



Universiti Tunku Abdul Rahman  
Department of Economics

# Whither monetary policy when decentralised finance prevails?

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BNM 5<sup>th</sup> Economics Research Workshop @ 20/11/2017

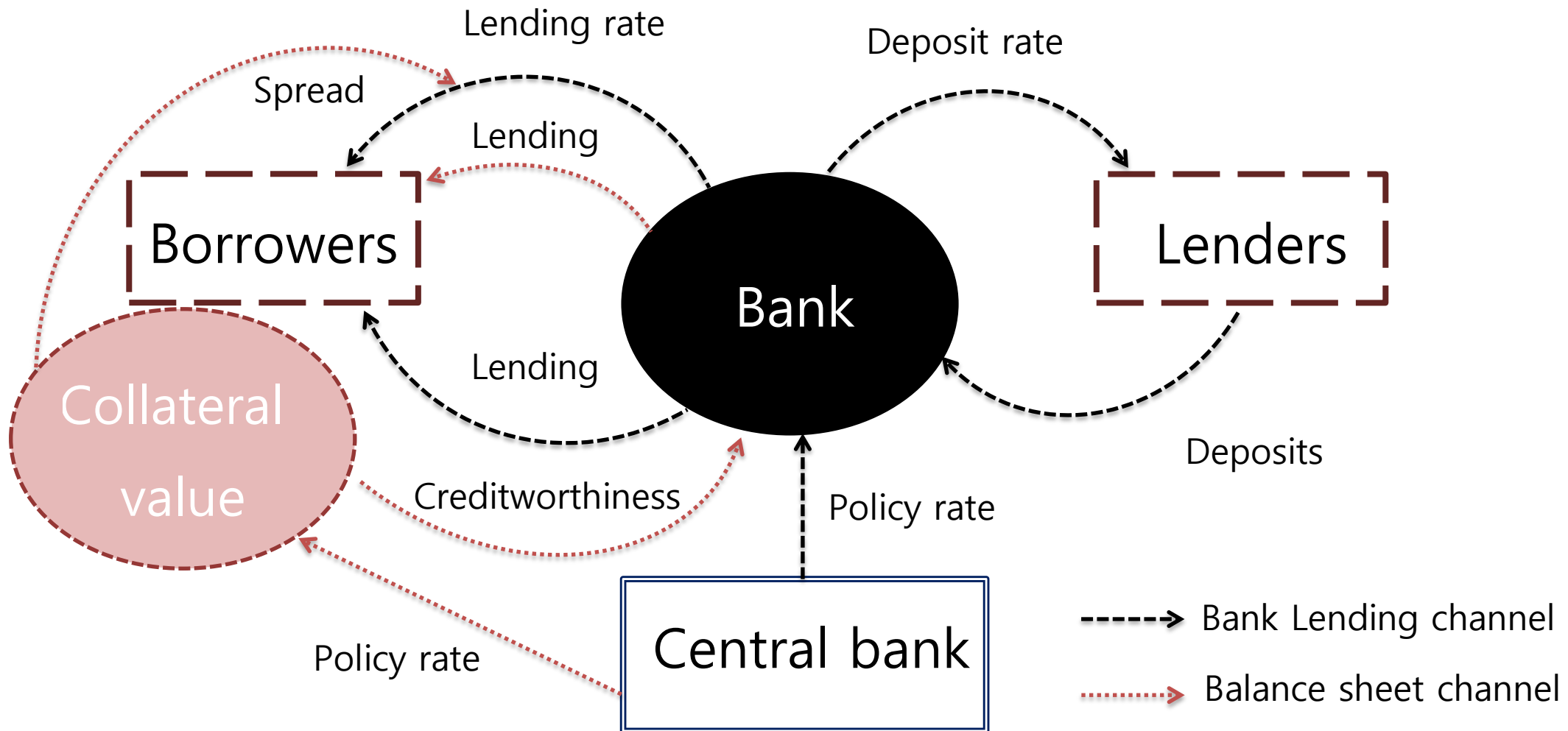
# Outline

1. Why does decentralised/non-bank based matter in the conduct of monetary policy?
2. How platform interest rates are determined and transactions are formed?
3. Is monetary policy still effective?
4. Does the economy respond differently given the policy when shocks hit?
5. Takeaways

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- Monetary policy steers the economy via banking system: Bank lending & balance sheet channel



- Absence of intermediation and collateral requirement are exactly the characteristics of the decentralised platform finance
- Bank lending and balance sheet channels become irrelevant
- Of questions then are once decentralised platform finance becomes prevalent,
  - Can monetary policy still be effective?
  - Would the economy respond differently given the monetary policy response?

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- Think about a platform operated by a fintech company through which anyone can lend and get a loan.
- Willingness to search potential borrowers via the platform depends on thickness of the borrowers' pool
- Likewise, willingness to get a loan via the platform depends on the density of depositors available
- A two-sided platform model along Armstrong (2006), and Rochet and Tirole (2003) is built

- Density of the pool of lenders and borrowers depends on the utility of platform participation, which depends on benefits of interaction with the other side  $\alpha$ , and processing  $f_d$  & monitoring  $f_l$  fees,

$$m_{l,t} = \phi(\alpha_l m_d - f_l)$$

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- Next is we need to know how transactions are formed
- Without pledged collateral, credit score and peer reviews become the “soft information” needed to ease asymmetric information
- Suppose peer review is implicitly reflected by the formation of past loans through the platform

$$\tilde{L}_{t-1}^{P2P} = \int_0^{\mathbb{m}_{l,t-1}} L_{t-1}^{P2P} d\mathbb{m}_l = \mathbb{m}_{l,t-1} L_{t-1}^{P2P}$$

- We then borrow Akerlof and Kranton's (2003) identity economics to formalise the role of trust on public information on transactions

$$\mathbf{u} = \mathbb{E}_t \left\{ \sum_{k=0}^{\infty} \beta^k \exp(\mathbf{H}_{t+k}) \left( \dots - \vartheta_d \left( \frac{\mathbf{D}_{t+k}^{P2P}}{\mathbf{P}_{t+k}} - \psi_l \frac{\tilde{\mathbf{L}}_{t-1+k}^{P2P}}{\mathbf{P}_{t+k}} \right)^2 \right) \right\}$$

- Depending on the level of trust on public info  $\psi_l$ , lenders try not to deviate from the public reviews.

- Maximizing utility of platform participation gives us the platform lending  $r_{l,t}^{P2P}$  and deposit  $r_{d,t}^{P2P}$  rates:

$$r_{d,t}^{P2P} = \frac{1}{1 - \Psi} \left\{ r_{l,t}^{P2P} + \frac{\alpha_l}{\eta} - \frac{f_d}{\eta \mathfrak{m}_{l,t}} \left( \frac{1}{\varepsilon_d} - 1 \right) \right\}$$

$$r_{l,t}^{P2P} = r_{d,t}^{P2P} (1 - \Psi) - \frac{\alpha_d}{\eta} + \frac{f_l}{\eta \mathfrak{m}_{d,t}} \left( \frac{1}{\varepsilon_l} - 1 \right)$$

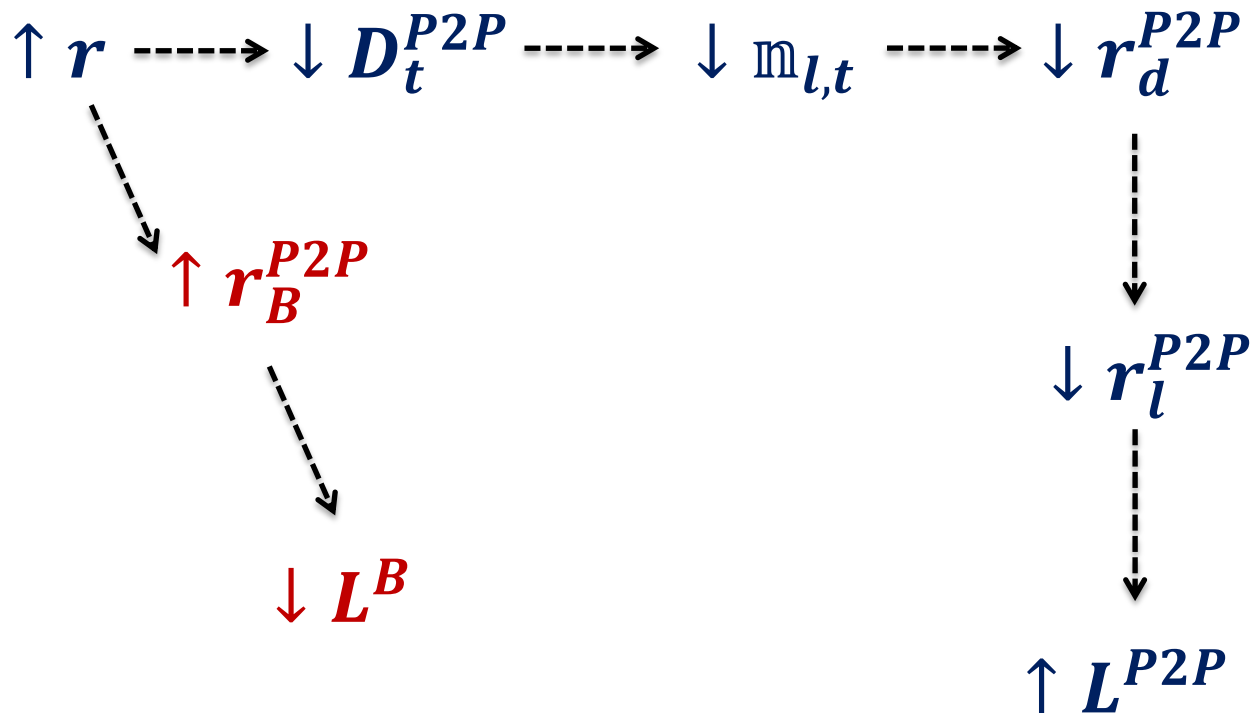
- determined by  $\alpha$ , transaction fee  $\eta$  on top of  $f_d$  &  $f_l$ , fee elasticity of participation  $\varepsilon$ , probability of default  $\Psi$ , and  $\mathfrak{m}$

- Households' utility maximization against platform deposits yields

$$\frac{D_t^{P2P}}{P_t} = 0.5 \left( \frac{N_t^\chi}{w_t} \right) \left( \frac{r_{d,t}^{P2P} - r_t}{\vartheta_d} \right) + \psi_l \left( \frac{\mathbb{m}_{l,t-1} L_{t-1}^{P2P}}{P_t} \right)$$

- Past loan formations, trust on the info, and opportunity cost influence deposit formation
- What's the mechanism for monetary policy?

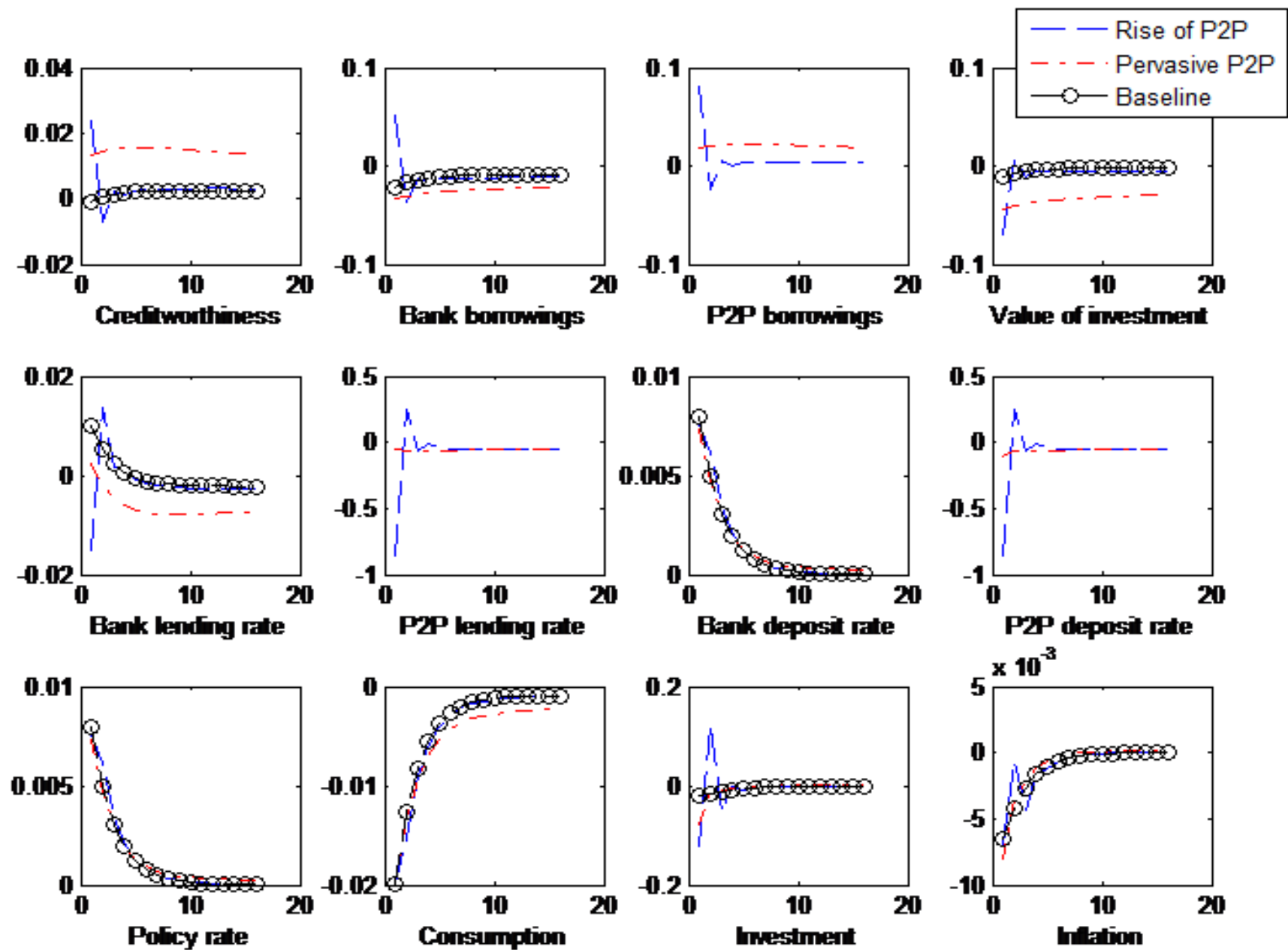
- Think, for example, an increase in  $r$



- Monetary policy has no direct leverage on P2P interest rates determination
- What happens in the platform defies policy stance

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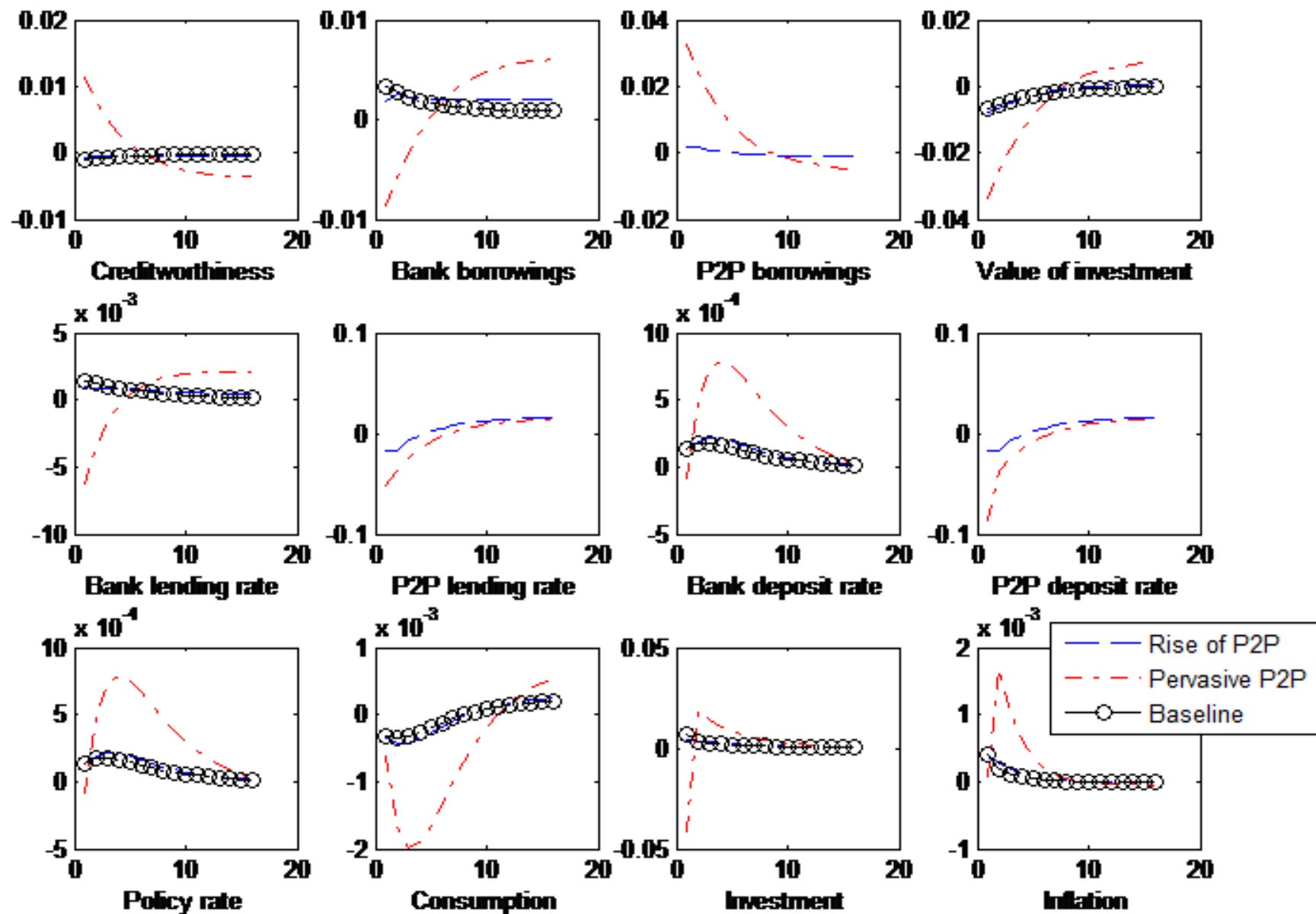


- Suppose one-percent shock hits policy rate
- An increase in interest rate still leads to what's intended: drop in consumption, business investment, and inflation
- P2P rates respond adversely to policy rates (Bertsch, Hull, and Zhang, 2016)
- But business investment becomes more volatile
- Pass-through into bank lending rate is weakened



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- Suppose one-percent positive shock hits investment-specific technology
- Baseline: investment expands, causing greater bank borrowings; policy rate goes up to check inflation, raising bank loan and deposit rates; consumption falls
- With P2P finance: everything responds more strongly; bank borrowings substituted by P2P loans; bank lending-deposit rates spread altered

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- Monetary policy has no direct influence on P2P interest rates determination
- The channel runs from policy to the platform finance via the real economy and traditional banking sector (Faia and Paiella, 2017)
- While monetary policy largely keeps its monetary control, financial control seems being compromised, and the real economy becomes more volatile

- Call for further investigation on
  - Whether it works differently if organization of the platform varies; if traditional banks were also the main players in platform finance
  - New form of regulatory framework that complements the conduct of monetary policy to preserve macro and financial stability
  - International dimension of platform finance