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A favourite theme of many financial commentators and some academic monetarists is that interest rates are determined by "market forces". There is a certain vagueness about what is meant by market forces in this context, but the implication is clear. The Bank of England - which at present operates actively in the money markets to ensure that the banks have a full supply of cash - should stop intruding in the market process. Its control over interest rates is artificial and should cease.

In the following paper, we show that the Bank is necessarily involved in interest rate determination. Its power arises because it is the monopoly issuer of legal tender notes. As other financial institutions, and more specifically the banks, can remain in business only as long as they maintain the convertibility of their deposits into legal tender, the market is necessarily subordinate to the authorities in all those periods where they conduct open market operations. In this way, the Bank, and not market forces, determines the general level of interest rates.

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ARE INTEREST RATES DETERMINED BY
"MARKET FORCES" OR THE BANK OF ENGLAND?

The City of London has recently suffered from a great deal of confusion about interest rates. Money market rates - notably, inter-bank rates for periods of one month or more - have risen, while the Bank of England has intervened in the discount market to keep very short-term rates unchanged. It might seem that there is a duel between two antagonists, with the market wanting rates higher and the Bank countering any upward movement. In fact, the Bank probably sees the matter in less dramatic terms. It is complying with the official policy laid down in the 12th March paper on "Monetary policy: next steps" to allow market forces a greater say in interest rate determination. The question naturally arises, "are interest rates determined by 'market forces' or the Bank of England?"

As we shall see, the Bank can - if it so wishes - decide interest rates at almost any point in the maturity spectrum. In practice, it confines its operations to the short-term money markets. By setting rates here it establishes the reference point for all interest rates in the financial system and is paramount in interest rate determination. We shall consider some possible situations in which the Bank does not determine interest rates, although they are remote from existing institutional realities and of little relevance to interpreting contemporary financial trends.

Monopoly supplier of cash

To understand the origin of the Bank's power, we have to return to basics. People leave money in bank deposits because they believe they will be able to withdraw it in the form of cash. Cash (i.e., notes and coin) is legal tender and cheques written against bank deposits are not; a shopkeeper can turn away a cheque and demand payment in cash instead. Until recently there was no certainty that a bank would repay deposits in cash, although the British public has had so many decades without a major bank failure that it has probably forgotten its money is at risk. (The 1979 Banking Act, with its provision for deposit insurance, may in future give some certainty of repayment.) The banking system has ensured the convertibility of deposits into cash by maintaining a safe ratio of cash assets to deposit liabilities. Whenever the ratio threatened to fall beneath this safe minimum, the banks have taken action to attract cash and restore a comfortable position. They have kept their cash in two forms - notes and coin; and balances at the Bank of England which could be changed into notes at will.

The Bank's power stems from its monopoly of cash supply. It is the only issuer of legal tender notes in the United Kingdom. (The Royal Mint also puts legal tender into circulation, but the amount of coin is trifling compared to the note issue.) The significance of the Bank's monopoly is soon appreciated if we consider what happens when the banking system is short of cash.

Suppose that the banks are losing cash and that their cash/deposits ratio begins to drop to an unacceptably low level. If the ratio goes down more, they may be unable to repay depositors. In the final extremity, they may be forced to close their doors even though their loan portfolios are generally profitable. To protect their depositors, they must get cash from somewhere. They may attempt to obtain cash from other banks or the general public, but if the system as a whole is short this is futile. The solution is to appeal to the Bank of England.

The Bank can help out in two ways. First, it can buy paper, typically Treasury or commercial bills, although any negotiable instrument would serve the purpose. The banks lose part of their assets and in return a sum is credited to their balance at the Bank. As this balance is cash, their cash ratio has been increased. Secondly, it can lend cash. In this case, it credits a sum to bankers' balances, increasing its liabilities and simultaneously records a rise in its "advances" on the other side of the balance sheet. These stroke-of-the-pen transactions once again boost bankers' balances and add to the amount of cash in the system.

Control over interest rates

It is through open market operations of this kind that the Bank achieves control over interest rates. The price at which it buys Treasury or commercial bills implies a rate of interest on them. (For example, if it buys three-month bills at 97, the interest rate is nearly 13% because the return over three months is $(100-97)/97$ which annualises at 12.94%.) Because the Bank is the biggest single transactor, the price at which it is active fixes the price for all market participants. Other participants can hardly dispute its terms. Its ammunition - the ability to purchase with cash in unlimited quantities - is much stronger and more effective than that of any other financial institution. If an ordinary commercial bank bought Treasury bills at 98 when the Bank was buying at 97, it would soon be flooded with offers and would run out of money to pay for them; if it wanted to buy at 96 while the Bank's price remained at 97, no one would sell to it. The Bank can at will determine the price of short-term paper and, hence, interest rates in the money markets.

Similarly, the rate at which it lends cash is a critical influence on the banks' cost of funds and so on their own lending rates. If the Bank is lending cash at 5%, an individual commercial bank cannot charge 15% to its borrowers. If it tried to, other banks - having access to funds at 5% - would charge less and capture all the business. Competition drives down other banks' lending rates to that point at which the margin over the cost of funds reflects administration expenses, a reasonable return on capital and so on. The cost of funds cannot be much above the rate at which the Bank is prepared to lend cash because otherwise every bank would borrow from it and nowhere else. In practice, the Bank's lending rate for cash is invariably somewhat above market rates. It is therefore "penal", as institutions lose money on any borrowings they make from the Bank. But it should be obvious that the Bank's rate sets an upper bound to other interest rates.

In the United Kingdom some complicated institutional arrangements disguise the simple basis of the Bank's power. The intermediation of the discount houses between the Bank and the banks is the most important. The Bank does occasionally carry out the transactions (termed "indirect") in bills with the banks themselves, but most operations are "direct" with the houses. Cash lending, on the other hand, is exclusively to the houses. However, its effects are transmitted to the banks. If the banks are short of cash, they withdraw money-at-call from the houses and credit their balances at the Bank; the houses - deprived of funds to finance their books - then approach the Bank to make up the call money they have lost; and the Bank is always prepared to lend them the money they need. By this perhaps rather devious process, the Bank's loan enables the banks to rebuild their cash balances.

The key to the Bank's control over interest rates is that the banking system should at some stage be short of cash. How is a cash shortage defined? Since 1971 the answer has been given by the mandatory requirement that the clearing banks keep their Bank of England balances at $1\frac{1}{2}\%$ of eligible liabilities. If their balances are less than this, they call money from the houses and the discount market tightens, giving the Bank the opportunity it needs to exert its influence. The market can be helped either by official purchases of bills or by loans. As we have seen, in either case the Bank sets interest rates. (The $1\frac{1}{2}\%$ requirement is due to be abolished shortly and will be replaced by a $\frac{1}{2}\%$ requirement applying to all recognised banks and licensed deposit-taking institutions. However, the clearing banks will still need a higher ratio for their own functional purposes, in particular, to meet their commitments at the daily cheque-clearing. If the actual ratio is beneath their desired ratio, they will withdraw money from the discount market. The Bank will be able to see when the system is short by inspection of call money rates.)

All this is straightforward and uncontroversial. Or perhaps one should say that, if it is not, it ought to be. There is no doubt that banks need cash and there is no doubt that, in the last resort, only the Bank of England can supply it. Because of the special legal tender status of its note liabilities, the Bank can control interest rates. As we have seen, the symptoms of cash shortage emerge through bankers' balances and the requirement that they average not less than $1\frac{1}{2}\%$ of eligible liabilities. As the March 1980 Monetary Control Green Paper observed, the requirement is "effectively the fulcrum on which the Bank of England works when it seeks to affect short term interest rates through its money market operations."

Is a cash surplus a problem?

Clearly, the Bank holds a commanding position when the banking system is short of cash. But what happens when there is a surplus? Circumstances can be envisaged in which the amount of cash held by the banks is excess to requirements and still rising. For example, the government may be running a big budget deficit and financing it by borrowing from the Bank of England. The Bank acquires extra assets in the form of claims on government (such as Treasury bills), but incurs extra liabilities, mostly increased bankers' balances. The banks have more cash than they want and transfer money from their balances at the Bank of England to the discount houses. The houses may try to fend off the money by reducing their call rates. If they continue to attract funds, they have to purchase negotiable instruments, driving up their price and forcing down interest rates. The excess of cash in the system exerts downward pressure on interest rates generally. Eventually, there may be no contact between market rates and the Bank's rate(s).

In the nineteenth century this was a common situation. Particularly in the twenty-five years before 1914 the market had access to cash (i.e., gold) separate from the Bank and could for long periods ignore its wishes. But today the Bank can always make its rate "effective" if it is willing to take the necessary steps. Its aim must be to transform a cash surplus in the banking system to a cash shortage. It accomplishes this objective by selling bills to the banks (or non-banks, for that matter). The banks pay for the bills by drawing down their Bank of England balances, reducing the amount of cash they have. By selling bills in sufficient size the Bank can ensure that the system is down almost to its cash minimum and is on the brink of having to seek assistance. We saw earlier that the Bank regulates interest rates by the terms on which it provides such assistance.

So a cash surplus is not a problem. A determined Bank of England can eliminate it and bring the market to heel. Indeed, the Bank's prime operational goal in the discount market has for many decades been to create and maintain cash stringency. It is therefore ironic that Mr. Samuel Brittan of The Financial Times, the most distinguished economic commentator in this country, has urged that the Bank be "instructed to conduct its open market operations to make the banks 'short of funds'", apparently in the belief that this would help minimise official control over interest rates. It is in conditions of shortage, and only then, that the authorities have total control.

One final point should be mentioned. The banks are happy to keep their cash at a very low level, maximising the Bank's power, because they receive no interest on cash. Naturally, they want to avoid non-interest-bearing assets because they reduce profitability.

Leaving "market forces" to themselves

Having outlined the broad framework of interest rate determination in the UK, we may consider other possible arrangements in which "market forces" have more importance. The authorities have made some shift towards them in their two papers, Methods of monetary control (24th November 1980) and Monetary control: next steps (12th March 1981).

The essence of the present system is that the Bank of England supplies cash whenever it is approached by the discount houses. It retains discretion about the rate at which it will meet their requests, but Minimum Lending Rate is known and well-publicised. The first step towards establishing a "market force system" is to increase the uncertainty about the rate at which assistance is given. The banks might incur the risk that, on a particular day, assistance would be too expensive. To counter this danger they would be obliged to hold a higher ratio of cash to deposits than at present.

The next step would be to increase the uncertainty about whether assistance would be given at all. If the banks were short, they might have to sell liquid assets hurriedly at a loss or bid for funds at a higher rate than that paid on their loans. Both reactions would involve them in loss. To anticipate similar problems in future they would raise their cash/deposit ratios again. Little by little, the Bank could become more diffident and selective in granting help. Each time the banks would defend themselves by raising their cash/deposits ratio. In due course, the banking system's holdings of cash might become very large. It would have the ability to withstand a major cash drain arising from a loss of confidence in deposits, heavy tax payments and so on. It would also have some freedom about the determination of interest rates. (But - and this is very important - all rates would adjust to the Bank's whenever the Bank intervened. As today, the Bank's lending rate would set an upper band to market rates.)

In fact, what we have done is to describe a process of retrogression. Several decades ago the banks had sizeable cash holdings and some autonomy from the Bank. This is obvious from figures published in the March 1981 Bank of England Quarterly Bulletin. In 1919 banks' holdings of notes and coin averaged £116m. and their Bank of England balances £63m., while notes in circulation with the public were £414m. In other words, banks' cash was nearly 45% of the public's, protecting them against a drain and giving a degree of independence from the Bank. In 1980 the public's note holdings were £9,763m. and the bank's cash was £1,461m. The ratio had dropped to 15%. The banks today are much more reliant on the Bank than they once were. The evolution of money markets over

the last fifty years - and longer - has been towards economisation on cash and a reduction in the influence of "market forces" on interest rates.

Curiously, those economists who favour greater market determination of interest rates often seem to regard themselves as innovative radicals battling against a reactionary Bank of England. Instead they are proposing the reversal of many years' "technical progress" in money market management. The Bank has shown some willingness to humour them by its suggestion that an announced MLR may cease. This change is not very important by itself. But if the process of retrogression is taken much further City financial institutions will protest. Apart from anything else, they will not be keen to increase their unprofitable non-interest-bearing cash holdings.

Conclusion

Short-term interest rates are determined by the Bank of England, not market forces. Because it issues legal tender, and no other financial institution does, its wishes on interest rate levels cannot be disputed. Only if the banking system has an abundance of cash do market forces have any leeway to decide interest rates. The Bank can, even in that situation, reassert control by "mopping up" the surplus cash and forcing the market to appeal to it for assistance. If the Bank refuses to help, the banks may run out of cash and the central assumption of Britain's credit structure - the convertibility of deposits into notes - would be destroyed.

In principle, the Bank has the power to fix interest rates for any period. If it wanted to, it could buy and sell twenty-five year gilts at prices of its own choosing and thereby determine yields. In practice, it confines its operations to very short dates. For many years its preferred period was up to three months. Recently, however, it has abstained from the one-month to three-month periods, in compliance with the official policy laid down in the 12th March paper on Monetary control: next steps to allow market forces a greater say in interest rate determination. Nevertheless, this does not mean that the one-month to three-month periods are independent of the Bank. A three-month period is composed of twelve weeks. If the Bank is fixing one-week rates, the market's determination of the three-month rate must reflect its view of what it expects about the official approach to one-week intervention over the next three months. There can be a divergence between one-week and three-month rates only if the Bank is expected to change its view about the desired level of interest rates.

At one time the City disliked the Bank of England's dominance. An account of the English banking system, written by Hartley Withers in 1910 as evidence to the US National Monetary Commission, remarked that the "necessity for regulation is a fact which is only dimly grasped by the London money market as a whole, which frequently resents the operations of the Bank of England and contends that the price of money ought to be left to the natural laws of supply and demand." Today, there is much less hostility to the authorities' indicating where interest rates should go. Indeed, the typical reaction to the recent uncertainties has been to complain about the Bank's "confusing signals". The confusion arises less from the Bank's behaviour than from the delusion that market rates are determined apart from official operations. It would be an improvement if government policy statements in future recognised that "market forces" are always subordinate to the Bank in interest rate determination.