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# Interest Rates and Monetary Policy

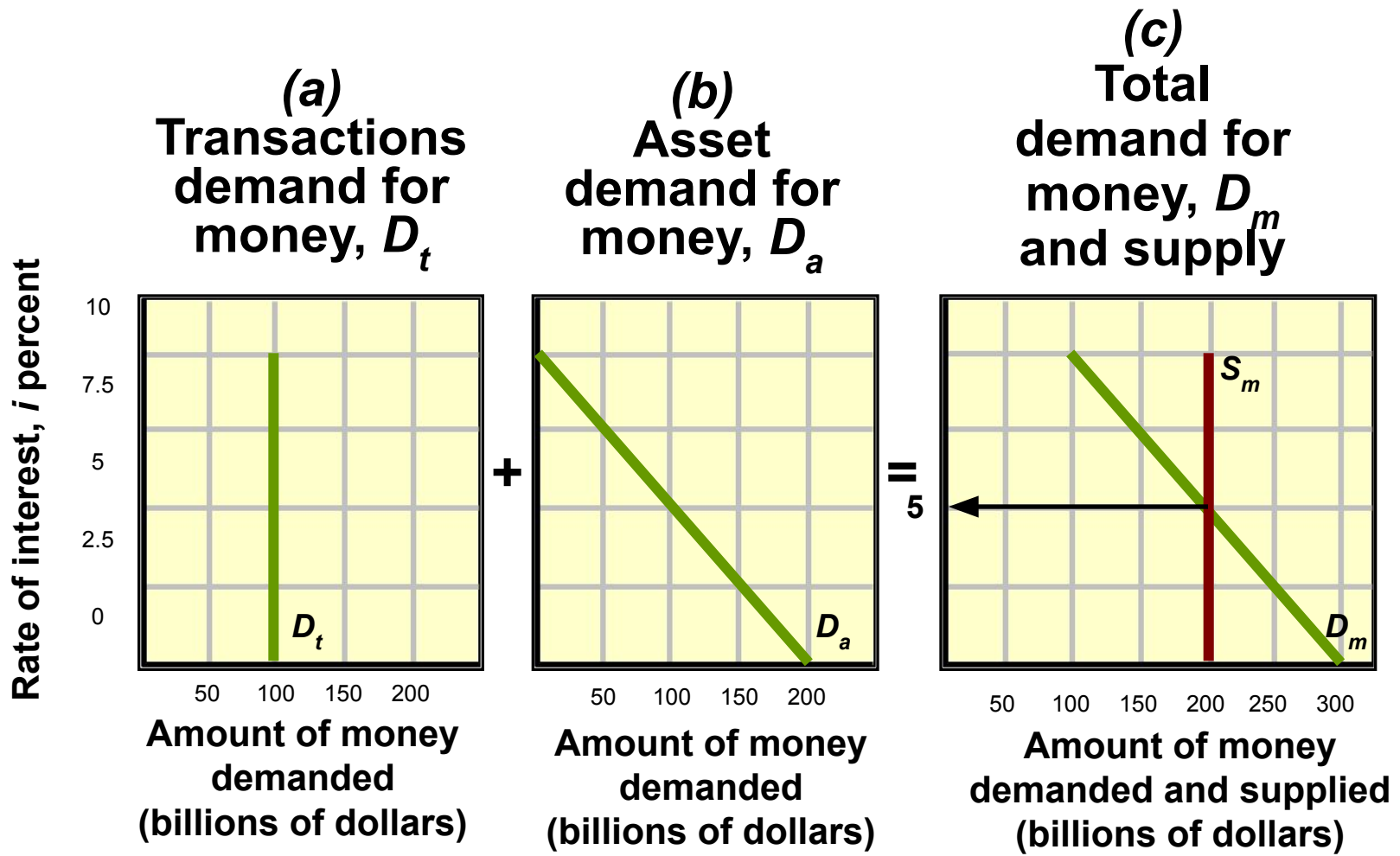
# Interest Rates

- The price paid for the use of money
- Many different interest rates
- Speak as if only one interest rate
- Determined by the money supply and money demand

# Demand for Money

- Why hold money?
- Transactions demand,  $D_t$ 
  - Determined by nominal GDP
  - Independent of the interest rate
- Asset demand,  $D_a$ 
  - Money as a store of value
  - Varies inversely with the interest rate
- Total money demand  $D$

# Demand for Money



# Federal Reserve Balance Sheet

- Assets
  - Securities
  - Loans to commercial banks
- Liabilities
  - Reserves of commercial banks
  - Treasury deposits
  - Federal Reserve Notes outstanding

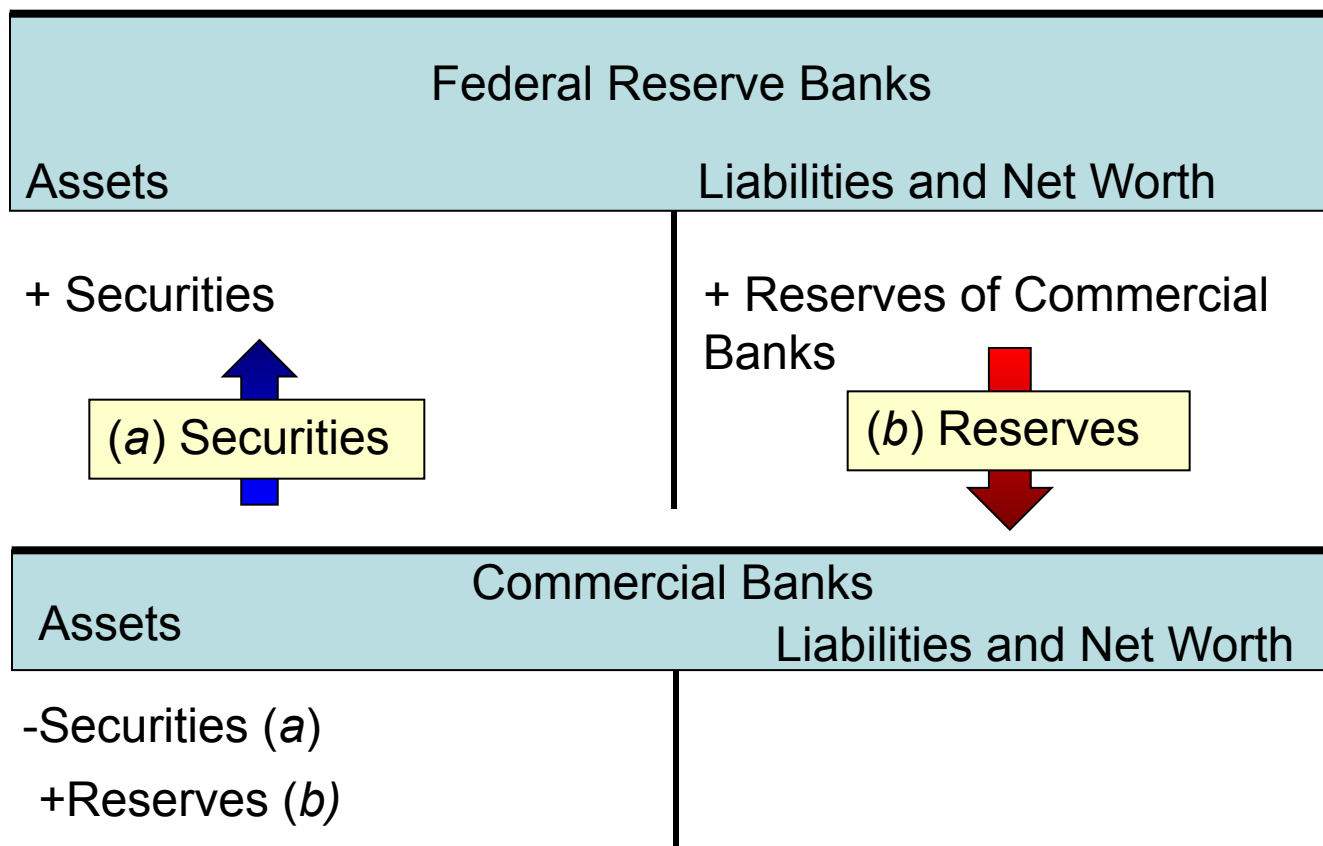
# Tools of Monetary Policy

- Open market operations
  - Buying and selling of government securities (or bonds)
  - Commercial banks and the general public
  - Used to influence the money supply
- When the Fed sells securities, commercial bank reserves are

reduced

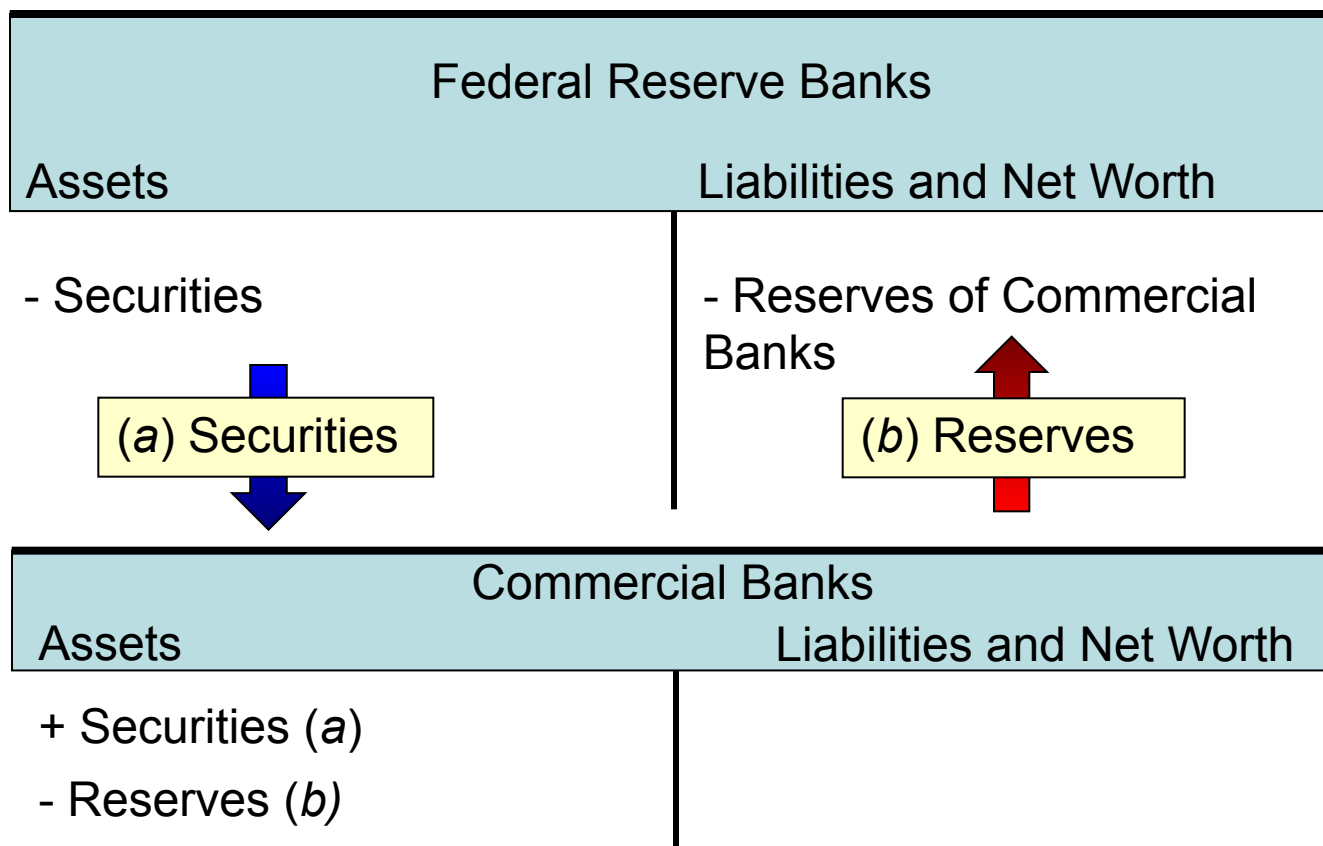
# Tools of Monetary Policy

- Fed buys bonds from commercial banks



# Tools of Monetary Policy

- Fed sells bonds to commercial banks





# Tools of Monetary Policy

- The reserve ratio
  - Changes the money multiplier
- The discount rate
  - The Fed as lender of last resort
  - Short term loans
- Term auction facility
  - Introduced December 2007
  - Banks bid for the right to borrow

# Tools of Monetary Policy

- Open market operations are the most important
- Reserve ratio last changed in 1992
- Discount rate was a passive tool
- Term auction facility is new
  - Guaranteed amount lent by the Fed
  - Anonymous

# The Federal Funds Rate

- Rate charged by banks on overnight loans
- Targeted by the Federal Reserve
- FOMC conducts open market operations to achieve the target
- Demand curve for Federal funds
- Supply curve for Federal funds

# Monetary Policy

- Expansionary monetary policy
  - Economy faces a recession
  - Lower target for Federal funds rate
  - Fed buys securities
  - Expanded money supply
  - Downward pressure on other interest rates

# Monetary Policy

- Restrictive monetary policy
  - Periods of rising inflation
  - Increases Federal funds rate
  - Increases money supply
  - Increases other interest rates

# Taylor Rule

- Rule of thumb for tracking actual monetary policy
- Fed has 2% target inflation rate
- If real GDP = potential GDP and inflation is 2%, then targeted Federal funds rate is 4%
- Target varies as inflation and real GDP vary

# Expansionary Monetary Policy

## Problem: Unemployment and Recession

Fed buys bonds, lowers reserve ratio, lowers the discount rate, or increases reserve auctions

Excess reserves increase

Federal funds rate falls

Money supply rises

Interest rate falls

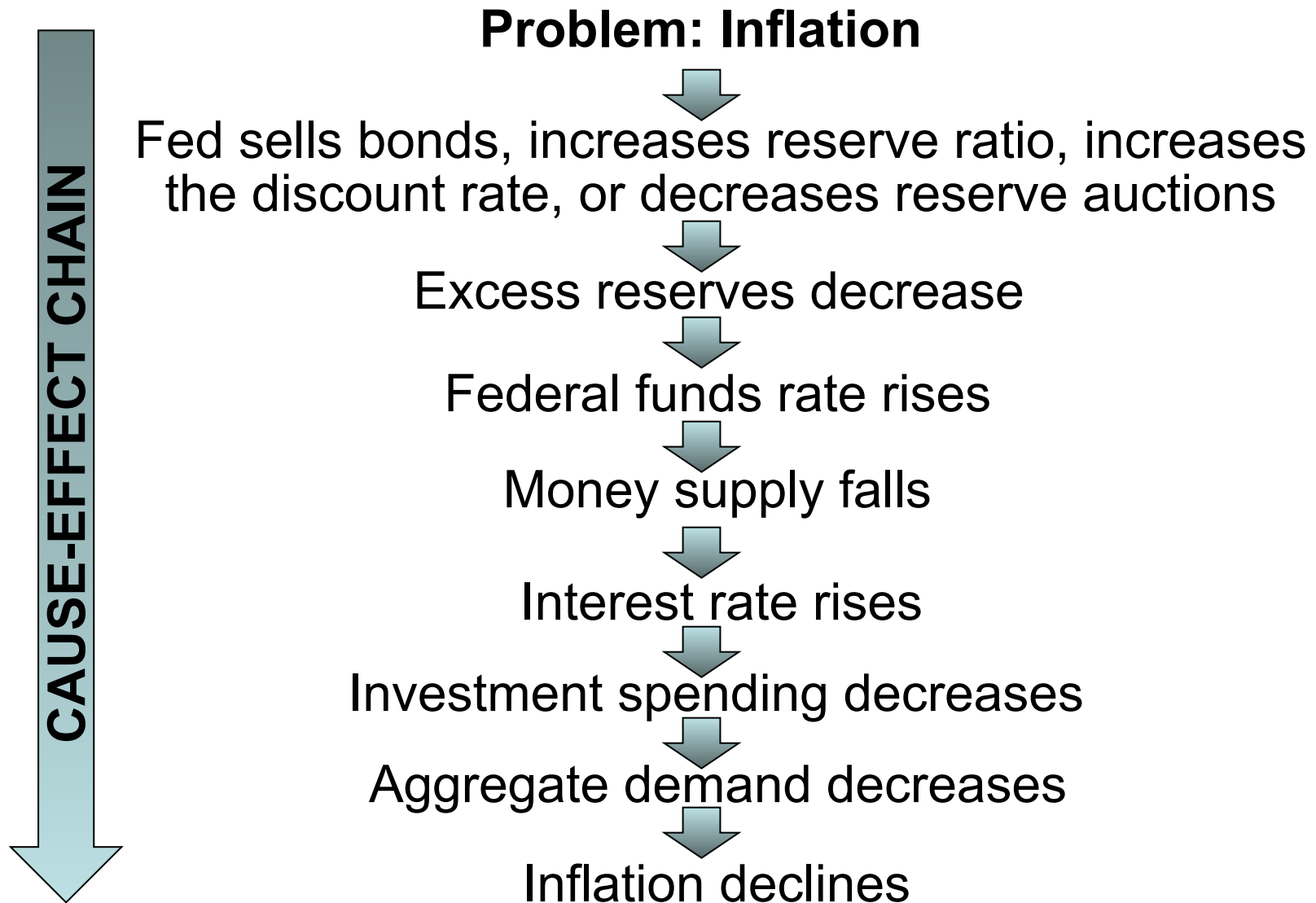
Investment spending increases

Aggregate demand increases

Real GDP rises

CAUSE-EFFECT CHAIN

# Restrictive Monetary Policy





# Evaluation and Issues

- Advantages over fiscal policy
  - Speed and flexibility
  - Isolation from political pressure
  - Monetary policy is more subtle than fiscal policy

# Problems and Complications

- Lags
  - Recognition and operational
  - Cyclical asymmetry
  - Liquidity trap