

320.326: Monetary Economics and the European Union

Lecture 3

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Friedman and Monetarism

Mishkin – Chapter 19 and 23

1. Friedman's Quantity Theory of Money

Friedman (1956) argued that the demand for money should be influenced by the same factors that influence the demand for any asset. These factors are as follows:

- (i) Demand is positively related to wealth
- (ii) Demand is positively related to expected return relative to other assets
- (iii) Demand is negatively related to the risk of return relative to other assets
- (iv) Demand is positively related to liquidity relative to other assets

Friedman expressed his demand for money function as follows – see Mishkin (2006), Chapter 19:

$$M^d/P = f(Y_p, r_b - r_m, r_e - r_m, \pi^e - r_m)$$

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M^d/P = demand for real money balances

Y_p = permanent income (essentially expected average long-run income)

r_m = expected return on money

r_b = expected return on bonds

r_e = expected return on equity (shares)

π^e = expected inflation rate

(a) Permanent income

Permanent income is relatively insensitive to short-run fluctuations in current income. In a boom (recession), permanent income increases (falls) less than income.

An implication of Friedman's use of permanent income is that the demand for money will not fluctuate much over the business cycle.

Note: Friedman also argued that consumption is a function of permanent income rather than current income.

(b) Different asset classes

Friedman distinguishes between three asset classes besides money:

- Bonds
- Equity (shares)
- Goods

The last three terms in his demand for money equation compare the expected return on each of these assets to that on money.

The expected return on money r_m depends on two factors:

- (a) The services provided by banks on deposit accounts (which are part of the money supply), such as the automatic paying of bills, the availability of cash machines, etc.
- (b) The interest paid on money balances

The last term in the money demand function ($\pi^e - r_m$) captures the fact that, other things equal, a rise in the expected rate of inflation (the average nominal capital gain on goods) reduces the demand for money.

2. Distinguishing Between the Friedman and Keynesian Theories

Keynes lumped all financial assets into one category – bonds

Friedman considers three asset classes (i.e., bonds, stocks and goods) in addition to money.

Friedman did not assume that the expected return on money r_m is constant. According to Friedman it is the term $(r_b - r_m)$ that stays more or less constant, i.e., when r_b rises, so does r_m . This is because of competition between banks for deposits.

It follows that changes in interest rates (r_b) should not have much impact on the demand for money in Friedman's theory.

Friedman argued that any rise in the expected return on other assets would be more or less matched by a rise in the expected return on money.

Hence the primary determinant of money demand is permanent income.

$$M^d/P = f(Y_p)$$

It follows that velocity depends primarily on income and permanent income (assuming $M^d = M$):

$$V = PY/M = Y/f(Y_p)$$

Unlike in the original quantity theory of money, V is no longer constant. In booms (recessions) Y rises (falls) faster than Y_p . Hence V rises in booms and falls in recessions. This finding is consistent with the empirical evidence.

Friedman also argued that fluctuations in the money demand function are small, and hence that changes in velocity are quite predictable.

If so, then a change in the money supply will produce a predictable change in aggregate spending PY (since $MV=PY$).

Hence the government/central bank can control PY by controlling M . The central bank should therefore have a target for the growth rate of M .

In this sense, Friedman's theory is a restatement of the quantity theory of money with the subtle difference that, instead of being constant, V is now assumed to change in a predictable way.

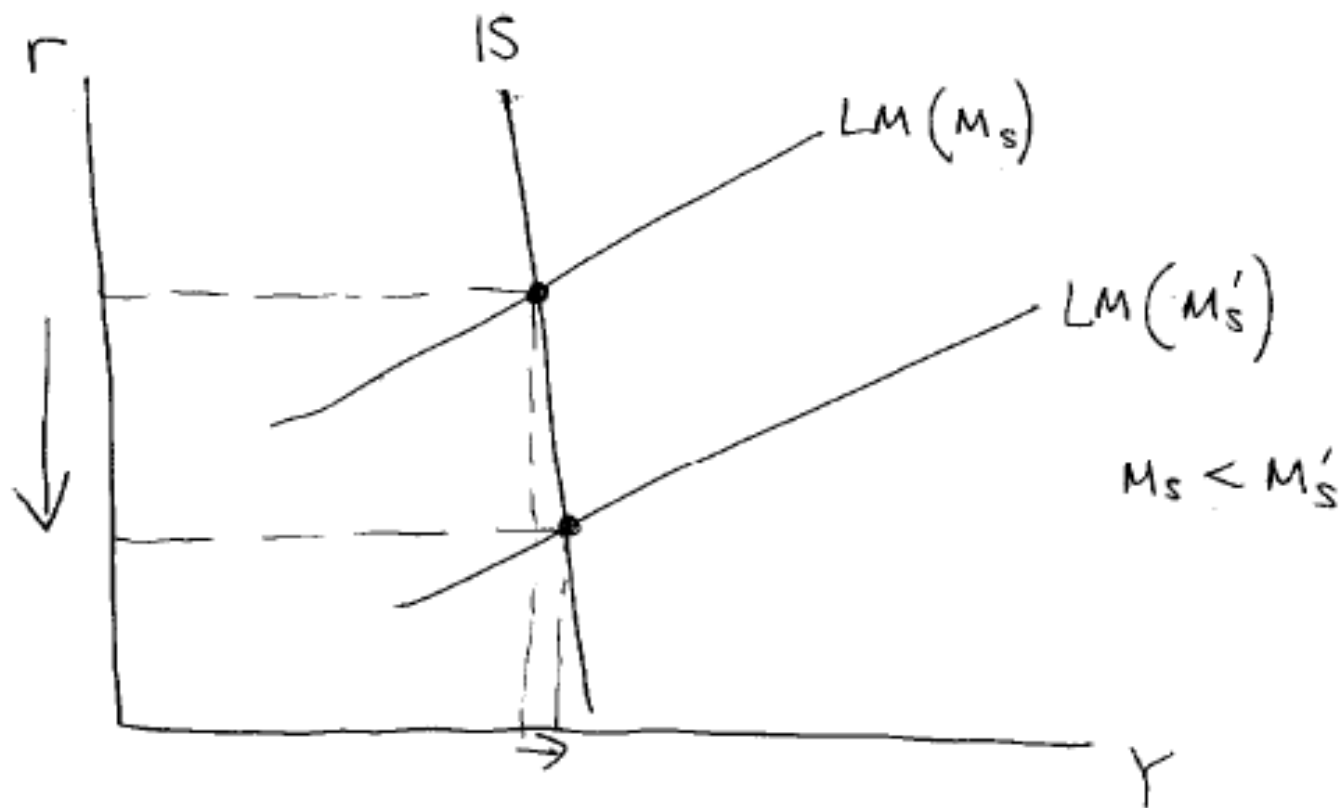
3. Keynesian Perspectives on the Importance of Money

The Keynesian orthodoxy of the 1950s and 1960s held that monetary policy had little impact on output and the business cycle.

According to this orthodoxy, the primary transmission mechanism of monetary policy is the interest rate. An increase in the money supply reduces the interest rate which then stimulates investment (and hence aggregate demand).

The empirical evidence suggested that this transmission mechanism was weak:

THE CASE OF A WEAK
MONETARY TRANSMISSION
MECHANISM.



- (i) During the Great Depression, interest rates on US Treasury bills (bonds) fell below 1 percent.

Hence the worst recession in US history could not be explained by a contractionary monetary policy.

- (ii) Empirical studies found little if any linkage between movements in interest rates and investment.

- (iii) Surveys of managers found that their decisions of how much to invest in new capital equipment did not really depend on prevailing interest rates.

4. The Monetarist Response

- (i) Massive bank failures during the Great Depression caused the largest ever decrease in the money supply in US history. Note – bank failures have become much less common since the introduction of Federal Deposit Insurance.
- (ii) While the interest rate on Treasury bills was low, the same was not true for most corporate bonds during the Great Depression. Note – there are in fact many different interest rates. While most of the time they move in sync, in times of stress (like the Great Depression) they can diverge.

- (iii) While nominal interest rates on Treasury bills were low, real interest rates were higher in 1931-1933 than for the whole of the next 40 years (since the price level was falling) – see Mishkin (2006), Chapter 23, Figure 1.
- (iv) The confusion over nominal and real interest rates may also explain why previous studies found little if any linkage between movements in interest rates and investment. These studies had typically focused on nominal interest rates.
- (v) Friedman and Schwartz (1963) find that in every business cycle for nearly a century, the growth rate of the real money supply M/P declined before a decline in output Y . The average lead time was about 16 months.

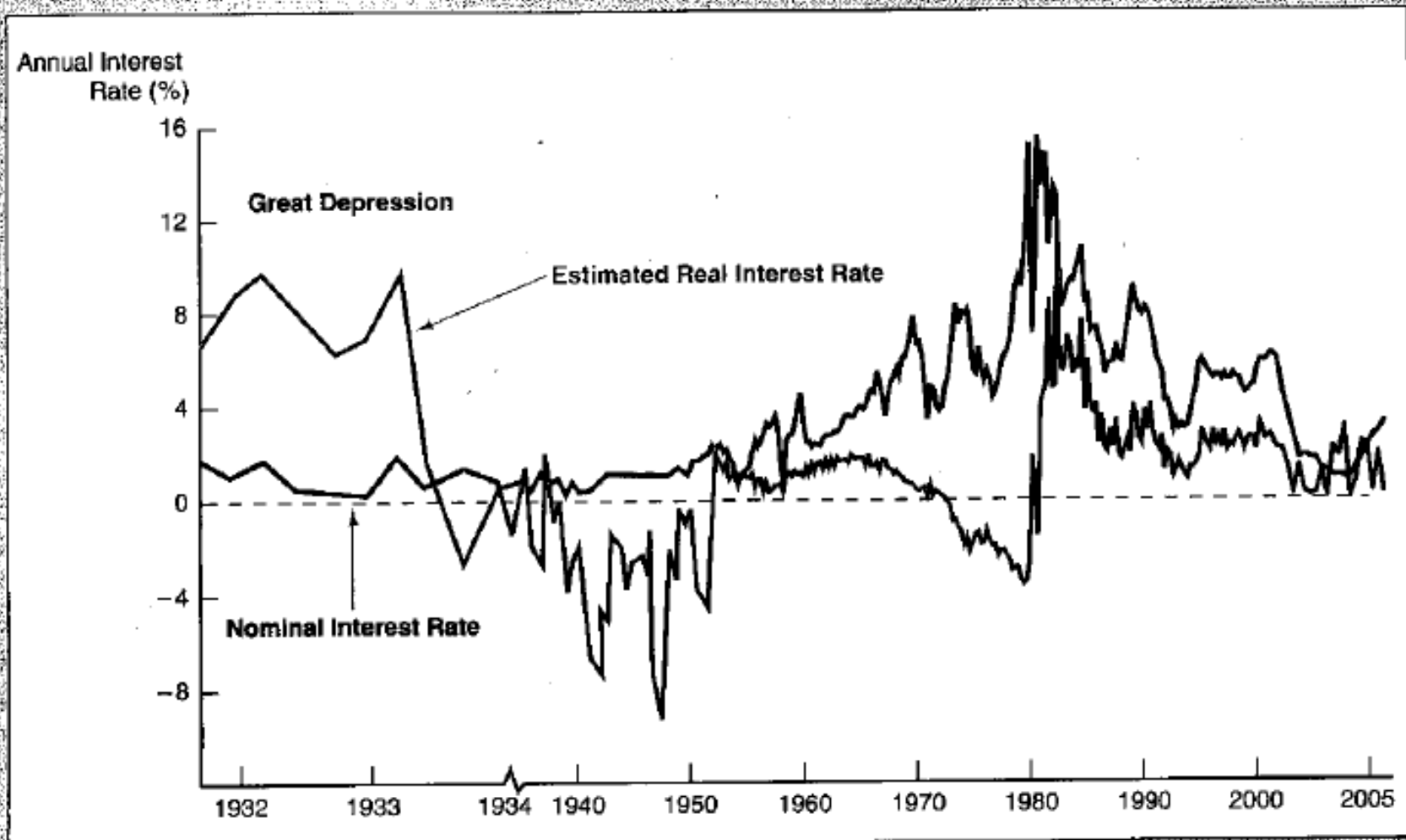


FIGURE 1 Real and Nominal Interest Rates on Three-Month Treasury Bills, 1931–2005

Sources: Nominal rates from www.federalreserve.gov/releases/h15/update/. The real rate is constructed using the procedure outlined in Frederic S. Mishkin, "The Real Interest Rate: An Empirical Investigation," *Carnegie-Rochester Conference Series on Public Policy* 15 (1981): 151–200. This involves estimating expected inflation as a function of past interest rates, inflation, and time trends and then subtracting the expected inflation measure from the nominal interest rate.

Implication: changes in the growth rate of the money supply may cause the business cycle.

Problem: the causation could run in the opposite direction, or both events could be caused by something else.

Examples of faulty reasoning:

Roosters crow just before sunrise. It follows that roosters cause the sunrise. ??

There are more police in high crime areas. It follows that the crime rate in these areas would be reduced by reducing the number of police. ??

(vi) Friedman and Meiselman (1963) compared the correlation between changes in output Y and autonomous expenditure ($I+G$) with the correlation between changes in output Y and the real money supply M/P . They found the latter correlation was higher.

Implication: monetary policy is more effective than fiscal policy.

But Keynesian critics claimed Friedman and Meiselman did not construct the measure of autonomous expenditure properly. Ando and Modigliani (1965) redo their analysis and get the reverse result.

Implication: fiscal policy is more effective than monetary policy.

(vii) In Friedman and Schwartz (1963) there are a few examples where changes in the real money supply are clearly exogenous (i.e., they are not caused by changes in output). Exogenous events allow us to be more confident about the direction of causation.

Examples:

The increase in reserve requirements in 1936-7 so that the Federal Reserve could improve its control of the money supply. This reduced the rate of money growth and led to a severe recession in 1937-8.

The bank panics of 1907 reduced the rate of money growth. This panic seems to have been an exogenous event and also led to a recession.

5. Perspectives on Business Cycles

(i) Monetarist School

Business cycles (i.e., fluctuations in Y) are caused by changes in the growth rate of the real money supply M/P . The intellectual father of monetarism is Friedman.

The high point of monetarism was the late 1970s when the US Federal Reserve and Bank of England both announced that they would replace interest rate targets with money supply targets. These targets were abandoned in the 1990s. Most central banks now have inflation targets.

Why was money supply targeting abandoned?

Until the early 1970s the demand for money function was reasonably stable. Thereafter financial innovations (e.g., the introduction of credit cards) caused it (and hence changes in velocity) to become increasingly erratic.

Hence the link between M/P and Y became less predictable.

Also, innovations in financial markets made it increasingly difficult for central banks to control the money supply.

Note: Although the central bank has control over base money (M_0), its control over broader money measures is more limited.

M_0 = notes and coins held by non-bank public

$M1 = M0 + \text{traveller's cheques} + \text{demand deposits} + \text{other checkable deposits}$

$M2 = M1 + \text{small denomination time deposits} + \text{savings deposits} + \text{money market mutual fund shares}$

$M3 = M2 + \text{all time deposits not already included} + \text{institutional money market funds} + \text{short-term repurchase agreements} + \text{other large liquid assets}$

$\text{Broad money} = M3 + ?$

When velocity is unstable and the central bank is unable to control the broader money supply, it follows that it is a waste of time for central banks to pursue money supply targets. Rather, they should target inflation directly.

In this sense, the monetarist school is now largely discredited.

However, other aspects of the monetarist doctrine persist.

- (a) It is now generally accepted that monetary policy can have a major impact on the economy. Clear evidence was provided by the contractionary monetary policy in the US under Fed chairman Paul Volcker in 1979-1982. This led to recession in 1981 and 1982.

- (b) Central banks should avoid fine tuning (i.e., trying to respond to every shock that hits the economy). Monetary policy impacts on the economy with a time lag. By the time the monetary policy shift bites, the shock may have already dissipated. Also, economists and central bankers do not understand well enough the propagation mechanisms of both shocks and monetary policy responses.

(c) Friedman favoured taking monetary policy out of the hands of politicians to prevent fine tuning, expansionary interventions before elections, and so as to provide greater inflation fighting credibility. Most central banks are now independent and have a mandate to pursue price stability.

(ii) Alternative theories of the Business Cycle

New Keynesian School: Market frictions such as staggering of wage and price decisions are primarily responsible for preventing the economy from immediately adapting to shocks. This is what causes the business cycle. Proponents of this school include Akerlof, Mishkin and Mankiw.

Real Business Cycle/New Classical School: Business cycles are caused by real shocks to tastes and technology. The correlation between money and output runs from the latter to the former. Proponents of this school include Kydland and Prescott.

A major piece of evidence supporting the argument that causation runs from output to money supply is that almost none of the correlation between money growth and output comes from the monetary base (which is what the central bank controls).

In other words, this suggests that the money multiplier depends endogenously on output.

Overall conclusion: in my opinion the causation runs in both directions.

Transmission Mechanisms of Monetary Policy

What are the ways in which monetary policy can affect output?

(i) The interest rate channel (direct effect)

What matters here is the real rate of interest, not the nominal rate. A contractionary monetary policy causes the real interest rate to rise, which reduces investment by firms and consumer expenditure on housing and consumer durables (such as cars and refrigerators).

In recent years there has been a growing awareness of the importance of other transmission mechanisms.

(ii) The interest rate channel (indirect effects)

(a) A rise in the real interest rate tends to cause the domestic currency to appreciate (since it attracts an inflow of funds). This causes exports to fall and imports to rise, thus reducing output.

(b) A rise in the real interest rate reduces the present value of the stream of profits generated by assets. Hence it tends to depress asset prices. This in turn tends to reduce consumption, since people now feel poorer.

(iii) The balance sheet channel (has been important in the financial crisis)

If a bank lends to a firm, there is a risk that it will default on the loan. The perceived risk depends on the firm's net worth (i.e., the difference between its assets and liabilities).

As asset prices rise, the net worth of firms increases, thus making banks more willing to lend. The loans are typically used to finance investment projects.

Note: (i) says that firms do not want to invest as much when interest rates rise. (iii) says that firms are not able to borrow as much to finance investment when interest rates rise.