



# **CHAPTER 3**

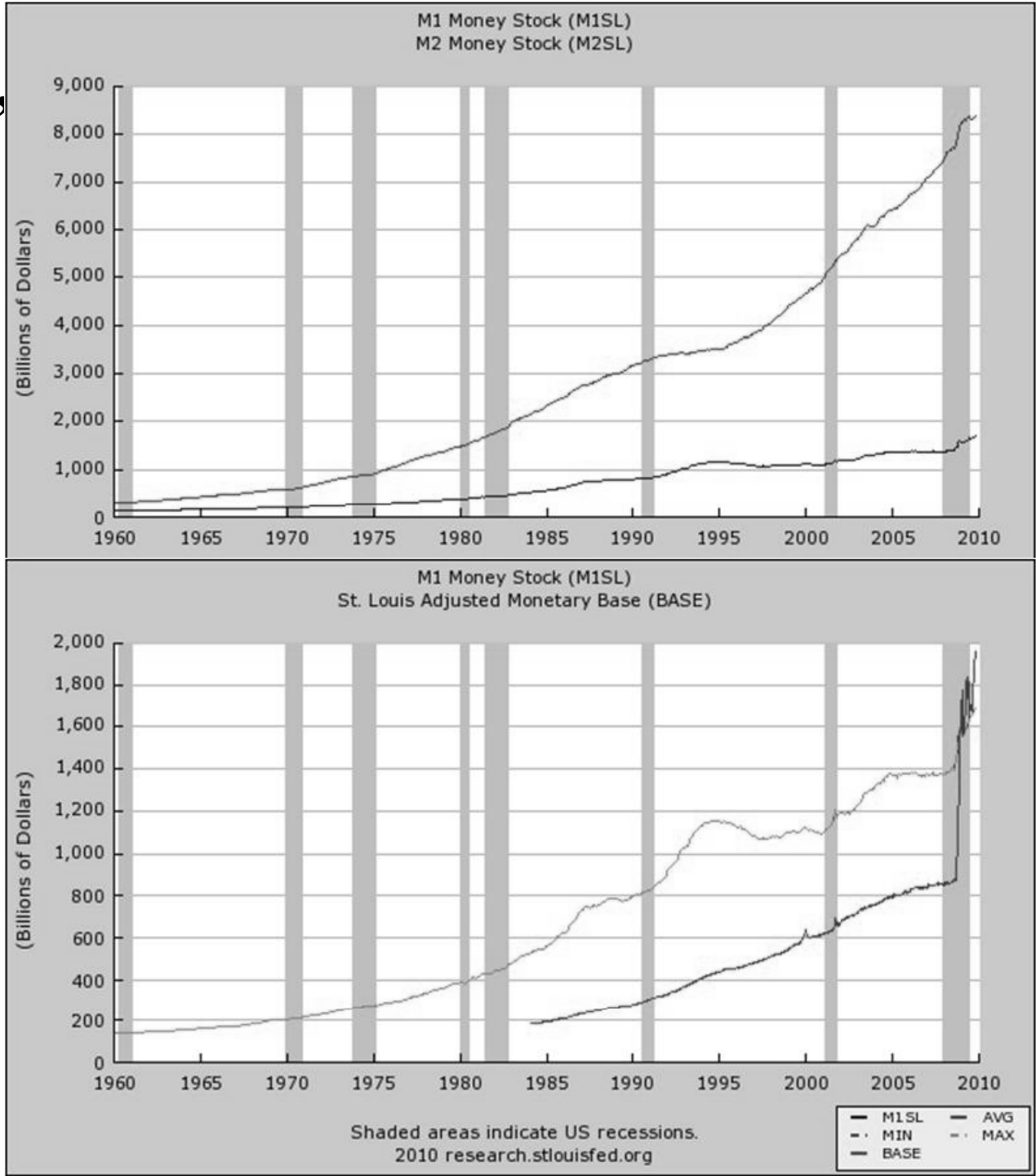
## **THE FED AND INTEREST RATES**

<http://timeline.stlouisfed.org/index.cfm?p=timeline>

# *Money - Definitions*

- Reserves - to meet reserve requirements, depository institutions must transact with Fed in monetary base assets.
  - Reserves = reserve account balances and vault cash
  - Reserves earn little interest. (new for 2008!!)
  - Banks don't make much money holding reserves.
- Monetary base = very narrow measure of money. Fed's two largest liabilities.
  - Federal Reserve Notes in circulation + Depository institution reserves.
- Measures of money supply –
  - M1 – currency plus checking deposits
  - M2 – M1 + savings deposits + money market deposit accounts + small time deposits + overnight repos, eurodollars, money mkt mutual funds.
  - MZM = Money zero maturity
    - M2 – small time deposits – money mkt mutual funds.

*M1,*



# *Fed affects monetary base; M1; rate; real economy*

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- Fed controls monetary base directly. Reserves are created when Fed -
  - buys securities on open market,
  - lends at discount window, or
  - lowers reserve requirements
- Changes in monetary base affect M1, M2, etc..
  - As excess reserves are lent out by depository institutions, M1 increases.
  - new loan of excess reserves increases borrower's transaction balances (M1)
  -
- Changes in money supply affects “real” economy (more next slide)
  - Increases M1 finance purchases by DSUs of goods or services in real sector.
- Changes in money supply affects (*short-term*) interest rates (*directly*).
  - Federal funds rate – rate banks pay each other on borrowed reserves.
  - Increases in MB (supply of reserves) causes Fed funds rate to decline.
  - Caveat:

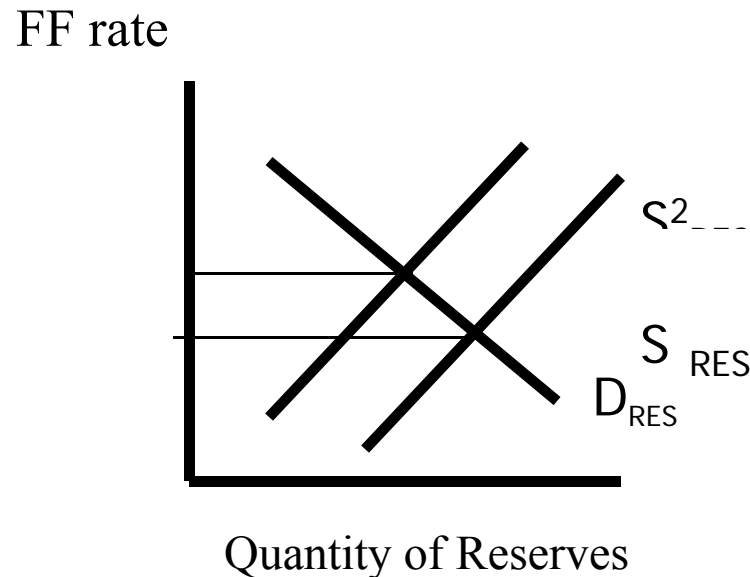
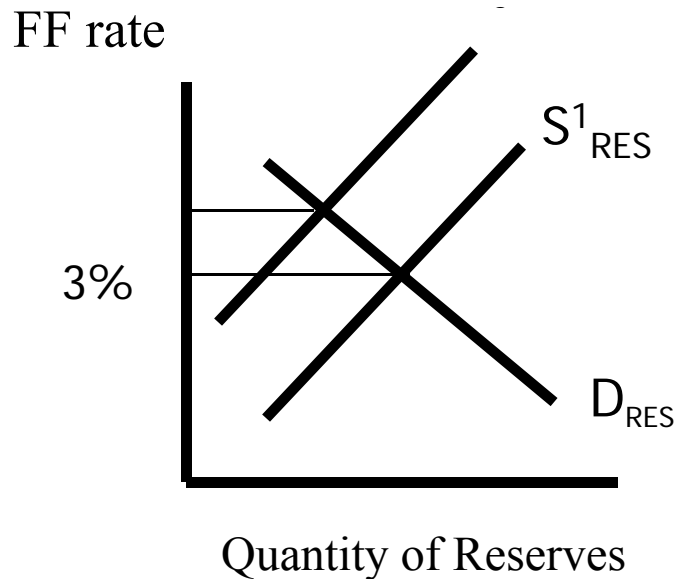
## EXHIBIT 3.2

**Fed's Impact on the Money Supply with an Open-Market Purchase of Treasury Securities (\$billions)**

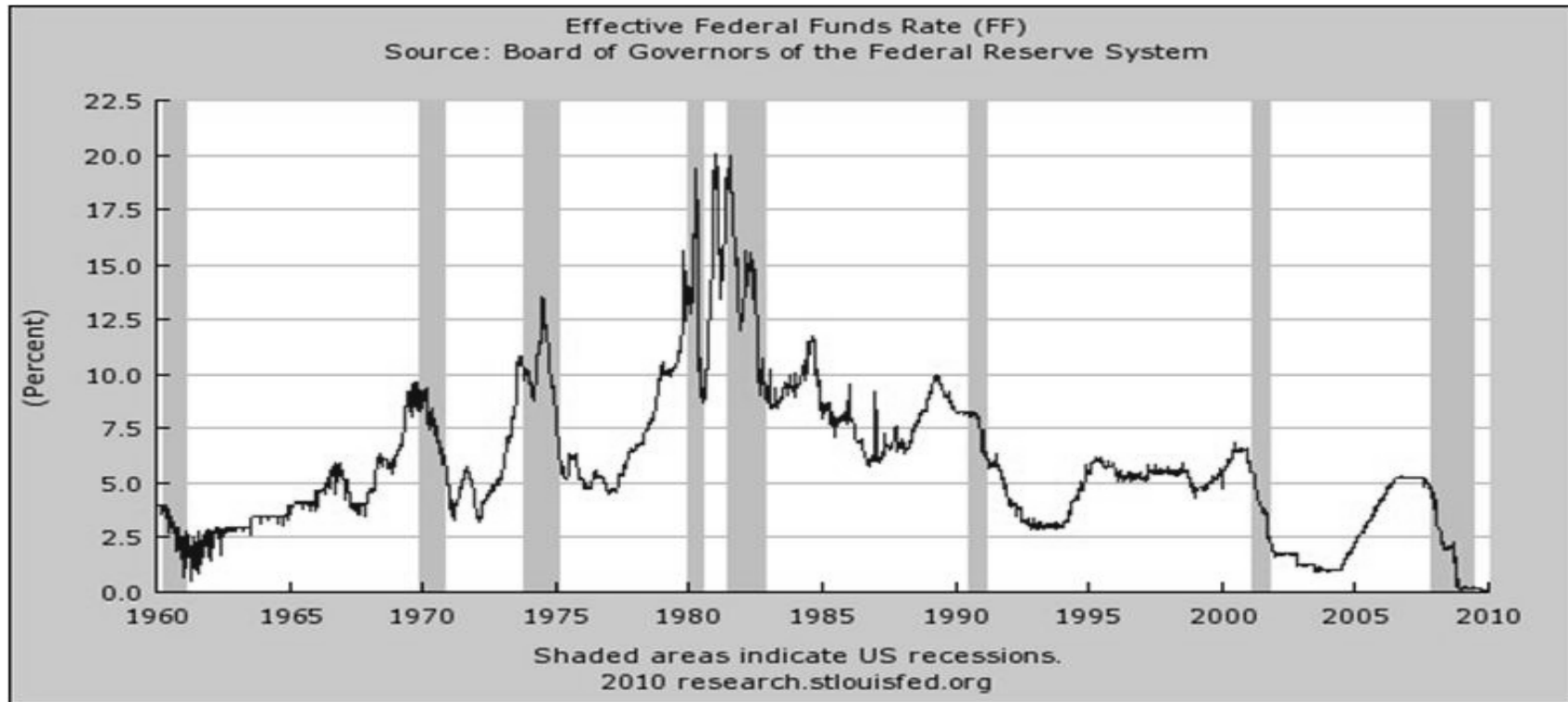
Initial Condition			
Assets		Liabilities	
Reserves	\$60	Transaction Deposits	\$600
Loans and Investments	540		
	\$600		\$600
Fed Injects \$30 Billion of Reserves into Banking System			
Assets		Liabilities	
Reserves	\$90	Transaction Deposits	\$600
Loans and Investments	510		
	\$600		\$600
Banking System Loaned/Invested Up			
Assets		Liabilities	
Reserves	\$90	Transaction Deposits	\$900
Loans and Investments	810		
	\$900		\$900

# *Call Profits: Graph at Expiration*

- Q: What is effect on federal funds rate when Fed conducts open market sale?
- A: open mkt sale →
- Q: What is effect on federal funds rate when Fed conducts open market purchase?
- A: open mkt purchase →
- Q: What is effect on federal funds rate when Fed increases reserve requirements?
- A: increase res requirement →

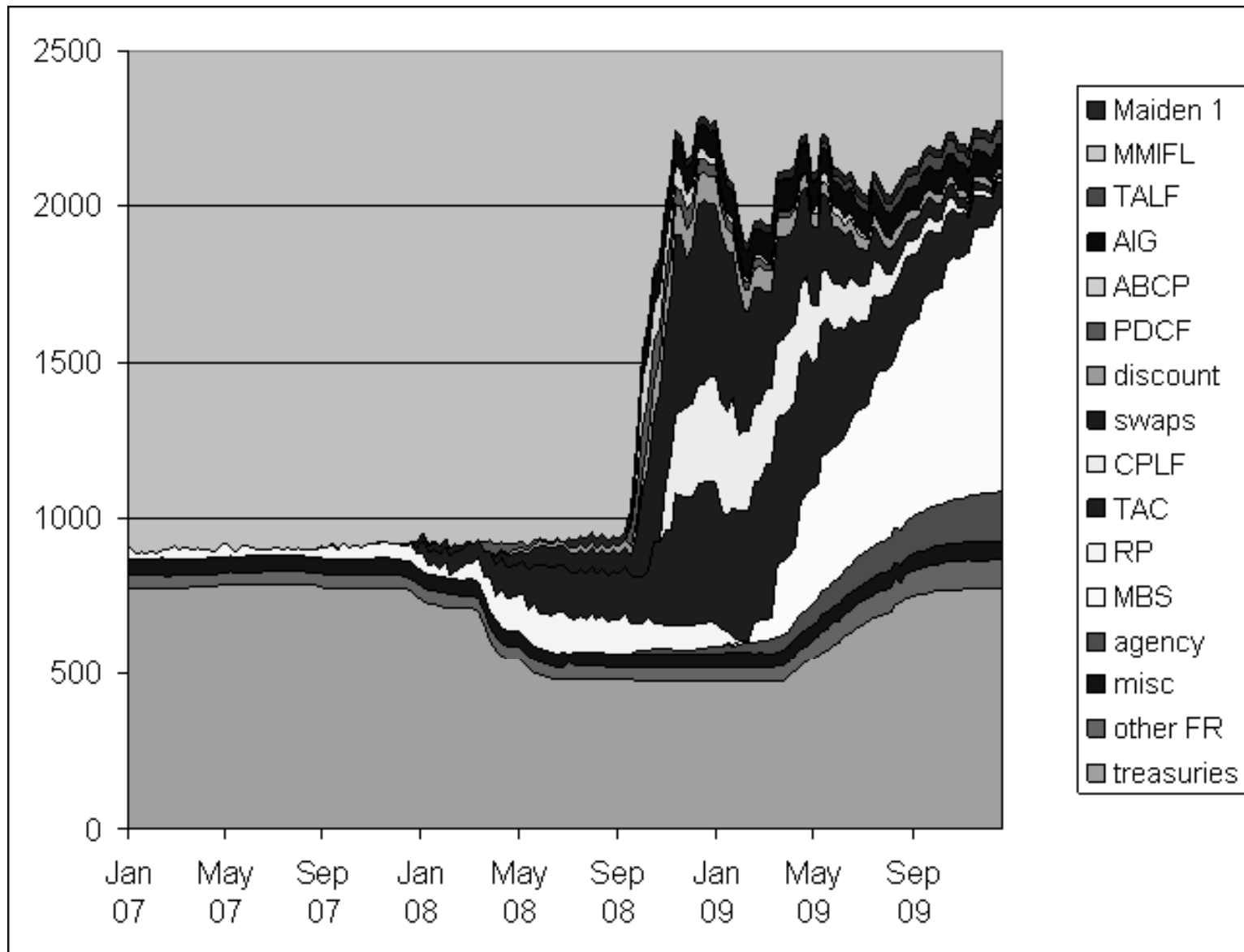


# *Federal Funds Rate*

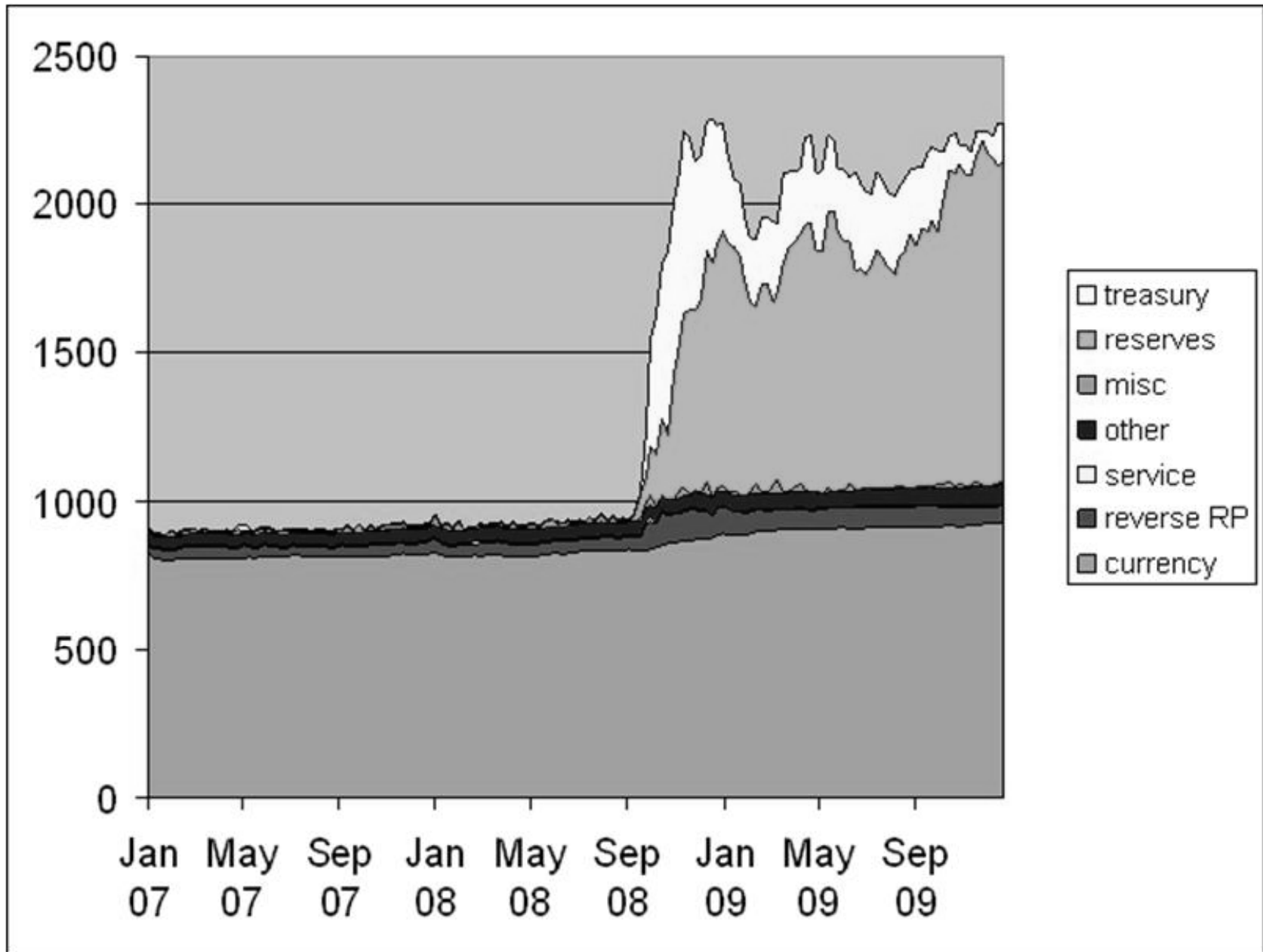


- Q: What does the fed do if it is trying to stimulate the economy, but has already increased the supply of reserves so that the Fed funds rate is zero?
- A

# *Federal Reserve Assets since the Crisis*



# *Federal Reserve Liabilities since the Crisis*

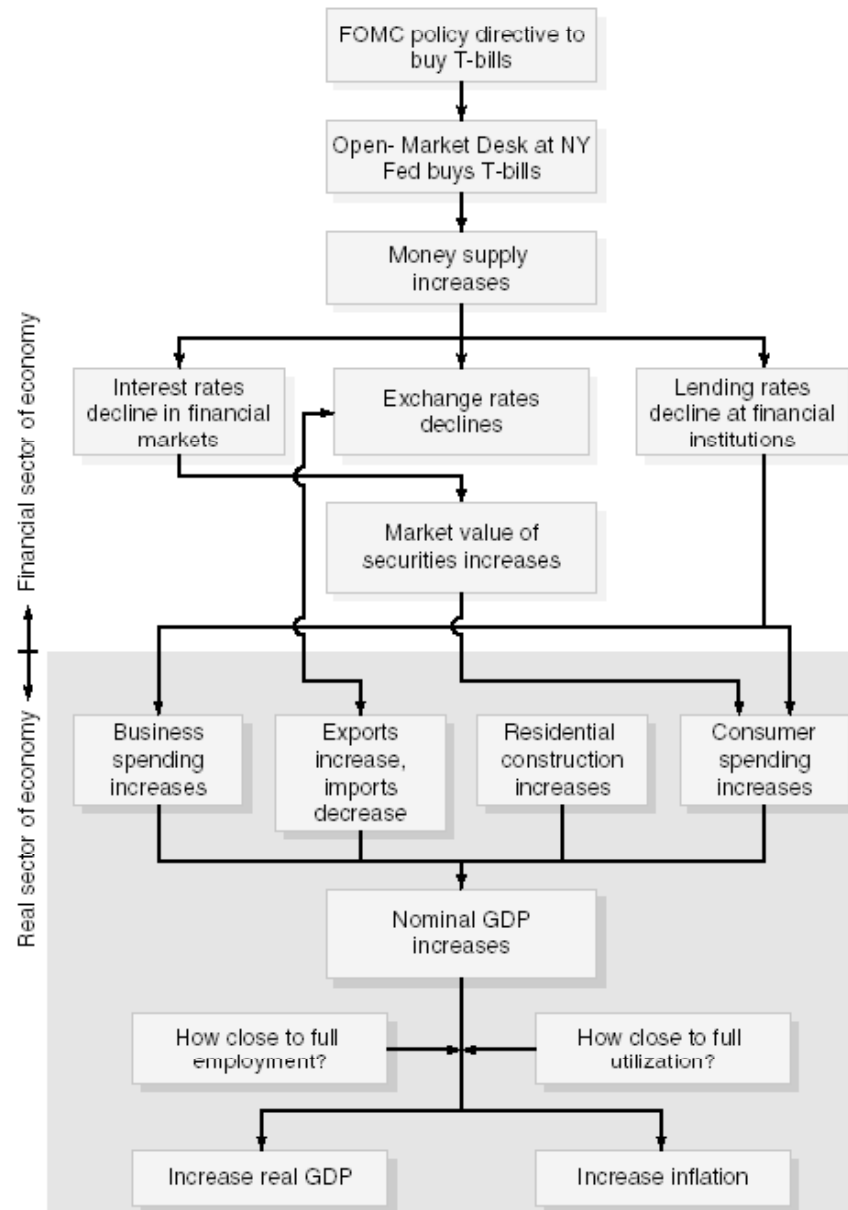


# *How do changes in money affect economic growth?*

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- Monetary policy – usually interpreted as discretionary changes by Federal Reserve (using one of 3 tools) with goal of affecting economic growth.
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- Business investment in real assets
  - Present value of future cash flows from real assets rise as interest rates fall.
  -
- Consumer spending; especially for durable goods and housing
  -
- Net exports (Gross exports less gross imports)
  - Falling interest rates (U.S.) tend to decrease value of domestic currency (\$)
  - Weaker currency increases cost of imports; so imports decline.
    - E.g.,
  - Weaker currency decreases cost of exports to foreigners; so exports increase
    - E.g.,

# Monetary Policy and Economic Variables (Exhibit 3.8) <sup>11</sup>



# Difficulties in targeting money supply / reserves

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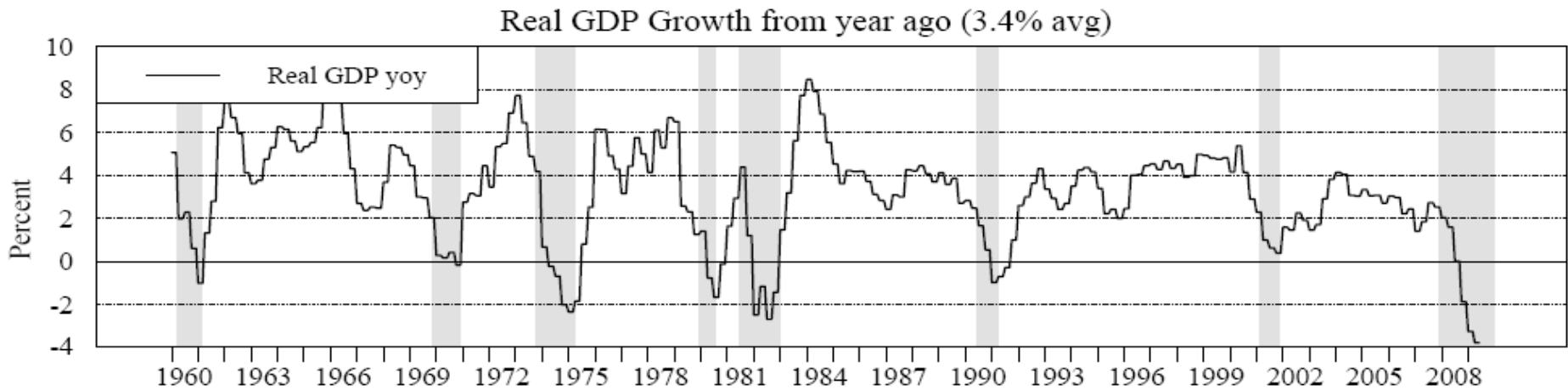
- Velocity of money is difficult to predict (more later)
  
- Cash drains
  - Cash holdings by public “use up” monetary base
  -
  
- The float – due to Fed check clearing...
  - $DACI - CIPC = \text{Float}$ , net extension of credit by Fed
    - cash items in the process of collection
    - deferred availability cash items
  -
  
- US Treasury deposits
  - Treasury payments cause large shifts in reserves
  -

## *Can permanently affect level of output?*

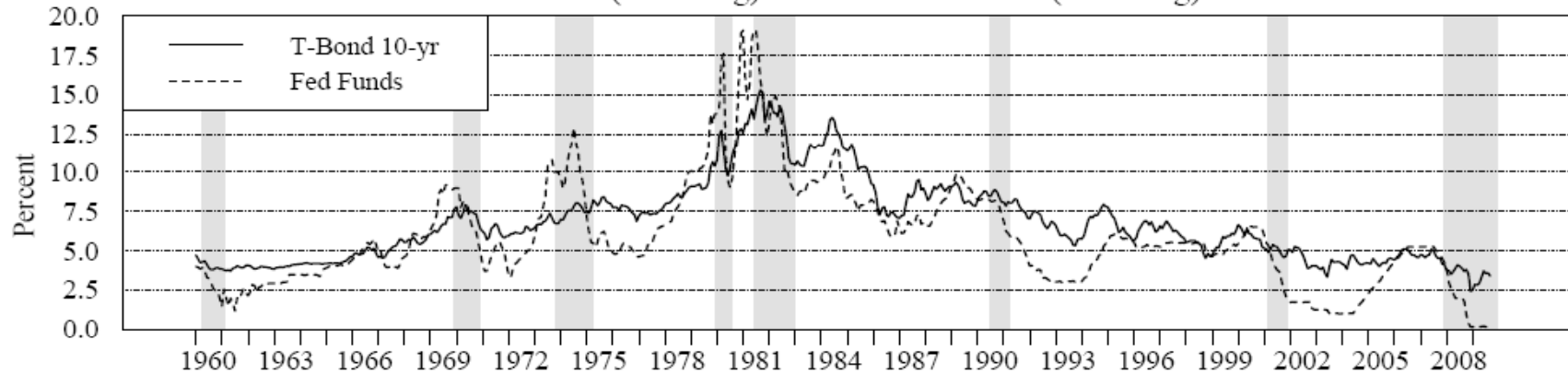
- Equation of Exchange (an identity)
  - $MV = PQ$
- Suppose the Fed increases Money Supply. Suppose  $V$  is constant
  - 
  - In the short-run,
  - In the long-run,
- Determinants of long-run real output ( $Q$ )
  - Quantity and productivity of capital stock (human and physical).
  -
- Conclusion:
  - Monetary policy may be useful for smoothing short-term fluctuations.
  - But cannot increase real output in long-run.
  - Good tool to help stabilize business cycle and price level.
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# *Goals of Federal Reserve*

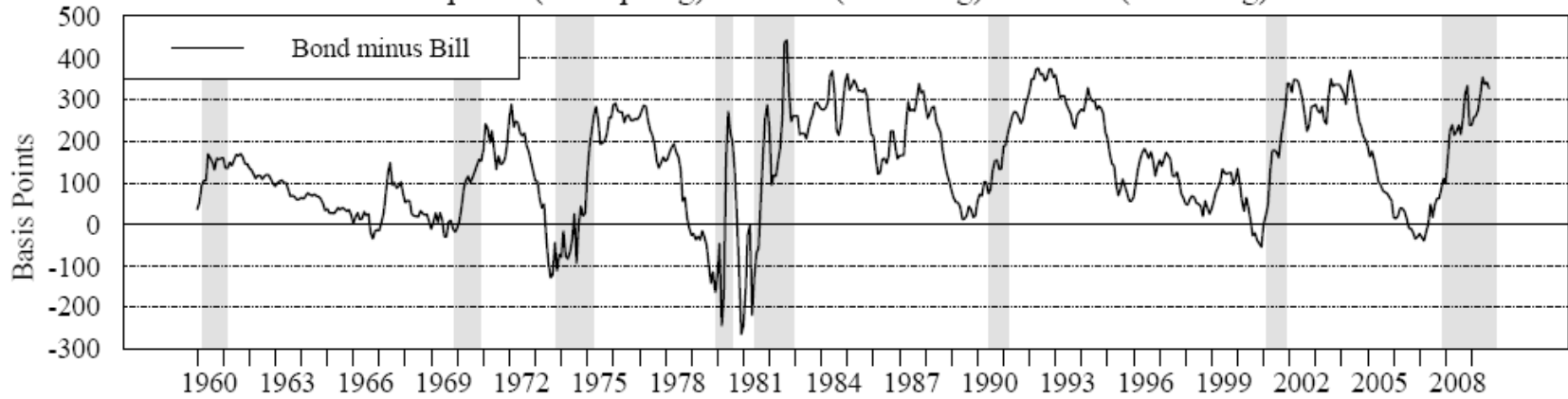
- Goals of Fed Reserve, dictated by Congress.  
Humphrey-Hawkins Act of 1978
  - Full employment – increase in demand tend to increase employment.
  - Price index stability – increases in demand tend to increase inflation.
  - 
  - 
  - Economic growth
  - Interest rate stability
  - Stable financial system
  - Stable foreign exchange markets
- Goals are sometimes conflicting!
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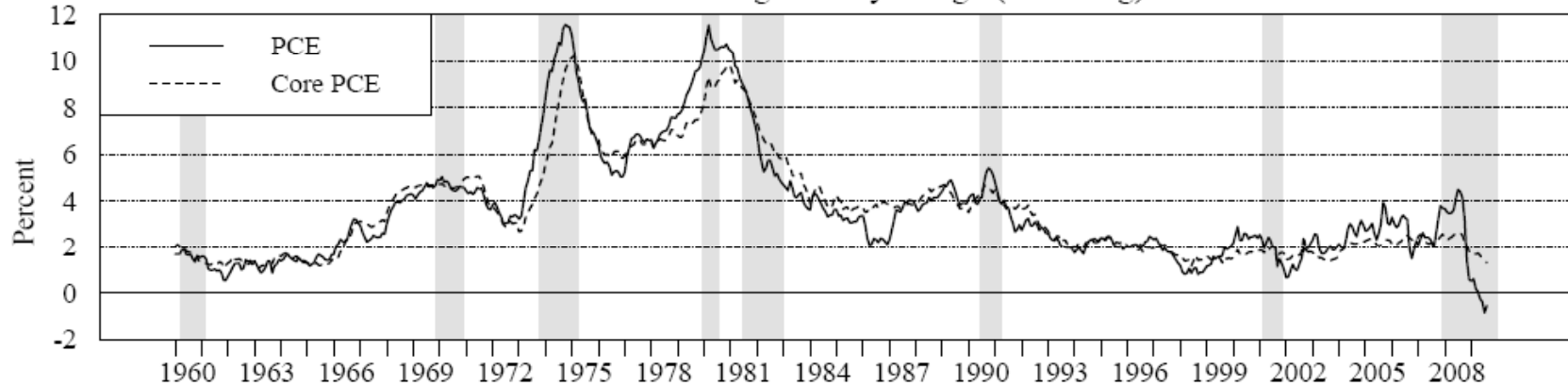
T-bond Yield (7.0% avg) and Fed Funds Rate (6.1% avg)



Term Spread (141 bp avg): T-bond (7.0% avg) vs T-bill (5.5% avg)



Inflation - PCE change from year ago (3.8% avg)



A C  
 2 1

### Assets and Liabilities of the Federal Reserve System

Billions of dollars

