that equals one if an officer's prior inflation belief is below –13.6% in the first wave, and below 0.8% in the second wave.

5. *Inf Prior Above Level*: An indicator that equals one if an officer's prior belief regarding future inflation is above –13.6% in the first wave and above 0.8% in the second wave.

6. *GDP Prior Below Stable Signal*: An indicator that equals one if an officer's prior belief regarding future GDP growth is below 4.6% in the first wave and above (below) 4.2% in the second wave.

7. *GDP Prior Above Stable Signal*: An indicator that equals one if an officer's prior belief regarding future GDP growth is above 4.6% in the first wave and above (below) 4.2% in the second wave.

8. *GDP Prior Below Slowndown Signal*: An indicator that equals one if an officer's prior belief regarding future GDP growth is below 4.6% in the first wave and above (below) 4.2% in the second wave.

9. *GDP Prior Above Slowndown Signal*: An indicator that equals one if an officer's prior belief regarding future GDP growth is above 4.6% in the first wave and above (below) 4.2% in the second wave.

10. *LPR Prior Below Tightening Signal*: An indicator for whether an officer's prior LPR belief is below 2.5% in the first wave and below 4.2% in the second wave.

11. *LPR Prior Above Tightening Signal*: An indicator for whether an officer's prior LPR belief is above 2.5% in the first wave and above 4.2% in the second wave.

12. *LPR Prior Below Easing Signal*: An indicator for whether an officer's prior LPR belief is below 0.5% in the first wave and below 3.35% in the second wave.

13. *LPR Prior Above Easing Signal*: An indicator for whether an officer's prior LPR belief is above 0.5% in the first wave and above 3.35% in the second wave.

We interact these indicators with the corresponding information treatment indicators. For example, belief indicators 1 through 3 are relevant for inflation range treatments, and thus they are interacted with indicators for treatment *Inflation Range*, *Inflationary Growth*, and *Stagflation*. belief indicators 4 and 5 are relevant for inflation level signals, and thus they are interacted with indicators for treatment *Inflation Level*. Similarly, belief indicators 6 and 7 (8 and 9) are related to GDP forecasts, and are thus interacted with treatment *Stable Growth* and *Inflationary Growth* (*Slowdown* and *Stagflation*).

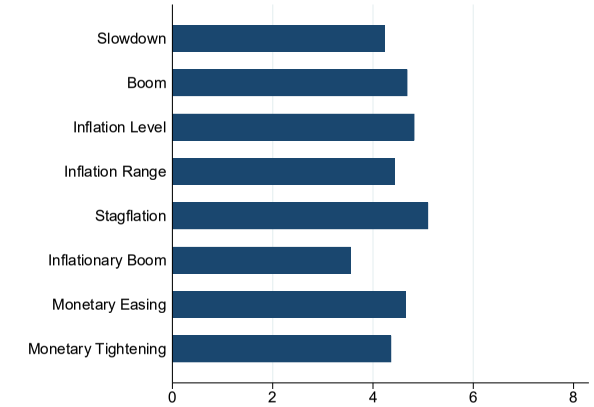
Results in Panel A of Table D1 demonstrate that, after being provided with inflation forecasts, loan officers with high priors shift their beliefs downwards. The average drop is around 2 percentage points, both economically and statistically significant. In contrast, Officers with low priors only revise their forecast upward when receiving the inflation level forecasts, and the average magnitudes of these updates are smaller and statistically insignificant.

In Panel B, we perform a similar analysis for GDP growth expectations. Again, we see that the distribution of GDP growth expectations narrows following exposure to the information treatments, and this narrowing is mostly driven by loan officers with high priors.

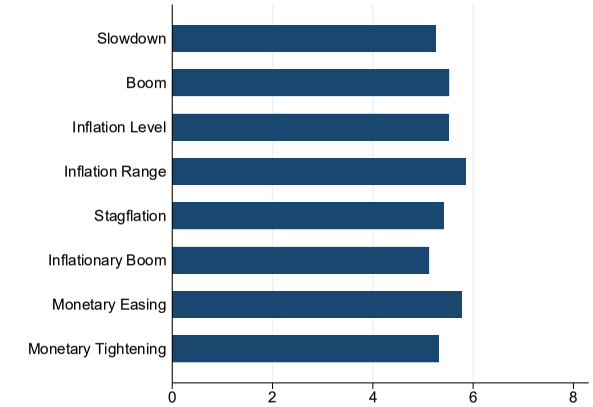
In Panel C, we examine the effect of LPR information treatments on LPR beliefs, and find a similar effect: officers with high priors regarding LPR expectations revise their expectations downward significantly, while those with low prior expectations remain virtually unchanged.

Figure D1. Distribution of Expectations By Treatment Assignment

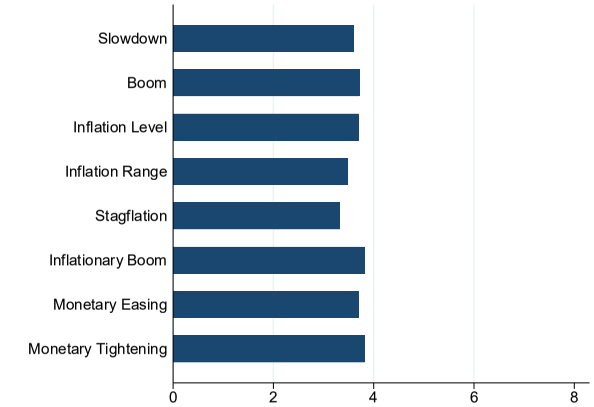
The figure plots the average values of loan officers' prior macroeconomic expectations by their treatment assignment. The information treatments are defined in Section 5.1.



Panel A. Inflation Expectations (Prior)



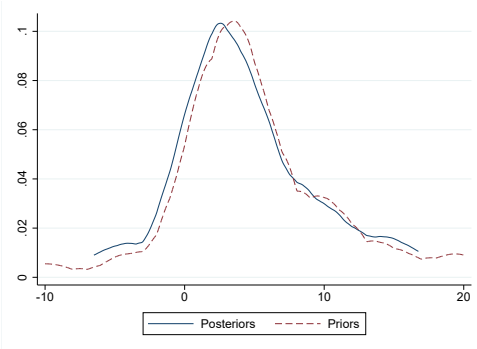
Panel B. GDP Growth Expectations (Prior)



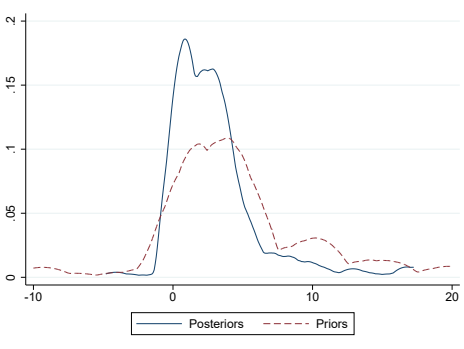
Panel C. LPR Expectations (Prior)

Figure D2. Distribution of Prior and Posterior Subjective Expectations of Macroeconomic Variables by Information Treatment Conditions

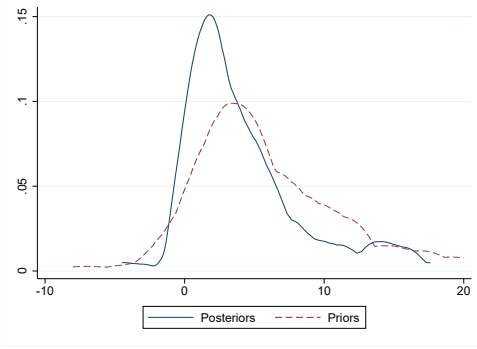
The figure plots the distribution of loan officers' macroeconomic beliefs before and after the information treatment.



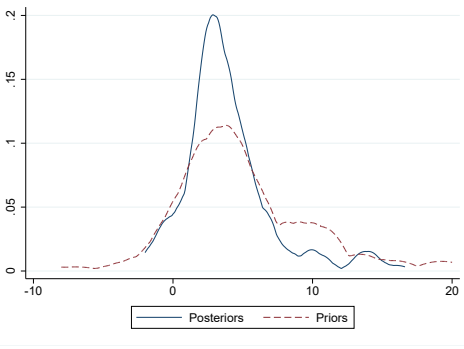
Panel A. Inflation, Round 1 – Inflation Level



Panel B. Inflation, Round 1 – Inflation Range



Panel C. Inflation, Round 2 – Inflation Level



Panel D. Inflation, Round 2 – Inflation Range

Table D1
Updating of Beliefs Based on Prior Beliefs

This table examines the effect of information treatment on loan officers' beliefs of macroeconomic variables. The dependent variable in Panel A is the posterior beliefs regarding *Inflation*, in Panel B is the posterior *GDP Growth* beliefs, and in Panel C is the posterior *LPR* beliefs. *Treated Range* indicates officers in the following treatment groups: *Inflation Range, Stagflation, Inflationary Boom*. *Treated Level* indicates officers in *Inflation Level*. *Treated Slowdown* indicates officers in *Slowdown* and *Stagflation*. *Treated Stable* indicates officers in the *Stable Growth* and *Inflationary Growth* treatments. *Treated Tightening* and *Treated Easing* indicate officers in *Monetary Easing* and *Monetary Tightening*, respectively. *Inf Prior Above Signal Range* is an indicator for whether an officer's prior belief regarding future inflation is above 3% in the first and second wave. *Inf Prior Below Signal Range* is an indicator for whether an officer's prior belief regarding future inflation is below 0.1% in the first wave and below 2% in the second wave. *Inf Prior Within Signal Range* indicates that an officer's prior inflation belief is between 0.1% and 3% in the first wave, and between 2% and 3% in the second wave. *GDP Prior Above Stable Signal* (*GDP Prior Below Stable Signal*) is an indicator for whether an officer's prior belief regarding future GDP growth is above (below) 7.9% in the first wave and above (below) 5% in the second wave. *GDP Prior Above Slowndown Signal* (*GDP Prior Below Slowndown Signal*) is an indicator for whether an officer's prior belief regarding future GDP growth is above (below) 4.6% in the first wave and above (below) 4.2% in the second wave. *LPR Prior Above Tightening Signal* (*LPR Prior Below Tightening Signal*) is an indicator for whether an officer's prior LPR belief is above (below) 2.5% in the first wave and above (below) 4.2% in the second wave. *LPR Prior Above Easing Signal* (*LPR Prior Below Easing Signal*) is an indicator for whether an officer's prior LPR belief is above (below) 0.5% in the first wave and above (below) 3.35% in the second wave. Controls include *Same Province*, an indicator for whether the loan officer is located in Anhui, the province of the platform, indicators for the type of banks they work in, indicators for education levels, gender, indicators for mathematical skills, indicators for whether a person is impulsive, indicators for officers' age range (below 30, 30-34, 35-40, and above 40), and indicators for an officer having more than three years of experience. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

Panel A: Updating of Inflation Beliefs

Dep. Var.: Inflation Posterior	(1)	(2)	(3)
Treated Range × Inf Priors Above Range	-2.015***		-2.248***
	(0.355)		(0.345)
Treated Range × Inf Priors In Range	-0.206		-0.918*
	(0.539)		(0.486)
Treated Range × Inf Priors Below Range	-0.333		-0.802
	(0.514)		(0.509)
Inf Priors Above Range	3.875***		3.491***
	(0.455)		(0.348)
Inf Priors Below Range	-1.284**		-1.042**
	(0.535)		(0.515)
Treated Level × Inf Priors Above Level		-2.076***	-0.971***
		(0.531)	(0.348)
Treated Level × Inf Priors Below Level		1.262	0.829
		(1.467)	(1.213)
Inf Priors Above Level		4.627***	0.857*
		(0.609)	(0.511)
Treatment	Inf Range & Inflationary Boom & Stagflation	Inf Level	Inf Range & Inf Level & Inflationary Boom & Stagflation
Control	Yes	Yes	Yes
Survey Wave FE	Yes	Yes	Yes
Observations	978	665	1,245
R-squared	0.294	0.130	0.257

Panel B: Updating of GDP Growth Beliefs

Dep. Var.: GDP Beliefs (posterior)	(1)	(2)	(3)
Treated Slowdown × GDP Priors Above Slowdown Signal	-1.354***		-1.374***
	(0.376)		(0.285)
Treated Slowdown × GDP Priors Below Slowdown Signal	-0.639*		-0.672**
	(0.380)		(0.283)
GDP Priors Above Slowdown Signal	1.083***		0.621***
	(0.312)		(0.191)
Treated Stable × GDP Priors Above Stable Signal		-0.574	-0.423
		(0.368)	(0.330)
Treated Stable × GDP Priors Below Stable Signal		-0.629*	-0.524**
		(0.327)	(0.260)
GDP Priors Above Stable Signal		3.489***	3.298***
		(0.290)	(0.217)
Treatment:	Slowdown & Stagflation	Stable Growth & Inf Boom	Stable Growth & Slowdown & Stagflation & Inf Boom
Control	Yes	Yes	Yes
Survey Wave FE	Yes	Yes	Yes
Observations	813	819	1,234
R-squared	0.083	0.286	0.274

Panel C: Updating of LPR Beliefs

Dep. Var.: LPR Beliefs Posterior	(1)	(2)	(3)
Treated Tightening × LPR Priors Above Tighten Signal	-4.294***		-1.703***
	(0.716)		(0.438)
Treated Tightening × LPR Priors Below Tighten Signal	-0.013		0.020
	(0.198)		(0.193)
LPR Priors Above Tightening Signal	3.820***		2.212***
	(0.416)		(0.318)
Treated Easing× LPR Priors Above Easing Signal		-0.420	-1.202***
		(0.560)	(0.412)
Treated Easing× LPR Priors Below Easing Signal		-0.136	-0.131
		(0.228)	(0.209)
LPR Priors Above Easing Signal		1.353***	0.659***
		(0.277)	(0.243)
Treatment:	Tightening	Easing	Tightening & Easing
Control	Yes	Yes	Yes
Survey Wave FE	Yes	Yes	Yes
Observations	696	683	981
R-squared	0.153	0.096	0.120

Appendix E Survey Instrument

In this section, we provide the English translation of our survey instrument.

A First Round

This survey is completely anonymous. The answers and information you provide will not impact your job evaluation or performance review. We sincerely encourage you to share your opinions and suggestions based on the actual situation. If you have any questions, please feel free to contact us.

□ I agree to participate in the survey.

A.1 Part 1

Please provide your lending decision for the following loan:

Loan Information									
Company Type					**Private Enterprise**				
Loan Amount					**2.7 million RMB**				
Loan Term					**2 years**				
Loan Purpose					**To replenish working capital**				
Is this the first loan?					**Yes**				
Industry					**New Energy**				
Guarantee Type					**Collateral**				
Collateral Value					**4 million RMB**				
Any negative news such as court litigation?					**No**				
High-tech or similar certifications?					**No**				
Any government awards or subsidies?					**No**				
Credit Score (Range: 300-900)					**629**				
	Operating Income (10k RMB)	**Net Assets (10k RMB)**	**ROE (%)**	**Gross Profit Margin (%)**	**Net Profit Margin (%)**	**Debt-to-Asset Ratio (%)**	**Current Ratio (%)**	**Quick Ratio (%)**	**Inventory Turnover Ratio (%)**
2022	**955.00**	**3289.00**	**9.89**	**12.29**	**2.34**	**77.89**	**1.89**	**0.78**	**2.98**
2021	**948.00**	**3205.00**	**10.78**	**15.78**	**2.54**	**78.97**	**1.91**	**0.73**	**3.02**
2020	**966.00**	**3308.00**	**9.98**	**14.26**	**2.89**	**77.99**	**1.93**	**0.72**	**2.92**

Q1a. To what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q1b. What do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.

_____% - _____%

The following questions are intended to gather your opinions. There are no right or wrong answers, so there's no need to search online—please answer based on your personal views.

We would like to ask you a few questions about the economy.

Q1c. Over the last 12 months, what do you think was the average Loan Prime Rate (LPR) in China? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: The average LPR was _____% over the last 12 months.

Q1d. What do you think will be the average Loan Prime Rate (LPR) in China over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: The average LPR in 12 months will be _____%.

Q1e.Over the last 12 months, what do you think the overall rate of inflation/deflation has been in the economy? Please enter a number between -20 and 20, accurate to 2 decimal points.

Note: Inflation refers to the percentage increase in overall prices in the economy, typically measured by the Consumer Price Index. Deflation, on the other hand, occurs when prices are falling. If you believe there was inflation, please enter a positive number. If you believe there was deflation, please enter a negative number. If you believe there was neither inflation nor deflation, please enter zero.

Answer: The rate of inflation/deflation was _____% over the last 12 months.

Q1f.Over the next 12 months, what do you think the overall rate of inflation/deflation will be in the economy? Please enter a number between -20 and 20, accurate to 2 decimal points.

Note: Inflation refers to the percentage increase in overall prices in the economy, typically measured by the Consumer Price Index. Deflation, on the other hand, occurs when prices are falling. If you believe there was inflation, please enter a positive number. If you believe there was deflation, please enter a negative number. If you believe there was neither inflation nor deflation, please enter zero.

Answer: The rate of inflation/deflation will be _____% over the next 12 months.

Q1g.Over the last 12 months, what do you think was the GDP growth rate in China? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: The GDP growth rate in China was _____% over the last 12 months.

Q1h.Over the next 12 months, what do you think will be a plausible value for the GDP growth rate in China? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: A plausible value for GDP growth rate in China over the next 12 months is _____%.

A.2 Part 2

Note: We randomly assigned survey participants into 9 groups, with 8 serving as treatment groups and the remaining one as the control group. Specific information was presented to members of the treatment groups, while no information was provided to the control group. Participants had a 6.25% chance of being assigned to Group 4 or Group 5, while the remaining treatment groups and the control group each had a 12.5% probability of assignment. The specific information shown to the treatment group members is as follows:

In the next section, we will give you some information about the economy. We are interested in understanding how this information might affect your opinions, if at all. There are no right or wrong answers, so feel free to share your genuine opinions. Note: Please carefully read the information. You will only be able to proceed to the next page after viewing the information for at least 10 seconds.

1. In 2023, pork price inflation was -13.6%, that is, pork prices decreased by 13.6% in 2023.
2. By March 2024, the inflation rate in China is 0.1%. The inflation rate the People's Bank of China aims to achieve every year, including in 2024, is 3%. That is, prices on average are expected to increase by 3% every year.
3. According to the IMF, GDP growth in China (excluding the effects of inflation) will slow down to 4.6% in 2024.
4. In the last Year of the Dragon (2012) GDP growth in China (excluding the effects of inflation) was 7.9%, which is higher than GDP growth in 2023.
5. By March 2024, the inflation rate in China is 0.1%. The inflation rate the People's Bank of China aims to achieve every year, including in 2024, is 3%. That is, prices on average are expected to increase by 3% every year. According to the IMF, GDP growth in China (excluding the effects of inflation) will slow down to 4.6% in 2024.

6. By March 2024, the inflation rate in China is 0.1%. The inflation rate the People's Bank of China aims to achieve every year, including in 2024, is 3%. That is, prices on average are expected to increase by 3% every year. In the last Year of the Dragon (2012), GDP growth in China (excluding the effects of inflation) was 7.9%, which is higher than GDP growth in 2023.

7. Some experts think that the People's Bank of China might lower the medium-term lending facility (MLF) rate in 2024 by as much as 2 percentage points, moving from 2.5% to 0.5%.

8. Some experts think that the People's Bank of China might end up keeping the medium-term lending facility (MLF) rate constant in 2024 at 2.5% without further cuts (zero change).

Q2a. Were you aware of the information we showed you?

◯ Yes

◯ Only partially

◯ No

A.3 Part 3

Q3a. What do you think the highest possible average interest rate charged on non-collateralized consumer loans in China will be over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3b. What do you think the lowest possible average interest rate charged on non-collateralized consumer loans in China will be over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3c. What do you think is the percent chance that the average interest rate charged on non-collateralized consumer loans in China over the next 12 months will be greater than $[(Answer\,to\,Q3a + Answer\,to\,Q3b)/2]$**?** Please enter a number between 0 and 100, accurate to 2 decimal points.

Answer: _____%

Q3d. What do you think the highest possible inflation rate will be in China over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3e. What do you think the lowest possible inflation rate will be in China over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3f. What do you think is the percent chance that the inflation rate over the next 12 months in China will be greater than $[(Answer\,to\,Q3d + Answer\,to\,Q3e)/2]$**?** Please enter a number between 0 and 100, accurate to 2 decimal points.

Answer: _____%

Q3g. What do you think the highest possible GDP Growth rate will be in China over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3h. What do you think the lowest possible GDP Growth rate will be in China over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3i. What do you think is the percent chance that the GDP Growth rate over the next 12 months in China will be greater than $[Answer\,to\,Q3g + Answer\,to\,Q3h)/2]$ Please enter a number between 0 and 100, accurate to 2 decimal points.

Answer: _____%

Please re-evaluate the previous loan.

Q3j. To what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Loan Information									
Company Type	Private Enterprise								
Loan Amount	2.7 million RMB								
Loan Term	2 years								
Loan Purpose	To replenish working capital								
Is this the first loan?	Yes								
Industry	New Energy								
Guarantee Type	Collateral								
Collateral Value	4 million RMB								
Any negative news such as court litigation?	No								
High-tech or similar certifications?	No								
Any government awards or subsidies?	No								
Credit Score (Range: 300-900)	629								
	Operating Income (10k RMB)	Net Assets (10k RMB)	ROE (%)	Gross Profit Margin (%)	Net Profit Margin (%)	Debt-to-Asset Ratio (%)	Current Ratio (%)	Quick Ratio (%)	Inventory Turnover Ratio (%)
2022	955.00	3289.00	9.89	12.29	2.34	77.89	1.89	0.78	2.98
2021	948.00	3205.00	10.78	15.78	2.54	78.97	1.91	0.73	3.02
2020	966.00	3308.00	9.98	14.26	2.89	77.99	1.93	0.72	2.92

Q3k. What do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.

_____% - _____%

A.4 Part 4

Next, we will make some adjustments to certain information about the firm. After the adjustments, we will ask if your decisions on the above loan case would change under these new circumstances.

Scenario 1: The borrower's profitability has increased by 10%, while all other information remains unchanged. The changes in Return on Equity (%), Gross Profit Margin (%), and Net Profit Margin (%) are as follows:

	ROE (%)	Gross Profit Margin (%)	Net Profit Margin (%)
2022	10.88	13.52	2.57
2021	11.86	17.36	2.79
2020	10.98	15.69	3.18

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]%

to [*Second Answer to Q3k*]%. Please now assess your loan decision under Scenario 1

Q4a. Under Scenario 1, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4b. Under Scenario 1, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.
_____% - _____%

Scenario 2: The borrower's profitability has decreased by 10%, while all other information remains unchanged. The changes in Return on Equity (%), Gross Profit Margin (%), and Net Profit Margin (%) are as follows:

	ROE (%)	Gross Profit Margin (%)	Net Profit Margin (%)
2022	8.90	11.06	2.11
2021	9.70	14.20	2.29
2020	8.98	12.83	2.60

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]% to [*Second Answer to Q3k*]%. Please now assess your loan decision under Scenario 2.

Q4c. Under Scenario 2, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4d. Under Scenario 2, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.
_____% - _____%

Scenario 3: Borrower's credit score increases by 50. In other words, instead of having a credit score of 629, the borrower has a credit score of 679. Other aspects of the borrower remain unchanged from the original data.

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]%

to [*Second Answer to Q3k*]%. Please now assess your loan decision under Scenario 3.

Q4e. Under Scenario 3, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4f. Under Scenario 3, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.
_____% - _____%

Scenario 4 Borrower's credit score decreases by 50. In other words, instead of having a credit score of 629, the borrower has a credit score of 579. Other aspects of the borrower remain unchanged from the original data.

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]% to [*Second Answer to Q3k*]%. Please now assess your loan decision under Scenario 4.

Q4g. Under Scenario 4, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4h. Under Scenario 4, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.
_____% - _____%

Scenario 5: The borrower's debt ratio has increased by 10%, while all other information remains unchanged. In other words, the borrower has:

	Debt-to-Asset Ratio (%)
2022	85.68
2021	86.87
2020	85.79

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]%

to [*Second Answer to Q3k*]%. Please now assess your loan decision under Scenario 5.

Q4i. Under Scenario 5, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4j. Under Scenario 5, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.
_____% - _____%

Scenario 6: The borrower's debt ratio has decreased by 10%, while all other information remains unchanged. In other words, the borrower has:

	Debt-to-Asset Ratio (%)
2022	70.10
2021	71.07
2020	70.19

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]% to [*Second Answer to Q3k*]%. Please now assess your loan decision under Scenario 6.

Q4k. Under Scenario 6, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4l. Under Scenario 6, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.
_____% - _____%

A.5 Part 5

Q5a. What is your age? Please enter an integer between 18 and 70.

Answer: _____ years old.

Q5b. What is your gender?

◯ Male

◯ Female

Q5c. What's the highest education level you achieved?

◯ High School

◯ Associate Degree

◯ Bachelor's Degree

◯ Master's Degree

◯ Doctoral Degree

Q5d. Please select the type of bank for which you work:

◯ State-owned Commercial Bank

◯ Joint-stock Commercial Bank

◯ Policy lender/non-commercial bank

◯ City Commercial Bank

◯ Rural Commercial Bank

◯ Foreign Capital Bank

◯ Others

Q5e. How many years have you worked as a loan officer? Please enter an integer between 0 and 70. If less than one year, please enter 0.

Answer: _____ years.

Q5f. Who typically does the grocery shopping in your household?

◯ I do all of the grocery shopping in the household

◯ I share the grocery shopping with others in the household

◯ Someone else does the grocery shopping in the household

Q5g. How well, if at all, do the following sentences describe you as a person?

	Not at all well	Not too well	Somewhat well	Very well
I am good at math	◯	◯	◯	◯
I make impulsive purchasing decisions	◯	◯	◯	◯
I tend to postpone tasks even if I know it would be better to do them right away	◯	◯	◯	◯

Q5h. If it takes 10 machines 10 minutes to make 10 toys, how long would it take 100 machines to make 100 toys?

Answer: _____ minutes.

Q5i. The fruit production in a certain region doubles every two years. The current fruit production is 1 million tons. How many years ago was the production 250,000 tons?

Answer: _____ years ago.

B Second Round

This survey is completely anonymous. The answers and information you provide will not impact your job evaluation or performance review. We sincerely encourage you to share your opinions and suggestions based on the actual situation. If you have any questions, please feel free to contact us.

□ I agree to participate in the survey.

B.1 Part 1

Please provide your lending decision for the following loan:

Q1a. To what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q1b. What do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.

Loan Information									
Company Type					Private Enterprise				
Loan Amount					2.7 million RMB				
Loan Term					2 years				
Loan Purpose					To replenish working capital				
Is this the first loan?					Yes				
Industry					New Energy				
Guarantee Type					Collateral				
Collateral Value					4 million RMB				
Any negative news such as court litigation?					No				
High-tech or similar certifications?					No				
Any government awards or subsidies?					No				
Credit Score (Score range: 300-900; Below 561: Average, 562-687: Good, Above 687: Excellent.)					629				
	Operating Income (10k RMB)	Net Assets (10k RMB)	ROE (%)	Gross Profit Margin (%)	Net Profit Margin (%)	Debt-to-Asset Ratio (%)	Current Ratio (%)	Quick Ratio (%)	Inventory Turnover Ratio (%)
2022	955.00	3289.00	9.89	12.29	2.34	77.89	1.89	0.78	2.98
2021	948.00	3205.00	10.78	15.78	2.54	78.97	1.91	0.73	3.02
2020	966.00	3308.00	9.98	14.26	2.89	77.99	1.93	0.72	2.92

_____% - _____%

The following questions are intended to gather your opinions. There are no right or wrong answers, so there's no need to search online—please answer based on your personal views.

We would like to ask you a few questions about the economy.

Q1c. Over the last 12 months, what do you think was the average Loan Prime Rate (LPR) in China? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: The average LPR was _____% over the last 12 months.

Q1d. What do you think will be the average Loan Prime Rate (LPR) in China over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: The average LPR in 12 months will be _____%.

Q1e.Over the last 12 months, what do you think the overall rate of inflation/deflation has been in the economy? Please enter a number between -20 and 20,

accurate to 2 decimal points.

Note: Inflation refers to the percentage increase in overall prices in the economy, typically measured by the Consumer Price Index. Deflation, on the other hand, occurs when prices are falling. If you believe there was inflation, please enter a positive number. If you believe there was deflation, please enter a negative number. If you believe there was neither inflation nor deflation, please enter zero.

Answer: The rate of inflation/deflation was _____% over the last 12 months.

Q1f.Over the next 12 months, what do you think the overall rate of inflation/deflation will be in the economy? Please enter a number between -20 and 20, accurate to 2 decimal points.

Note: Inflation refers to the percentage increase in overall prices in the economy, typically measured by the Consumer Price Index. Deflation, on the other hand, occurs when prices are falling. If you believe there was inflation, please enter a positive number. If you believe there was deflation, please enter a negative number. If you believe there was neither inflation nor deflation, please enter zero.

Answer: The rate of inflation/deflation will be _____% over the next 12 months.

Q1g.Over the last 12 months, what do you think was the GDP growth rate in China? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: The GDP growth rate in China was _____% over the last 12 months.

Q1h.Over the next 12 months, what do you think will be a plausible value for the GDP growth rate in China? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: A plausible value for GDP growth rate in China over the next 12 months is _____%.

B.2 Part 2

Note: We randomly assigned survey participants into 9 groups, with 8 serving as treatment groups and the remaining one as the control group. Specific information was presented to members of the treatment groups, while no information was provided to the control group. Participants had a 5% chance of being assigned to Group 5 or Group 6, a 10% chance to each

of the remaining treatment groups, and a 30% chance to the control group. The specific information shown to the treatment group members is as follows:

In the next section, we will give you some information about the economy. We are interested in understanding how this information might affect your opinions, if at all. There are no right or wrong answers, so feel free to share your genuine opinions. Note: Please carefully read the information. You will only be able to proceed to the next page after viewing the information for at least 10 seconds.

1. Several large global financial institutions, such as Vanguard, forecast a low inflation rate of around 0.8% for China in 2024.

2. In August 2024, Yiping Huang, a famous economist, argues that China should stick to an inflation goal of 2% to 3%, aligning with the People's Bank of China's long-standing 3% target.

3. Several global financial institutions, including Bank of America, BBVA, and Citigroup, predict that China's GDP growth rate in 2024 will fall significantly short of its target, with a further slowdown to 4.2% in 2025. The series of economic stimulus policies launched by the Chinese government in late September 2024 did not sway their views. They continue to see rising risk and downside growth potentials in several sectors.

4. According to the International Monetary Fund's forecast, China is expected to meet its 5% growth target for 2024. Following the government's economic stimulus policies introduced in late September 2024, several global financial institutions, including Goldman Sachs, have raised their forecasts for China's GDP growth rate in 2025.

5. In August 2024, Yiping Huang, a famous economist, argues that China should stick to an inflation goal of 2% to 3%, aligning with the People's Bank of China's long-standing 3% target. Several global financial institutions, including Bank of America, BBVA, and Citigroup, predict that China's GDP growth rate in 2024 will fall significantly short of its target, with a further slowdown to 4.2% in 2025. The series of economic stimulus policies launched by the Chinese government in late September 2024 did not sway their views. They continue to see rising risk and downside growth potentials in several sectors.

6. In August 2024, Yiping Huang, a famous economist, argues that China should stick to an inflation goal of 2% to 3%, aligning with the People's Bank of China's long-standing 3% target. According to the International Monetary Fund's forecast, China is expected to meet its 5% growth target for 2024. Following the government's economic stimulus policies introduced in late September 2024, several global financial institutions, including Goldman Sachs, have raised their forecasts for China's GDP growth rate in 2025.

7. China's LPR has been trending down over the past decade, reaching around 3.35% by September 2024. Following the incremental monetary policy package introduced by the

People's Bank of China in late September 2024, the LPR fell an additional 25 basis points in October 2024, settling at 3.1%.

8. The median LPR in the past decade is 4.3%. Today's rate is far below the historical median, which indicates that, as soon as macroeconomic conditions improve, rates might increase.

Q2a. Were you aware of the information we showed you?

◯ Yes

◯ Only partially

◯ No

B.3 Part 3

Q3a. What do you think the highest possible average interest rate charged on non-collateralized consumer loans in China will be over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3b. What do you think the lowest possible average interest rate charged on non-collateralized consumer loans in China will be over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3c. What do you think is the percent chance that the average interest rate charged on non-collateralized consumer loans in China over the next 12 months will be greater than $[(Answer\ to\ Q3a + Answer\ to\ Q3b)/2]$**?** Please enter a number between 0 and 100, accurate to 2 decimal points.

Answer: _____%

Q3d. What do you think the highest possible inflation rate will be in China over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3e. What do you think the lowest possible inflation rate will be in China over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3f. What do you think is the percent chance that the inflation rate over the next 12 months in China will be greater than $[(Answer\,to\,Q3d + Answer\,to\,Q3e)/2]$**?** Please enter a number between 0 and 100, accurate to 2 decimal points.

Answer: _____%

Q3g. What do you think the highest possible GDP Growth rate will be in China over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3h. What do you think the lowest possible GDP Growth rate will be in China over the next 12 months? Please enter a number between -20 and 20, accurate to 2 decimal points.

Answer: _____%

Q3i. What do you think is the percent chance that the GDP Growth rate over the next 12 months in China will be greater than $[Answer\,to\,Q3g + Answer\,to\,Q3h)/2]$ Please enter a number between 0 and 100, accurate to 2 decimal points.

Answer: _____%

Please re-evaluate the previous loan.

Q3j. To what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q3k. What do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.
_____% - _____%

B.4 Part 4

Note: We consider three aspects of borrower conditions: *Profitability*, measured by gross margin

Loan Information									
Company Type					Private Enterprise				
Loan Amount					2.7 million RMB				
Loan Term					2 years				
Loan Purpose					To replenish working capital				
Is this the first loan?					Yes				
Industry					New Energy				
Guarantee Type					Collateral				
Collateral Value					4 million RMB				
Any negative news such as court litigation?					No				
High-tech or similar certifications?					No				
Any government awards or subsidies?					No				
Credit Score (Score range: 300-900; Below 561: Average, 562-687: Good, Above 687: Excellent.)					629				
	Operating Income (10k RMB)	Net Assets (10k RMB)	ROE (%)	Gross Profit Margin (%)	Net Profit Margin (%)	Debt-to-Asset Ratio (%)	Current Ratio (%)	Quick Ratio (%)	Inventory Turnover Ratio (%)
2022	955.00	3289.00	9.89	12.29	2.34	77.89	1.89	0.78	2.98
2021	948.00	3205.00	10.78	15.78	2.54	78.97	1.91	0.73	3.02
2020	966.00	3308.00	9.98	14.26	2.89	77.99	1.93	0.72	2.92

and return on assets; *Credit Score*, an internally produced composite score based on a proprietary formula, which our loan officers regularly consult when making credit supply choices outside the survey; and *Debt Ratio*, the ratio of liabilities to total assets. In our survey, we created six scenarios, each adjusting the baseline loan application by varying one of the three characteristics either 20% upward or 20% downward from the baseline value. We then asked loan officers to re-evaluate their pricing and lending decisions in these scenarios after receiving the information treatment. For the control group, we presented all six scenarios; for the treatment group, we randomly selected two scenarios involving a 20% increase and decrease of one characteristic.

Next, we will make some adjustments to certain information about the firm. After the adjustments, we will ask if your decisions on the above loan case would change under these new circumstances.

Scenario: The borrower's profitability has increased by 20%, while all other information remains unchanged. The changes in Return on Equity (%), Gross Profit Margin (%), and Net Profit Margin (%) are as follows:

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]% to [*Second Answer to Q3k*]%. Please now assess your loan decision under the scenario where profitability increases by 20%.

	ROE (%)	Gross Profit Margin (%)	Net Profit Margin (%)
2022	11.87	14.75	2.81
2021	12.94	18.94	3.05
2020	11.98	17.11	3.47

Q4a. Under the scenario where profitability increases by 20%, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4b. Under the scenario where profitability increases by 20%, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.

_____% - _____%

Scenario: The borrower's profitability has decreased by 20%, while all other information remains unchanged. The changes in Return on Equity (%), Gross Profit Margin (%), and Net Profit Margin (%) are as follows:

	ROE (%)	Gross Profit Margin (%)	Net Profit Margin (%)
2022	7.91	9.83	1.87
2021	8.62	12.62	2.03
2020	7.98	11.41	2.31

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]% to [*Second Answer to Q3k*]%. Please now assess your loan decision under the scenario where profitability decreases by 20%.

Q4c. Under the scenario where profitability decreases by 20%, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4d. Under the scenario where profitability decreases by 20%, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.

_____% - _____%

Scenario: Borrower's credit score increases by 100. In other words, the score improves from 629 to 729, upgrading their credit status from "Good" to "Excellent". Other aspects of the borrower remain unchanged from the original data.

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]% to [*Second Answer to Q3k*]%. Please now assess your loan decision under the scenario where the credit score increases by 100.

Q4e. Under the scenario where the credit score increases by 100, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4f. Under the scenario where the credit score increases by 100, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.
_____% - _____%

Scenario Borrower's credit score decreases by 100. In other words, the borrower's credit score drops from 629 to 529, shifting their credit status from "Good" to "Average". Other aspects of the borrower remain unchanged from the original data.

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]% to [*Second Answer to Q3k*]%. Please now assess your loan decision under the scenario where the credit score decreases by 100.

Q4g. Under the scenario where the credit score decreases by 100, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4h. Under the scenario where the credit score decreases by 100, what do you think is a reasonable range of interest rate for this loan? Please enter a number

between 0 and 50, accurate to 2 decimal points.
_____% - _____%

Scenario: The borrower's debt ratio has increased by 20%, while all other information remains unchanged. In other words, the borrower has:

	Debt-to-Asset Ratio (%)
2022	93.47
2021	94.76
2020	93.59

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]% to [*Second Answer to Q3k*]%. Please now assess your loan decision under the scenario where the debt ratio increases by 20%.

Q4i. Under the scenario where the debt ratio increases by 20%, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10, with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4j. Under the scenario where the debt ratio increases by 20%, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.
_____% - _____%

Scenario: The borrower's debt ratio has decreased by 20%, while all other information remains unchanged. In other words, the borrower has:

The approval rate you previously recommended for this loan for credit review was [*Answer to Q3j*]. You think the reasonable interest rate range for this loan is [*First Answer to Q3k*]% to [*Second Answer to Q3k*]%. Please now assess your loan decision under the scenario where the debt ratio decreases by 20%.

Q4k. Under the scenario where the debt ratio decreases by 20%, to what extent would you recommend the loan for underwriting? Please select a number from 0 to 10,

	Debt-to-Asset Ratio (%)
2022	62.31
2021	63.18
2020	62.39

with 10 being the strongest recommendation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q4l. Under the scenario where the debt ratio decreases by 20%, what do you think is a reasonable range of interest rate for this loan? Please enter a number between 0 and 50, accurate to 2 decimal points.

_____% - _____%

B.5 Part 5

Here, we would like to understand how you believe that economic variables might or might not matter for lending decisions.

Q5a. Imagine that the inflation rate over the next 12 months turns out to be lower than what you expect today. How much do you agree with each of the following statements from 0 (do not agree at all) to 10 (I agree completely)? There is no right or wrong answer. Please just provide your honest opinion.

- GDP growth over the next 12 months should be lower than expected because inflation decreases when the economy is doing bad.

  0 □—□—□—□—□—□—□—□—□—□—□ 10

- GDP growth over the next 12 months should be higher than expected because inflation decreases during a booming economy.

  0 □—□—□—□—□—□—□—□—□—□—□ 10

- LPR over the next 12 months must also be low because the People's Bank of China will decrease LPR (monetary easing) when it sees low inflation.

  0 □—□—□—□—□—□—□—□—□—□—□ 10

- LPR over the next 12 months must be high, because a high LPR (monetary tightening) reduces inflation.

0 □—□—□—□—□—□—□—□—□—□—□ 10

Q5b. How much do you agree with each of the following statements from 0 (do not agree at all) to 10 (I agree completely)? There is no right or wrong answer. Please just provide your honest opinion.

- High GDP growth going forward means that borrower firms will produce more revenues and their accounts will be more solid, so the bank can charge higher interest rates today to increase revenues from loans: borrowers will be able to sustain higher rates.

  0 □—□—□—□—□—□—□—□—□—□—□ 10

- High GDP growth going forward means that borrower firms will produce more revenues and their accounts will be more solid, so the bank can charge lower interest rates today because the loans are less risky.

  0 □—□—□—□—□—□—□—□—□—□—□ 10

- High inflation going forward means that borrowers will be advantaged at the detriment of the bank because their loan are denominated in nominal terms. We should charge higher rates when we expect higher inflation going forward to reduce this disadvantage.

  0 □—□—□—□—□—□—□—□—□—□—□ 10

- High inflation going forward means that the economy will do badly and borrowers might be less able to repay and riskier. We should charge higher rates on loans when we expect higher inflation going forward to account for this higher borrower risk.

  0 □—□—□—□—□—□—□—□—□—□—□ 10

- High inflation going forward means that the economy will do badly and borrowers might be less able to repay and riskier. We should charge lower rates on loans when we expect higher inflation going forward to reduce the chance that loans become non-performing assets.

  0 □—□—□—□—□—□—□—□—□—□—□ 10

B.6 Part 6

Q6a. What is your age? Please enter an integer between 18 and 70.

Answer: _____ years old.

Q6b. What is your gender?

◯ Male

◯ Female

Q6c. What's the highest education level you achieved?

◯ High School

◯ Associate Degree

◯ Bachelor's Degree

◯ Master's Degree

◯ Doctoral Degree

Q6d. Please select the type of bank for which you work:

◯ State-owned Commercial Bank

◯ Joint-stock Commercial Bank

◯ Policy lender/non-commercial bank

◯ City Commercial Bank

◯ Rural Commercial Bank

◯ Foreign Capital Bank

◯ Others

Q6e. How many years have you worked as a loan officer? Please enter an integer between 0 and 70. If less than one year, please enter 0.

Answer: _____ years.

Q6f. Who typically does the grocery shopping in your household?

◯ I do all of the grocery shopping in the household

◯ I share the grocery shopping with others in the household

◯ Someone else does the grocery shopping in the household

Q6g. How well, if at all, do the following sentences describe you as a person?

	Not at all well	Not too well	Somewhat well	Very well
I am good at math	◯	◯	◯	◯
I make impulsive purchasing decisions	◯	◯	◯	◯
I tend to postpone tasks even if I know it would be better to do them right away	◯	◯	◯	◯

Q6h. If it takes 10 machines 10 minutes to make 10 toys, how long would it take 100 machines to make 100 toys?

Answer: _____ minutes.

Q6i. The fruit production in a certain region doubles every two years. The current fruit production is 1 million tons. How many years ago was the production 250,000 tons?

Answer: _____ years ago.