

EC1004 LECTURE 3

Central banking

Reading: Madura Chapters 4 and 5

Having introduced the overall structure of financial markets and the determination of interest rates, we will now discuss the activity of a key player in financial markets – the central bank. First we explore central banks' structure and functions, before going on to discuss how they control short-term interest rates and the framework for monetary policy decisions, as well as some of the key difficulties central banks such as the Bank of England face.

1 Functions of a central bank

The central bank is a financial institution owned by the government, which is charged with “managing the currency”. A typical central bank has the following functions:

Note issue (issuance of the currency): the central bank prints/mints and issues notes and coin for the government, usually backed by holdings of government bonds

Reserve management: the central bank manages the portfolio of foreign exchange reserves of the country and may buy or sell them to influence the exchange rate (intervention) – managing the external value of the currency

Banker to the government: the central bank collects tax revenue and disburses government expenditure

Banker to the banks – it provides a payments system for transactions between banks and liquidity

[Government debt management: in many countries central banks issue long term government debt in the market]

[Banking supervision: in many countries it is the central bank that regulates the banking system to seek to maintain financial stability]

Maintain financial stability e.g. via the lender of last resort function – provides emergency liquidity assistance to solvent financial institutions that might otherwise collapse, damaging the economy as a whole.

Monetary policy function: the main topic of this lecture – prevent inflation, thus managing the internal value of the currency. High inflation is very damaging, but even moderate inflation is costly to the economy because of “shoe leather costs”, tax distortions, money illusion and inflation variability increasing risk to holders of nominal assets such as bonds.

2 Money market operations and interest rate control

The basis of central bank control over interest rates is that it has a monopoly over the creation of money (liquidity) in its own currency. This means it always has scope to create a shortage of money that will drive up its price (i.e. the interest rate)

The most common means whereby central banks create shortages is by sale of securities (open market operations). This removes liquid funds from the banking system and leads to an increase in interest rates as banks bid for scarce funds to maintain a comfortable level of liquidity to meet their needs.

Conversely, if the central bank wishes to reduce interest rates, it will buy securities by equivalent open market operations, and thus inject liquid funds into the banking system, leading to a fall in market interest rates as banks find funds plentiful.

Sometimes there may also be an administered interest rate of the central bank at which they will offer credit to financial institutions that are short of liquidity. In the US this is called the discount rate. It is usually adjusted in line with market rates.

Since there are arbitrage relationships between different interest rates, a change in the short term money market rate controlled by the central bank leads to a change in other “market determined” interest rates such as the loan (mortgage) rate, and the bond yield as well. They will change to a degree that depends on expectations of future central bank action, the state of the economy etc.

Central banks may focus on money supply rather than on the interest rate (the “quantity” and not the “price” of money). The same operations are used to increase or reduce the growth of the money supply, because the amount of liquidity (narrow money) increases the potential growth of banks’ balance sheets (broad money). This is because banks need to hold a certain proportion of their assets in liquid form, either due to reserve regulations or from prudence, which gives leverage to central bank operations.

The textbooks focus a lot on reserve requirements on banks (the proportion of liquid assets they are obliged to hold). Changes in reserve ratios can also be used to influence interest rates/the money supply. But in practice they are being abolished or at least changes in them are not commonly used for monetary control. There is no reserve requirement on UK banks, they hold whatever liquidity they are comfortable with.

Note that it is not possible to control the money supply and its price (the interest rate) separately – a change in one is required to get a change in the other. Also it has proved very difficult to control the quantity of broad money due to financial liberalization (see below).

3 Monetary policy

The monetary policy of a central bank defines the strategy it follows in adjusting interest rates. Monetary policy is generally set so as to limit price inflation, while also maintaining conditions for economic growth.

Monetary policy affects the economy via the “transmission mechanism”. For example, by increasing the interest rate, the central bank reduces the volume of consumption and investment in the economy, which reduces inflationary pressures by increasing unemployment. Further reductions in inflation may occur if the exchange rate appreciates when the interest rate rises, which makes imports cheaper

The leverage the central bank has over the economy depends on expectations, and in particular on the credibility of the central bank.

- If the public thinks the central bank is weak then the central bank may not be able to reduce inflation expectations without a very severe recession, because they always expect it to back down from the consequences of fighting inflation in terms of lost output (e.g. because politicians are afraid of losing an election).
- If they consider the central bank is resolute, the fall in inflation will occur with very little cost in terms of economic growth.

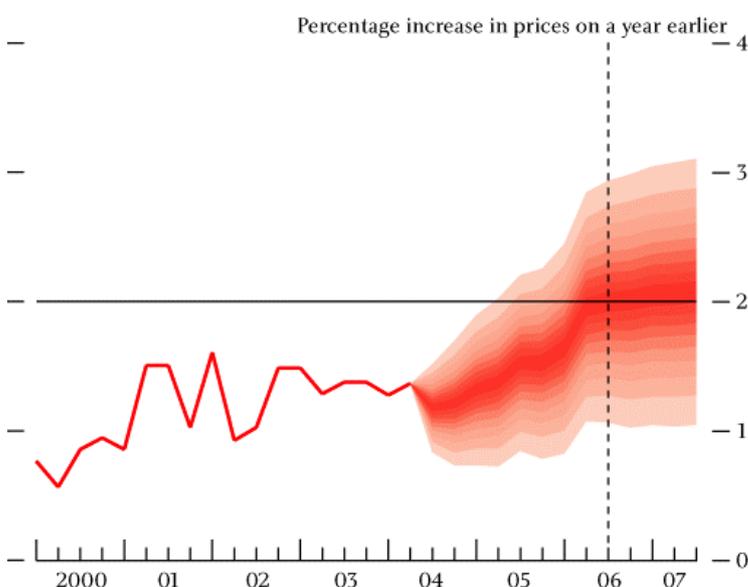
To support central bank credibility, many countries have made them independent of government and given them specific objectives of keeping inflation under control. This should help reduce the cost of counter inflation policy.

Central banks also have explicit policies to communicate their intentions to the public. The best known as inflation targeting, monetary targeting and exchange rate targeting.

3.1 Inflation targeting

A central bank such as the Bank of England has an objective for inflation set by the government, but is then free to choose how to achieve the objective. In the UK the price stability objective is to achieve the inflation target of 2 per cent, as measured by the 12-month increase in the Consumer Prices Index (CPI).

The central bank then makes monthly forecasts of inflation looking two years ahead to assess whether interest rates should be changed to avoid a deviation from the target. The forecasts are in the form of a band given the uncertainty about future shocks (see diagram).



The Bank will take into account influences from a wide range of economic indicators, which will have a bearing on inflation over the future. They focus particularly on the situation two years ahead, this being the time it takes for the full effects of interest rates to work through the economy and impact on inflation:

- domestic and international economic and monetary factors, including the money supply
- government fiscal policy
- developments affecting business and commerce throughout the UK
- developments affecting the UK household sector
- developments in labour markets, including unemployment
- wages and input prices (such as those for oil)
- money, foreign exchange, gilt and equity markets

Example: the UK interest rate decision of 5th August 2004

“The Bank of England's Monetary Policy Committee today voted to raise the Bank's repo rate by 0.25 percentage points.

Output growth has been robust and business surveys point to continued expansion. Although the housing market remains buoyant, there are now signs that it is starting to ease, and the growth of consumption may be moderating. Investment and public sector consumption have both grown strongly and demand in UK export markets continues to pick up.

CPI inflation reached 1.6% in June. It is likely to fall back in the near term, but underlying cost pressures have risen. With demand already high relative to the supply capacity of the economy, continued strong growth is likely to lead to rising inflationary pressures. Against that background, the Committee judged that an increase of 0.25 percentage points in the repo rate to 4.75% was necessary to keep CPI inflation on track to meet the 2% target in the medium term.”

3.2 Monetary targeting

The background is the monetarist view that inflation is everywhere a monetary phenomenon, and that without growth in the money supply, inflation must cease.

Monetary targeting assumes a stable relationship between the price level (P) and money (M), based on the Fisher identity $MV=PT$ where V is the velocity of circulation of money and T is the volume of transactions, i.e. GDP. If V is fixed and T is slow-moving then M largely determines P.

The central bank needs a form of money that is (1) controllable (2) has a predictable impact in inflation. In a stable financial system such a relationship often works quite well and hence adhering to a target of monetary growth can lead to low inflation, as the public realize the central bank's commitment to price stability (e.g. Germany prior to EMU)

The problem is that monetary targeting is difficult when a financial system is changing. Money may grow rapidly due to portfolio reallocation between types of bank accounts rather than having any implication for inflation.

This was an issue in the US and UK in the early and mid 1980s and led them to abandon monetary targeting.

3.3 Exchange rate targeting

In a small open economy, the best way to maintain price stability may be to hold the exchange rate constant against the currency of a large country which itself successfully pursues price stability. This is the approach of countries such as Denmark vis a vis the Euro and Hong Kong vis a vis the Dollar.

3.4 Discretionary monetary policy

In the US the Federal Reserve Board does not follow a strategy of inflation targeting nor one of monetary targeting. Rather, it tries to follow a strategy, which will promote growth without excessive inflation.

A summary of the US approach to monetary policy is the Taylor Rule with certain weights a and b on deviations of inflation and growth from desired levels:

Interest Rate = $a \cdot (\text{unemployment less natural rate of unemployment}) + b \cdot (\text{Inflation less target inflation}) + \text{target interest rate}$

Underlying the equation there is usually assumed to be a tradeoff between inflation and unemployment or growth. If there is high activity (good) it usually leads to high inflation (bad).

3.5 Monetary Union

Countries that have similar economic behaviour such as those in Western Europe may choose to share monetary policy, so as to gain benefits such as increased trade between them. The difficult may be if economic conditions vary between countries while monetary policy has to be set for all countries together.

4 Some difficulties of monetary policy

At one time it was thought that there was a fixed **relation between inflation and growth** or unemployment (the Phillips curve), making inflation control a simple matter of holding growth at a certain level. But it is realized that the precise relationship depends on expectations, notably of future central bank policies. Expectations of inflation may be sticky, making reductions in inflation costly.

Concept of the **output gap** – deviation of demand from supply in the economy, is crucial to inflation analysis but hard to measure.

Monetary policy works best against excessive or inadequate demand in the economy. The situation becomes more difficult when inflation is due to costs rising independently of demand (e.g. oil prices), called a **supply shock**. These are likely to lead to lower economic growth and higher inflation simultaneously. Monetary policy may nonetheless need to be tight to avoid cost rises leading to higher inflation expectations.

There are **lags in monetary policy**, due to recognition lags (between a problem arising and it being recognized), implementation lags (realization of a problem and a policy shift) and impact lags (as the policy shift may take up to 2 years to have its full effect on the economy) These mean that by the time the policy has an effect the economic situation may be reversed.

There is an important **interaction between monetary and fiscal policy**. If the government runs a large budget deficit the central bank then faces the choice to accommodate the deficit by reducing interest rates, which may lead to inflation, or not accommodating which may restrict growth (since government borrowing raises borrowing rates and “crowds out” private sector borrowers).

Asset prices and monetary policy: if there is a rise in equity prices or house prices that does not affect general inflation, how should the central bank react? The danger is that if it allows a “bubble” to form, then inflation will eventually occur, and also a recession when the bubble bursts.

“**Credit crunch**” central bank monetary policy may not succeed in reviving the economy if the banks cannot lend due to inadequate capital or will not lend due to perceptions that borrowers are not creditworthy.

Cases of **financial instability** such as banking crises (when banks face “runs” by depositors) may lead to deep recessions as banks fail, unless central banks act quickly and decisively. Usually they act as “lender of last resort” and provide banks with liquidity that they can no longer obtain from their depositors. But liquidity provision (1) cuts interest rates and may lead to future inflation and (2)

may lead banks to take excessive risks in the future if they know they will be “rescued” when in such difficulties

In the UK the Bank of England publishes a “Financial Stability Review” every 6 months to assess risks to UK banks and the wider financial system. There follows a quote from the June 2004 summary:

“Flows into 'alternative investments' such as hedge funds have remained strong and, until earlier this year, credit spreads on high-yield and emerging market bonds had narrowed considerably, perhaps more in some cases than could be easily explained by fundamentals.

To the extent that these developments reflect higher risk appetite or misperceptions of risk, they raise an issue for financial stability. And if a 'search for yield' has seen market participants adopt similar trading strategies, a change in economic conditions could trigger sharp asset price movements or market liquidity problems if investors simultaneously try to unwind common positions. The Bank continues to monitor these developments closely.

Despite uncertainties, the UK banking system is well placed in the near term to withstand these risks in the event that they crystallize. It has continued to report robust profits and maintains substantial buffers of capital against any unexpected adverse developments.”

Exercises

Why is inflation a bad thing?

Outline the principal monetary strategies.

Look at the minutes of the latest MPC meeting of the Bank of England, pages 2-9, download <http://www.bankofengland.co.uk/mpc/mpc0409.pdf>

- What were the signs that inflation was (1) in danger of rising or (2) under control?
- Which of the “difficulties of central banking” mentioned in the lecture were apparent in the UK?
- What was the decision in respect of monetary policy? Do you think it was justified?

Look at the latest Financial Stability Review

<http://www.bankofengland.co.uk/fsr/overview0406.pdf>

- What were the signs of increasing risk in financial markets
- What factors suggested that such risks were mitigated?