Economics 435
The Financial System
(11/15/2017)

Instructor: Prof. Menzie Chinn
UW Madison
Fall 2017
Outline

• Recap: Where is the Fed in the economy
• Tools and objectives
• Unconventional policy tools

<table>
<thead>
<tr>
<th>PRIVATE NONFINANCIAL</th>
<th>BANKS</th>
<th>FED</th>
<th>GOVERNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSETS</td>
<td>ASSETS</td>
<td>ASSETS</td>
<td>ASSETS</td>
</tr>
<tr>
<td>LIABILITIES</td>
<td>LIABILITIES</td>
<td>LIABILITIES</td>
<td>LIABILITIES</td>
</tr>
</tbody>
</table>

- **Currency (CU)**
- **Deposits (D)**
- **Bonds (B)**
- **Reserves (RE)**
- **Loans**
Linking Tools to Objectives

• A consensus has developed among monetary policy experts that:
  1. The reserve requirement is not useful as an operational instrument,
  2. Central bank lending is necessary to ensure financial stability, and
  3. Short-term interest rates are the tool to use to stabilize short-term fluctuations in prices and output.

• A good monetary policy instrument has three features:
  1. It is easily observable by everyone
  2. It is controllable and quickly changed.
  3. It is tightly linked to the policymakers’ objectives.
Desirable Features of a Policy Instrument

- A shift in reserve demand would move the market federal funds rate.
- Reserve targets make interest rates volatile.
- The federal funds rate is the link from the financial sector to the real economy.
- Targeting reserves could destabilize the real economy.

Figure 18.7: The Market for Bank Reserves when the Fed Targets the Quantity of Reserves

- Increase in Reserve Demand
- Fall in Reserve Demand
- Target Quantity
- Quantity of Reserves
- Range of Fluctuation
- Market Federal Funds Rate
- Reserve Supply
- Reserve Demand
Desirable Features of a Policy Instrument

• Interest rates are the primary linkage between the financial system and the real economy.
  – Stabilizing growth means keeping interest rates from being overly volatile.

• This means keeping unpredictable changes in the reserve demand from influencing interest rates and feeding into the real economy.
  – The best way to do this is to target interest rates.
• Inflation targeting bypasses intermediate targets and focuses on the final objective.

• Components:
  – Public announcement of numerical target,
  – Commitment to price stability as primary objective, and
  – Frequent public communication.

• Inflation targeting increases policymakers’ accountability and helps to establish their credibility.

• The result is not just lower and more stable inflation but usually higher and more stable growth as well.
Operating Instruments & Intermediate Targets

Figure 18.8: Instruments, Targets, and Objectives

- Operating Instruments: Examples - Interest Rates, Monetary Base
- Intermediate Targets: Growth in Monetary Aggregates
- Final Objectives: Examples - Low Inflation, High Growth

Links:
- Link #1: Operating Instruments → Intermediate Targets
- Link #2: Intermediate Targets → Final Objectives
- Link #3: Intermediate Targets → Final Objectives
### Unconventional Policy Tools

<table>
<thead>
<tr>
<th>Policy Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term Auction Facility (TAF)</td>
<td>The Fed auctions a fixed volume of funds at maturities less than three months against collateral to depository institutions.</td>
</tr>
<tr>
<td>Primary Dealer Credit Facility (PDCF)</td>
<td>The Fed lends overnight to primary dealers (including nonbanks) against a broad range of collateral.</td>
</tr>
<tr>
<td>Term Securities Lending Facility (TSLF)</td>
<td>The Fed provides Treasury securities in exchange for a broad range of collateral in order to promote market liquidity.</td>
</tr>
<tr>
<td>Asset-backed Commercial Paper (ABCP)</td>
<td>The Fed lends to depositories and bank holding companies to finance purchases of ABCP from MMMFs.</td>
</tr>
<tr>
<td>Money-Market Mutual Fund (MMMF) Liquidity Facility</td>
<td></td>
</tr>
<tr>
<td>Commercial Paper Funding Facility (CPFF)</td>
<td>The Federal Reserve Bank (FRB) of New York finances the purchase of commercial paper from eligible issuers via primary dealers.</td>
</tr>
<tr>
<td>Money-Market Investor Funding Facility (MMIFF)</td>
<td>The FRB New York funds investment vehicles that purchase assets from MMMFs.</td>
</tr>
<tr>
<td>Term Asset-Backed Securities Loan Facility (TALF)</td>
<td>The FRB New York lends to holders of high-rated newly issued asset-backed securities (ABS), using the ABS as collateral.</td>
</tr>
</tbody>
</table>

LSAP: Purchases MBS; Operation Twist: LT Treasurys; extended guidance
Unconventional Policy Tools

• Most central banks set a target for the overnight interbank lending rate.
• However there are two circumstances when additional policy tools can play a useful stabilization role:
  1. When lowering the target interest-rate to zero is not sufficient to stimulate the economy; and
  2. When an impaired financial system prevents conventional interest-rate policy from supporting the economy.
Unconventional Policy Tools

1. A policy duration commitment.
   – This is when the central bank promises to keep interest rates low in the future.

2. Quantitative easing (QE).
   – When the central bank supplies aggregate reserves beyond the quantity needed to lower the policy rate to zero.

3. Credit easing (CE).
   – When the central bank alters the mix of assets it holds on its balance sheet in order to change their relative prices in a way that stimulates economic activity.
Quantitative Easing

- At a rate of zero, banks hold cash rather than lend.
- The Fed can add limitlessly to reserves without affecting the market federal funds rate.
- QE is the difference between A and B.
Quantitative Easing

• It is difficult to predict the effects of QE.
• Our limited experience means that we have little data on which to base such a forecast.
• Moreover, the mechanism by which QE affects economic prospects is not clear.
• An increase in the supply of reserves (QE) may simply lead banks to hold more of them rather than provide additional loans.
Source: Cleveland Fed [http://www.clevelandfed.org/research/data/credit_easing/index.cfm](http://www.clevelandfed.org/research/data/credit_easing/index.cfm)
Credit Easing

• *Credit easing* (CE) shifts the *composition* of the balance sheet away from risk-free assets and toward risky assets.

• The central bank’s actions can influence both the cost and availability of credit, changing spreads.

• In the absence of private demand for the risky asset, the central bank’s purchase makes credit available where none existed.

• Impact:
  – To be greater in thin, illiquid markets.
  – To be larger the bigger the difference between the yield on the asset that the central bank buys and the yield on the asset that the central bank sells.
Credit Easing

• CE purposely deviates from such asset neutrality in order to influence relative prices.
• Exiting from CE probably is also more difficult than unwinding QE.
• Risky assets are generally harder to sell than Treasuries.
  – The central bank may not be able to get rid of them exactly when it wants.
  – Political influences can become important if the Fed is hindered from selling specific assets for fear of raising the costs of a particular class of borrowers.
## Impact of QE(CE)1-3

### Chart 9. Impact of QE1 and QE2 on economy

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10-Year Treasury (bps)</td>
<td>-78</td>
<td>-98</td>
<td>-98</td>
<td>-60</td>
<td>-39 to -78</td>
</tr>
<tr>
<td>Real GDP (percent)</td>
<td>1.57</td>
<td>2.58</td>
<td>2.45</td>
<td>3.00</td>
<td>0.39 to 1.18</td>
</tr>
<tr>
<td>UE Rate (% points)</td>
<td>-0.78</td>
<td>-1.29</td>
<td>-1.22</td>
<td>-1.50</td>
<td>-0.20 to -0.59</td>
</tr>
<tr>
<td>Employment (mm)</td>
<td>1.4</td>
<td>2.0</td>
<td>1.9</td>
<td>3.0</td>
<td>0.3 to 0.9</td>
</tr>
<tr>
<td>Residential Investment (percent)</td>
<td>N/A</td>
<td>N/A</td>
<td>14.07</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Chart 11. Estimated impact of QE3, cumulative over eight quarters

<table>
<thead>
<tr>
<th></th>
<th>10-Year Treasury (bps)</th>
<th>Real GDP (percent)</th>
<th>UE Rate (percentage points)</th>
<th>House Prices (percent)</th>
<th>S&amp;P 500 (percent)</th>
<th>Inflation Expectations (percent)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-51</td>
<td>0.64</td>
<td>-0.32</td>
<td>1.82</td>
<td>3.06</td>
<td>0.25</td>
</tr>
</tbody>
</table>


Making an Effective Exit

• Exiting from QE and CE poses additional obstacles that appear technical but have important implications.

• The question is whether a central bank that wishes to raise interest rates will be able to do so as quickly as desired.

• The answer depends on the size and composition of the central bank’s balance sheet and the toolset available.
Making an Effective Exit

• What happens with QE and CE have vastly expanded the amount of reserves and assets on the central bank’s balance sheet?
  – The central bank may need to sell a large volume of assets to reduce reserve supply sufficiently to raise the policy rate target.

• But, QE and CE assets are typically more difficult to sell.
The Japanese Exit

http://www.clevelandfed.org/research/trends/2008/1208/01intmar.cfm
Making an Effective Exit

• A central bank may be unable to sell assets and withdraw reserves from the banking system rapidly enough to hike the policy interest rate when it desires.
• However, Central banks like the Fed have several policy options that allow them to tighten without having to sell their assets.
• Raising (deposit) rate on reserves.
Making an Effective Exit by Raising the Interest Rate on Reserves

Figure 18.11 Exiting Quantitative Easing by Hiking the Deposit Rate

- Market Federal Funds Rate
- Lending Rate
- New Deposit Rate X
- Reserve Supply
- Zero Bound
- Quantity of Reserves

RD₀ and RD₁ represent different levels of reserve demand.
Making an Effective Exit

• Paying interest on reserves allows a central bank to use two powerful policy tools independently of one another:
  1. It can adjust the target rate for interbank loans without changing the size or composition of its balance sheet, and
  2. It can adjust the size and composition of its balance sheet without changing the target interest rate for interbank loans.

• This means the central bank can change its balance sheet in a fashion consistent with financial stability and keep inflation under control.

• It can avoid a fire sale by simply raising the deposit rate that they pay on reserves.