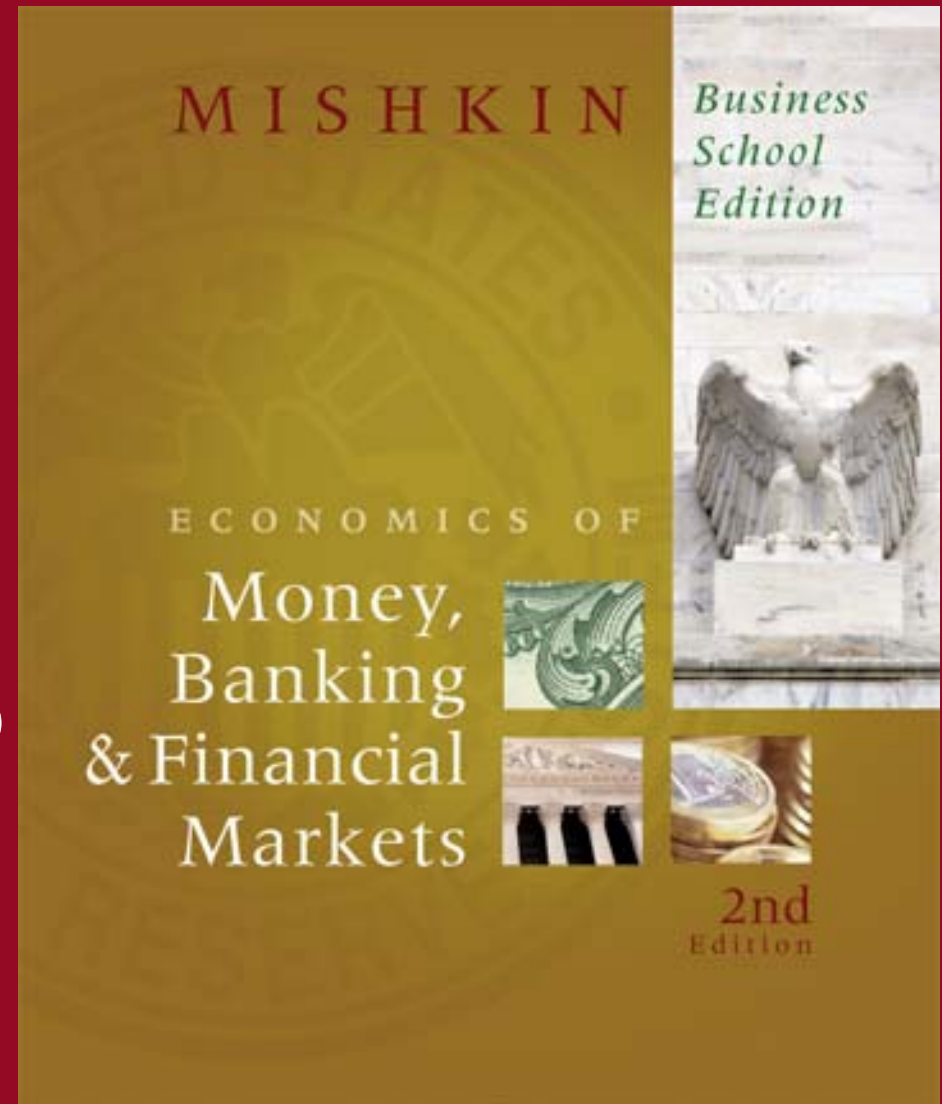


Chapter 3

What Is Money?

Mishkin notes with
edits by L. Tesfatsion
(Iowa State University)

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Topics



- Definition of money
- Functions of money
- Alternative types of payment systems
- Evolution of forms of money
- Measurement of the money supply
- Money supply and monetary policy

Definition of Money



- What is it?
 - **Money** is anything that is generally accepted in payment for goods or services or in the repayment of debts.
- A rather broad definition
 - “Money” is defined in terms of function, not form
 - “Money” is a social construction (i.e., it is dependent on social acceptance)

What Money is Not !



- Money is DISTINCT from:
 - **Wealth (or “Net Worth”)**: current value of all assets owned by an entity (person, agency, nation,...) net of all liabilities owed by the entity
 - **Example:** His wealth is \$10,000 (value amount)
 - **Income**: the flow of earnings of an entity per unit of time
 - **Example:** His income is \$10,000 per year (flow of value)

Functions of Money



Medium of Exchange (Means of Payment):

- Eliminates the need to have a “double coincidence of wants” (reduces transaction costs)
- Promotes specialization & division of labor

A medium of exchange must

- be easily standardized
- be widely accepted
- be divisible
- be easy to carry
- not deteriorate quickly



Functions of Money...Continued

Unit of Account:

- used to measure value in the economy
- reduces transaction costs

Store of Value:

- used to save purchasing power over time.
- other assets also serve this function
- Money is the most liquid of all assets but loses value during inflation

Alternative Payment Systems



- **Autarky:** Group distribution rules for sharing and gift giving. No trade takes place, and no use of money.
- **Barter:** Trade takes place, but no use of money *Example:* Incas of Peru, 12th-15th c. AD
- **Monetary:** People trade goods and services in exchange for money



Problems with Barter Exchange

- No Medium of Exchange
 - Lack of double coincidence of wants
 - Discourages people from specializing in types of production they do best
- Need for Many Prices
 - $N(N-1)/2$ prices given N distinct goods/services
- No Common Unit of Account
- No Common Store of Value

Evolution of Forms of Money



- **Commodity money** (~ 9000 BC)
- **Token Money (No Intrinsic Use-Value)** (~9000BC)
- **Checks** (Medieval Italy & Catalonia, 5th-15th c. AD)
- **Backed Paper** (China ~960AD, British colonies 1690-1776)
- **Unbacked Paper** (China ~618–960AD; US 1862, 1973→)
- **Fiat Money** (China ~1300 AD; first U.S. use 1862)
- **Electronic money** (first U.S. use in 1990's)

Forms of Money ...



- ***Traditional Definition of a Commodity***
 - Something with intrinsic use value (e.g., bread)
- ***Modern Definition of Commodity***
 - Anything of value available for purchase and sale in standardized form (e.g., cell phone minutes)
- ***Commodity Money***
 - Commodity also used as money
 - Commodities used as monies in past tended to be most valuable, easily standardized & divisible
 - ***Examples:*** Shells, precious metals, cigarettes...

Forms of Money ... Continued



- **Token Money**

- Face value $>$ intrinsic use value
- **Examples:** Marked stones, many modern coins (e.g., post-1982 U.S. zinc penny issues, see <http://www.coinflation.com/>)

- **Checks**

- An instruction to your bank (in paper form) to transfer money from your account

Forms of Money ... Continued



- **Backed Paper Money**
 - Collateralized by some commodity
 - **Example:** Tobacco in warehouse used as collateral backing for issued paper monies
- **Unbacked Paper Money**
 - No legal requirement that it be collateralized by any commodity
- **Fiat Money:** *Unbacked paper money* decreed by a government to be **legal tender**, meaning that
 - by law - it must be accepted for debt payments.

Forms of Money...Continued



- **Electronic Money**

- Debit card
- “Mobile money” (cell phone networks permitting cell phones to act as debit cards)
- Stored-value cards
- Electronic cash and checks – used on Internet

Measuring Monetary Aggregates: An Empirical Approach



Use *whatever* measure works best for the control of key macro variables such as GDP, the general price level, etc.

- **PROBLEMS:**

- Different measures work best for different variables
- Usefulness of any one measure for prediction of any one variable varies over time

Measuring Monetary Aggregates: Two Theoretical Approaches



1 Measure as “money” only those assets that are most liquid, hence that function best as a medium of exchange.

(Appropriate cut-off not clear)

2 Include all financial assets in the measure of money, but weight them in proportion to their liquidity.

Example:

$$M = .8 \times [\text{\$ bills}] + .1 \times [\text{Treasury Bills}] + \dots$$

(Appropriate weights not clear)

Measuring Monetary Aggregates via Liquidity



- Actual practice in U.S.
- U.S. uses nested family of money measures constructed on basis of decreasing liquidity

M1 = Most Narrow Measure (Most Liquid)

M1 = currency + traveler's checks + demand deposits + other checkable deposits

Measuring Money via Liquidity...



- **$M2 = M1 + \text{Less Liquid Assets}$**

$M2 = M1 +$ small denomination time deposits
+ savings deposits
+ money market deposit accounts
+ money market mutual fund shares

- **$M3 = M2 + \text{Less Liquid Assets}$**

- **$L = M3 + \text{Less Liquid Assets}$**

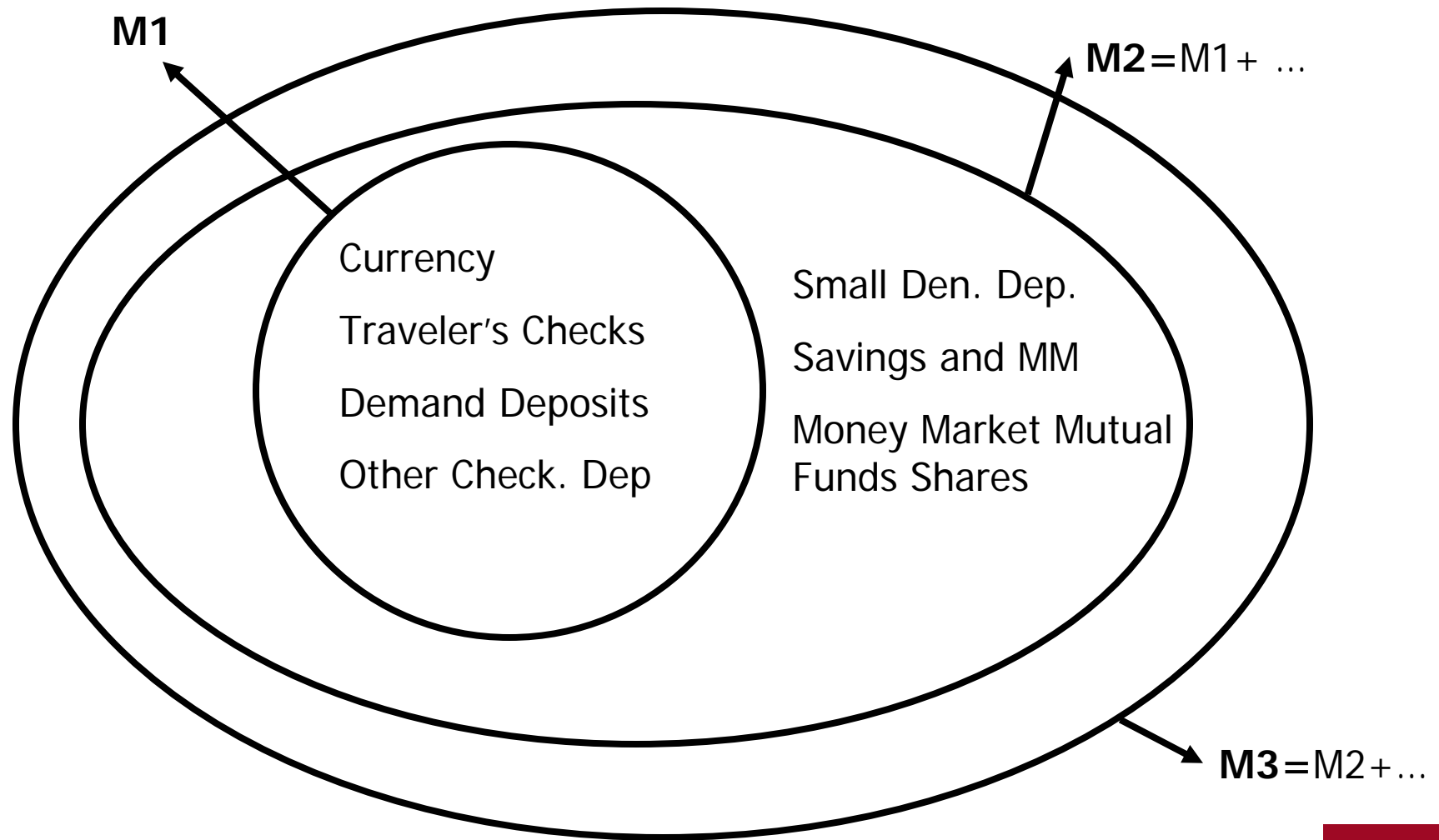
Table 1 Measures of the Monetary Aggregates



	Value as of November 2008 (\$ billions)
M1 = Currency	804.9
+ Traveler's checks	5.6
+ Demand deposits	405.9
+ Other checkable deposits	306.1
Total M1	1,522.5
M2 = M1	
+ Small-denomination time deposits	1,351.0
+ Savings deposits and money market deposit accounts	4,007.1
+ Money market mutual fund shares (retail)	1,053.9
Total M2	6,412.0

Source: www.federalreserve.gov/releases/h6/hist.

Monetary Aggregates

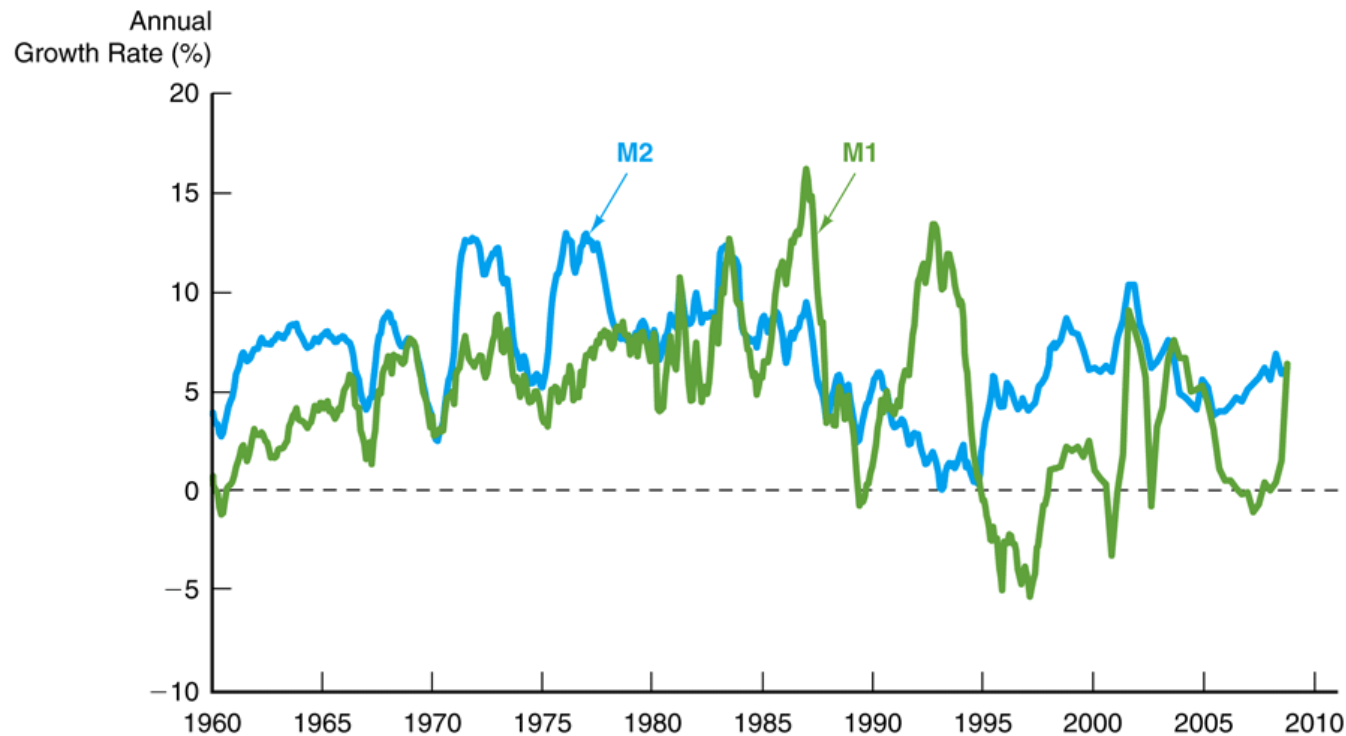


M1 vs. M2



- Does it matter which measure of money is considered?
 - M1 and M2 can move in different directions in the short run (see the figure on the next slide).
 - **Conclusion:** the choice of monetary aggregate is important for policymakers.

FIGURE 1 Growth Rates of the M1 and M2 Aggregates, 1960–2008



Sources: Federal Reserve *Bulletin*, p. A4, Table 1.10, various issues;
Citibase databank;
www.federalreserve.gov/releases/h6/hist/h6hist1.txt.

How Reliable are Money Data?



- Revisions of money measures are routinely made after initial release:
 - Small depository institutions report infrequently
 - Adjustments must be made for seasonal variation
- We probably should not pay much attention to short-run movements in money measures
- We should be concerned only with longer-run movements

Table 2 Growth Rate of M2: Initial and Revised Series, 2008 (percent, compounded annual rate)



Period		Initial Rate	Revised Rate	Difference Revised Rate – Initial Rate
July	2007	4.1	4	–0.1
August	2007	10.6	8.2	–2.4
September	2007	5.2	6.2	1
October	2007	4.4	4	–0.4
November	2007	5.4	6.4	1
December	2007	5.9	5.9	0
January	2008	9.6	9.6	0
February	2008	19.9	19.7	–0.2
March	2008	14.7	13.4	–1.3
April	2008	3.7	3.3	–0.4
May	2008	2.3	2.4	0.1
June	2008	–3.7	–3.9	–0.2
Average		6.8	6.6	–0.2

Source: Federal Reserve Bulletin, various issues, Table 1.7 line 6; www.federalreserve.gov/pubs/supplement/default.htm.

Averages are close

Direct Effects of $M \rightarrow PQ?$



- Let M = Money supply during year T
- Q = Real GDP for year T
- P = GDP Deflator for year T
- $P \cdot Q$ = (Nominal) GDP for year T

DEFINE:

$V = GDP/M = \text{"Velocity of Money"}$

= Number of times on average that each dollar was used in trades during year T

Direct Effects of $M \rightarrow PQ \dots ?$



- Note that the velocity of money definition

$$V = \text{GDP}/M$$

implies

$$M = (1/V) \cdot \text{GDP}$$

- Thus, **if V were constant over time**, then by controlling M the Fed could also directly control the level of GDP!

Changes in the Velocity of Money Over Time

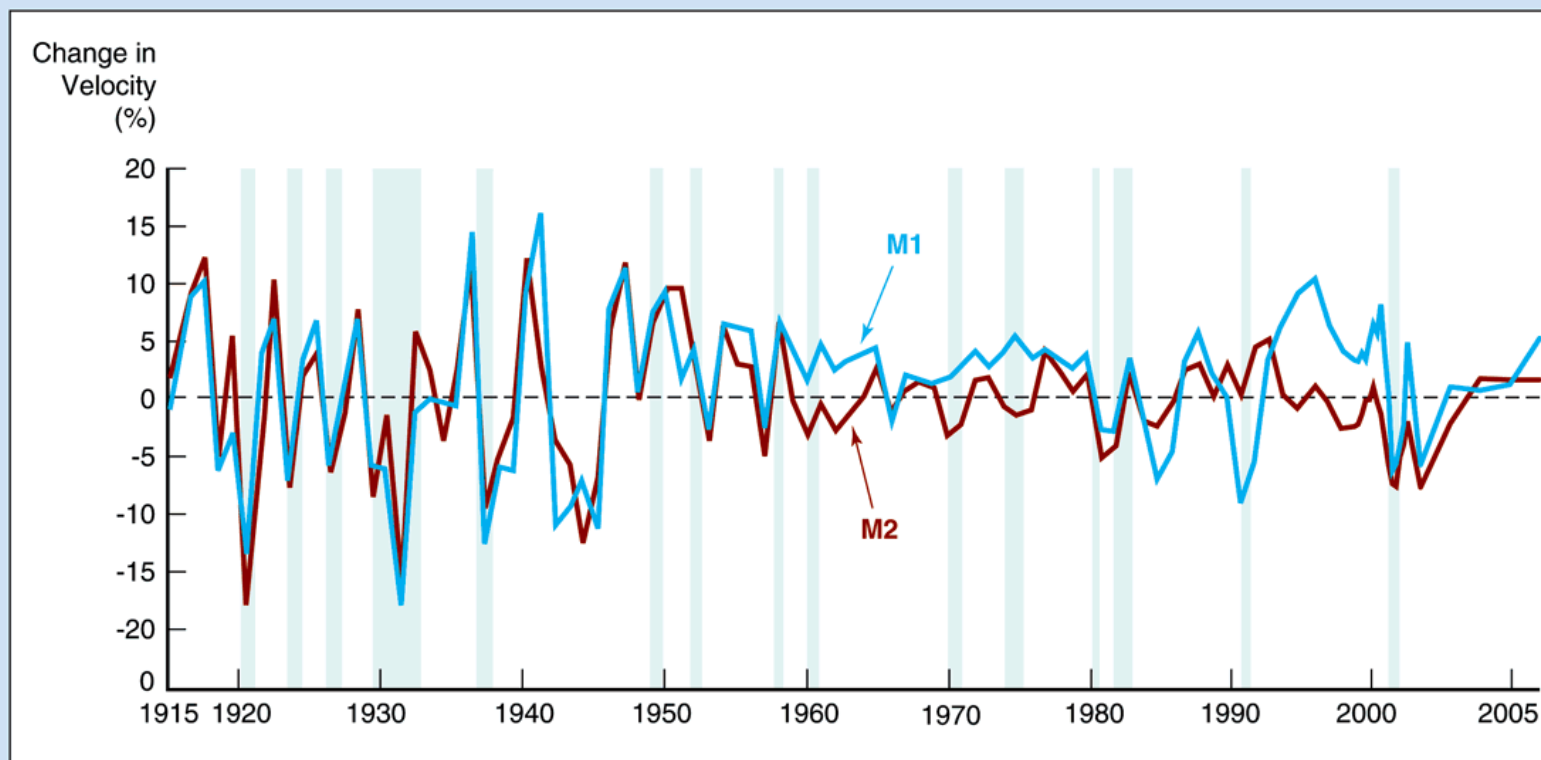


FIGURE 1 Change in the Velocity of M1 and M2 from Year to Year, 1915–2005

Sources: *Economic Report of the President*; *Banking and Monetary Statistics*; www.federalreserve.gov/releases/h6/.