The Virus Wars Part 3: Central Bank Policy

• What are the objectives?
• What are the tools?
• What are the constraints?
# Traditional Policy Framework

<table>
<thead>
<tr>
<th>Policy</th>
<th>Objectives</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal</td>
<td>• Promote growth &amp; development</td>
<td>• Taxes &amp; subsidies</td>
</tr>
<tr>
<td></td>
<td>• Supply social services</td>
<td>• Spending &amp; transfers</td>
</tr>
<tr>
<td></td>
<td>• Provide a safety net</td>
<td>• Borrowing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Bank</td>
<td>• Stabilize inflation and growth</td>
<td>• Interest rates</td>
</tr>
<tr>
<td></td>
<td>• Stabilize the financial system</td>
<td>• Asset purchases</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Lending</td>
</tr>
</tbody>
</table>
Central Bank Policy in Wartime

• Traditional objectives
  • Stabilize inflation and growth
  • Stabilize the financial system

• Crisis management objectives
  • Ensure liquidity of solvent bank and nonbank intermediaries
  • Guarantee financial market function
  • Maintain credit availability
Central Bank Policy in Wartime

• Traditional central bank tools
  • Interest rates
  • Asset purchases
  • Lending

• Crisis management tools
  • Emergency lending to solvent banks and nonbanks
  • Buy and sell securities (and accept them as collateral when lending)
  • Lend directly to the nonfinancial sector
# Crisis Policy Framework

<table>
<thead>
<tr>
<th>Policy</th>
<th>Objectives</th>
<th>Tools</th>
</tr>
</thead>
</table>
| **Fiscal**      | • Save lives  
                  • Protect people and viable firms  
                  • Maintain productive capacity (Preserve network of relationships) | • Health & emergency services  
                  • Income support  
                  • Loans, grants & guarantees |
| **Central Bank**| • Liquidity of intermediaries  
                  • Maintain market function  
                  • Ensure credit availability | • Lend to banks & nonbanks  
                  • Buy and sell securities (and accept wide range of collateral)  
                  • Lend to nonfinancial sector |
## Crisis Policy Framework

<table>
<thead>
<tr>
<th>Policy</th>
<th>Objectives</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fiscal</strong></td>
<td>• Save lives</td>
<td>• Health &amp; emergency services</td>
</tr>
<tr>
<td></td>
<td>• Protect people and viable firms</td>
<td>• Income support</td>
</tr>
<tr>
<td></td>
<td>• Maintain productive capacity (Preserve network of relationships)</td>
<td>• Loans, grants &amp; guarantees</td>
</tr>
<tr>
<td><strong>Central Bank</strong></td>
<td>• Liquidity of intermediaries</td>
<td>• Lend to banks &amp; nonbanks</td>
</tr>
<tr>
<td></td>
<td>• Maintain market function</td>
<td>• Buy and sell securities (and accept wide-range of collateral)</td>
</tr>
<tr>
<td></td>
<td>• Ensure credit availability</td>
<td>• <strong>Lend to nonfinancial sector</strong></td>
</tr>
</tbody>
</table>

Isn’t this fiscal policy?
### Federal Reserve Balance Sheet

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treasury Securities</td>
<td>Currency in circulation</td>
</tr>
<tr>
<td>Mortgage-backed securities</td>
<td>Reserves (Commercial bank accounts)</td>
</tr>
<tr>
<td>Loans</td>
<td>Government’s account</td>
</tr>
<tr>
<td>U.S. dollar swaps</td>
<td>Other liabilities</td>
</tr>
<tr>
<td>Other assets</td>
<td>Equity</td>
</tr>
</tbody>
</table>

- The Federal Reserve can only purchase fully gov’t guaranteed
- The Federal Reserve’s balance sheet can expand without limit
- Federal Reserve liabilities are not counted as government debt
Source: Federal Reserve Board, H.4.1 release.
Federal Reserve Balance Sheet: Liabilities

Source: Federal Reserve Board, H.4.1 release.
Federal Reserve’s Wartime Interventions

Revived from 2007-09:
1. U.S. dollar swaps
2. Treasury bonds
3. Mortgage-backed securities
4. Commercial paper
5. Money market mutual funds
6. Primary dealers
7. Asset-backed securities

New in 2020:
8. Municipal bonds
9. Corporate bonds (2 programs)
10. Main street loans (2 programs)
11. Paycheck protection program
## Federal Reserve Wartime Interventions

<table>
<thead>
<tr>
<th>Program Objective</th>
<th>Liquid to Intermediaries</th>
<th>Maintain Market Function</th>
<th>Ensure Credit Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. dollar swaps to central banks</td>
<td>Treasury bond purchase</td>
<td>Treasury bond purchase</td>
<td></td>
</tr>
<tr>
<td>Lending to banks to purchase money</td>
<td>MBS purchases</td>
<td>MBS purchases</td>
<td></td>
</tr>
<tr>
<td>market mutual fund assets</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commercial paper purchases</td>
<td>Commercial paper purchases</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lending to primary dealers</td>
<td>Municipal bond purchases</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asset-backed securities lending</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corporate bond purchases</td>
<td>Corporate bond purchases</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Main street lending to nonfin</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lending to banks making loans to the paycheck protection program</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Yellow shading indicates program is providing credit to the nonfinancial sector.
## Summary of Federal Reserve Credit Programs

<table>
<thead>
<tr>
<th>Dates</th>
<th>Policy Tool</th>
<th>Maximum Size</th>
<th>Credit Protection</th>
<th>Recourse</th>
<th>Balance on Apr 15</th>
<th>Market Size/Current Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 17</td>
<td>Commercial Paper Funding Facility (CPFF)</td>
<td>Not specified</td>
<td>$10 bn</td>
<td>Yes</td>
<td>$1 bn</td>
<td>CP outstanding $848 bn</td>
</tr>
<tr>
<td>Mar 17</td>
<td>Primary Dealer Credit Facility (PDCF)</td>
<td>Not specified</td>
<td>Collateralized by securities</td>
<td>Yes</td>
<td>$33 bn</td>
<td>Primary Dealer Repo $2.0 tr</td>
</tr>
<tr>
<td>Mar 18</td>
<td>Money Market Mutual Fund Liquidity Facility</td>
<td>Not specified</td>
<td>$10 bn</td>
<td>No</td>
<td>$51 bn</td>
<td>Prime funds $1.1 tr</td>
</tr>
<tr>
<td>Mar 20</td>
<td>Money Market Mutual Fund Liquidity Facility</td>
<td>Not specified</td>
<td>$10 bn</td>
<td>No</td>
<td>$51 bn</td>
<td>Prime funds $1.1 tr</td>
</tr>
<tr>
<td>Mar 23</td>
<td>Money Market Mutual Fund Liquidity Facility</td>
<td>Not specified</td>
<td>$10 bn</td>
<td>No</td>
<td>$51 bn</td>
<td>Prime funds $1.1 tr</td>
</tr>
<tr>
<td>Mar 23</td>
<td>Primary and Secondary Market Corporate Credit Facilities (PMCCF &amp; SMCCF)</td>
<td>$850 b</td>
<td>$75 bn</td>
<td>Not specified</td>
<td>$0</td>
<td>Corporate bonds outstanding $10.9 tr</td>
</tr>
<tr>
<td>Apr 9</td>
<td>Term Asset-Backed Securities Loan Facility (TLAF)</td>
<td>$100 b</td>
<td>$10 bn</td>
<td>Yes</td>
<td>$0</td>
<td>ABS outstanding $1.8 tr</td>
</tr>
<tr>
<td>Apr 9</td>
<td>Municipal Liquidity Facility (MLF)</td>
<td>$500 b</td>
<td>$35 bn</td>
<td>Yes</td>
<td>$0</td>
<td>Munis outstanding $3.8 tr</td>
</tr>
<tr>
<td>Apr 9</td>
<td>Main Street New and Expanded Loan Facilities (MSNLF and MSELF)</td>
<td>$600 b</td>
<td>$75 bn</td>
<td>Yes</td>
<td>$0</td>
<td>Total Bus &amp; Farm Loans bigger than $1 m is $2.9 tr</td>
</tr>
<tr>
<td>Apr 9</td>
<td>Paycheck Protection Program Lending Facility (PPPLF)</td>
<td>Entire program</td>
<td>Full gov’t guarantee</td>
<td>No</td>
<td>$0</td>
<td>PPP size currently $659 bn</td>
</tr>
</tbody>
</table>
Central Bank Policy in Wartime: Constraints

• No constraint on size of Fed’s balance sheet
  (Currently Fed assets are 30% of U.S. GDP. Bank of Japan is 110%.)

• Lending to nonfinancial sector:
  • Pick winners and losers — should central bankers decide?
  • Fed is an off-balance sheet entity for the Federal Government
  • Isn’t this fiscal policy? Shouldn’t it be the job of the Treasury?

• Can post-war central banks regain independence?
The Virus Wars: Policy Objectives

• Distribute the large losses (now or later)
• Cushion the impact on the real economy
• Ensure financial system continues operate
• To maintain productive capacity, keep networks intact
The Virus Wars: Fiscal Policy

• Deliver targeted support quickly & efficiently
• Provide grants, not just loans
• Significant growth in government debt is inevitable
• Be prepared to shift from disaster relief to stimulus
The Virus Wars: Central Bank Policy

• Aggressive action is essential
• Large balance sheet expansion is justified
• Avoid fiscal actions as much as possible
• Consider how to regain independence after the war
WORLD WAR
The Virus Wars
Stephen G. Cecchetti
23 APRIL 2020
Acknowledgements

• Kim Schoenholtz, NYU Stern
• Richard Berner, NYU Stern
• Lawrence White, NYU Stern
• Karen Dynan, Harvard
• Jason Furman, Harvard
• Louise Sheiner, Hutchins Center
• Catherine Mann, Citigroup
Readings

• IMF April 2020
  • World Economic Outlook, *The Great Lockdown*
  • Fiscal Monitor, *Policies to Support People During the COVID-19 Pandemic*

• Cecchetti and Schoenholtz [www.moneyandbanking.com](http://www.moneyandbanking.com):
  • “The Fed Goes to War: [Part 1](http://www.moneyandbanking.com), [Part 2](http://www.moneyandbanking.com) and [Part 3](http://www.moneyandbanking.com)
  • “COVID-19 Economic Downturn: What do cyclical norms suggest?”
  • “COVID-19: What can monetary policy do?”
  • “Contagion: Bank runs and COVID-19”
Appendix Slides

- U.S. dollar swaps
- Treasury bonds
- Mortgage-backed securities
- Commercial paper
- Money market mutual funds
- Primary dealers
- Asset-backed securities
- Municipal bonds
- Corporate bonds (2 programs)
- Main street loans (2 programs)
- Paycheck protection program
Central Bank Policy: U.S. Dollar Swaps

• U.S. domestic financial stability not an oasis
• Global dollar system:
  • Banks abroad have $20+ trillion USD liabilities
  • U.S. reaps significant benefits
• Banks outside U.S. cannot borrow from the Fed
• Solution: Fed lends to foreign central banks
  • End-2008 peak: $580 bn
  • April 15, 2020: $378 bn
Central Bank Policy: U.S. Dollar Swaps

Dollar shortages trigger failure of covered interest parity!

ECB & BoJ borrowed immediately

Central Bank Policy: Treasury Holdings

- Sept 2008: $480 bn
- Aug 2019: $2,098 bn
- Apr 15, 2020: $3,791 bn
Central Bank Policy: Treasury Holdings

Market liquidity deteriorated.

Mar 15: up to $500 bn
Mar 19: increase to $700 bn
Mar 23: remove limit

+$1,500 bn so far

Source: Bloomberg.
Central Bank Policy: MBS Holdings

- Mortgage-backed securities markets were a problem in 2008
- Purchases began in 2009
- Jan 2015: $1,750 bn
- Mar 13, 2020: $1,372 bn
- Apr 15, 2020: $1,568 bn
Central Bank Policy: MBS Holdings

Mar 15: announce +$200 bn
+$160 bn as of Apr 15.
Central Bank Policy: Commercial Paper

• 2007-08: Outstanding plunged from $2,223 bn to $1,093 bn
• Facility in 2008-09: Peaked at $350 bn
• Current facility:
  • Minimal holdings
  • No specified limit
Central Bank Policy: Commercial Paper

Market disappeared.

Mar 17: purchase high-grade CP
Treasury backstop
No specified limits

Apr 15: $1 bn

Note: 90-day AA, gaps are days when there is no quote. Source: FRED.
Central Bank Policy: Money Market Funds

• Money market funds are not insured
• Holdings are primarily short-term
  (gov’t securities and commercial paper)
• Institutional funds faced runs in 2008 and again in 2020.
Central Bank Policy: Money Market Funds

From end Feb to end Mar:
- Inst: $-100 bn
- Retail: $-43 bn
- Gov’t: $+741 bn

Mar 18: announced
Mar 20: included muni debt
Mar 23: further broadened Treasury backstop
No specified limit

Apr 15: $52 bn

Central Bank Policy: Primary Dealers

• Market makers for bonds
• Peak Oct 2008: $148 bn
• 2020: Dealers find it more difficult to deliver corporate bonds.
Central Bank Policy: Primary Dealers

Mar 17:
Lend against broad collateral
No specified limits

Apr 15: $36 bn loans outstanding

(Note: Treasury turnover is 20-25 times corporate turnover.)

Source: Federal Reserve Bank of New York.
Central Bank Policy: Municipal Bonds

- Market is $3.8 trillion
- State and local governments are under enormous stress
- Issuance difficult
- But adding debt magnifies long-term burdens
  (Issuers will be forced into fiscal contraction for years.)
Central Bank Policy: Municipal Bonds

Bond index prices fell.

Source: Yahoo Finance.
Central Bank Policy: Corporate Bonds

- Nonfinancial corporate bonds: 27% of GDP
  (Up from 19% in 2007. Current $5.8 trillion nearly double in 10 yrs.)
- Over 50% of investment grade is just above junk
  (2019: $3.2 trillion was rated BBB, the lowest investment grade.)
- Vulnerability to downgrades is high
  20% of investment grade & almost 40% of junk is at risk of downgrade
- Cost of financing is surging
  (Ford: Feb 2020 paid at 3½%, Apr 2020 paid 9%).
Central Bank Policy: Corporate Bonds

Mar 23: First announced
Apr 9: Eased credit standards

Primary & second market
Investment grade Mar 22
Treasury credit protection

Limit: $850 billion

Source: FRED.
Central Bank Policy: Main Street Loans

• Nonfinancial borrowing (ex bonds) up 50% since 2010 (Currently $9.5 trillion, 43.7% of GDP)

• Firms <500 employees: 47% of employment
  (There are 6 million firms, of which 20,000 are large.)
Central Bank Policy: Main Street Loans

Source: Survey Research Center, University of Michigan.

Consumer sentiment ↓↓

Mar 25 – Apr 7
Central Bank Policy: Main Street Loans

Small Bus Optimism Index ↓ ↓

Source: National Federation of Independent Business.
Central Bank Policy: Main Street Loans

Announced April 9:

- Size of loan: $1 million to $150 million
- Size of firm: <10,000 employees or <$2 billion in 2019 revenue (That is only excludes 1800 firms.)
- Maximum participation: 95% of each loan (lender takes min 5%)
- Restrictions on compensation, stock repurchases, & capital distribution (Participants in the corporate bond program do NOT face these.)
- Limit: $600 billion
Central Bank Policy: Paycheck Protection

- Federal gov’t program help businesses keep employees
- Loans are fully government guaranteed
- Fed lends to banks using loans as collateral
- No different from purchasing agency securities
- Limit: $659 billion (entire program)
WORLD WAR

The Virus Wars

Stephen G. Cecchetti

23 APRIL 2020