

# Expectations and Credit Slumps by Falato and Xiao

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# The paper

- There is plenty of evidence of deviations from the Full Information Rational Expectation hypothesis (FIRE)
  - More and more evidence on the importance of expectations for individual decision-making
  - But less about the aggregate implications of deviations from FIRE
- Actual expectation data
- Structural model of expectations and the economy

# The paper

- Evaluates the aggregate impact of imperfect expectation formation using a model of bank lending with imperfect expectation formation.
  - Matches the expectation formation parameters using actual bank expectations
  - Finds that imperfect expectations contribute significantly to the sluggish recovery after the GFC (financial accelerator story is not enough)
  - Since the sluggish recovery is due to expectations, policies aiming at restoring the banks balance sheets are not as effective
- Key friction here: Deviation from RE (overextrapolation)

# The nature of the friction

- Deviation from **Rational Expectations**

The agents believe that

$$\log(p_t) = (1 - \rho_p) \log(\tilde{p}) + \rho_p \log(p_t) + \epsilon_{p,t+1}$$

while the true process is

$$\begin{aligned} \log(p_t) \\ = (1 - \widehat{\rho}_{1p} - \widehat{\rho}_{2p}) \log(\tilde{p}) + \widehat{\rho}_{1p} \log(p_t) + \widehat{\rho}_{2p} \log(p_{t-1}) + \epsilon_{p,t+1} \end{aligned}$$

Same for  $\omega_{it}$

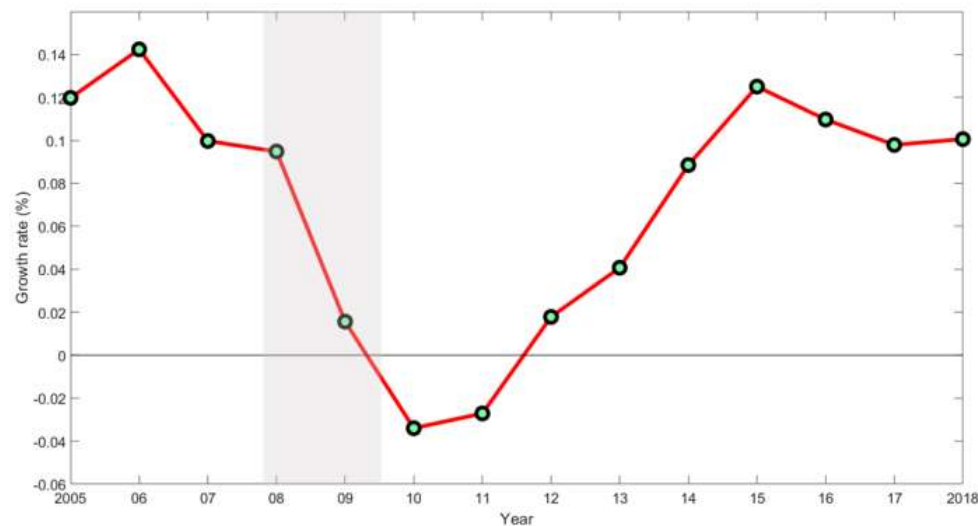
- Overextrapolation (agents believe the shocks are more persistent than they actually are): **consistent with existing evidence**
  - “Momentum illusion” (agents believe shocks follow an AR(2) process while the true process is AR(1)): **new**
- **Full Information assumption**: current and past shocks are known

(a) Net fraction of banks that expect a worsening of loan performance



Quite good in replicating the expectation dynamics...

(c) Annual loan growth



... and hence the loan dynamics

# The nature of the friction: alternatives

- Other possible frictions:
  - Other deviations from RE:
    - diagnostic expectations
    - Over-confidence
  - Deviations from FI (not RE):
    - Learning on new shocks (Kozlowski, Veldkamp and Venkateswaran, 2020)
    - Rational inattention (Gemmi, 2021)
    - Identification of aggregate and idiosyncratic component of productivity (under-reaction to aggregate shocks)
    - Endogenous information: Feedback from dynamics to expectations

# The nature of the friction: motivation

- Motivating evidence + Moments used are the estimated coefficients in:

$$R_{it}^{fe} = \alpha_i + \beta_1 R_{it-1}^{fe} + \beta_2 R_{it-2}^{fe} + \tau_t + u_{it}$$

- $\beta_1$  and  $\beta_2$  different from zero:
  1. Indicates deviations from RE
  2. Indicates that the banks believe in an AR(2) process
- I disagree

# The nature of the friction: motivation

1. Indicates deviations from RE?

$$R_{it}^{fe} = \alpha_i + \beta_1 R_{it-1}^{fe} + \beta_2 R_{it-2}^{fe} + \tau_t + u_{it}$$

- If RE, then  $R_{it}^{fe} \perp R_{it-k}^{fe}$  *unconditionally*
- The identified autocorrelation coefficients are *conditional on aggregate shocks* (time FE) which are not necessarily in the information set of the bank.
- $\beta_1$  and  $\beta_2$  can be different from zero even in the absence of deviation from RE.

→ Run without time FE.



# The nature of the friction: motivation

2. Indicates that the banks believe in an AR(2) process?

$$R_{it}^{fe} = \alpha_i + \beta_1 R_{it-1}^{fe} + \beta_2 R_{it-2}^{fe} + \tau_t + u_{it}$$

- If beliefs are AR(1),  $R_{it}^{fe}$  is an ARMA(1,1), that can be represented as an AR( $\infty$ ).
- The lag order of  $R_{it}^{fe}$  does not indicate the lag order of beliefs

# The nature of the friction: motivation

- Suggestion

$$\begin{aligned}
 R_{it}^{fe} &= E_t I_{it+1} - I_{it+1} \\
 &= (1 - \widehat{\rho}_{1p} - \widehat{\rho}_{2p}) \tilde{I} + \widehat{\rho}_{1p} I_{it} + \widehat{\rho}_{2p} I_{it-1} \\
 &\quad - [(1 - \rho_p) + \rho_p I_{it} + \epsilon_{Iit+1}] \\
 &= (\rho_p - \widehat{\rho}_{1p} - \widehat{\rho}_{2p}) \tilde{I} - \underbrace{(\rho_p - \widehat{\rho}_{1p}) I_{it}}_{<0 \text{ (under-reaction)}} + \underbrace{\widehat{\rho}_{2p} I_{it-1}}_{>0 \text{ (over-reaction)}} - \epsilon_{Iit+1}
 \end{aligned}$$

- Directly gives you the bias in beliefs and the appropriate lag order

# Expectation errors

- Are expectations and actual loan performance comparable?
- Data sources:
  - Source of expectations: Survey of Bank Lending Practices
  - Source of loan performance: Call reports
- Timing
  - “Assuming that economic activity progresses in line with consensus forecasts, what is your outlook for delinquencies and charge-offs on your bank’s type X loans in the following categories *in the coming year?*”
  - Next twelve months?

# Welfare and policy implications

- Implications for welfare?
  - Momentum illusion implies that the impact of the disaster probability shock is milder on impact but lasts longer
  - What is the net effect?
  - Role of financial accelerator?
- Policy?
  - Balance-sheet policies: not so effective
  - Try to affect banks expectations?
    - Mitigate the expectation bias through communication? Forward guidance?
    - Would perhaps need sticky information in the model...

# Conclusion

- Expectations played a role in the credit slump: quite convincing
- Important policy implications
- More discussion on the measurement of expectation errors
- A more direct motivating evidence