Money Markets and Monetary Policy

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Financial Market Adaptation to Regulation and Monetary Policy
Stanford University
March 20, 2015
Outline

1. How will the Federal Reserve set interest rates going forward?

2. What are implications of the new policy framework?
   - Deposits channel of monetary policy (Drechsler, Savov, and Schnabl (2014))
A new framework for monetary policy

1. Unconventional monetary policy has led to large Fed balance sheet
   - Banks currently hold $3 trillion in excess reserves
   - Before 2008 financial crisis, no excess reserves

2. Large Fed balance sheet will remain at least in the near future
   - Fed cannot (immediately) go back to pre-crisis framework
   - Possibly keep large balance sheet permanently

⇒ What is the effect of large Fed balance sheet on monetary policy?
Old versus new monetary policy

1. Conventional framework
   - Banks required to hold some **non-interest** paying reserves
   - Open market operations reduce reserves ⇒ banks bid up price on reserves (Fed funds rate) ⇒ affects other interest rates through arbitrage relationships

2. New framework
   - Federal reserve pays **interest on excess reserves** (IOER)
   - Higher IOER ⇒ banks compete for funding ⇒ raises interbank lending rates (Fed funds rate) and deposit rates (“floor system”)

⇒ How does the new framework perform in practice?
Implementing new framework

1. Experience so far: IOER ≠ Fed Funds rate ("leaky floor")
   - Why? **Limited competition** due to bank balance sheet considerations (FDIC charge, leverage ratio) and lack of non-bank competition (limited counterparties)

2. Solution: More competition from non-banks (money market funds)
   - **Reverse repos** allows MMFs to earn interest on reserves
   - MMFs compete with banks for reserves ⇒ raises Fed funds rate
   - Use repo rate to establish **corridor** for Fed funds rate

⇒ **Increased competition** allows Federal Reserve to steer Fed funds rate
Other effects of the new framework?

1. Financial stability
   - Concern: Federal Reserve crowds out private supply of deposits, especially during crises (“surges”)
   - Benefit: Promotes stability through generating a narrow (“run-free”) system

2. Transmission of monetary policy
   - Traditional bank lending channel works through reserve requirements
   - Alternative: Deposits channel of monetary policy (Drechsler, Savov, and Schnabl (2014))
Deposits channel of monetary policy

1. Monetary policy has a powerful impact on the price and quantity of deposits supplied by the banking system
   - Higher nominal rate $\Rightarrow$ deposit supply $\downarrow$ deposit price (spread) $\uparrow$

2. Why? Banks have market power in supplying deposits. A higher nominal interest rate increases this market power
   - Deposits and cash are the two main sources of household liquidity
   - Higher nominal rate $\Rightarrow$ cash more expensive $\Rightarrow$ banks face less competition in liquidity provision $\Rightarrow$ act like monopolist
Deposits channel implications

For banks:

1. Deposits are the main source of funding for banks: $10 trillion, 77% of bank liabilities
2. Deposits are special: less prone to runs than wholesale funding, hard to replace
   ⇒ Bank lending channel without reserve requirement

For households:

1. Deposits are the main source of liquidity for households
   ⇒ Reduces total supply and increases premium on safe and liquid assets
Aggregate evidence: Higher rate → higher deposit price

Price of deposits: Deposit spread = Fed funds rate − deposit rate

1. Price increases most for liquid deposits (checking, savings)
   - From ≈ 0 bps to 400 bps (savings) and 500 bps (checking)
2. Price of time deposits is low and increases less
Aggregate evidence: higher nominal rate $\rightarrow$ less deposits

1. Total deposits are $10.2$ trillion
2. Large flows: from $-1\%$ to $+12\%$ per year
Cross-branch evidence: Higher rate $\rightarrow$ higher deposit price

1. For each branch, run $\Delta DepositSpread = \alpha + \beta \Delta FF + \varepsilon$
2. Plot average $\beta$ in 20 competition bins ($\approx 130$ counties per bin)

$\Rightarrow$ As Fed funds rises, deposit spreads increase more in uncompetitive counties
Cross-branch evidence: Higher rate $\rightarrow$ less deposits

1. For each branch, run $Flow = \alpha + \beta \Delta FF + \varepsilon$
2. Plot average $\beta$ in 20 competition bins

$\Rightarrow$ As Fed funds rises, deposits flow out more in uncompetitive counties
What about changes in loan demand?

1. Problem: Change in loan demand (changing economic conditions) is an omitted variable

2. Solution: Control for loan demand by looking across branches of the same bank (and in the same state)
   - Multi-branch bank can lend at one branch, raise deposits at another
   - E.g. compare deposits at Citi branch in low-competition county with deposits at Citi branch in high-competition county
   - Identifying assumption: A deposit raised at one branch can be lent at another branch

⇒ Results robust to loan demand
Event study: Higher rate $\rightarrow$ higher deposit price

Low - high competition savings deposit spreads around rate change

⇒ Timing indicates differential response is due to Fed
Event study: unexpected rate changes

Low - high competition savings deposit spreads around unexpected rate change

⇒ Banks respond quickly to unexpected changes
Event study: expected rate changes

Low - high competition savings deposit spreads around expected rate change

⇒ Unexpected and expected rate changes have similar effect

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What is the effect of the new framework?

1. Deposit channel should continue to operate under the new framework

2. Caveat: Competition from non-banks
   - Reverse repo facility encourages competition from non-banks in the supply of near-money instruments
   - May reduce banks’ market power in deposit creation
   - Could lead to large reduction in banks’ profit and funding structure
Takeaways

1. Fed will implement monetary policy with a **large balance sheet** and interest on reserves

2. Recent experience has improved our understanding of how to steer the fed funds rate ("**corridor system**")

3. Open question: What is the effect of the monetary policy framework on **financial stability** and **transmission of monetary policy**?