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UK BANK REGULATION AND SUPERVISION - AN ASSESSMENT

by

ANTHONY T. DAWSON

A Master's Thesis submitted in partial
fulfilment of the requirements for the
award of Master of Philosophy of the
Loughborough University of Technology.
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ABSTRACT

This work assesses the continuing development of bank supervision in the U.K. Particular attention is focused on the recently published Bank of England discussion papers in this field. Emphasis is placed on the issues of (monetary control, capital adequacy and liquidity). The latter two are prudential concepts. The thesis assesses how and why the Bank of England control and monitor bank balance sheets - and how this affects banks' capital structures.

The thesis is structured in two parts. Part I analyses the stance of the supervisory authorities before 1980. We discuss the rather unique role and style of the Bank of England. The 1971 reforms of Competition and Credit Control are discussed. The limitations of this system are noted, and the case for a change in banking supervision made. As a result the issues of monetary control and prudential supervision are analysed in detail and the present stance of the Bank of England in each case examined.

In Part II a quantitative assessment of the impact of the new regime is made. The impact of the direct monetary controls can be seen, whilst the impact of prudential supervision is less certain - though the work demonstrates the potential threat of the new prudential guidelines.

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Any remaining errors and omissions do, of course, remain my responsibility.

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CHAPTER ONE - INTRODUCTION

1.1. INTRODUCTION

1.2. FORMAT OF THESIS

1.3. METHODOLOGY

1.1. INTRODUCTION

(In the U.K. the supervision of the banking system is entrusted to the Bank of England. In many respects the controls and guidelines issued by the Bank of England are unique. More importantly, however, during the last few years the system has been subject to a considerable degree of change.) This thesis assesses the growth of supervision in the U.K., why changes have been made and what effects these changes may have. The assessment is made with reference to the recently published Bank of England papers on monetary control and prudential supervision - and how they impact on banks' balance sheets. Thus this work is concerned with the supervision of banks' balance sheets and not bank regulation.

The terms of reference are as follows. (In the U.K. the Bank of England has sole responsibility for ensuring a sound, but competitive banking system. This is referred to as prudential supervision. In this respect the Bank of England now issue guidelines. These guidelines are often tailored to meet an individual institution's own requirements. Nevertheless, prudential supervision can prove to be an effective control mechanism.)

(On the other hand, the Bank of England is also responsible (to Government) for ensuring the effective implementation of Monetary Policy. This role, by necessity, tends to have a rather more direct impact on the banking system than the prudential guidelines. It is in this role that the Bank of England implements monetary controls.)

(In practice, however, both monetary control and prudential supervision represent forms of intervention by the Bank of England, both of which are almost exclusively applied to a bank's balance sheet. This work distinguishes between these two principal forms of intervention, explaining the rationale behind them and assessing their impact on bank balance sheets and the U.K. banking system. The impact of monetary controls can be said to be more precise than the prudential guidelines - yet the latter can be just as effective.)

(The term bank supervision is not a new one - the Joint Stock Banks of the nineteenth century were supervised by the Bank of England in its role as the central bank. The significance is that banking supervision has developed rapidly in recent years, particularly during the latter half of the 1970's.)

(The 1979 Banking Act established a new supervisory framework within which the Bank of England could influence bank balance sheets for control and/or supervisory purposes. The need for change had been provided by many factors, for instance the fringe banking crisis, inflation and the growing importance of the money supply in modern monetary policies. Thus Bank of England interference was now to be specifically directed towards the areas of capital adequacy, liquidity and monetary control.)

(In consultation with HM Treasury, monetary controls over the banking system have been relaxed by the Bank of England. A move towards controlling the monetary base of the banking system was dismissed as impractical in the U.K. Efforts were also made, in discussion with select banks, to implement an

appropriate system of prudential supervision. Particular emphasis has been placed on maintaining the solvency and day-to-day liquidity of banks. The Bank of England have issued guidelines which show their interpretation of the adequacy of a commercial bank's capital and liquidity. Banks in the U.K. will be encouraged to maintain an asset structure of sufficient quality. Unforeseen losses can then be charged (in addition to normal operating losses) to current earnings without affecting the solvency of that bank. Capital adequacy is therefore a long-term issue. In the short-run the Bank of England are also concerned banks do not become illiquid. This may occur where the assets and liabilities of a bank are mismatched.)

The current controls and supervisory guidelines were published after 1980. Sufficient time has not therefore elapsed for significant research results to be obtained. The rationale of this work is to provide an initial assessment of the newly defined monetary control and prudential supervisory framework.

1.2. FORMAT

The thesis is structured in two parts. Part I analyses bank supervision, the role of the Bank of England, the history of bank supervision in the U.K. and the factors that led to a re-assessment of this position. Particular emphasis will be placed on monetary controls, capital adequacy and liquid adequacy. These topics will be analysed in detail; the recent changes will be incorporated to define the current position in the U.K. In Part II the impact of the current

regime will be assessed by use of quantitative models of bank balance sheets. The thesis will conclude that the impact of monetary controls is clearly discernable but that prudential supervision could now impose a very real threat to banks' balance sheets.

1.3. METHODOLOGY

The literature review revealed that extensive coverage has been given to the topics of monetary control and prudential supervision, most notably in the United States. The two topics were, however, in almost all cases treated separately. Thus, although the literature survey proved helpful, it failed to offer a base from which these issues could be considered in terms of an overall impact on bank balance sheets. To supplement this analysis, a computer-based model of a hypothetical clearing bank was constructed. The model used the Supercalc financial package, which allows the user to vary the assumptions of the model and observe the resulting changes. The various controls and guidelines were imposed on the balance sheets. The model demonstrated the significant impact of the Bank of England's new supervisory framework - and the resulting effect upon a bank's profitability of these constraints. Finally a series of informal discussions with commercial bankers and analysts was undertaken. These discussions revealed widely varying interpretations of bank supervision, particularly concerning the rationale behind the present system of monetary control and the impact of the prudential guidelines.

PART I - BANK SUPERVISION, PAST AND PRESENT

- CHAPTER 2 BANK SUPERVISION
- CHAPTER 3 BANK SUPERVISION TO 1980
- CHAPTER 4 MONETARY CONTROL
- CHAPTER 5 BANK CAPITAL ADEQUACY
- CHAPTER 6 BANK LIQUIDITY ADEQUACY

CHAPTER TWO BANK SUPERVISION

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2.2 Bank supervision:-

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2.1 INTRODUCTION

This chapter will identify the concepts underlying bank supervision. Section 2.2 will argue why bank balance sheets are subject to external control and guidelines in respect of monetary and/or prudential policies. The role of the Bank of England as central banker to the U.K. will be discussed. The style of supervision adopted by the Bank of England will be considered in Section 2.3. This will be briefly compared with the United States and West Germany in Section 2.4. The emphasis on the approach and style of banking supervision in the U.K. will be particularly important to an assessment of the prevailing supervisory controls in subsequent chapters. We are not therefore concerned with 'structural' regulations. Such regulations define the conditions for the establishment of new institutions and the branches of existing ones, various controls on interest rates and charges for services. (1p.16)

2.2 BANK SUPERVISION

2.2.1. Bank supervision defined

It has been suggested by Holland (2p.34) that bank supervision should protect the legitimate interests of present and would-be bank customers and shareholders; prevent bank failures and be attentive to overall monetary conditions. Kamath (3p.24) has added the maintenance of public confidence in the banking system; promoting a 'healthy' banking industry (in terms of a desirable level of competition within the sector and maintaining the banks' ability to earn a rate of return commensurate with the

banking risks involved) and allowing the banking sector to meet the needs of the community, both at present and in the future.

Banking supervision is therefore concerned with prudential and monetary issues. Prudential policies will seek to encourage the growth of sound banking business.) Horvitz (4p.591) commented that "...failures of large banks (or at least worries about such problems) are going to be a permanent part of the financial picture of the future". (In the U.K. the Bank of England have recently focused on capital and liquidity measures in an attempt to limit the possibility of a recurrence of the difficulties highlighted by the fringe banking crisis.)

Monetary controls, however, are determined largely by official policy; and any measures taken by the Bank of England will be with the approval of the government.) Gardener (5p.4) has argued "...the prudential stances of individual banks become of much less significance when the monetary authorities themselves act in an irresponsible and imprudent manner". This is because monetary policy, inflation, interest rate levels and changes, and the general state of the economy are all factors beyond an individual bank's control. (Monetary supervision acts on liabilities by affecting the growth of deposits (and therefore of the money stock) through changes in interest rates brought about by Bank of England intervention in the financial markets.) A major factor in the rate of monetary expansion has been the growth of bank finance, the banking system's principal risk asset. This is

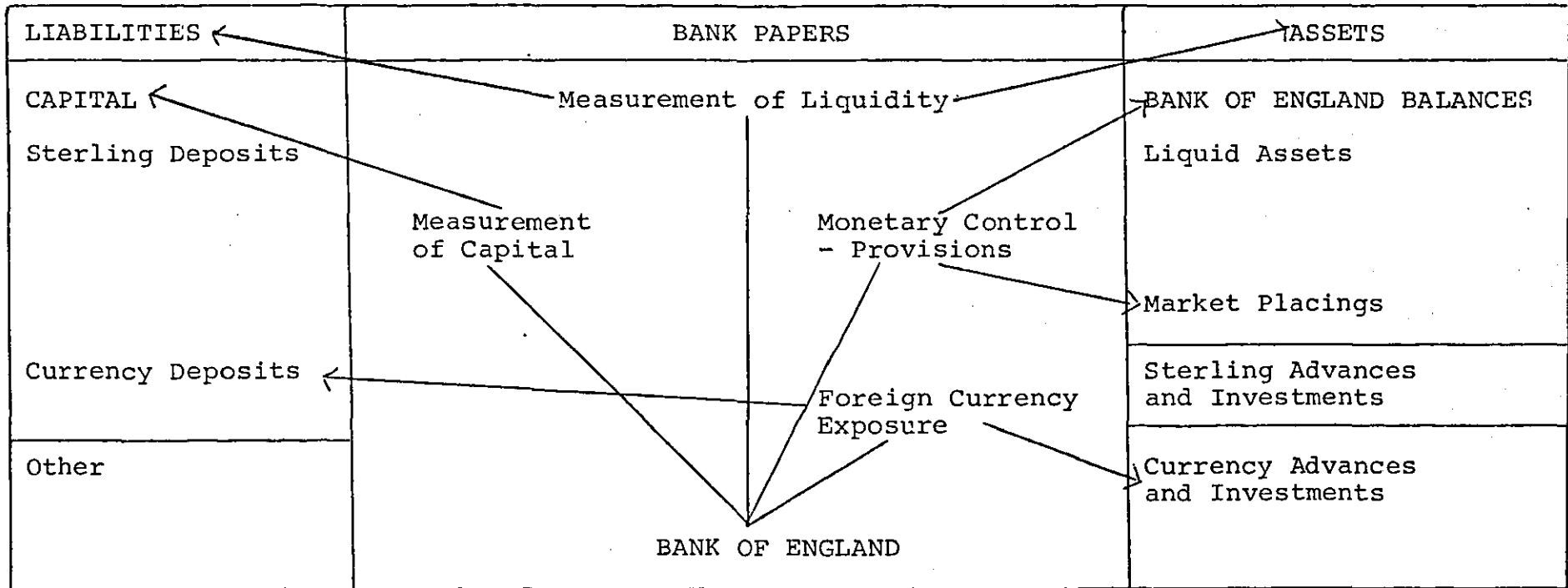
also influenced by interest rates, though monetary supervision can also impose more or less direct controls - for instance specific quantitative limits on lending and compulsory reserve requirements related to the behaviour of bank lending.

Table 1 below shows the areas of a bank's balance sheet over which the Bank of England has now sought to exercise greater supervision under the terms of the Banking Act. To date the proposals have been issued under four main headings:

1. Monetary Control
2. The Measurement of Capital
3. The Measurement of Liquidity
4. Foreign Exchange Exposure

In the final analysis, because of their effect on bank balance sheets, all four papers are inextricably linked. Bank capital standards interact with both national economic and monetary policies. Increased capital requirements may, when new capital cannot be raised, directly decrease the availability of funds to borrowers and therefore the rate of growth of bank credit and money. Rigid liquidity standards may promote ill-timed banking actions; flexible liquidity standards could frustrate (for a time) the thrust of monetary policy.¹ Prudential supervision will tend to monitor the changing quality of management, credit and balance sheets. Such information can be very useful to the makers of monetary policy. Lomax² has argued for an integrated approach towards both the formulation of monetary policy and the supervision of the banking system.

TABLE 1 THE CENTRAL BANKS CONTROL AND SUPERVISORY ROLE



SOURCE: D. Child, Presentation, Loughborough University of Technology, 26 November 1981

2.2.2 Why banks require supervision

Reed et.al.(6p.3) stated "Commercial banking is one of the most closely regulated businesses". This is because the social consequences of large and widespread banking failures are "...generally viewed as sufficient justification for some form of prudential regulation, or supervision, of banking activities"(7p.1). Secondly bank deposits and advances have become a crucial constituent of monetary policy.) In the U.K. (as in most other countries) interest rates remain a major determinant of monetary policy because of their effect on the demand for both money and bank credit. (Banking systems will therefore be supervised to the extent that the authorities think it prudent to do so and the monetary authorities define their objectives in terms of bank assets and liabilities.) In the U.K. bank deposits are the main component of the money supply.

In section 2.1 it was shown bank supervisors are concerned to maintain a 'safe' banking industry. This could be achieved by a bank's own regulations) but Revell³ has argued that increased competition has increased risk taking which in the absence of external regulations has led in almost all instances to the growth of 'bad banking practices'. In the U.K. this is illustrated by the failures of Overend Gurney in 1866, City of Glasgow Bank 1878, Baring Brothers 1890; the major financial crises accompanying the outbreak of war in 1914, and subsequently 1929-1932; the fringe bank crisis 1973-74. "The step from primitive self-regulation through the suspension of inter-bank competition to regulation by the

authorities was a necessary one as soon as it was demonstrated that self-regulation could break down". (8p.22).

Prudential supervision of a banking system is therefore required primarily because of externalities such as poor management and fraud.) To a lesser extent the risks inherent in a bank's balance sheet are also important. (The essence of banking is to achieve an appropriate balance of risk and return which permits a bank to maintain adequate levels of liquidity, solvency and profitability.)

This was recognised by Crosse and Hempel (9p.59):

"Taking risks can almost be said to be the business of bank management. A bank that is run on the principle of avoiding all risks, or as many of them as possible, will be a stagnant institution and will not adequately serve the legitimate credit needs of its community. On the other hand, a bank that takes excessive risks, or, what is more likely, takes them without recognising their extent or even existence will surely run into difficulty."

Two factors, however, tend to lessen the possibility of banks taking excessive risks: (10p.5)

1. Banks are highly geared institutions and are for the most part lending their depositors money. If a banks' assets are reduced by more than a relatively small

percentage, their earnings and capital will be completely eroded and the bank will become insolvent.

2. Banks are remunerated by a small and fixed margin over their cost of funds (excluding any fee income). This means a bank does not have an 'upside potential' on its assets - they are unable to share in any unexpectedly high profits accruing to the borrower. In contrast to an equity investor or venture capitalist, a commercial banker cannot work on the principle of balancing out losses against successful ventures.

A full discussion of banking risks will be given in Chapter 5. The purpose of this section was to show why it is necessary to supervise a banking system. (We conclude that monetary controls are imposed because bank's assets and liabilities form a major component of official monetary policy. On the other hand prudential supervision is necessary because of externalities and because internal bank controls have, on certain occasions, proved to be insufficient on their own.)

2.2.3 Bank Supervisor Defined

(Broadly speaking a banking system will be supervised in practice by the central bank of that country. The central bank was defined by Sayers as "...an organ of government that undertakes the major financial operations of the Government and by its conduct of these operations and by other means, influences the behaviour of financial institutions so as to support the economic policy of the

government". (11p.66) The whole criteria and objectives of a central bank therefore differ from commercial banks. Central banks are not profit maximisers. A central bank is governed by people who are more closely connected with Government. The most important objective of a central bank is to control the money stock in such a way as to promote the interest of the general public. (12p.154).

The functions of the Bank of England in the U.K. may therefore be described as follows:

1. Note - issuing authority.
2. Banker to the Government:-
 - a) maintaining the accounts of Government departments;
 - b) handling Government short-term borrowing through the (weekly) Treasury Bill tender;
 - c) handling the issue of Government stocks, interest payments on them and redemptions at maturity;
 - d) managing the Exchange Equalisation Account (or similar fund).
3. Banker to the banks - their source of cash and a means of settling transactions with each other (for instance cheque clearing) and with the public sector.
4. Lender of last resort.
5. Implementing Government monetary policy - principally by influencing the cost and availability of credit by:-
 - a) varying the terms of 'last resort' and other support;
 - b) open market operations;

- c) directives to banks;
- d) calls for special deposits/variations in banks' reserve asset ratios (the latter ceased August 1981).

- 6. Supervision of the U.K. banking system.
- 7. Maintain accounts for overseas central and other foreign banks and for bodies such as the I.M.F. and I.B.R.D.

UK
Until 1979, the role of bank supervisor was never formally entrusted to the Bank of England. Instead the role has been traditionally established by the 'necessity of recognition' of financial institutions by the Bank of England. This process applied particularly to the discount houses (because of their unique position as intermediaries between the Bank of England and the banking system) and the merchant banks (because the Bank of England was prepared to discount their acceptances). In return for 'recognition' by the Bank of England, financial institutions were prepared to accept that the "...regulation of their activities was desirable in the common interest..." and "...that rules for the performance of functions and of duties should be accomplished and enforced". (13p.379). Thus the Bank of England was considered to be the practical "....supervisory body since de facto the banking community accepts this situation, and the Bank's supervision and control" (14 p.5).

UK
Bank supervision in the U.K. now involves at least three separate areas of Government, each with differing responsibilities:

1. The Treasury who seek to have available an effective system with which to control, if necessary, the growth of the money supply. By implication, this means dictating the terms at which the banking system would be supplied with, or relieved of, cash.
2. The Bank of England Policy and Market Department whose responsibility is to ensure that there is sufficient liquidity available to relieve any day-to-day shortages in the banking system.
3. The Bank of England's Supervision Department whose responsibility is to ensure that individual banks are prudently managed and hold adequate capital and liquidity.

2.3 BANK SUPERVISION - THE U.K. APPROACH

In the U.K., bank supervision has been and continues to be a "...blend of both statutory and non-statutory provisions"(15p.379). The latter has traditionally been carried out by the Bank of England through its role as the central bank. The supervision and control of the U.K. banking system has never, however, been a formally designed process (until recently).

2.3.1 Statutory Bank Supervision

Prior to 1979 the Bank of England supervised the U.K. banking system as a result of the 'necessity of recognition' and not through statute. The 1946 Bank of England Act gave the Bank of England power to issue directives to banks, but this has only rarely been utilised. This lack of formality was

reflected in the Bank of England's supervisory department. By 1967 there were only four Principals of the Discount Office with a supporting staff of about fifteen, whose primary function was not bank supervision but discount window lending and the bill markets. This was primarily because it was not until the 1979 Banking Act that a statute definition of a bank was given. The following are the principal statutes of banking recognition: (16)

1. Exchange Control Act 1947 - authorised a list of named banks who could deal in foreign currency or open accounts for non-residents of the United Kingdom. This list was not closed; banks were added to it as appropriate. The Act is now defunct.
2. Companies Act 1948 - schedule 8 empowered the Board of Trade to exempt recognised banking or discount companies from disclosing the size of their hidden reserves. This was revised by schedule 2 of the Companies Act 1967.
3. Protection of Depositors Act 1963 - imposes conditions to be fulfilled by anyone wishing to advertise for deposits. These do not apply to banks and discount houses who were recognised for this purpose by the Board of Trade under Section 127 of the Companies Act 1967.

4. Companies Act 1967 - the two relevant sections were:-
 - a) Section 123 which empowered the Board of Trade to issue certificates to 'banks' provided these institutions would carry on bona fide banking business for the purpose of section 6(f) of the Money Lenders Act 1900-19275.
 - b) Section 127 prohibited the use of the words 'bank, banker or banking institution' in an advertisement by a company not on the exemption list.

5. Income and Corporation Taxes Act 1970 - section 54 enables the Inland Revenue to confer the right to pay and receive interest gross of tax to companies considered to be conducting a banking business.

6. Banking Act 1979⁶ - the Act is primarily concerned with bank supervision. New supervisory responsibilities were placed on the Bank of England to determine which institutions may legally operate as deposit-taking businesses (excluding Building Societies). Further, the Act established a deposit protection fund and controlled the use of banking names and descriptions.

The Banking Act established a two-tier system of deposit-taking businesses, categorising such institutions as 'recognised' banks or licenced deposit taker's (LDT's). The Bank of England has the sole power to grant recognition or a licence, and may revoke either. Once granted, the institution comes under the continuing process of supervision by the Bank of

England - the Act does not however lay down rigid statutory prudential ratios. By February 1982 there were 293 recognised banks and 300 LDT's.

Recognition is granted to an institution which enjoys and "...has for a reasonable period of time enjoyed, a high reputation and standing in the financial community" (Sch.2, para.1(1)), provided that its business is carried on with integrity and prudence. A licenced institution must likewise "...conduct its business in a prudent manner" (Sch.2, para.10).

Both institutions are now required to observe guidelines on capital adequacy requirements. Recognised banks must maintain "...net assets which, together with other financial resources available to the institution of such a nature and amount as are considered appropriate by the Bank, are of an amount which is commensurate with the scale of the institution's operations" (Sch.2, para 6(1)). LDT's are however specifically required to maintain an amount which is "...sufficient to safeguard the interests of its depositors" (Sch.2, para 10 (1)). In addition a licenced institution must:-

- a) maintain adequate liquidity having regard to the relationship between its liquid assets and its liabilities and also to the times at which its liabilities fall due and its assets mature, and

- b) make adequate provision for bad and doubtful debts and obligations of a contingent nature (Sch.2, para 10 (1)).

2.3.2 Non-statutory Bank Supervision

Prior to 1979, banking supervision in the U.K. was based on an informal approach. Gowland argued "The lack of statutory backing to the system was a matter of pride" (17p.91) whilst Richardson has stated it is "...because of our traditional disposition to use unwritten, rather than codified, systems in some areas of our national life" (18p.367). Evenso this informal approach has long been viewed by the financial markets effectively as mandatory, a feature unique to the United Kingdom. Within this framework, the clearing banks and British overseas banks with large foreign branch networks have consistently remained the least supervised sector because of their operations and the security provided by their greater resources.

Blunden has stated that the 'natural evolution' of bank supervision in the U.K. has given rise to four unique characteristics - a flexible, personal, progressive and participative approach⁷.

1. Flexible - a flexible and pragmatic attitude has been adopted. The Bank of England recognise the many groups of financial institutions and their individual needs and practices. It is because of this diversity, the

Bank of England have never attempted to impose rigid rules on the banking system, viewing ratios merely as yardsticks and not categorical imperatives.

2. Personal - by viewing each institution as unique, the Bank of England has always had particular regard to the quality and reputation of management and, where appropriate, ownership. Thus the degree of supervision exercised has varied greatly according to the type of bank.
3. Progressive - as a logical extension to the principal of recognition by supervision, the Bank of England has tended to graduate the levels of supervision according to the degree of recognition each institution is afforded. Thus the degree of supervision considered appropriate was a function of the belief that a bank will only attain its status after a long period of growth; informal recognition could be achieved by eligibility of bills, membership of associations - formal recognition was by legislation.
4. Participative - in the absence of legislation, the Bank of England have traditionally regarded the best way to judge what constitutes sound banking by observing the behaviour of banks which have an established reputation for prudential management (19p.367). The Bank of England would establish their standards accordingly.

To assess an individual bank, the Bank of England would rely not only on the information given by that bank but would also encourage views from other banks.

2.4 BANK SUPERVISION - UNITED STATES AND WEST GERMANY

The purpose of this section is to compare the uniqueness of the informal approach to bank supervision in the U.K. The United States (U.S.) and West Germany offer two similarly advanced western banking systems yet banking supervision per se is more clearly defined.

2.4.1 Bank Supervision - The United States

The central bank of the U.S. is a system of twelve connected banks called the Federal Reserve Banks. The Federal Reserve System (FRS) was founded in 1913; most of the fundamental central banking powers of the system are entrusted to a central body, the Board of Governors of the FRS. There are, however, over 14,000 commercial banks in the U.S. who are principally supervised by three different bodies - the FRS, the Office of the Comptroller of Currency (OCC) and the Federal Deposit Insurance Corporation (FDIC). In fact there are 55 supervisory agencies because banks may also be supervised by the relevant state authorities.

Supervision is accorded as follows. All U.S. banks must have a charter before commencing business. To be eligible for a national charter, commercial banks are required to have a given level of net worth (National Banking Act 1864). Nationally chartered banks are supervised by the OCC. State chartered banks may seek membership of the FRS⁸. Member

banks (and Bank Holding companies) are supervised by the FRS. Non-member state chartered banks, whose deposits are insured, are supervised by the FDIC. Non-member 'uninsured' banks come under the auspices of the relevant state authority. There is a degree of overlap between the FRS, the FDIC and the state authorities.

The FDIC was established in 1933 following the bank failures of the late 1920's. During a period of only three years 10,000 out of a total of 25,000 banks failed. The result was that since the 1933 Bank Holiday, all personal deposits up to a certain sum have to be compulsory insured with the FDIC.

(Comparison)
The position of the ^{US} three main supervisory agencies contrasts with the authority of the Bank of England in the U.K. Holland believes a sole agency could "...tend to become inflexible, or even ossified"(20p.34). This may well be true in a country with such a diversified and impersonal banking system. Evenso the FRS is being encouraged to become more closely involved in bank regulation and supervision. Davies (21p.72) questioned this on two issues. Firstly, federal consolidation might adversely affect the viability of the dual banking system under which banks have the choice of a state or federal charter. Secondly, he questioned the desirability of vesting supervisory authority over banks within the agency responsible for the conduct of monetary policy. U.K. experience would not appear to attach much weight to the latter criticism.

Supervision of the American banking system therefore remains divided. Proposals have recently been forwarded to consider consolidating the functions of the OCC within the FRS, as the creation of a Federal Bank Examination Council⁹ but they have been generally opposed. Supervision of the banking sector throughout the States is however a far more legally defined process than in the U.K.

2.4.2 Bank Supervision - West Germany

In direct contrast to the U.K., bank supervision in Germany was formally designed by the Kreditwesengesetz (KWG Banking Act) of 1934¹⁰. Also supervision is not directly conducted by the central bank (Bundesbank) but by the Bundesaufsichtsamt für das Kreditwesen (BAK). The function of the BAK was defined by article 6(2) of the KWG as "...containing abuses in the banking sector which endanger the security of the funds entrusted to banks, or which impede the orderly conduct of banking business, or which could lead to considerable disadvantages of the economy as a whole."

Broadly speaking supervision is the responsibility of the BAK. It can order the immediate cessation of business and has the power to request detailed financial information from the banks. Within this structure however the Bundesbank maintains an active role.

The German approach has until recently had one notable advantage vis-a-vis the U.K. In Germany there has always been a clear distinction between requirements imposed on banks for prudential reasons and those imposed for monetary

control. } The main similarity is that both supervisory systems have been, and are, undergoing change, but a change which is more in response to banking crises than planned policy¹¹.

2.5 BANK SUPERVISION - CONCLUSION

The distinction between monetary control and prudential supervision was made. Both will affect a bank's capital structure - the extent of this will be examined in subsequent chapters.

[In the U.K. the Bank of England is solely responsible for bank supervision. The lack of formality to the U.K. system was highlighted though recently the Bank of England has been empowered by statute to act.) It was shown that the Bank of England supervise on the basis that a "...bank is only as good as it's senior management..." thereby being more useful to "...influence a bank's policy from the top rather than to try to monitor its procedures from the bottom"(22p.369). Moreover the U.K. has now developed its own distinct style of banking supervision. This is important to note when analysing the current supervisory controls. These features were shown to be rather unique to the U.K. in contrast to America and West Germany, where more definitive and formalised control systems exist not necessarily under the auspices of the central bank.

NOTES TO CHAPTER TWO

1. See for example 'Statement to discuss FINE proposals', Federal Reserve Bulletin, January 1976, pp.33-37.
2. See for example 'Monetary Policy', National Westminster Bank Quarterly Bulletin, November 1980, pp.2-22.
3. See for example Chapter 2 Competition and Regulation in Financial Markets edited A. Verheirstraeten, 1981.
4. Section 4 of the Bank of England Act enabled the Bank to 'request information from and make recommendations to bankers'.
5. The licencing provisions of the Money Lenders Act have now been replaced by the licencing provisions of the Consumer Credit Act, 1974.
6. For a very comprehensive discussion see:-
 - (a) I. Morison, P. Tillett. and J. Welch, Banking Act 1979, Butterworths, London 1979.
 - (b) I. Morison, The Banking Act, Gilbert Lectures on Banking 1980, January 1980.
7. See for example 'The supervision of the Banking System', Bank of England Quarterly Bulletin, June 1975.
8. Membership of the Federal Reserve System is not therefore compulsory. There are however several 'advantages' of paramount importance, such as cheque clearing facilities.
9. See for example Title IV of the FINE 'Discussion Principals' relating to the regulatory agencies.

10. For the text of the Act see Schreider Hannes, Hellwig, H.J. and Kingsman, David J. (Eds.), The German Banking System (Texts) Frankfurt : Knapp 1978.
11. For a more detailed comparison see The British and German banking system : a comparative study, Economics Advisory Group Ltd., 1981, Chap. 10.

CHAPTER THREE - BANK SUPERVISION TO 1980

3.1. INTRODUCTION

3.2. BANK SUPERVISION PRIOR TO 1971

3.2.1. MONETARY SUPERVISION

3.2.2. WEAKNESSES

3.3. BANK SUPERVISION 1971-1980 'COMPETITION AND CREDIT CONTROL'

3.3.1. CCC

3.3.2. CCC IN PRACTICE

3.3.3. CCC WEAKNESSES

3.4. BANK SUPERVISION - REASSESSMENT

3.4.1. MONETARY CONTROL - REASSESSMENT

3.4.2. PRUDENTIAL SUPERVISION - REASSESSMENT

3.5. SUMMARY

3.1. INTRODUCTION

This chapter analyses the controls and supervision that were applied before the 1980 reforms, distinguishing between the pre-1971 and post-1971 periods. The policy issues that influenced the supervisory process will be identified and discussed. It will be argued that in neither period was there a clear understanding of, nor intention to identify, the issues of monetary and prudential supervision. The review will be conducted in the context of these themes and the limitations of these controls highlighted. Section 3.4 will further demonstrate the need for a reassessment of bank supervision in the U.K. In total this provides the foundation for the subsequent chapters in Part I.

3.2. BANK SUPERVISION PRIOR TO 1971

During the period to 1971 bank supervision in the U.K. concerned only a small number of banking institutions and was largely dominated by what was considered 'normal' banking practice. In essence bank supervision prior to 1971 was a loose monitoring procedure - the Bank of England did not explicitly recognise the need for bank supervision and were content to monitor the growth of some of the larger banks.

3.2.1. MONETARY SUPERVISION

The principal controls were imposed for monetary control reasons. It could be argued that the liquidity and cash ratios were prudential ratios but they were undoubtedly used as instruments of monetary control. Before 1971 therefore, bank supervision resulted from the need to subject bank balance sheets to control for monetary policy purposes.

Monetary policy was directed towards maintaining confidence in the markets for government debt and controlling bank lending (without the use of disruptively large fluctuations in interest rates). This policy was principally designed by the monetary authorities understanding of the government debt markets and the proposals of the Radcliffe Committee⁽¹⁾.

Confidence in the government debt markets would be achieved by maintaining the stability of bond prices and yields, as the authorities believed the public's demand for government debt was marked by instability^(23p.2). Thus given the large amounts of government debt for which holders had to be found, the way to maximise net sales was to maintain an orderly market of stable bond prices. The Bank of England, in its capacity as banker to the government, had for many years attempted to smooth out the price of government securities by its dealings in the money markets. The demand for interest rate stability also resulted from the belief that higher interest rates would tend to discourage investment in housing and industry. It was this desire for stable interest rates that caused the authorities to support the clearing banks' interest rate agreements or 'cartels' during the 1960's. The clearing banks did not compete on their deposit or lending rates, but rather linked these directly to Bank Rate², which was set by the Bank of England.

Monetary policy during the 1960's was also dominated by the proposals of the Radcliffe Committee. Policy assumed a very 'Tobinesque' approach, concentrating on what was vaguely termed by the Committee as the 'liquidity of the economy'.

In practice this concerned a broad category of short-term assets and not just the stock of money(24p.25). Monetary control was therefore also directed towards controlling the total demand for credit mainly by affecting the ease of access to such finance.

Monetary controls were implemented in the form of both quantitative and qualitative controls:

1. Quantitative

The two types of quantitative controls were direct controls and ratio controls:-

- (a) Direct controls - comprised lending ceilings and Special Deposits (SDs). The main system of credit control was a system of ceilings on the growth of lending by individual banks. They were applied for long periods during the 1950's and 1960's. Initially these ceilings applied only to the clearing banks but were gradually extended to non-clearing banks and other financial institutions. However, from 1960 the London and Scottish clearing banks were further subject to calls for SDs. This involved placing additional balances at the Bank of England equal to a specified percentage of their deposits.
- (b) Ratio controls - principally comprised the liquidity and cash ratios. They had prudential origins and were applied solely to the London clearing banks. The liquid assets ratio was set

as a formal requirement in 1955 at 30% of deposits. Liquid assets were defined as cash, money at call and short notice with the discount houses, bills of exchange and British government Treasury Bills. In 1963 the ratio was reduced to 28%. The cash ratio was set as a minimum of 8% of deposits in 1946. Cash was defined as till money and balances at the Bank of England.

2. Qualitative

Qualitative controls of 'guidance' generally accompanied quantitative directives, requiring the banks to give certain categories of borrowing priority. This frequently covered exports and industrial investment.

The emphasis was, however, placed on direct lending controls. Calls for SDs and qualitative controls were generally of limited significance. Direct lending controls avoided the need to vary interest rates in order to control credit. The liquidity ratio was also used as a method of restraining bank lending. The liquidity ratio had been re-emphasised by the Radcliffe Committee(25para.505), but during the 1960's there was a revival of interest in the control of bank deposits by the cash ratio. The cash ratio had been used as a means of regulating short-term interest rates.

3.2.2. WEAKNESSES OF THE SYSTEM PRIOR TO 1971

The system was unsatisfactory for several reasons:(26p.2)

1. Inequitable

(a) The combined effect of the liquidity and cash ratios, and calls for SDs, was to force the clearing banks to keep more resources than commercially necessary in low-yielding assets. This was an unfair profitability constraint.

(b) Only a limited number of financial institutions were required to observe lending ceilings. Institutions not subject to these requirements could carry on profitable lending business which those subject to control could not.

2. Inefficient

(a) The banking system was inefficient to the extent that competition was severely limited not only by lending ceilings but also through the cartel arrangements and the uneven imposition of controls.

(b) The control mechanism was inefficient. The supply of liquid assets as defined was not totally under the control of the authorities. A shortage of liquid assets could be overcome by the banks increasing their holdings of private sector assets (such as commercial bills) instead of being forced to reduce their non-liquid assets (such as

advances) in order to observe the required ratio. To a limited extent banks could also sell bonds as the Bank of England had agreed to underwrite the bond markets.

3. Uncompetitive

Prior to 1971 the clearing banks - indeed the banking sector generally - were under continual attack because of the apparent lack of competition within the system. Shaw contends it was virtually an oligopoly(37p.20). One of the major considerations given for the need to change was the need to inject a spirit of competition and innovation into the banking system as a whole.

3.3. BANK SUPERVISION 1971-1980 'COMPETITION AND CREDIT CONTROL'

Introduced in September 1971, Competition and Credit Control (CCC) represented a complete overhaul of the monetary supervision of the financial system. It explicitly refuted the previous methods of credit control as highly unsatisfactory. CCC illustrated a changing trend in monetary policy. The authorities were attaching more importance to the money stock as an objective of policy and therefore required a framework which would allow them greater control over the broad monetary aggregates, rather than specific control over certain institution's lending. The system had two broad objectives(28p.33):-

1. to ensure that the available supply of financial resources was allocated to various uses by the free operation of the price mechanism - abandoning rationing methods such as quantitative controls, and
2. to enable the authorities - by appropriately influencing market conditions and thus inducing changes in market behaviour in response to the alterations in market conditions - to exercise firm control over the size or rate of growth of the stock of money and other monetary aggregates. The authorities would thereby treat banks and consumer credit (hire purchase) institutions in a more uniform manner for the purpose of credit control. This complemented the first aim as the price mechanism can only operate efficiently in a genuinely competitive market.

CCC was an attempt to control the credit expansion of "...banks and finance houses by operating on their resources rather than by directly guiding their lending"(29p.17) such that "...the allocation of credit is primarily determined by its cost"(30p.5). This reflected the view that the most important variable in the economy was not the total quantity of money³, but the price and availability of liquidity.

CCC represented a shift from direct control to market forces. It attempted to remove the impediments to competition arising from the liquidity and quantitative lending controls. An integral part of these proposals was that the London and Scottish clearing banks should abandon their collective

agreements on interest rates⁴. The authorities would now seek to influence the structure of interest rates through a general control over the liquidity of the whole banking system. The basic objective would be to influence the demand for money by changing the level of interest rates when necessary.

3.3.1 COMPETITION AND CREDIT CONTROL⁵

CCC involved many changes. Lending ceilings were withdrawn, cartel arrangements abandoned and, in order to directly improve their ability to control the money stock, the Bank of England discontinued its practice of supporting the price of government securities⁶. Qualitative guidance was withdrawn but only on the terms that it would be re-introduced if considered necessary. The four crucial institutional changes were:

1. A reserve asset ratio applied to the whole banking system

A twelve and a half percent reserve asset ratio was the crux of the new system. It applied to all banks on the statistical list with eligible liabilities of £5 million or more⁷. The ratio was a minimum daily requirement, calculated as a percentage of eligible liabilities⁸.

Reserve assets comprised:-⁹

- (i) balances held with the Bank of England (other than special or supplementary special deposits);

- (ii) secured money-at-call with listed discount market institutions and brokers;
- (iii) Treasury bills issued by the British and Northern Ireland governments;
- (iv) British government marketable securities (gilts) with less than one year to maturity¹⁰;
- (v) U.K. local authority bills eligible for rediscount at the Bank of England;
- (vi) commercial bills eligible for rediscount at the Bank of England to a maximum of 2 percent of eligible liabilities¹¹.

The uniform ratio did not ignore the wide diversity of business between banks. The ratio was based on that part of their business which involved the taking of sterling deposits and their employment in sterling assets - which was the control objective. The Bank of England argued the similarities of function were more important than the dissimilarities¹². According different treatments to parts of the banking system would have been difficult to reconcile with the objectives of CCC. It would also impede the authorities in making uniform calls for SDs.

2. Special Deposits

The SD scheme was extended to all banks on the statistical list and finance houses observing a reserve asset ratio. Calls were made as a uniform percentage of eligible liabilities, to be placed with the Bank of England. Such monies were not available for use by the banks. In this way the liquidity of the banking system

was reduced. In the early 1970's, calls between one and five percent were made. Amounts called were rounded to the nearest £5,000. SDs usually earned a rate of interest equivalent to Treasury Bill rate¹³.

SDs were used in conjunction with the reserve asset ratio to mop up any abnormal excess liquid assets, and occasionally to force the banking system to dispose of assets not eligible as reserve assets. Such a method was unlikely to produce a precise multiple contraction of bank assets, but could be expected to influence the structure of interest rates. Calls for SDs for instance could exert upward pressure on interest rates - not only rates in the inter-bank market but also rates in the local authority market and yields on short-term gilt-edged stock. The growth of liability management, however, meant that the combined use of the reserve asset ratio and SDs was only partly effective(31p.26).

3. Cash ratio

The London clearing banks were, in addition, required to maintain a minimum cash ratio of one and a half percent of eligible liabilities, on average, over each banking month. This was to be used as a fulcrum for money market operations. The requirement was also designed to provide a major source of income for the Bank of England as it was non-interest bearing.

4. Intervention Techniques

The intended method of influencing the growth of monetary aggregates in the short term was to influence interest rates. The preferred method was to deliberately create shortages in the money markets, by setting the amount of Treasury bills on offer each week in excess of the government's requirement.

This could be done because in 1971 the Discount Houses agreed to underwrite the whole of the Treasury bill tender. Thus they were constantly forced to borrow through the 'discount window' at an interest rate of the Bank's choice¹⁴. Clear signals about the Authorities view on interest rates were given in this way, and by changes in Minimum Lending Rate⁽³²⁾. These rates would affect the rates the discount houses were prepared to pay for bills and other assets, and the rates at which they were prepared to borrow. Thus the terms on which the Bank lent to the discount houses represented a major influence on the level of short-term interest rates generally. In practice this meant the authorities still maintained rigid control of short-term rates rather than allowing market forces to dominate.

Bank rate was replaced by Minimum Lending Rate (MLR) in October 1972. MLR was again the rate at which the Bank would provide the necessary assistance to the discount market, but was formally calculated as Treasury bill rate plus half percent rounded to the nearest quarter

percent. This meant MLR was a penal rate because the discount houses could usually obtain their funds from the banking system at a cost below that.

3.3.2. COMPETITION AND CREDIT CONTROL IN PRACTICE

Within months of CCC the volume of bank deposits and advances were actually increasing rapidly. Calls for SDs had been made in late 1972, July and November 1973, but the response from the competitive markets was not as expected. Under the new controls, the banks had unexpectedly switched from asset to liability management - or rather they developed their liabilities but not necessarily at the expense of assets. Thus instead of responding to reserve asset pressure by reducing assets, the banks began to bid for funds in the wholesale markets that had developed rapidly in the early 1970's. This meant a bank's lending was no longer constrained by the amount of funds that its customers deposited. The bank could simply bid for the extra funds required.

The growth of the sterling Certificate of Deposit (CD) as a means of attracting large sums of money at attractive rates was considerable¹⁵. The total amount of negotiable sterling CD's outstanding from all sources had risen from less than £1,900m in October 1971 to over £6,000m by November 1973.

The growth of liability management also encouraged 'hard arbitrage' or 'round tripping'. Aggressive liability management forced up (wholesale) money market rates. Bank base rates did not always rise in line with these market

rates, partly due to the informal pressure exerted on the banks by the authorities who were concerned to keep industry's borrowing costs down. This allowed the possibility of profitable arbitrage. Larger customers (notably corporate treasures) utilised their overdraft facilities, on-lending the funds in the money markets at higher rates back to the banks. This again had the effect of cosmetically increasing the money supply.

In sum the banks were faced with a strong demand and, unconstrained by ceilings, bank lending to the private sector grew by 33 percent during 1973; the broad monetary aggregates (which included large denomination deposits and CD's) grew rapidly : M_3 grew by 28 percent during 1973.

Monetary control was further weakened by the problem of perverse interest rate structures. By aggressively bidding for reserve assets, banks widened the interest rate differentials between Treasury bills and other rates. This not only created unstable interest rate movements but had very severe repercussions on the Bank of England's influence over short-term interest rates as a result of the formal link of MLR to Treasury bill rate.

The spirit of CCC had also been weakened by the re-introduction of lending guidance and quantitative ceilings. In August 1972 the banks were instructed to make credit less readily available to property companies and for financial transactions not associated with the maintenance and expansion of industry. During 1973 banks were asked to

restrict lending to private customers. A credit control notice issued 17 December 1973 requested all banks and finance houses not to provide loans to persons or check trading facilities for the purchase of goods covered by the terms control order¹⁶ on terms easier than those permitted by hire purchase controls.

Quantitative ceilings were re-introduced in September 1973. The authorities, concerned to maintain the competitive stance of Building Societies required banks to observe a maximum interest payment of nine and a half percent on deposits of less than £10,000. Though the possibility of such a measure had been allowed for when CCC was introduced, it was contrary to the spirit of the new market orientated approach.

The most important development of the CCC regime was however the introduction of the SSD scheme or corset¹⁷. The fundamental objective of the corset was to improve the authorities control over the growth of the money stock, to enable them to achieve monetary restraint without resorting to the interest rate mechanism to limit credit and without threatening the liquidity of the banking system. The corset was not a direct control in the form of previous lending ceilings but a deterrent to restrain excessive bank lending. It was a direct control on the sterling operations of banks and deposit-taking finance houses in the U.K., acting on their liabilities. It could thereby prevent banks from bidding up rates in the money markets.

The corset acted to restrain excessive growth of an institution's interest bearing eligible liabilities (IBELs). This was a new approach:- controls were not applied to bank lending as during the 1960's but to the growth of certain liabilities which were under the direct control of the banks. This was done by imposing penalties on individual institutions whose IBELs grew faster than a prescribed rate. Such institutions were required to lodge non-interest bearing deposits with the Bank. The scheme had three elements:- a base from which the subsequent growth in banks' IBELs was measured, a ceiling on that growth and a scale of penalties as shown by Table 2.

The result of these very penal measures was to encourage banks to manage their assets rather than liabilities. In theory a bank faced with the prospect of moving into penalty would restrict credit expansion. The monetary growth target would not be exceeded and the control objective achieved.

Griffiths and Batchelor have shown, however, that in certain circumstances it may have proved profitable for a bank to violate the first, and even second tranche of penalties(33). The model is based on the assumption that a bank must be able to command a spread (between the rate it pays on new deposits and the rate it receives from the corresponding loans and reserve asset holdings) sufficient to offset the loss of interest entailed in making supplementary special deposits. Ceteris paribus, it will be profitable to break through the corset ceilings if:

TABLE 2: THE SUPPLEMENTARY SPECIAL DEPOSITS SCHEME

DATES OPERATIONAL	BASE PERIOD	PENALTY FREE ZONE	RATE OF DEPOSIT	EXEMPTION ¹ £M
1a. 17 December 1973 to 11 November 1974	Average IBELS on make-up dates in October, November and December 1973	a. 2% growth in first six months followed by 1½% growth on a three month moving average	5% in respect of excess of up to 1% 25% in respect of excess of 1% - 3% 50% in respect of excess of over 3%	3
1b. 12 November 1974 to 28 February 1975	ditto	b. 1½% IBELS growth as above	5% in respect of excess of up to 3% 25% in respect of excess of 3% to 5% 50% in respect of excess of over 5%	5
2. 13 November 1976 to 11 August 1977	Average IBELS on make-up dates in August, September and October 1976	3% for first six months and ½% per month thereafter	As above	5
3. 8 June 1978 to 18 June 1980	Average IBELS on make-up days for six months November 1977 to April 1978	4% growth for average IBELS for three months August to October 1978 and thereafter 1% per month of the base average	As above	10

¹The scheme did not apply to banks and finance houses with IBELS below the amount shown.

²The announcement of the termination of the scheme was made on 26 March; final deposits were repaid in August 1980.

SOURCES: (a) The Supplementary Special Deposits Scheme, Bank of England Quarterly Bulletin March 1982 p.78.

(b) The Framework of UK Monetary Policy 1982 Heinemann, Table 6.2 D T Llewellyn, G E J Dennis, M J B Hall.

$$RLA - RIBEL > \frac{K}{1-K} (RIBEL - RRA) + \frac{SSDR}{1-K} (RRA)$$

such that $K = RAR + SDR + SSDR$, where

RLA - rate of interest on bank loans and advances

RIBEL- rate of interest on a banks' IBELs

RRA - rate of interest on a banks' reserve assets

RAR - reserve asset ratio

SDR - special deposits ratio

SSDR - supplementary special deposits ratio

Given these equations, Table 3 sets out the minimum margins between returns on bank deposits and reserve assets compatible with given bank lending margins, at various levels of interest rates and corset penalties.

From the above figures it may be concluded that it was almost always worth incurring the first tranche of corset penalties, but almost never the second tranche. If a bank found itself in the second penalty zone, it was virtually impossible for it to get out again⁽³⁴⁾. A bank would be forced to bid for funds (and thereby weaken its own position further) just to finance the corset penalties. However, in practice the margin between bank lending and deposit rates was rarely above 1% for prime borrowers during the 1970's. The rates of interest on banks' reserve assets were consistently between 10% and 15%. Thus, in practice there were arguably only two points at which lending could be profitable. These are underlined in the Table.

TABLE 3: CONDITIONS FOR PROFITABLE VIOLATIONS OF CORSET CEILINGS¹

Margin between bank lending and deposit rates (RLA-RIBEL)	Minimum margin between bank deposit rates and reserve asset rates (RIBEL - RRA)					
	<u>First Tranche</u>			<u>Second Tranche</u>		
	SSDR = 0.05, RRA =			SSDR = 0.25, RRA =		
	5	10	15	5	10	15
1	2.66	<u>1.46</u>	<u>0.26</u>	-1.63	-4.73	-7.83
2	6.54	5.34	4.14	-0.16	-3.26	-6.36
3	10.42	9.22	8.02	1.31	-1.79	-4.89
4	14.30	13.10	11.90	2.78	-0.32	-3.42
5	18.18	16.98	15.78	4.25	1.15	-1.95

SOURCE: Competition and Regulation in Financial Market, ed Verheirstraeten Table 9.5 p.207

¹Calculations assume a 12.5 per cent reserve asset ratio and a 3 per cent special deposits ratio. Thus in the first tranche $K = 0.205$ and 0.405 in the second tranche.

3.3.3. CCC - WEAKNESSES

CCC failed to distinguish between the concepts of monetary control and prudential supervision. Some prudential guidelines (of dubious distinctions) were applied to very few institutions. Monetary control was also limited to the extent that market forces were not allowed to dominate. Despite the attempt to encourage competition in the financial markets, the authorities had maintained control of all interest rates, particularly short-term rates. Nevertheless the crucial limitations were inherent in the control systems themselves, notably the reserve asset ratio and the corset.

In 1971 the Bank of England stated the reserve asset ratio was intended to "...provide the authorities with a known firm base for the operation of monetary policy"(35p.3) yet the supply of reserve assets was never fully under the control of the monetary authorities. The ratio itself was largely based on the former liquidity ratio which had prudential origins and included the 8 per cent cash ratio which was based on what had appeared normal banking practice in 1946. The ratio was therefore designed to include a banks' primary liquidity yet, because of the nature of the ratio, a bank could not rely on such liquidity for fear of falling below the minimum level. This need to observe a minimum requirement also distorted the yield relationship between short-term assets qualifying as reserve assets and other assets.

The corset had also proved to be an inefficient control mechanism for three reasons - it inhibited competition, encouraged artificial resource allocation and disintermediation.

1. Competition was inhibited

When the lending of banks is fixed to a base figure it is impossible for them to increase their market share of advances without suffering penalty. Shaw argued that control was being achieved not in conjunction with competition but at the expense of competition(36).

2. Artificial resource allocation or 'window-dressing'

It is now clear that the banks had taken part in "...elaborate window dressing operations"(37p.19). During the first six months of the scheme they managed to take £2 billion of IBELs out of their balance sheets, even though they had increased sterling lending by £2.5 billion. After the abolition of the corset, large changes in balance sheet structure suggested other forms of window-dressing included "...abnormal transactions with the discount market, currency swaps with depositors, and possibly substantial sales and repurchases of government stocks over make-up day"(38). After June 1980 there was a rapid increase in IBELs and sterling M₃; in banking July private sector deposits rose by £3,000 million, sterling lending to the private sector by £2,200 million and sterling lending overseas by £700 million¹⁸. IBELs rose by some 14% in the month and eligible liabilities by around 9 percent(39p.83).

This problem was further compounded by the inherent nature of on/off direct controls - anticipation of their application will also cause certain structural changes. Banks may have been encouraged to raise their IBELs (in the months prior to the corset) in anticipation of the corset so as to raise their base figure.

3. Disintermediation

The banks tried to avoid the penalties by bringing together lender and borrower directly rather than acting as the financial intermediary between the two. This had three disadvantages(40p.41):

- (a) It was inefficient as banks were forced to act as 'marriage brokers' and not in their traditional role as financial intermediaries.
- (b) Lender and borrower had to match, which meant the banks were unable to follow their usual practice of taking lots of small deposits to manage one big loan.
- (c) Whenever disintermediation occurred, the published monetary aggregates invariably gave a misleading prediction of the thrust of monetary policy. The usefulness of the money stock as an indicator of monetary conditions was considerably weakened.

The application of the corset (as with many direct controls) therefore had the effect of diverting credit flows into uncontrolled channels. Disintermediation occurred largely through the banks' acceptance business, an off-balance sheet form of finance and not therefore subject to control. Rather than borrow direct from a bank, a company would be encouraged to issue commercial bills which would be 'accepted' by the bank¹⁹. With bill finance the company receives the money it requires and the supply of liquidity to the public increases in the form of additional holdings of commercial bills. The net effect is broadly similar to an increase in bank lending. The Bank of England have since estimated that before the corset, bills held outside the banking system amounted to £350 million, but by the end of the first period they had grown to £500 million^(41p.82). The 1976 corset was redefined to restrain the banks' acceptance business, though after the third corset was announced, the 'bill leak' grew to £710 million in the third quarter of 1978, reaching a peak of nearly £2,700 million in the second quarter of 1980. After the corset was abolished bills held outside the banking system fell back to less than £500 million.

The broad consensus is that the corset was "...an instrument of highly dubious effectiveness"⁽⁴²⁾. The corset was probably a useful aid to monetary supervision but the weaknesses and severe penalties that accompany such a method of direct control almost invariably invalidate its use as a control. It has been described as a mechanism where "...under set rules, everything that is not specifically forbidden is permitted," in which the commercial banks showed

"...commendable ingenuity in protecting their own interest within the letter of the supplementary special deposit rules"(43). The corset was finally disbanded in June 1980 following the abolition of U.K. exchange controls in October 1979, which allowed the possibility of large-scale offshore disintermediation. The abolition of exchange control allowed U.K. residents to channel funds to and from banks outside the U.K. Thus there was a possibility that all wholesale deposits in excess of the penalty-free amount could have been channelled offshore via the Euro-sterling markets, as the corset controls applied only to banks in the U.K.

3.4. BANK SUPERVISION - REASSESSMENT

CCC had in many respects failed to achieve its key objective of monetary and credit control. More importantly however, banking supervision had not kept pace with the changing banking system in the U.K. During the 1970's the U.K. economy had dramatically changed, showing signs of persistantly increasing inflation, unemployment, volatile money and foreign exchange markets, and a rapidly increasing money supply. The nature of banking had changed; CCC had encouraged the unexpected growth of secondary banks. Banks had become the residual means of finance for the OPEC oil price increases, increasingly lending on longer terms. Maturity transformation had increased, spreads had declined.

The limitations of CCC demonstrated the need for a trade-off between competition and credit control which would include an element of flexibility to allow the relative growth of institutions to reflect, at least in part, differing levels

of efficiency. Within this framework other events during the 1970's encouraged the need for a tighter system of prudential supervision of the banking system. A change in supervisory concepts and techniques became almost inevitable.

3.4.1. MONETARY CONTROL - REASSESSMENT

The limitations of monetary control under the CCC regime have been noted, but the lack of stability in the money markets is of particular importance. Prior to 1976 the growth of the money supply had not been targeted. Instead it tended to be a residual of the Bank of England's operation in the money, gilt-edged and foreign exchange markets. The result was an erratic growth pattern. Between 1972 and 1973 this was in the region of 25-30 percent, sharply decelerating in the first half of 1974. Griffiths has determined that between 1975 and 1978 the money supply (when measured by a three month moving average of sterling M_3) twice rose by over 20%, yet in mid-1978 growth fell to nearly zero(44p.23). This instability is further reflected by comparing the monetary targets for M_3 and sterling M_3 to the actual growth rate since 1976 in Table 4.

The 1970's were also characterised by large movements of interest rates over short periods. Table 5 illustrates the trend of these important short-term rates. Until mid-1973 interest rates were below 5%, rising sharply from July to November 1973. During 1973 bank base rates rose from 8.5% to 13% By September 1976 MLR was raised from 11.5% to 13%, having touched 15% in March. MLR had risen to 17% by mid-

Table 4: Monetary Targets for M₃/£M₃ in the United Kingdom

Financial Year	Annual growth rate (%)	
	Target	Result
1976 - 1977	12	10.7
1977 - 1978	9 - 13	16.4
1978 - 1979	8 - 12	10.9
Oct. 1978-Oct.1979	8 - 12	13.3
June 1979-Oct.1980	7 - 11	17.2
Feb. 1980-April 1981	7 - 11	20.2(1)

Source: M.K. Lewis, Economics, Autumn, 1981, p.69.

(1) As at February 1981.

November 1979. These rapid increases had been largely 'engineered' to fund government debt - the so-called 'Duke of York' effect - slumping rapidly when it appeared the growth of the money supply had been constrained.

These factors and the influence of Friedman et.al. combined to produce a general agreement that the growth of the money supply must be restrained if inflation was to be constrained. Sir Geoffrey Howe recently commented: "Ever since the collapse of the Bretton Woods system of fixed exchange rates in 1971 the need to control the money supply has become accepted worldwide"(45). Persistent inflation problems have stimulated more interest in monetarist policies: "Whereas the main emphasis in the late 1950's, and much of the 1960's was on the rate of interest, the

TABLE 5: SHORT TERM MONEY RATES

Year	MLR	Treasury Bill Yield ⁽¹⁾	London Clearing Bank Deposit Accounts ⁽²⁾
1969	8	7.80	6
1970	7	6.93	5
1971	5	4.46	2½
1972	9	8.48	5½
1973	13	12.82	9½
1974	11½	11.30	9½
1975	11¼	10.93	7
1976	14¼	13.98	11
1977	7	6.39	3½ - 4½
1978	12½	11.91	10
1979	7	16.49	15
1980	14	13.45	11½ - 12
1981	- (3)	15.39	12¼ - 12½

SOURCE: Financial Statistics Table 13/9

- 1 Average discount rate expressed as the rate at which interest is earned during the life of the bills.
- 2 Seven day notice ordinary deposit accounts.
- 3 a. 10 March MLR cut from 14% to 12%.
b. 20 August MLR suspended.

combination of developments in academic analysis and in influential opinion with the harsh reality of persistently high rates of inflation caused us (the Bank of England) to switch our focus to monetary aggregates as the better guide to the thrust of policy..."(46p.246).

In the U.K. the trend to adopt monetary targets was encouraged by the IMF in 1976, whilst the election of the Thatcher government in May 1979 committed the U.K. to a "...progressive reduction in the rate of growth of the money stock..." to achieve a "...permanent reduction in inflation"(47p.iii). Finally the trend towards reform of monetary controls resulted from an increasing demand for a more efficient and equitable means of credit control. In particular monetary control should allow institutions extending credit to the private sector to maintain adequate return on capital to provide their shareholders with adequate returns and to maintain or increase their own funds as required for prudential purposes(48).

The need for a reassessment of prudential policies had, however, resulted from events as early as 1973. The crucial importance of adequate capital and liquidity was dramatically shown by the 'fringe banking crisis' of 1973/74. The crisis has been well documented²⁰, but the following causes noted by Revell should be discussed:(49)

1. The rapid expansion of non-deposit banks required a great increase in skilled staff who were not available at such short notice. The result was the growth of poor and inexperienced management.
2. Stringent credit ceilings since the 1960's had encouraged the growth of fringe institutions who were only loosely supervised by the authorities. Fringe banks were able to compete for profitable lending business turned away by more controlled banks who had reached their lending ceilings.
3. The abolition of interest-rate agreements in 1971 allowed the clearing banks to compete in wholesale banking, not just through subsidiary banks as before, but under their own names.
4. The portfolios of fringe banks were characterised by property holdings and developments, loans to property companies, second mortgages and ordinary shares. Such assets were long term but largely financed by short-term wholesale deposits.

The rapid expansion of liabilities of financial institutions produced many important trends noted by Lester(50), and is shown in Table 6. Bank lending increased from £12,400 million in 1970 to £24,000 by the end of 1972. Clearing bank advances alone to property companies increased by 70% between May 1972 and 1973. There was a marked increase in maturity transformation. By the end of 1973 Cedar Holding held 85% of

TABLE 6: Liabilities of Financial Institutions

<u>Institution</u>	<u>Amount £m</u>				<u>Compound annual rate of growth%</u>		
	1960	1965	1970	1975	1960-65	1965-70	1970-75
Major deposit banks	8618	10760	12234	<u>26223</u>	4.54	2.60	16.47
Discount houses	1197	1455	2352	2536	3.98	10.08	1.52
Accepting houses-resident (1)	(134)	530	1287	2356	31.65	19.42	12.85
non-resident	250	398	1238	1865	9.75	25.48	8.45
Other banks - resident (1)	(268)	1012	4527	<u>16293</u>	30.44	34.94	29.19
non-resident	1096	3000	<u>15042</u>	<u>60858</u>	22.31	38.05	32.25
Finance Houses	678	1108	1222	1199	10.32	1.98	(0.38)
Building Societies	3183	5577	10940	24364	11.87	14.43	17.37

Source: M.K. Lewis, Lloyds Bank Review, p.42, July 1980.

(1) Excludes U.K. banks' holding of non-sterling currency deposits

deposits with a maturity of less than three months, compared to 70% of its assets held in second mortgages. Cedar Holdings also typified the great expansion of the fringe banks. From a balance sheet of £11 million in 1970 it had grown to £128 million in 1973. During the same period London and County expanded from £5 million to £129 million.

The potential banking crisis was saved by the establishment of a Control Committee from the Bank of England and the London and Scottish Clearing Banks. The Committee first met on 28 December 1973 and was subsequently known as 'the lifeboat'. The lifeboat support operation involved 26 institutions of whom 18 were institutions with Section 123 certificates. Table 7 shows the scale of the lifeboat operation to March 1978.

The fringe banking crisis therefore proved instrumental in encouraging a reassessment of prudential supervision in the U.K. Further impetus came from the need to harmonise bank supervision with other EEC members²¹. Article 3(1) of the 1977 EEC Banking Directive had committed the UK to following certain requirements for authorising credit institutions⁽⁵¹⁾. This was implemented by the Banking Act which we noted in Chapter 2 placed new supervisory responsibilities on the Bank of England. Finally in June 1980 the Wilson Committee²⁰ contributed further to the developing appreciation of a need for improvements in the field of banking control.

TABLE 7: Total Amount of Lifeboat Support At Shared Risk Outstanding
At End Quarters

End-quarter	Emillions	End-quarter	Emillions	End-quarter	Emillions
1974 March	390.2	1975 September	949.9	1977 March	752.1
June	443.4	December	913.5	June	731.7
September	994.3	1976 March	876.1	September	713.8
December	1181.7	June	827.2	December	676.5
1975 March	1173.4	September	774.5	1978 March	656.5
June	1148.5	December	782.7		

Source: Bank of England Quarterly Bulletin, June, 1978, p.237

3.5. SUMMARY

The previous discussion has provided the framework within which the new monetary and prudential controls may be analysed. The limitations of the previous control systems demonstrated the need for a reassessment of monetary control policies. The fringe banking crisis illustrated the need to impose prudential supervision on the U.K. banking system if competition and public confidence were to be maintained in that system. Particular attention was given to the various controls embodied in CCC and the changing nature of banking and economic activity during the last decade. It became apparent that there was not a clear understanding of, or intention to identify, the issues of monetary control and prudential supervision.

NOTES TO CHAPTER THREE

1. The Committee on the Workings of the Monetary System, HMSO, Cmnd.827, 1959.
2. Bank Rate was originally the rate at which the Bank of England would re-discount first class Bills of Exchange for the discount houses. The link between Bank Rate and bank base rates during the 1960's meant that Bank Rate was used by the authorities as the lynch-pin of credit control. In October 1971 it reverted to its original role and in October 1972 Bank Rate as such was discontinued.
3. The 'stock of money' in this context was defined as notes and coin in circulation plus bank deposits.
4. This was subject to a proviso concerning the terms offered on savings deposits. For further details see 'Competition and Credit Control', Bank of England Quarterly Bulletin, June 1971, p.4, paragraph 15.
5. For a more detailed examination of the CCC reforms see the Banking Information service, Monetary Control in Britain 1971-1981.
6. This does not apply to government securities with a year or less to maturity, because they were redefined as reserve assets.

7. Deposit-taking finance houses were also subject to this requirement in the form of a 10 percent reserve asset ratio.
8. Eligible liabilities were broadly defined as:-
 - a) sterling deposit liabilities (excluding deposits having an original maturity of over two years), plus
 - b) sterling resources obtained by switching foreign currencies into sterling.

Inter-bank transactions and transactions with the discount market (other than reserve assets) and sterling CD's (both held and issued) were taken into the calculation of an individual bank's liabilities on a net basis, irrespective of term. Adjustments were also made in respect of transit items.

9. A comprehensive discussion of reserve assets is to be found in 'Reserve Ratios : Further Discussions', Bank of England Quarterly Bulletin, December 1971, pp.13-16.
10. This meant the national debt could only be funded by gilts with greater than one year to maturity. The government did not therefore have a short-term method of debt finance, which may have been a considerable disadvantage.

11. A maximum restriction was imposed as this was a reserve asset the banking system could simply 'manufacture' by, for example, raising sterling CD's and placing the proceeds on call with the discount market.
12. This view was expressed in 'Competition and Credit Control', Bank of England Quarterly Bulletin, June 1971, para.10.
13. This arrangement was modified in October 1973 because of the so-called 'endowment' effect. Interest rates (partly as a result of official encouragement) had risen to very high levels, thereby benefiting bank profits where lending was financed by interest-free current accounts. The government sought to reduce this benefit by withdrawing the interest paid on SDs placed in respect of such deposits. In November 1974 this penalty was withdrawn, reverting to the previous formula.
14. Access to the formal discount window facility is confined to the members of the LDMA. The members operate as principals in the short-term money markets and function as intermediaries in the relationship of the authorities to the banking system. For a more exacting account of these issues see M. Blanden 'Bank of England Moves Cautiously Towards A New Monetary Policy', The Banker, February 1981, pp.42-43.

15. The sterling CD had first been issued in 1968 following the successful introduction of dollar certificates in the U.K. two years earlier. They were issued against the deposit of funds between £50,000 and £500,000 for a period of three months to five years.

The advantage to the borrower is that he has the funds for a fixed period, but the depositor, should he require the funds before the maturity of that certificate, may sell it in the secondary market (the market where existing certificates are traded). It thereby combines a fixed term deposit for the issuer, with liquidity for the holder who often prefers it to the ordinary fixed-term deposit which, though earning a higher rate of interest, cannot be sold in a secondary market.

16. The terms control order limited the maximum repayment period and the minimum down payment for different types of consumer goods purchased on credit. In 1982 several modifications were made to this, particularly the provisions relating to car purchases.
17. For an excellent description of the mechanics of the Supplementary Special Deposits Scheme as a control instrument see G. Pepper and R. Thomas, 'The Interaction Between The Corset And Reserve Asset Control', paper presented to the Money Study Group Conference, Brasenose College, Oxford, September 1979.

18. The dramatic increase in sterling lending to non-residents suggested some re-intermediation of sterling business driven offshore by the corset.

19. By accepting a bill a bank guarantees that the holder will be repaid when the bill matures and has the effect of making investors more willing to buy bills. Accepted bills would be almost identical in terms of marketability and default risk to CDs, and as such could be sold at a similar price to holders other than banks.

20. For some excellent discussion see:
 - a) 'The Secondary Banking Crisis and the Bank of England's Support Operation', Bank of England Quarterly Bulletin, June 1978, Vol.18, No.2, pp.230-239.

 - b) T. Lester, 'The Secondary Scandal', Management Today, October 1974.

 - c) M. Reid, The Secondary Banking Crisis 1973-1975, Its causes and course, 1982, The Macmillan Press Ltd., London and Basingstoke.

21. A discussion of the issues raised can be found in R.J.W. Henderson, The Harmonisation of Banking Legislation in the European Economic Community, Thesis for Bachelor of Philosophy, April 1976, Oxford Centre for Management Studies, Oxford.

22. Committee to Review the Functioning of Financial Institutions, HMSO, Cmnd.7937, June 1980.

CHAPTER FOUR - MONETARY CONTROL

4.1. INTRODUCTION

4.2. MONETARY TARGETS

4.3. MONETARY BASE CONTROL

4.3.1. DEFINITION OF THE MONETARY BASE

4.3.2. RELEVANCE OF THE MONETARY BASE

4.4. CURRENT ARRANGEMENTS

4.4.1. DEFINITION

4.4.2. APPRAISAL

4.5. SUMMARY

4.1. MONETARY CONTROL - INTRODUCTION

In the context of our previous discussion it might logically be expected that a replacement system of monetary control should ensure stability in the money markets (avoiding the necessity of periodic interest crises); avoid artificial distortions of certain assets (reserve assets); and result in a money supply series that is a more accurate reflection of the underlying thrust of monetary policy⁽⁵²⁾. The latter is important to bank balance sheet supervision because emphasis has now been placed on sterling M_3 ¹ as the key money supply series : sterling M_3 is largely composed of bank deposits. Thus the desire to target and monitor sterling M_3 as a major indicator of monetary policy necessarily implied that bank balance sheets would continue to be subject to supervision for monetary control reasons. Monetary targets are considered in Section 4.2.

The new control methods were introduced on 20 August, 1981. They were influenced by the 'Monetary Control' Green Paper² from the Treasury (in consultation with the Bank of England) and the following Bank of England discussion papers:-

1. Monetary Base Control, June 1979.
2. Methods of Monetary Control - Background Note, November 1980.
3. Monetary Control : Next Steps, March 1981.
4. Monetary Control - Provisions, August 1981.

The rationale of the new system was described by Richardson: "What we are not prepared to do is to take a leap in the dark when the direction is not clear. We are trying to see what

effect a change would have"(53). Thus, only certain changes to bank balance sheet controls and intervention techniques have been made.

It is nevertheless prudent to begin with a discussion of the relevant issues raised by a monetary base control system. A move to monetary base control was considered by the 1979 paper(54) and the Green Paper. The case for monetary base control fails if it either does not ensure control over the money supply or the disadvantages of the alternative control framework are greater than those of the present arrangements. On both counts it was rejected by the 1979 paper. The Bank of England has, however, since argued that "...the present moves would be consistent with a gradual evolution in that direction"(55p.21).

The current system will be discussed in Section 4.4. The implications of the new controls will be analysed in terms of their effectiveness and impact upon the banking system. It will be our conclusion that the new system of monetary control is essentially a 'tidying-up' operation which has removed much of the regulation from bank balance sheets.

4.2. MONETARY CONTROL - MONETARY TARGETS

We have shown that at the end of the last decade the monetary authorities chose to control the monetary aggregates. The government believe that their monetary policy can best be formulated if targets are set for the growth of certain monetary aggregates, against which progress can be assessed(56p.10). Quantitative monetary targets are intended

to give precision to monetary aims and can provide an indication of the thrust of monetary policy by stating quantitative aims for the rate of expansion of one or more of the monetary aggregates. In the U.K. Richardson⁽⁵⁷⁾ argued such targets should allow a degree of flexibility to meet the financial needs of industry for two main reasons - the U.K. does not exhibit a continuing stable relationship between money and incomes; and secondly there is a need to look at the economy at large, because he argues the objective of monetary policy is not to keep monetary expansion at a particular level, but to bring about a reduction in the levels of inflation and unemployment, together with a recovery in growth and the balance of payments.

Nevertheless, there is still disagreement as to which (if any) single statistical measure of the money supply can be expected to be of value in creating stable expectations and curbing inflation. Sir Jeremy Morse argued "...it is not easy to find a good working measure of money"⁽⁵⁸⁾, whilst Sir Geoffrey Howe agreed that "...no single measure of money can fully describe monetary conditions"⁽⁵⁹⁾.

To mid-1982 monetary policy was defined to "...control the rate of growth of £M_3 in the context of a published Medium Term Financial Strategy involving a decelerating trend of the money supply".⁽⁶⁰⁾ The principal monetary target has been sterling M_3 because the government regard it as best suiting the present circumstances of the U.K.^(61p.10). It is now a well known indicator and according to Lomax^(62p.3) has a further advantage of providing certain accounting

conveniences as it is the same measurement as that used for other government policies (fiscal policy, policies to restrain bank credit and the balance of payments).

The choice of sterling M_3 has its critics³ not least those who prefer the narrower M_1 definition⁴ or still wider measures including, for example, non-bank holdings of Treasury Bills and short-term investments in building societies and local authorities. The main criticism is that the authorities can not directly control sterling M_3 ⁵, because changes in sterling M_3 result from:-

1. the PSBR less
2. external and foreign currency finance accruing to the public and banking sectors (equal to the current and private sector public accounts of the balance of payments plus the residual item), less
3. sales of public sector debt to the non-bank private sector, plus
4. bank lending in sterling to the private sector, less
5. changes in banks' non-deposit liabilities.

Thus, the authorities are not in a position to directly control the supply of sterling M_3 because they cannot control bank lending to the private sector. Furthermore, if sales of public sector debt are to banks and not non-banks, this will not affect sterling M_3 . This could partly explain the divergencies between sterling M_3 and other monetary aggregates - during 1980 and 1981 sterling M_3 grew faster than M_1 , being boosted in mid-1981 after the abolition of the corset. During the eleven months to February 1982, sterling

M₃ had increased by 15.75%, compared with a government target of 6-10%(63). It has therefore been suggested⁶ that sterling M₃ is only viable as a lead indicator provided other measures of the money supply and credit are monitored.

Richardson is a notable proponent of targeting domestic credit expansion (DCE) against sterling M₃⁷. This is because the difference between the two is basically the foreign component of credit expansion, which is approximately the balance of payments position on current account plus net private sector capital flows. Thus excessive growth in DCE is likely to be associated with a worsening balance of payments position both directly (if surplus liquidity leaks abroad) and indirectly (if excessive growth undermines external confidence). Whitmore has since commented "...in the sense that monetary creation is a two round process, with the spending of a new credit creating a new deposit for further potential spending, DCE must rank as a primary indicator"(64). Moreover, Coghlan asserts DCE has the added advantage of including credit financed through an increase in non-deposit liabilities or through other sources outside the definitions subject to controls(65p.83).

Until March 1982 the government continued to formulate the monetary target in relation to one aggregate, using sterling M₃ for this purpose, whilst taking account of the growth of other aggregates. The March 1982 budget, however, represented a major change in U.K. Monetary Policy. Llewellyn identified the important policy changes as:(66p.1)

1. the effective abandoning of the medium term financial strategy;
2. the replacement of the target for £M_3 by a weaker target for a wide range of money and liquidity aggregates⁸; and
3. the effective switch from "money supply" as the immediate target of policy to interest rates and the exchange rate.

4.3. MONETARY CONTROL - MONETARY BASE CONTROL

In the U.K., given the stance of fiscal policy, the broad choice facing the authorities is between controlling the quantity of money or the level of interest rates. We have identified the traditional approach applied in the U.K. (and in most other countries to a varying degree) as using interest rates as an instrument of monetary policy to influence the money supply via the interest rate effect on the demand for both money and bank credit. The fulcrum for the money market operations has been provided by the cash ratio, maintained until 1981 solely by the clearing banks.

Interest rates are therefore an essential instrument of monetary policy in this framework⁹. This is in direct contrast to a system of monetary base control, which Llewellyn argues "...requires the authorities to control directly the volume of the monetary base in a way consistent with any official monetary targets and allow interest rates to adjust freely in the money and credit markets to eliminate any excess supply or demand for the monetary base, the demand for which is a derived demand based on the banks' need for

reserves to support their total liabilities"(67p.57). In the U.K. interest rates are not allowed to 'adjust freely in the money and credit markets', firmly remaining an instrument of monetary policy. We have, however, adopted certain changes that could enable more to be learnt about the properties of a monetary base control system and which would be consistent with a further evolution in this direction(68para4).

4.3.1. DEFINITION OF THE MONETARY BASE

The efficiency of monetary base control will depend upon the ability of the central bank to control it's balance sheet. Control by this system is achieved through transactions in the money markets which influence the assets of the central bank. The monetary base may therefore be defined¹⁰ with reference to the assets or liabilities of the central bank, which is analagous to definition by 'source' or 'use':

1. Sources - the monetary base is defined as the sum of the net domestic and foreign assets of the monetary authorities broadly defined as net government indebtedness with the monetary authorities plus advances to discount houses, plus official reserves less outstanding official short and medium term borrowing from abroad. By definition this approach requires the consolidation of the Issue and Banking Departments, the Exchange Equalisation Account and the Treasury's coin issue. This approach is not popular because of the technicalities implied by this amalgamation, but more importantly, because movements in base money so-defined could result from transactions

which the central bank does not have to engage in, and cannot, therefore, unambiguously control.

2. Uses - the monetary base may be defined as the sum of those liabilities of the monetary authorities which are themselves money or are liabilities to other money creating institutions. Such liabilities are the basis for further money creation, so the terms 'high-powered money' and base money are often used interchangeably. By this definition, the effectiveness of monetary base control will depend upon the ability of the central bank to control the volume of its balance sheet liabilities. The precise definition will therefore depend upon what liabilities the central bank can control or seek particularly to control. A cash based definition is generally preferred. This is important because again under the present arrangements a cash ratio is maintained, which is directly related to the liabilities of the Bank of England.

4.3.2. RELEVANCE OF THE MONETARY BASE

The Green Paper(69p.8) defines a monetary base scheme as follows:- the banks keep at least a known proportion of their deposits in the form of base money, either because there is a mandatory requirement on them to do so or because they can be relied upon to do so over a period for prudential reasons. The authorities then either:-

1. control the amount of base money in existence and so the total growth of the money supply, since the banks' balance sheet cannot exceed a specified multiple of the base; or
2. use divergencies of the base money figure from the desired trend as a trigger for a change in interest rates to correct the divergence.

Statistically, the relevance of the monetary base to monetary control may be shown by the following identities¹¹:

$$(1) \quad M = C + D$$

$$(2) \quad B = D + R$$

M is defined as the sum of currency in circulation with the non-bank private sector (C) plus deposit liabilities of the banks (D). The monetary base (B) is equal to (C) plus the banking system's reserves (R). R is defined as vault cash and bankers balances. These identities may be expressed as follows:

$$(3) \quad BM = B (C + D) \qquad (1) \times B$$

$$(4) \quad (C + R) M = B (C + D) \qquad (2) \text{ into } (3)$$

$$(5) \quad (C + R) M = B (C + 1) \qquad (4) \quad D$$

$$(D \quad D) \qquad (D \quad)$$

$$(6) \quad M = B \left[\frac{C}{D} + 1 \right] \qquad (5) \quad (C/D + R/D)$$

$$\qquad \qquad \qquad [C/D + R/D]$$

Equation (6) proves that given a minimum cash to deposits ratio, the size of the monetary base will impose a ceiling on the level of bank deposits and thus, indirectly, on the stock of money. If the authorities control B, by their potential

power as the source of cash, at a predetermined level, then this will lead to fairly predictable movements in M, provided the ratios C/D and R/D are constant.

This relevance must, however, be qualified:

1. C/D is unlikely to be constant because it may only be regarded as reasonably stable where deposits are defined to include only non-interest bearing funds. When savings balances are included, the interest incentive with changing deposit rates must make the stability of this relationship questionable over time. Technological change (such as the development of cheque cards and electronic funds transfer systems) will also affect the stability of the ratio.

Research into the Great Depression of 1929-31 in the United States has shown that the ratio is unlikely to be stable. For two and a half years, beginning November 1930, there was a sharp rise in the public's holding of currency¹². Currency holdings increased by 55%, but demand deposits actually fell by 33%(70p.260). In terms of the Friedman-Schwartz taxonomy of proximate determinants of the money stock, the rise in the C/D ratio was by far the most important source of decline in the stock of money during it's four year decline(71p.334). In a study by Boughton and Wicker it was noted that almost one-third of the rise in the C/D ratio can be attributed to a shift in yields on demand deposits and commercial paper(72).

2. R/D is unlikely to be constant. There is no reason why the ratio of reserves to deposits should exhibit a stable relationship to any particular monetary aggregate.

3. Static equilibrium. The approach fails to outline the adjustment process in the monetary base. It is a static model only, which will probably be of little use as a guide to day-to-day management of the banking system.

4. Poor predictability of the monetary base. The monetary base is unpredictable for two reasons:
 - a) The authorities are unable to accurately forecast movements of currency in the non-bank private sector. Daily forecasts are frequently wrong by £25-30 million, and are occasionally of the order of £100 million.

 - b) The unpredictability of factors affecting bankers balances. This is a more serious issue and concerns daily settlements in the money markets. These are highly unpredictable¹³ and are complicated by the volatility of public sector cash flows. There are often unforeseen swings in the order of several hundred million pounds a day, in and out of government balances. The predictability of the base might therefore be improved if the banking system moved to a next day settlement for all uncertain transactions or, more likely, if government accounts were moved to the

commercial banks, so that unexpected flows would leave bankers' balances at the Bank of England unaffected.

It should finally be noted that the predictability of the base will only be of serious consequence the shorter the time horizon chosen. Only on a weekly or daily basis will the unpredictability of the base become an important factor, increasing the burden thrown upon the adjustment mechanism that the authorities must use to offset undesired movements. This is probably why very few proponents of monetary base control advocate a strict regime, as Wood remarked: "Who on earth wants day to day control of the base"(73).

5. The relevance to the U.K. is questionable. Prior to August 1981 it is probably fair to say there was not a good relationship between changes in the monetary base and those in any other monetary aggregates. Table 8 shows that in the 1970's the monetary base has often grown slowly when the money supply has expanded rapidly and vice versa. Such a comparison is not, however, strictly valid. The quantity of base money has never been fixed at a predetermined level or targeted - the Bank of England have always provided base money as required. In addition the base was only related to the one and a half percent cash ratio maintained by clearing banks, which was:-

TABLE 8: THE MONETARY BASE AND THE MONEY SUPPLY

Year End	Monetary Base ³		Money Supply £M ₃ ² (Seasonally adjusted)	
	Total (£M)	% Increase	Total (£M)	% Increase
1970	4366	14.9	17320	8.1
1971	4590	5.1	19620	13.3
1972	5179	12.8	24930	27.1
1973	5653	9.2	31700	27.2
1974	6625	17.2	34840	9.9
1975	7148	7.9	37270	7.0
1976	7941	11.1	40570	8.9
1977	9284	16.9	44660	10.1
1978	10525	13.4	51380	15.0
1979	10405 ¹	(1.1)	58030	12.9
1980	11224 ¹	7.9	69100	19.1

SOURCES: 1. T Congdon The Banker February 1980 Table 1 p.32

2. Bank of England Quarterly Bulletin

a. March 1981 Table A p.39

b. Table 11/1

¹Averages of monthly figures and not year end figure.

²The sterling M₃ figures refer to the end of the fourth quarter, not to the banking make-up day. They are not fully comparable with the monetary base data, but interpretation would probably not be changed by more precise data.

³Defined as bankers balances with the Bank of England and notes and coin in circulation.

- a) maintained over a period of time rather than for a particular day;
- b) related to eligible liabilities rather than directly to total deposits as recorded in the monetary aggregates;
- c) related to the previous month's liabilities;
- d) defined with reference to previous levels of cash held by the clearing banks and the monetary base.

It is therefore for many of these reasons that the Bank of England have rejected monetary base control in the U.K. A fuller discussion and analysis of these issues is given in Appendix 1. The importance of this brief discourse was to identify the more salient issues of monetary base control that would have implications for the monetary supervision of the U.K. banking system and how the present arrangements may be influenced by these issues. Despite the importance of monetary targets the authorities have chosen not to target the monetary base, but in the next section it will be shown that they are monitoring certain cash reserves maintained by the clearing banks with a view to assessing the likely impact of a monetary base control system.

4.4. MONETARY CONTROL - CURRENT ARRANGEMENTS

The new system was introduced on 20 August 1981. Llewellyn defines many of the institutional arrangements as representing a 'tidying-up' operation which do not in themselves herald a move to monetary base control because it is not the intention of the authorities to target the monetary base(74p.8).

4.4.1. CURRENT ARRANGEMENTS DEFINED¹⁴

1. Reserve assets redefined¹⁵

The reserve asset ratio as a formal requirement has been abolished and for monetary control purposes has been replaced by a new cash ratio and eligible bank ratio.

a) Cash ratio.

The cash ratio is a uniform requirement on all institutions¹⁶ in the newly defined monetary sector, which comprise all recognised banks and LDT's, the National Girobank, Trustee Savings Banks, those banks in the Channel Islands and the Isle of Man which opt. to join the scheme and the Banking Department of the Bank of England. The requirement will be set twice a year as half percent of an institution's eligible liabilities in the previous six months. This is held in non-operational, non-interest bearing deposits with the Bank of England.

Eligible liabilities have been redefined to allow offsets in respect of:-

- (i) funds (other than cash ratio deposits or SDs placed with the Bank of England) lent by one institution in the monetary sector to any other; and
- (ii) money at call placed with money brokers and gilt-edged jobbers in the Stock Exchange, and secured on gilt-edged stocks, Treasury bills.

Davies states the cash ratio "...does not constitute in any sense a move towards a so-called monetary base system"(74p.29). The London clearing banks now, however, maintain additional voluntary operational balances at the Bank of England for clearing purposes. It is the intention of the authorities to monitor the functional demand for these cash balances, as this may establish a relationship between a bank's liabilities and it's prudential cash holdings - which would be consistent with a non-mandatory system of monetary base control. To supplement this the clearing banks now inform the Bank of England on a daily basis as to the size of their target balances.

The uniform cash ratio is not a cash base as defined by a monetary base control system as vault cash is excluded from the definition. It is a mandatory requirement, and is placed on a lagged accounting basis, the implications of which are discussed in Appendix 1. A more important issue is that the fulcrum for money market operations is again provided by the cash balances of the London clearing banks. The authorities do not 'target' these voluntary balances but continue to use them as indicators of monetary policy.

b) Eligible bank ratio.

Banks whose sterling acceptances are eligible to be rediscounted for cash at the Bank of England are required to maintain secured money with members of the London Discount Market Association (LDMA) and/or secured call money with money brokers and gilt-edged jobbers, such that:-

- (i) the total funds so held normally average 6 percent of that bank's eligible liabilities, and
- (ii) the amount so held in the form of secured money with members of the LDMA does not normally fall below 4 percent of eligible liabilities on any day.

In addition each eligible bank will provide monthly returns of it's daily figures and aim to meet the daily average ratio over either six or twelve month periods, the ratio on any particular day in a banking month being calculated on a lagged accounting basis as a proportion of eligible liabilities at the last but one make-up day. The ratio is however a 'rolling' ratio. Thus on a six month period, once the first five months have elapsed, the requirement effectively becomes a more rigid six monthly one.

These requirements are not placed directly for monetary control reasons, rather they are linked to the Bank of England's new methods of intervention to implement monetary policy.

2. Special Deposits

The SD scheme remains, applying to all institutions with eligible liabilities of £10 million or more.

3. Conduct of Monetary Policy

The prime objective of monetary control is now to offset daily cash flows between the Bank of England and the money markets by retaining control of short-term interest rates. Thus certain institutional changes have been made to enable the Bank of England to place greater emphasis on open market operations rather than discount window lending. This move was foreshadowed in the 1980 paper⁽⁷⁶⁾, in which it was decided that these operations should continue to be conducted in the bill markets primarily through members of the LDMA. This is the rationale behind extending eligibility - to ensure an adequate supply of bills for these operations, the criteria for eligibility was extended. There was an initial increase to 96 banks from 56 in August 1981, but by August 1982 this was further enlarged to cover 114 eligible banks.

On January 2nd, 1981 the reserve asset ratio had been reduced from twelve and a half percent to ten percent. This had the desired effect of releasing bills previously held as reserve assets enabling subsequent market shortages to be relieved by the banks selling these bills to the Bank of England rather than using the discount window facility. For monetary control reasons, once the criteria for ensuring a sufficient

supply of bills had been determined, the reserve asset ratio could be replaced. Together with the funds with the LDMA and gilt-edged jobbers, these arrangements should ensure sufficiently large markets in Treasury bills, local authority and commercial bills. By August 1982 the volume of acceptances in the markets had more than doubled since August 1981 to £12.3 billion(77). In January 1982, Bank of England purchases of commercial bills alone were estimated at £1 billion(78).

The Bank of England will provide reserves against the offer of eligible bills, but has retained the right to choose the the terms of assistance. The Bank of England now no longer sets MLR, though the rate charged on such lending is still above comparable market rates. It is argued that this is "...consistent with the aim of giving the financial markets more influence over the structure of interest rates"(79). However, the Bank of England now operate in four bill bands, operating in band 1 with an unpublished interest rate range:-

- a) band 1 1-14 days
- b) band 2 15-33 days
- c) band 3 34-63 days
- d) band 4 64-91 days

Interest rates in band 1 are largely guided by the level of sterling M₃, but a note is also taken of other monetary aggregates (Section 4.2), pressures in the foreign exchange markets and other relevant information. Davies stated the unpublished band does

not represent a major change because⁽⁸⁰⁾:-

- a) the Bank of England continue to publish daily intervention rates;
- b) evidence has suggested the band is in fact very narrow and hence this will constrict the role of market forces again. A wide band would allow greater volatility of interest rates which it is unlikely the authorities would accept;
- c) the discount window facility has been retained and it will therefore always be possible for the Bank of England to directly influence short-term rates.

The current situation is one where the Bank of England no longer deliberately over-issues the weekly Treasury bill tender, though it still aims to keep the money markets short of cash each morning so as to offset any net financial flows on terms of it's own choosing. Since MLR was suspended, these terms are not known in band 1. Llewellyn⁽⁸¹⁾ concludes that the Bank of England is now in command of interest rates at the very short end, as it is able to determine the net flow of funds between the money markets and the Bank of England, though it does not seek to directly influence period rates through it's market interventions.

4.4.2. APPRAISAL OF CURRENT ARRANGEMENTS

The government assessed the new monetary control procedures as follows:

"The main purpose of this change was to allow market forces a greater influence on the structure

of interest rates, and to allow interest rates to be adjusted more promptly in response to changing economic conditions. These objectives have been met. The new arrangements have coped successfully with some severe swings both in the international markets and in the money markets at home"(82).

This interpretation is, however, questionable on several issues. We are concerned with the efficiency of monetary control and its impact on the U.K. banking system. This section will appraise the current system in terms of the conduct of monetary policy but more importantly its impact, sometimes unfairly, on different groups of banks.

1. Conduct of Monetary Policy

Broadly speaking the control mechanisms of monetary policy have remained unchanged (though the overall strategy of U.K. monetary policy is radically changing). The Bank of England continue to use interest rates to pursue monetary objectives though a major priority of policy is now to lower interest rates, rather than using interest rates as an instrument for securing the money supply target. Interest rates thereby largely remain a function of the Bank of England's own operations in the money markets. Thus the Bank of England continues to affect the level of interest rates : market forces may influence the term structure of these rates. A more flexible interest rate policy was considered but in the final analysis the Bank of England have maintained their close control over short-term rates, because it would represent a "...radical departure in official United Kingdom

thinking were the bank to permit the volatility in short-term interest rates that the Federal Reserve has allowed".⁽⁸³⁾

This crucial point was illustrated as early as 14 September 1981. The discount window facility was invoked for £79 million at thirteen and three-quarter percent. Llewellyn argued this was significant in three respects:⁽⁸⁴⁾

1. The Bank of England will resort to direct assistance via the discount houses, rather than through bill purchases when it wishes to indicate it's view on interest rates.
2. In no meaningful sense of the term will the Bank allow 'market forces' to always determine interest rates.
3. The influence of the Bank is such that a small amount of assistance (£79 million is almost trivial in money market terms) given in a particular way can have a decisive impact on market rates.

(On September 16, 1981 base rates were raised to 14%).

However, in the context of a more flexible interest rate policy, it is to be expected that bank base rates will tend to change more frequently than in the past. Base rates remain sensitive to the 7 day inter-bank rate which is directly influenced by short-term rates. The variability of these rates was aggravated by the suspension of MLR since although there was not a formal link between MLR and base

rate, for these reasons they tended to move in line. It is therefore possible that "...banks may have to consider more frequent, if perhaps smaller, changes in their base rates". Table 9 overleaf demonstrates this trend after August 1981 when the new arrangements were implemented.

Finally, it should be noted that the new control arrangements mean that the banking system is now subject to a degree of uncertainty. The suspension of MLR means there are no clear signals as to the terms on which the banks may borrow from the Bank of England via the discount houses. The unpublished rates within band 1 further complicate the issue because there is no clear indication as to the spread of intervention rates within that band.

2. Impact on the banking system

The current arrangements affect three distinct classes of banks in the U.K., imposing constraints on the clearing banks, eligible banks and the banking system as a whole. The clearing banks have never been particularly large holders or accepters of bills - thus it is felt that they are being required to underwrite a system designed for the convenience of the Bank of England and the discount houses(85).

Eligible banks can command finer rates on their bills but offsetting this is the requirement to hold a tranche of low-yielding assets in their balance sheets(86p.21). Except in exceptional circumstances, this mandatory level of liquid assets must always be held. This was identified by Barge(87p.72) as offering two disadvantages vis-a-vis the

TABLE 9 LONDON CLEARING BANK BASE RATES SINCE JULY 1980

Date of Change		New Rate (%)
1980	July 4	16
	November 25	14
1981	March 11	12
-----August 1981-----		-----MLR suspended-----
	September 16	14
	October 1	16
	October 14	15½
	November 9	15
	December 3	14½
1982	January 22	14
	February 25	13½
	March 12	13
	June 8	12½
	July 16	12
	August 6	11½
	August 17	11
	September 3	10½
	October 8	10
	October 22	9½
	November 5	9
	November 26	9.10

SOURCE: Bank of England Quarterly Bulletin, Table 13/11

uneligible bank - return on assets could be smaller and balance sheet footings higher. This is demonstrated in Table 10 by comparing the possible turn on lending for an eligible bank and non-eligible bank.

The non-eligible bank has chosen to keep only 1 per cent of eligible liabilities with the LDMA against the 7 per cent of the eligible bank¹⁴. Ceteris paribus, the non-eligible bank's 1 per cent can be realised whilst the eligible bank's holding has to be maintained at a minimum. Therefore with a balance sheet approximately 5.6 per cent smaller than that of the eligible bank, the non-eligible bank's profit is approximately 6.5 per cent better. This therefore must be compared to the advantage of being able to issue 'eligible' bank bills to assess the profitability implications, though in the final analysis this can represent a constraint on a bank's balance sheet. In the ordinary course of business it is not clear that banks would wish to maintain such a level of liquid assets in this form - and because the requirement is expressed as a minimum, the banks will in practice be forced to hold such assets in excess of the stated minimum to ensure that this level is not breached. The minimum requirement also has prudential implications because whilst such liquid assets are desirable for prudential reasons, they cannot be used in the day-to-day management of an eligible bank.

The most important impact on the banking system is, however, that the Bank of England have refused to deal directly with the system, because it "...would involve predominantly the

TABLE 10

Possible Turn On Lending In An Eligible Bank And Non-Eligible Bank

Eligible Bank				Non-Eligible Bank			
1) <u>Assets</u>			<u>Income</u>	1) <u>Assets</u>			<u>Income</u>
Loans	100 @ 15%	=	15.00	Loans	100 @ 15%	=	15.00
Liquid assets	7 @ 14%	=	<u>0.98</u>	Liquid assets	1 @ 14%	=	<u>0.14</u>
			15.98				15.14
2) <u>Less Liabilities</u>				2) <u>Less Liabilities</u>			
Deposits	107 @ 14½%	=	<u>15.42</u>	Deposits	101 @ 14½%	=	<u>14.65</u>
3) <u>Profit/Turn</u>		=	<u>0.46</u>	3) <u>Profit/Turn</u>		=	<u>0.49</u>

Source: J. Barge, The Banker, November 1981, p.22.

clearing banks, by virtue of their central function in the settlement of daily flows between the banking system and the Bank..." which the Bank of England feel would "...greatly reduce the scope for market forces to determine interest rates"(88p.89). Instead shortages are now offset by bill purchases and lending, as shown in Table 11. The important trend to note is the increased turnover in commercial bills in the last two years and the marked decline of Treasury bills in that period.

This system has four principal weaknesses which also hinder the operations of the banking system. In particular there are problems concerning shortages, information, intervention techniques and the discount market.

a) Shortages

There are no satisfactory methods for relieving shortages beyond the capacity of the discount market. The Bank of England's techniques for estimating shortages are inadequate in many respects - the position of the discount market for instance, is vulnerable as banks can also adjust their books through the inter-bank market. This may only affect one bank and not the system as a whole, but then there is the direct threat to one bank in the system that it may be held short of cash. A further irritant occurs when money is short as upward pressure on overnight inter-bank rates causes commercial borrowers to switch into their overdraft facilities, thereby throwing the whole shortage onto the clearing banks.

TABLE 11: OPERATION TO OFFSET MARKET SHORTAGES (£M)

Year Beginning 1 March	PURCHASES OF ¹ :			LENDING
	Treasury Bills	L A Bills	Commercial Bills ²	
1971	5140	327	774	650
1972	5245	506	409	1495
1973	4216	776	1503	2035
1974	5476	840	437	2823
1975	9364	1125	200	3868
1976	19389	1268	697	29519
1977	14740	1392	47	21663
1978	16049	1509	2503	9737
1979	16337	2529	3846	18217
1980	11876	2874	15863	21173
1981	3810	4349	39771	4640

SOURCE: Bank of England Quarterly Bulletin March 1982 p.88

¹Includes purchases for later resale to the market and purchases by both Issue and Banking Departments.

²Almost exclusively eligible bank bills.

b) Intervention techniques

(i) Intervention times - the crux of this problem is that intervention at 2.30p.m. often comes too late to ensure orderly market conditions. There is often a period of uncertainty beforehand because the market does not have the confidence the shortage will be relieved at 2.30p.m. After 2.30p.m. but before the close of the town clearing the bank will only rarely deal, causing considerable uncertainty as to how the shortage will be relieved after 2.30p.m. Shortages after the close of the town clearing could now result in either a bank failing to meet its target cash balance or the clearing banks going into debit on their operational accounts.

(ii) Intervention in the bill markets - purchasing bills is an insufficiently flexible means of providing relief because Seccombes¹⁵ often have difficulty in locating bills of suitable maturities of the right amounts. Conversely the Bank will not sell bills to the banks to soak up a surplus until all the discount houses have squared their books.

c) Discount Market

The current proposals have maintained the rather unique status of the London Discount Market. This is a problem for the banking system to the extent that methods of monetary control allow the discount houses an unwarranted competitive advantage over the banks -

for instance the special status of call money imposes a direct profitability constraint on eligible banks whilst artificially reducing the costs of discount houses.

The Bank of England have maintained the special role of the discount market for good reasons though commercial bankers would perhaps question this¹⁵. It was noted that there is no real reason why banks in the ordinary course of business would lend such sums of money to the LDMA. Their role as efficient secondary markets in short-term paper is a valuable one, but one which could be equally well performed by the banks (though possibly at greater expense); the same could apply to their lesser role in the bond markets. The 'competitive' nature of the discount market might also be questioned as more than 50 percent of the market is dominated by the two houses of Union Discount and Gerard National. Finally their business can be very sensitive to official policy - in January 1982, Smith St. Aubyn announced huge losses on gilt-edged securities; a few years earlier Clive Discount experienced proportionately similar losses.¹⁹

The Bank of England have maintained their policy of refusing to deal directly with the banking system, yet in the foreign exchange markets the Bank of England has efficiently dealt with commercial banks for years. The parallel has become more real than apparent since the abolition of U.K. exchange control, which has effectively combined the sterling and

foreign exchange markets. The medium for monetary control remains the discount market and not the inter-bank market. To this extent it remains inadequate for dealing with shortages because invariably the costs of adjustment are passed onto the banking system.

4.5. MONETARY CONTROL - SUMMARY

The present monetary controls on the U.K. banking system have been discussed in the context of the changing emphasis of U.K. monetary policy. Gangdon views the practical effect of these proposals as having removed much of the regulation from bank balance sheets to the extent that they have "...left the British banking system relatively little burdened by central bank superintendence of it's assets"(89p.29). The precise date, however, at which this 'new freedom' began is questionable - August 1981 witnessed the abolition of the reserve asset ratio though October 1979 was important because it rendered the corset ineffective as a means of controlling bank credit.

It has been shown how the new system attempted to tidy-up monetary control by imposing definite targets and controls. The key role of sterling M_3 to March 1982 required the monetary authorities to maintain close control of bank eligible liabilities. This has been coupled with an increasing emphasis on interest rates at the expense of monetary aggregates. The Bank of England have redefined monetary control procedures to allow them greater flexibility and increasing emphasis on money market operations. This allows the Bank of England greater control of short-term

interest rates which has recently become central to monetary policy. The present system also allows the authorities the opportunity to monitor the behaviour of the voluntary operational cash balances of the clearing banks.

It is clear that the present monetary controls in no way represent a move towards monetary base control but rather a tidying-up of the previous arrangements. This modification procedure has generally relaxed bank balance sheet controls, though the overall trend of monetary control may occasionally impose severe penalties on certain banks in the settlement of daily cash flows.

NOTES TO CHAPTER FOUR

1. Sterling M_3 can be broadly defined as all notes and coins plus all deposits in both the public and private sectors.
2. 'Monetary Control', Green Paper, HMSO, Cmnd.7858, published March 1980.
3. See for example, J. Whitmore, 'Search for Sound Money', The Times, 25 February, 1981.
4. M_1 can be broadly defined as notes and coin held by the public plus private sector sterling sight deposits.
5. For a comprehensive discussion see W. Greenwell & Co., 'Special Monetary Bulletin - Monetary Base Control', 21 April, 1980, Broad Street, London.
6. See: a) D. Lomax, 'Monetary Policy', National Westminster Quarterly Bulletin, November 1980, pp.2-22.
b) D.E. Fair, 'Monetary Control', Three Banks Review, March 1981, Vol.129, pp.17-34.
c) S. Brittan, 'Where next on monetary control', Financial Times, 8 January 1981.
7. See G. Richardson 'A view from the Governor', The Banker, February 1977.

8. The wider range of money and liquidity aggregates now include M₁, sterling M₃ and PSL₂. PSL stands for private sector liquidity and in this definition encompasses the private sector components of sterling M₃, other money market instruments such as deposits with local authorities, commercial bills and certificates of tax deposit, plus savings deposits and securities (mainly held with building societies).
9. See for example, G. Richardson, 'The First Mais Lecture', City University, London, 9 February 1978.
10. See for example. 'The Reform of Monetary Control in the United Kingdom', Annual Monetary Review, Vol.1, October 1979, p.38.
11. See for example, 'Monetary Base Control', Bank of England Quarterly Bulletin, June 1979.
12. Demand deposits were interest bearing at that time.
13. The only known settlements in the money markets are Treasury bills, foreign exchange (two days ahead) and gilt-edged settlements.

14. The changes were principally outlined in the following papers:-
- (a) Methods of Monetary Control - Background note November 1980.
 - (b) Monetary Control: Next Steps, March 1981.
 - (c) Monetary Control: Provisions, August 1981.
15. The prudential liquidity afforded by the reserve asset ratio is being reassessed by the current liquidity proposals, as discussed in Chapter 6.
16. Institutions with average eligible liabilities of less than £10 million will be exempt from this requirement.
17. Whilst it is possible for an eligible bank's holding to fall to 4 per cent, it has to maintain a rolling average of 6 per cent - for general purposes it can be claimed the 6 per cent is fixed.
18. Seccombe, Marshall and Campion plc are a member of the LDMA and the Bank of England's broker.
19. For a further discussion see B. Riley, 'Can the discount houses cope with the Bank's new regime?', The Banker, February 1982, pp.29-33.

CHAPTER FIVE: BANK CAPITAL ADEQUACY

5.1. INTRODUCTION

5.2. BANK CAPITAL ADEQUACY

5.2.1. FUNCTIONS OF BANK CAPITAL

5.2.2. DEFINITION OF BANK CAPITAL

5.2.3. DETERMINATION OF BANK CAPITAL ADEQUACY

5.3. BANK CAPITAL ADEQUACY - MEASUREMENT

5.3.1. CAPITAL CONCEPTS

5.3.2. VOJTA APPROACH

5.4. CURRENT ARRANGEMENTS DEFINED

5.4.1. INTRODUCTION

5.4.2. MEASUREMENT OF CAPITAL 1980

5.4.3. APPRAISAL

5.5. SUMMARY

5.1. INTRODUCTION

Prudential supervision of bank balance sheets is chiefly concerned with capital adequacy and liquidity. Prudential supervision is not designed to impose severe constraints on bank balance sheets, because it is expected that a commercial bank will take all 'reasonable precautions' to ensure that it does not default on its obligations. The debate, however, arises where bank supervisors impose rigid prudential controls and/or disagree with the validity of a bank's internal controls. It is the differing views on the assessment of 'reasonable' and definitions of 'precaution' that have caused the current concern over the methods implemented to maintain capital adequacy and liquidity. Liquidity is discussed in the next chapter.

The topic of bank capital adequacy has become a focal point in the banking industry. Capital adequacy and capital acquisition have become major topics of study and controversy by banking personnel and regulatory authorities(90p.79). This is largely due to the peculiar nature of bank capital:

"Commercial and industrial companies require capital initially to finance their operations and secondly to provide a bail-out for creditors or to cover possible losses. From the standpoint of a bank precisely the opposite is the case - capital funds should provide protection for depositors in situations of temporary difficulty and also provide funds to finance fixed assets"(91p.8)

The link with asset structure is critically important to maintain confidence but also to provide liquidity if required for depositors and other creditors on the liabilities side. The purpose of bank capital is multi-fold. (1) As a protection for depositors Robinson argues it is analogous to a guarantee fund(92p.433), whilst (2) Orgler and Wolkowitz state capital can be a prudent source of funding "...when the asset being financed is fixed and long-term"(93p.17). (3) The function of bank capital and its importance to the balance sheet was recognised by Apilado and Gies who defined bank capital adequacy as "...perhaps the single most important index of a bank's financial condition to the regulatory authorities"(94p.24).

Capital adequacy is a dynamic concept. It is influenced by prevailing banking and economic conditions; by the quality and liquidity of a bank's assets; and the quality of bank management. In the final analysis it may therefore be "...less important in practice than it is in theory"(95p.109). The basic objective of commercial banks remains wealth maximisation, generally defined as the maximisation of the present value of future cash flows accruing to the ordinary shareholders(96p.92). Thus it may be the need for adequate profitability that determines capital adequacy. Adequate profitability will meet the basic objective but can also attract new capital by providing a return (dividend plus capital gain) comparable to other forms of marketable investment - in addition to providing reserves for contingencies and losses that may occur.

Section 5.2. will be concerned with an examination of the issues influencing bank capital adequacy. This will be followed by a discussion of the various regulatory approaches in 5.3. to this problem. The current position in the U.K. will be analysed in Section 5.4. We will conclude that whilst it may not be possible to accurately appraise bank capital adequacy, the U.K. approach provides an important framework within which the balance sheets of U.K. banks may well be constrained by the new proposals.

5.2. BANK CAPITAL ADEQUACY

The debate over bank capital adequacy results from the disagreement between bank supervisors and commercial bankers concerning the definition of bank capital and the adequacy of that capital. These definitions are largely based on the functions of bank capital that are perceived by each group.

5.2.1. FUNCTIONS OF BANK CAPITAL

The Bank of England identified the following as the more important purposes for which capital is required(97para.15):

1. To provide a cushion to absorb losses.
2. To demonstrate to potential depositors the willingness of the shareholders to put their own funds at risk on a permanent basis.
3. To provide resources free of fixed financing costs.
4. To be a suitable form of finance for the general infrastructure of the business.

The first two purposes are the important functions as capital can provide a cushion against which losses may be sustained,

but also ensure that public confidence is maintained in the U.K. banking system. These functions do not however fully state the case. Okidegbe(98) has specifically defined the functions of bank capital:- to protect depositors, absorb temporary and unexpected losses, maintain or inspire public confidence and finally to constrain the growth of bank assets. This framework will provide a more practical base from which to assess the relevant issues.

In a fractional reserve system the confidence of depositors, shareholders and the public in general is vital to the existence of the banking industry. Thus, the primary function of bank capital is to "...provide the confidence necessary to keep a bank open so that it may be able to absorb losses out of future earnings rather than out of capital funds themselves"(99p.5). Orgler and Wolkowitz argue the function of absorbing losses is instrumental in avoiding failure, "...thus contributing to the public's confidence in the banking industry"(100p.16). The crucial point is not that capital should provide a cushion to absorb losses, but that it should be adequate to absorb losses with enough margin to inspire continuing confidence in the bank as a going-concern. This was defined by Robinson and Pettaway as being able to absorb short and immediate term losses, resulting from events that management cannot be expected to anticipate, with "...a margin of safety that, preferably, would allow a bank to continue its operations without loss of momentum and, at least, would buy time in which a bank would re-establish its operational momentum"(101p.vii). Hempel states that in the U.S., "Even the staggering losses of the

1930's were ultimately absorbed out of earnings when banks were not forced into liquidation"(102p.3).

Capital adequacy is therefore concerned with the ultimate solvency of a bank. Capital must be adequate to inspire sufficient confidence in that bank on the part of depositors and supervisors so that it will not be forced into liquidation(103p.68). To this could be added the confidence of creditors and bond holders. Capital must be sufficient to cover any possible decline in the value of assets in order to maintain public confidence.¹

Bank capital is directly concerned with the quality of bank assets. Reed et.al. stated the "...amount of capital funds a bank needs is related to the risk it assumes. If a bank assumes greater risk in its loan portfolio, for example, it should have more capital funds than if it were more conservative in its lending policy"(104p.172). Langley agrees the level of assets is "...of less importance than the quality of those assets"(105p.177). In this respect Watson argued "...a strong well-managed bank can operate on a very thin capital base"(106p.171). Peacock would argue this is probably over-optimistic, but agreed that "...large banks with high (and high quality) earnings can probably afford to maintain lower capital ratios than their slowly growing counterparts"(107p.669).

Capital adequacy, however, should only be determined under 'normal' conditions. There is wide agreement that "...substantial capital positions do not prevent banks from

failing in a period of widespread economic disruption"(108p.22). Gardener typified the view that individual banks should not be required to generate internal prudential resources for situations in which the central bank's support role would, or should, come into effect(109p.6). This is the rationale behind the Vojta proposition that capital should protect depositors only in conditions short of total economic collapse(110p.16). This is important because many assessments of capital adequacy have adopted a 'disaster valuation' or worst-case approach - yet in such cases the central bank should always support the banking system. This was dramatically demonstrated in the 'Lifeboat Operation' during the fringe banking crisis. In the U.S., Burns likewise argued that the "...banking system can be and will be supplied with funds in whatever amount is necessary to forestall a credit crunch"(111p.263).

Nevertheless bank capital is also an important source of finance. Vojta(112p.29) has stated that it is a prime function of bank capital to permit the acquisition of the institutional structure necessary to perform the intermediation function and provide related services. Conversely capital should constrain the growth of bank assets where they are not supported by sufficient earnings to cover the risk associated with the required assets and liabilities.² Should earnings however keep pace with the growth of assets, net income will become an additional source of capital and no constraint on the growth of assets will take place.

Thus bank capital adequacy is concerned with the quality of the asset structure, against which unexpected losses can be written-off without causing that bank to become insolvent. In this respect earnings and capital can be surrogates but in total economic disaster only central bank liquidity can really support the banking system. Thus the prime function of bank capital is to maintain the confidence of depositors, shareholders and supervisors in that bank as a going-concern. Two final points can be made with respect to depositors. Firstly, the protection of depositors (instead of all creditors) is a very important function of capital. Table 12 overleaf shows that the percentage of assets financed by depositors has remained close to 90% for the London Clearing Banks since 1975.

Secondly, in the U.K. a deposit protection scheme was established under the Banking Act. Part II of the Act provides that depositors with a failed institution will receive 75 per cent of their protected deposits to a maximum of £10,000. A Deposit Protection Fund has been established which is financed by contributions from recognised banks and LDT's. The approach stands somewhere between the approach adopted in Germany (which has no paid-up component and relies entirely on guarantees) and the U.S. system operated by the FDIC (which involves a very substantial physical fund)(113p.74). The extent to which partial deposit protection in the U.K. will maintain depositors' confidence is not however clear. Revell argues there is still "...surely a sufficient danger for a small depositor to continue to worry about the safety of his deposit and to

TABLE 12: PROPORTION OF TOTAL ASSETS FINANCED BY DEPOSITS FOR THE BIG FIVE, 1975-81

BANK (Group)	YEAR (as a %)						
	1975	1976	1977	1978	1979	1980	1981
Barclays	88.8	89.3	87.6	87.3	86.7	86.2	87.9
Lloyds	91.8	91.2	91.6	91.6	91.7	91.2	91.5
Midland	88.9	88.2	87.8	88.9	89.3	90.4	92.0
National Westminster	90.3	90.1	91.7	91.1	91.7	92.0	91.7
Williams and Glyns	89.9	91.0	89.1	88.5	86.4	87.0	88.3

SOURCE: Reports and Annual Accounts

create the conditions for a run at the slightest hint of trouble"(114p.32).

The determination of bank capital adequacy should therefore be based on normal operating conditions, taking into account the probable support of the Bank of England and partial deposit insurance. It will be adequate where it "...reduces the chances of future insolvency of an institution to some predetermined level"(115p.20), where that level is commensurate with maintaining sufficient confidence in that institution as a going-concern.

5.2.2. DEFINITION OF BANK CAPITAL

The Bank of England(116) define bank capital as share capital, loan capital, minority interests, reserves and provisions. To this capital base, certain deductions are made depending on the actual measure of capital adequacy required. The exact definitions are discussed in Appendix 7. We should, however, note the stringent conditions applied to loan capital³. The bank regulators case against including loan capital in capital for capital adequacy purposes was defined by Leavitt(117p.48):- losses cannot be charged against debt capital in order to maintain the bank as a going-concern; debt places the bank in a position of having to meet fixed annual charges for interest and possible redemption payments which must be met regardless of earnings; debt would impair future operating flexibility (restrictive covenants would limit alternatives concerning payments of dividends, mergers and transfers of assets); debt already outstanding would limit the issuance of additional debt when

it might be most needed; and finally acceleration clauses would very likely be triggered when an institution is most vulnerable to collapse.

These risks and disadvantages may not, however, be insurmountable: "A well-run bank in good condition should be able to manage the interest coverage and repayment of a reasonable amount of long-term debt"(118p.81). Nadler⁽¹¹⁹⁾ argues that debt capital does not give a bank the same solid underpinnings as equity capital, though in liquidation debt capital may offer as much protection to depositors. Summers noted that unexpected losses could inhibit debt payments which could force a bank into liquidation and thus debt capital is not "...part of the pool of funds against which losses can be charged"(120p.7).

The counter argument was given by Reed et.al.: "Subordinated capital notes issues when interest rates are relatively low may provide low cost funds that can be invested profitably (at higher rates) for many years. These may also be considered as capital funds in calculating loan limits and in providing a buffer for the protection of depositors."(121p.159) Subordinated capital debt can provide long-term and permanent additions to a bank's capital structure. and where it is fully subordinated to claims of depositors it will serve the same protective function as equity from the viewpoint of depositors. Cooke encourages the continuing trend of raising subordinate debt capital and "...for supervisors to accept this as providing some strengthening to the capital base."(122p.22).

The practical banker's approach was recently represented by Howard and Hoffman of Citibank(123). They have put forward strong arguments in favour of a bank being strengthened by the additional liquidity of long-term debt even though conventional accounting ratios make it look worse:

"In analytical terms, a debt issue can be included as a component of capital if, during its life, the assets acquired by the debt and the shorter-term liabilities it supports, contribute to retained earnings an amount equal to or greater than the principal amount of the debt".(124p.37)

Citibank distinguish between funding debt and capital debt. The former provides the day-to-day borrowings to finance the bank's operations and provide liquidity, whilst capital debt is long-term borrowing that can be leveraged, thereby serving as a supplement to capital. This is analysed in terms of a 'debt-earn-back' test in Appendix 2. It is concluded that under reasonable assumptions, capital debt can legitimately be considered for capital adequacy purposes where its remaining maturity is at least equal to its earn-back period.

5.2.3. BANK CAPITAL ADEQUACY - CONSTRAINTS

Constraints may be imposed on the adequacy of bank capital as a result of conceptual differences between bank supervisors and bank management; inflation; asset growth; and the problems associated with external and internal financing.

N.B.

Bank capital adequacy has been described by Nadler(125p.39) as a 'tug of war' between bank supervisors and commercial bankers. Regulators generally prefer more capital since it serves as a protection for depositors. The banks however, prefer to be highly geared. The commercial banker has to maintain adequate profitability, which can be done with modest returns on assets provided a bank can maintain low ratios of capital to deposits and capital to assets.

→ Thus, where higher capital ratios are imposed, a bank will need to increase its net return on assets to maintain its profitability. This could push banks away from traditional areas, leading to a decline in the return on invested capital (and subsequently to lower dividends) unless there was also a proportionately larger increase in profitability. This may in turn cause investors to find bank stocks increasingly unattractive. The commercial banker could further argue⁽¹²⁶⁾ that higher capital ratios remove the importance of capital adequacy as a management decision, and tends to ignore the importance of liquidity and day-to-day management. The latter is important as constantly available liquidity reduces the need to maintain capital reserves. In an extreme case, high capital ratios could cause problems where inflexible laws are designed for the weakest participant in the banking system.

Nevertheless regulatory concern has resulted from the secular decline of capital ratios and the constraints imposed on maintaining bank capital adequacy by several factors such as the rapid expansion of business, the erosion of margins and

inflation which constrains real profitability(127p.241). Bank supervisors are concerned that bank capital has not increased in-line with assets and liabilities, whilst the real value of that base has fallen.

1. INFLATION

Fairlamb(128p.109) suggested that inflation has been the biggest single factor in the decade-long process of gradual deterioration in the capital base. The recent OECD study by Revell also substantiates this conclusion. Broadly speaking inflation can erode a bank's capital ratio in two ways:-

- a) When nominal assets rise at a slower rate than nominal deposits.

Even assuming that nominal deposits keep pace with inflation - that customers need greater balances to cope with higher prices - this only enables those assets funded by deposits to maintain their real value. The real value of existing capital will suffer.

- b) Where domestic inflation is higher than that of a country's main trading partners.(129p.18)

This has the effect of weakening the exchange rate. As the value of sterling falls, a UK bank's currency assets and liabilities rise in value in terms of sterling. As the sterling value of currency balances rises, the ratio of capital to deposits falls.

A basic model of the effect of purely inflationary growth in deposits on capital ratios has been constructed by

TABLE 13: THE LONDON CLEARING BANK GROUPS - % GROWTH OF ASSETS AND CAPITAL

BANK	ITEM	YEAR						
		1975	1976	1977	1978 ⁽¹⁾	1979	1980	1981
1. BARCLAYS	Assets	15.0	18.4	14.3	8.2	27.0	22.3	31.4
	Capital ⁽³⁾	13.0	18.2	11.6	33.3	29.3	13.4	13.8
2. LLOYDS	Assets	10.5	19.2	14.8	9.1	18.3	13.8	39.2
	Capital	9.3	26.9	9.6	30.9	17.6	14.7	22.8
3. MIDLAND	Assets	4.3	14.3	13.0	16.2	29.8	25.4	61.8 ⁽²⁾
	Capital	25.1	10.5	10.6	43.0	27.9	10.6	7.4
4. NATIONAL WESTMINSTER	Assets	7.9	16.4	12.4	15.7	30.4	19.4	25.3
	Capital	4.4	8.6	9.9	29.3	17.1	16.8	22.3
5. WILLIAMS & GLYN'S	Assets	7.7	7.8	2.1	9.8	11.7	13.3	36.7
	Capital	5.4	11.4	7.0	8.5	39.3	14.8	19.1

Source: Reports and Annual Accounts

Notes:

1. The increase in capital bases in 1978 generally resulted from accounting adjustments in respect of a change of accounting policies relating to the treatment of deferred taxation.
2. Relates largely to the purchase of an interest in Crocker National Corporation in October 1981, comprising total assets of £10,884.5 million.
3. The capital base is defined as share capital (ordinary and preference) plus total reserves.

Revell,(130p.85) and is given in Appendix 3. The simulation modelled a highly simplified bank under reasonable assumptions with inflation at 20 per cent. It clearly shows that capital ratios would not be maintained under such conditions, and that there is a clear difference between an inflationary growth in deposits and real growth in terms of the effects on the operating account and capital ratios.

2. ASSET GROWTH

In the last decade the growth of bank assets has been greater than the growth of bank capital. This trend is shown by Table 13 of the London clearing banks since 1975. From 1975 to 1977 the growth in assets was always greater than the growth in capital. The capital figures for 1978 and 1979 are significantly distorted by changing accounting policies and reserve revaluation, but by 1981 the trends appear again. The important constituent of the growth in assets has been the increase in advances, particularly in currencies between 1979-1981 as is shown in Table 14.

In the U.S. it was noted as early as 1966 that the growth of banking had persistantly outrun the ability of banks to generate capital internally(131). Burns(132) reported that the quest for profits and growth had caused the attenuation of the US banking system's equity capital base, heavy loan commitments in relation to resources and some deterioration in the quality of assets. Summers(133p.3) suggested that a return to the rapid asset growth that characterised the early 1970's would again be likely to put downward pressure on capital/asset ratios. Table 15 shows that throughout the

TABLE 14: LONDON CLEARING BANK GROUPS - GROWTH¹ IN ADVANCES² 1975-81 (£M)

BANK GROUP	YEAR						
	1975	1976	1977	1978	1979	1980	1981
BARCLAYS	10568.7	12717.3	14857	13503.8	15364	18662	26807
% growth	10.6	20.3	16.8	(9.1)	13.8	21.5	43.6
LLOYDS	6157.6	7790.7	8784.2	9778.2	12224.1	14306.2	20308.4
% growth	1.2	26.5	12.8	11.3	25.0	17.0	42.0
MIDLAND	6040.7	6955.2	8003.3	9467.3	12314.9	15976.5	27597.2
% growth	8.3	15.1	15.1	18.3	30.1	30.0	72.7
NATIONAL WESTMINSTER	9057	10615	12042	14068	18115	22319	30112
% growth	5.2	17.2	13.4	16.8	50.4	23.2	34.9
WILLIAMS & GLYNS	1148.7	1287.5	1142.4	1245.7	1477.2	1588.6	2163.5
% growth	7.7	7.8	2.1	9.8	11.7	13.3	36.7

SOURCE: Reports and Annual Accounts.

¹ Per cent growth is that from previous year.

² Defined as market loans to U.K. residents, excluding money at call and short notice.

TABLE 15: THE WORLD'S 20 LARGEST BANKS - CAPITAL/ASSET
RATIOS IN 1971, 1976 and 1980¹

BANK	YEAR		
	1971	1976	1980
Citicorp	4.8	4.2	3.6
Bank America	4.0	3.4	3.7
Credit Agricole	-	4.9	5.8
BNP	-	0.9	1.4
Crédit Lyonnais	1.2	0.9	1.1
SocGen	1.4	1.2	1.6
Barclays Group	6.8	4.7	5.4
Deutsche Bank	3.7	3.4	3.1
Nat. West.	5.8	5.5	5.3
Dai - Ichi Kangyo	-	4.4	3.5
Chase Manhattan Corp	4.8	3.7	3.6
Fuji Bank	4.0	3.0	3.8
Sumitomo Bank	6.3	4.8	3.6
Sanwa Bank	5.8	4.4	3.6
Dresdner Bank	3.2	3.2	2.8
Mitsubishi Bank	3.9	3.1	4.0
Midland Group	6.3	5.7	5.3
West LB	2.8	2.6	3.0
Norinchukin Bank	1.2	0.9	0.4
Manufactures Hanover Corp.	5.0	3.6	3.2

SOURCE: D Fairlamb The Banker September 1981 p.105

¹In the case of Japanese banks figures refer to the year end (31 March) of that year with the exception of 1980 which refers to the 30 September half-year. Other banks are 31 December year-end figures.

1970's fifteen of the world's twenty largest banks' capital/asset ratio fell.

3. DIFFICULTIES OF EXTERNAL FINANCING

A commercial bank may increase its capital base through external funding by equity, preference and loan stock issues. The London Clearing Banks have expanded their capital base during the last decade, but retained profits and not external funding have been the vital source of this growth. The major forms of external finance have been rights or scrip issues, and loan stocks⁴. These are detailed in Appendix 4, but it is only Midland Bank that has been particularly active in these markets. Apart from limited rights issues in the U.K., it is usually only loan stocks that have been raised on the capital markets. The preferred funding method recently has been the floating rate capital notes of medium maturity (around 10 years) issued in the Euromarkets. These floating rate notes have enabled the banks to raise loan finance without becoming tied to a fixed interest liability(134s.4.1).

The major problem of external funding is that bank stocks are frequently quoted in the financial markets below their book values. Investments should yield a profitable return for the bank but they must also offer an attractive return to the bondholder or shareholder(135p.20). This has not been so in the bank capital markets. A recent study by Mercaldo(136p.267) revealed that key money centre banks were trading (as a percentage of book value) at below 82%, the U.K. Clearing Banks at 61.8% and the four largest West German banks at an average of 87.9%. Table 16 shows a basic

assessment for the London Clearing Banks in 1981, illustrating they were again trading well below their book values.

Table 16 Share prices and book value for London Clearing Banks 1981

Bank	Market Value (p)		Shareholders Total		Book value per share (p)
	High	Low	Funds £m	Shares m	
1. Barclays	394	313	2267	282.1	804
2. Lloyds	453	295	1713	174.8	908
3. Midland	350	295	1448.3	164.8	879
4. National Westminster	423	338	2220	236.0	941

Source: Grievson, Grant & Co. and Reports and Annual Accounts

In addition to the low market prices, McCarthy and Handorf have argued that substantial flotation costs, non-deductability of dividend payments for tax purposes, and immediate dilution of the earnings per share for existing shareholders have all contributed to the lack of significant stock issues.(137p.52) The latter point was taken as significant by Hempel(138pp.58-60) who developed a basic model to evaluate the financial effects of raising external capital. The model assumes that in reaching external financing decisions the primary objective of a bank is to minimise the immediate dilution of earnings per share and to

TABLE 17 EARNINGS PER COMMON SHARE UNDER ALTERNATIVE FORMS OF FINANCING (8)

Earnings on Existing Assets	Present Capital	Additional Capital financed with Common Stock	Additional Capital financed with 8% Preference Stock	Additional Capital financed with 8% Subordinated Debt.
Earnings on Assets Less interest	1,300,000 -	1,313,000 -	1,313,000 -	1,313,000 80,000
Net income before taxes	1,300,000	1,313,000	1,313,000	1,233,000
Taxes (@ 30%)	390,000	393,900	393,900	369,900
Net income after taxes	910,000	919,100	919,100	863,100
Preference Dividends	-	-	80,000	-
Net for Common Stock	910,000	919,100	839,100	863,100
Number of Shares	200,000	220,000	200,000	200,000
Earnings per share	4.55	4.18	4.20	4.31

Source: G.M. Hempel, Bank Capital Determining and Meeting Your Bank's Capital Needs, Figure 5.1.

Notes:

1. Earnings on total assets are 1.3% after all operating expenses but before taxes.
2. Initially capital funds are \$8 million and assets \$100 million. Capital comprises 200,000 shares of \$10 per value stock and \$6 million in surplus, undivided profits and reserves.
3. The bank is not subject to regulatory capital constraints.
4. The bank required to raise an additional \$1 million of capital (which will increase assets immediately by \$1 million) by:-
 - a) selling 20,000 shares of common stock at \$50 per share, or
 - b) selling non-convertible, preferred stock with a 8 percent dividend rate, or
 - c) selling non-convertible subordinated debentures with an 8 percent coupon.

maximise earnings per share over a longer period. The results are tabulated overleaf.

Table 17 shows the immediate dilution of earnings per share under the various forms of external financing. The simulation can be repeated to show the effect where the banks' existing assets are increased; again the highest earnings per share would result if no additional capital were raised, but, where this is not so, the use of subordinated debt again offers the most favourable alternative.

Thus the problems associated with external funding will impose constraints on bank capital adequacy. Capital is frequently unprofitable to issue and requires stringent disclosure requirements, particularly from the Securities and Exchange Commission in the U.S. Loan stocks have an advantage in that interest is tax deductible and the dilution of earnings per share is not quite so pronounced. In the last section, however, we noted that loan stocks are not wholly accepted by bank supervisors for bank capital adequacy purposes.

4. PROBLEMS OF INTERNAL FUNDING

It is generally concluded that external financing is not an adequate or reliable method of maintaining a bank's capital base. The alternative is to supplement capital by additions to reserves. The reserves of the London Clearing Banks have expanded substantially since 1971 as a result of profit retentions, property revaluations and changing deferred taxation policies under SSAP 15 (from 1978 the banks were

TABLE 18: TOTAL CAPITAL AND RESERVES BIG FOUR LONDON CLEARING BANKS 1975-1981

CAPITAL (£M)	YEAR						
	1975	1976	1977	1978	1979	1980	1981
Shareholders Funds ⁽¹⁾	2763	3189	3523	4672	5146	6551	7648
Total Capital Base ⁽²⁾	3380	4111	4571	6498	7889	9283	12005
Capital increase, represented by:	322	731	460	1927	1391	1394	2722
1. Retained profits	127	238	306	550	890	861	793
2. Loan capital	80	290	164	132	108	231	826
3. Reserve revaluations	(3)	21	5	9	200	(6)	247
4. Rights issues	53	142	-	99	-	-	-
5. Other ⁽³⁾	65	40	(15)	1137 ⁽⁴⁾	193	308	856
% contribution of retained profits to capital increase	40	33	67	29	64	62	29

Source: Reports and Annual Accounts

- (1) Share and preference capital plus reserves
- (2) Shareholders funds plus loan capital and minority interests. From 1978 this item also includes general provisions and amounts of deferred tax for which no balance sheet provision has been made.
- (3) Principally including minority interests, goodwill and deferred tax for which no balance sheet provision has been made.
- (4) Adjustments in respect of a change in accounting policies related to deferred taxation.

allowed to credit large deferred tax provisions to reserves). Table 18 illustrates these trends for the London Clearing Banks since 1975.

The crucial importance of retained earnings to the capital base is seen in 1977, 1979 and 1980. The value for 1978 is distorted by the change in accounting policies relating to deferred taxation. The conclusion is that the growth of the capital base remains highly dependent on retained earnings, though loan stocks are becoming increasingly popular. Surpluses arising from property revaluations, exchange rate adjustments and deferred taxation provisions have influenced the capital growth of the London Clearing Banks, but these are not usually considered as reliable forms of internal funding for the capital base.

Profit retentions therefore have important implications for capital adequacy. Thus a bank is highly dependent on current profitability and its dividend policy. Current profitability has fallen in absolute terms since 1979 and this trend can be expected in 1982. To maintain public confidence, however, banks aim to offer attractive returns to shareholders through dividend payouts, potentially squeezing retained profitability further. Lloyds Bank raised their dividend per share from 10p in 1978, through 17p in 1980 to 21p in 1981. The National Westminster likewise offered 13p, 21p and 25p respectively. Thus, the difficulties and uncertainties of internal funding may also impose serious constraints on a bank's capital adequacy.

This section has described some of the more pertinent constraints to bank capital adequacy. Capital ratios may have been allowed to fall where they were felt to be too high initially, but there are other factors. The real value of the capital base has been eroded, profitability has fallen (potentially squeezing distributed and retained funds) and equity issues have proven harder to float successfully. Thus inflation, asset growth, problems of raising external and internal funds have all constrained bank capital ratios - making the 'tug of war' between supervisors and bankers all too real.

5.3. BANK CAPITAL ADEQUACY - MEASUREMENT

The measurement of capital adequacy is largely a description of the regulatory approaches applied in the US since the 1930's. The US banking system is one of the most regulated systems in the world as a result of the banking collapses in the 1930's. Bank capital assessment has traditionally relied on 'formula' approaches. Originally capital was related to deposits, as it was emphasised capital should protect depositors' funds. The emphasis changed to capital/asset ratios, concentrating on the risk inherent in a bank's assets. In addition notice was gradually taken of qualitative factors. Finally we shall review an approach offered by Vojta.

5.3.1. CAPITAL CONCEPTS

Capital assessments have largely concentrated on relating capital to deposits, assets and risk assets and qualitative judgements.⁵

NB!

1. Capital/deposits

This has proved to be one of the more popular ratios used by bank supervisors. It was incorporated into Californian law as early as 1909. A ratio of 1:10 became an accepted rule of thumb in the early 20th century. In 1914 the Annual Report of the Comptroller of Currency suggested this should be a minimum - a commercial bank should not be permitted to hold deposits in excess of ten times its capital and surplus. After the 1933 'bank holiday', banks whose capital base was less than 10 per cent of deposits were not allowed to re-open.

The ratio has since developed as a 'free capital' gearing ratio - that is capital less infrastructure to deposits. Again a 1:10 ratio became a yardstick.

2. Capital/assets

The emphasis changed to capital/assets ratios after World War II. The massive funding programme of the American government during the war encouraged many bank analysts to believe the risk of holding U.S. Government securities was greater than the risk of being unable to repay depositors. Prudential regulation became directed at asset depreciation rather than deposit withdrawal. Thus both the FDC and FRS instituted a capital/asset ratio, the latter stipulating a capital base greater than 7 percent of assets.

3. Capital/Risk Assets

The risk asset ratios were developed to distinguish the risks inherent in different classes of assets. Originally assets were split in two - risk assets and non-risk assets. The latter were defined as assets for which there was no reasonable doubt they would be repaid on time and in full. A capital/risk assets ratio of 1:5 was used and developed to incorporate 'near riskless' assets.

There are, however two approaches which were designed in the 1950's that have significantly influenced bank capital adequacy assessment. The watershed of prudential supervision was the Federal Reserve Bank of New York approach⁶. This and subsequent approaches recognised that losses will occur from a variety of different sources of assets and that the sum total of these risks will determine the total capital cover required. The approach was based on a supervisory formula developed by Howard D. Crosse, which was a detailed risk assets scheme. Assets were grouped into six risk categories, each of which was covered by a specific capital requirement. The formulas included an element of qualitative assessment as the bank supervisor would determine how much more capital an individual bank might require because of its peculiar circumstances. The basic formula and capital requirements are given in Appendix 5.

The principle of risk asset graduation was continued by Board of Governors of the FRS in 1956 with their Form for Analysing Banking Capital (the ABC formula). As with the previous approach, the capital margins seemed arbitrary but Form ABC had four important features - a liquidity calculation which incorporated the 'disaster valuation' approach; graduated capital margins according to the size of the bank's loan and non-government securities portfolio; a requirement against trust department operations and a disaster contingency based on the experiences of the 1930's. Broadly speaking the approach required more capital for less liquid banks, the details of which are given in Appendix 6.

4. Qualitative Assessment

The problems of assessing capital adequacy were generally acknowledged to imply a considerable amount of judgement in addition to the quantitative techniques. In the late 1960's and early 1970's the OCC had moved away from the traditional formula approaches adopted by the FRS. The OCC abandoned the use of formal ratios in 1962, considering them too arbitrary and not taking account of other important factors. Instead the OCC appraised a bank in relation to the quality of its management and its asset and deposit position as a going-concern under normal conditions with due allowance for a reasonable margin of safety. Specifically the following were considered(139):-

- (i) Quality of management
- (ii) Liquidity of Assets
- (iii) History of earnings and retention thereof
- (iv) Quality and character of ownership
- (v) Burden of meeting occupancy expenses
- (vi) Potential volatility of deposit structure
- (vii) Quality of operating procedures
- (viii) Bank's capacity to meet present and future financial needs of its trade area, considering the competition it faces.

This was the most significant approach to qualitative assessment, though today the OCC use a combination of both methods.

5.3.2. THE VOJTA APPROACH(140)

In 1972 George Vojta of First National City Bank (now Citibank) constructed a measure of capital adequacy in which the key element was current earnings. The approach was implicitly based on two functions of capital, defined by Vojta(141p.16) as allowing the acquisition of the institutional structure necessary to perform the intermediation function and related services, and secondly to provide protection - in conditions short of total economic collapse - against unanticipated adversity leading to loss in excess of normal expenditure. The latter function was based on the recognition of six generic banking risks.

Vojta proposed two tests to determine capital adequacy - an earnings test and the 'rule of 20' test. The earnings test would show the degree to which current earnings would cover anticipated losses, on the assumption that stable business conditions prevail. The second test was designed to measure the extent to which capital funds would cover unexpected losses by a prudent margin (a factor of two). The following definitions were applied:

1. Current earnings - earnings after taxes, accounting provision for losses, other charges to reserves and net of dividend payments.
2. Anticipated losses - estimated as a continuation of 'normal', historical loss experience.
3. Actual loss - based on a 5 year moving average of total charges to loan and other contingency reserves expressed as a percentage of total risk assets net of cash and due from banks, modified by a variable representing management expectations concerning departures from the historical mean as indicated by future business plans, as well as known factors in the environment.
4. Capital funds - capital surplus, undivided profit and all reserves except depreciation and amortisations.
5. Unexpected loss - expressed as a derivation from average historical loss expectations.

Based on these definitions, Vojta proposed that annualised current earnings should be equal to at least twice the amount of actual loss anticipated by management and secondly that

capital funds should be greater than twenty times the average value of historical loss experience. Both tests operated subject to the constraint that total capital must not be less than 5 percent and not greater than 20 percent of average total assets (net of cash and due from banks). The second test was applied only provided the bank had satisfied the earnings test, that its management was rated as superior by the bank supervisor and that "...known adverse contingent claims on capital in the form of loans classified substandard, doubtful or loss, and other known potential write-offs are not in excess of 50 per cent of total capital funds". (142p.20)

The Vojta approach has not yet been formally incorporated into a supervisor's assessment of bank capital adequacy. Nevertheless, it is a significant contribution to the current controversy over bank capital adequacy. It is a more sophisticated testing mechanism which, for the first time, explicitly considered current earnings in the determination of bank capital adequacy. This approach has moved away from traditional assessments in which holdings of particular assets were used as proxies for the losses to be expected on them; instead it encompasses a direct relationship between expected losses and current earnings together with net worth. In addition, the assessment is made in conditions just before a total financial collapse as opposed to a 'disaster valuation' approach. The principle criticism of the approach is that it relies on historical data.

Bank capital adequacy has traditionally been assessed with specific reference to quantitative ratios. The approach adopted by bank supervisors and regulators has been heavily influenced by the experiences of the US banking system. Assessments, however, must necessarily take account of qualitative factors. In the final analysis the Vojta and U.K. approaches may be preferable because they include specific recognition of the importance of judgement and qualitative factors based on selected ratio analysis. The following section will discuss the current position in the U.K.

5.4. CURRENT ARRANGEMENTS DEFINED⁷

5.4.1. INTRODUCTION

The UK approach is characterised by Cooke: "There can be no certainty, no dogma about capital adequacy." (143p.21) Traditionally, the clearing banks maintained a capital to deposits ratio of 8 per cent, though the Bank of England also measured a free capital ratio. The latter was more consistent with assessing capital adequacy in terms of the assets which are likely to be a source of losses, which ultimately reduce profits and additions to reserves. Shaw (144p.14) argues this approach also prevented the clearing banks from artificially raising their capital base during inflationary periods by becoming geared investors in property and trade investments.

In direct contrast to the U.S., the Bank of England have not attempted to implement a formalised system of capital adequacy assessment, but rather have attempted to encourage

the growth of sound banking business in the U.K. whilst limiting the possibility of a recurrence of the difficulties highlighted by the fringe banking crisis. Thus, the Bank of England have traditionally taken the view that formalised and rigid ratios were counter-productive.

The evolution of the present system has been highlighted by two discussion papers - 'The Capital and Liquidity Adequacy of Banks'(145) and 'The Measurement of Capital'(146), issued in 1975 and 1980 respectively. The 1975 paper was the outcome of a Working Party established in 1974 by the Bank of England and the London and Scottish Clearing Banks to discuss the subjects of capital adequacy and liquidity. The terms of reference for the Working Party were twofold:-(para.2)

1. to consider the purposes for which capital and reserves were required; to develop principles for assessing their adequacy for such purposes and to examine the roles of the different components of capital; and
2. to examine the traditional approaches to liquidity in the light of recent changes which had affected the liabilities of bank balance sheets.

The relevant conclusions of the Working Party are noted in Appendix 7, as the 1980 paper incorporates many of these principles. A further discussion paper was circulated in 1979 from which many of the present proposals were drafted. The following facets of the present system should be noted:

1. It is flexible, taking account of the particular character of each institution.

2. It is concerned with the maintenance of confidence in the system as a whole as well as the interests of individual depositors.
3. The approach is essentially concerned with the capital needs of a continuing business.
4. Precise numerical guidelines for the capital needs of all institutions or for groups of institutions are considered to remain inappropriate.
5. Current earnings are stressed as being essential as a first defence against loss, but also a source of fresh capital to allow the business to grow or even to maintain the scope of its operations during a period of inflation.
6. In the case of UK incorporated deposit-taking businesses, account is taken of their world-wide operations on a consolidated group basis.
7. Qualitative judgements will be incorporated into the analysis depending on the nature of business of that institution.

5.4.2. THE MEASUREMENT OF CAPITAL. SEPTEMBER 1980

We have previously noted that the paper identified the two most important objectives of capital adequacy as ensuring that the capital position of an institution is regarded as acceptable by its depositors and other creditors, and secondly to test the adequacy of capital in relation to the risk of losses which may be sustained. To this end the Bank of England have constructed two ratios - the first objective is broadly met by relating current liabilities to capital resources (the free resources or gearing ratio) and the

second objective by a more complex risk asset ratio. The exact details and definitions are given in Appendix 7, together with a summary of the method of calculation.

The gearing ratio relates shareholders' funds (less equipment and fixed assets) to total non-capital liabilities. The latter are defined as all non-capital liabilities not including contingent liabilities which are incorporated within the balance sheet.⁸ Past practice had been to take account only of deposit liabilities, though to this the Bank of England had traditionally added acceptances. By definition the gearing ratio should be constructed as far as possible from publicly available information to enable depositors and other creditors to form a judgement about the capital adequacy of that institution.

The risk assets ratio is, however, the important ratio for the purpose of bank supervision. Risk assets are related to a capital base which is the same as is used for the gearing ratio except that premises and fixed assets are not deducted. Instead they are treated like other balance sheet assets. When calculating the risk measure, the Bank of England will take into consideration any genuine hidden values in the balance sheet and any over-statement of assets in relation to their market values.

The risk asset classification incorporates seven classes of risk asset (Form ABC has six classes) each of which are allocated a certain capital cover. This ratio therefore contains certain information which it is likely will only be

available to the Bank of England and bank itself. The ratio is constructed by multiplying each balance sheet asset by its risk weight to produce an adjusted total of risk assets. The 'weights' attempt to reflect the relative risk of loss arising from credit or investment risk inherent in a particular class of asset. The risk asset ratio is the proportion of the adjusted asset total which is represented by the modified capital base.

These two ratios are, however, only the first stage in the assessment of bank capital adequacy. Final assessment will also take into account the particular circumstances of each institution. Thus the large institution with a well diversified spread of high quality lending will inherently be less exposed to risk, and therefore requires relatively less capital cover against its assets than the small specialist institution with a narrower customer base.

5.4.3. APPRAISAL OF CURRENT ARRANGEMENTS

The problems of assessing capital adequacy derive from the lack of definition of bank capital adequacy - or more precisely at what stage does a bank become inadequately capitalised. The current situation is one in which certain guidelines have been established by the Bank of England though the final judgement also takes into account qualitative factors through regular discussions.

1. Ratio Analysis

"All in all, there is an overwhelming agreement among the students of banking regarding the lack of representativeness

of these (capital) ratios".(147p.25) Gardener has argued that "...the nature of banking risks is such that conventional ratio-based schemes are inadequate and misleading indicators of bank prudential strength"(148pp.59-60). There could be a danger where a minimum ratio became established (though precise values have not been published) that a bank might capitalise to its lowest level - and thereby operate at the highest risk available.

Barge(148p.18) has raised a more practical consideration. Should a minimum gearing ratio become established then this will automatically establish a level of profitability - the stock markets for instance have long regarded a free resources ratio of less than 2% as a signal for a bank to issue equity.(149) The argument is illustrated by reference to a bank's dividend policy. If a 10% dividend is required to maintain shareholder's confidence then this implies a pre-tax return on capital of approximately 21%. Thus, where a gearing ratio of 1:20 is maintained, a return on assets of 0.95% will be needed to maintain that dividend. The example is simplistic, but demonstrates that once a gearing ratio is established, a minimum level of profit may be implied. The implication may be more real than apparent. A recent study(150p.267) concluded that banks in certain industrial countries had earned only meagre returns on assets. Selected large banks only earned between 0.38 and 0.64 on average in Canada, 0.44 to 0.64 in the U.S., 0.20 to 0.33 in West Germany and 0.67 to 1.01 in the U.K.

2. Capital Base

The Bank of England define the capital base as share capital, loan capital, minority interests, reserves and provisions subject to certain criteria. The arguments relating to loan stocks have been discussed and the Bank of England have accordingly laid down stringent conditions for the inclusion of loan capital in the capital base. These conditions may be subject to further modification, but banks in the U.K., and certainly the Clearing Banks, may find they do not have sufficient flexibility within their balance sheets to incorporate most of their debt issues within the capital base for the purposes of capital adequacy assessment. The other components of the capital base will be discussed but it is prudent to begin with a general criticism on market evaluation.

Bank capital is defined in terms of book value yet there is currently an appreciable difference between book value and market value. Thus, increased recognition of market value might be more viable in today's fluctuating stock markets. According to Anderson(151p.19) the market's evaluation is an important element that should be followed carefully by the regulatory authorities. It is suggested it should be "...one of the most important parameters followed by the regulatory authorities"(152p.23). The Bank of England disagree for two reasons(153p.22) - the perception in the market of capital inadequacy is likely to occur at a time when a bank can no longer remedy the situation and secondly, banks might expand business well beyond the limits of what bank supervisors consider acceptable without provoking any market reaction.

The crux of these arguments therefore concerns the information disclosure of banks. In the U.K., Bank of England assessments are often based on confidential returns whilst the poor disclosure of financial information by British banks must seriously hinder the market's evaluation.

The actual constitution of the capital base may be subjected to more specific appraisal.

Share capital is defined to exclude the amount not paid up on issued shares and authorised but unissued shares. The latter is an acceptable deduction but the former, although quite rare, could represent a valuable source of funds to the bank. Shareholders are contractually obliged to pay in full to the agreed purchase price if called upon to do so.

Minority interests have been included in the capital base to enable the assessment of group capital adequacy. The treatment of minority interests is not, however, clearly defined. Where they contribute significantly to the capital base the position will be 'examined carefully'. The public are therefore unlikely to be able to calculate the correct gearing ratio where minority interests are significant.

This criticism can be extended to the treatment of inner reserves and general bad debt provisions. The inclusion of inner reserves is only really of consequence to some merchant banks but bad debt provisions are generally only disclosed by the major commercial banks. Thus, the gearing ratio does not in several respects accord with its objective of being a

publicly calculable ratio. Further, it is unlikely that a depositor or other creditor will be satisfied by the gearing ratio if they thought that the risk asset ratio, or risk of loss which a bank was running could be significant in relation to its capital.(154p.1/2)

The treatment of provisions now differs from the approach adopted in 1975. The Bank of England have now drawn the distinction between certain and uncertain loss. Thus amounts set aside to cover possible or probable loss that have already been identified provide no protection against future unexpected losses. Specific provisions against advances, interest suspended, provisions for deferred and current tax are therefore excluded. This might give rise to two problems. A bank could maintain its capital ratio by increasing its general bad debt provisions at the expense of specific provisions. Conversely the more prudent institution will be 'penalised' to the extent it specifically identifies bad debts and has smaller general provisions. Secondly, general provisions are not a uniform category. To be included in the definition of the capital base, all items within general provisions must be able to absorb future losses.

A similar controversy concerns the application of provisions for deferred taxation. The accounting standard SSAP 15, issued October 1978,(155) redefined deferred taxation accounts to include only amounts on which it is probable that there will be a potential tax liability in the foreseeable future. Provisions for deferred and current taxation will be

concerned with expected losses, present or future. The controversy concerns the apparent vagueness of the accounting standard - the probability of the tax becoming payable is open to debate. In the U.K. the clearing banks realised virtually all their deferred tax from leasing activities, yet Lloyds Bank recognised no future liability in their accounts whilst Barclays, Midland and National Westminster set aside differing proportions of potential future liabilities. As a result, until the standard is more precisely defined⁹, the Bank of England will continue to monitor the treatment of tax provisions. However, the treatment is imprecise and again it is possible the prudent or cautious bank could be inadvertently penalised by these definitions. The present stance is that where maturing tax payments are likely to exceed the provisions created, then the Bank of England will make a suitable deduction from the capital base.

3. Risk Analysis

The risk asset ratio attempted to focus on the quality of a banks' assets. The 1980 paper offered a 'detailed differentiation' yet the risk analysis was considerably simpler than the Vojta approach. The Bank of England based their analysis on three types of banking risk:-

- (a) Credit risk - the risk that claims on others may not be redeemable at the due date at their full book value.

- (b) Investment risk - the risk that marketable claims on others, or directly held assets, may depreciate below their book value.

- (c) Forced sale risk - defined as a further element within investment risk, it is the risk that actual and additional losses may be sustained because of the need to make untimely sales of assets which, depending on the narrowness of the market, may yield less than their quoted value.

The existence of other risks is recognised but these are assessed within a qualitative judgement of the risk asset ratio, rather than by encompassing them with the ratio analysis. Nevertheless, considerable attention¹⁰ has been given to the identification of banking risks and it may be argued the Bank of England have not given sufficient weighting to all the pertinent banking risks. A more appropriate classification would be as follows:

(a) Credit Risk

Credit risk is the risk of default or delay in repayment of a bank's assets. Credit risk is present in all bank assets with the exception of fixed assets and U.K. Government securities. Taking credit risk is a principal function of banks. Credit risk will primarily affect the loan portfolio but may also occur in non-gilt edged investments, foreign exchange transactions and equity participations.

(b) Liquidity Risk

Liquidity risk arises from the possibility a bank will be unable to meet cash demands on time. This may occur

where the maturities of assets and liabilities are not matched, or when the bank is forced to sell creditworthy assets or switch liabilities in adverse market conditions. Identifying and managing liquidity risk is therefore ultimately concerned with the difference between daily cash flows.

(c) Investment Risk

Investment risk concerns the depreciation of marketable securities for reasons other than default or delayed payment. Depreciation may occur through changing interest rates or varying economic conditions. Investment risk will only be realised when a marketable asset is sold below its book value. If the investment is not sold, no such risk will occur. The realisation of investment risk is therefore a management decision, but where it is the intention of the bank to hold such an investment, it would then become a residual risk.

(d) Interest Rate Risk

Interest rate risk will occur when the cost of liabilities rise faster, or exceed the earnings on assets. Such risks may occur where fixed rate loans are funded by variable rate deposits; or where variable rate loans are funded by variable rate deposits if the periods are different. For instance, if a variable rate loan with a six month 'roll-over' is matched by a variable rate deposit with a three month 'roll-over', the bank will be at risk if interest rates rise as the deposit rate will be adjusted upwards after three

months while the loan rate will not be altered for six months.

(e) Earnings Risk

Earnings risk may result from changes in interest rates, asset prices or operating expenses.

In addition the Bank of England should consider more fully the general risks of banking, such as operational and contingent liability risk. Operational risk is the risk of loss arising from operational error and mistake whilst the latter is present where a bank would be required to fulfill its obligations as a guarantor. Banks can insure against certain such risks as fraud and dishonesty, forgery, defective signatures on documents, theft or damage, robbery and negligence - but a risk will be present to the extent that actual losses may exceed the insurable cover.

This list is a considerably more detailed approach than that currently modelled by the Bank of England, who argue that to encompass all these elements would involve the construction of a model whose appearance of accuracy could be dangerously misleading(156para.30). On the other hand the Vojta model incorporated six risks, and generally the nature of banking risks would seem to warrant a more specific treatment than at present. In the final analysis this must be to the detriment of the present system because it fails to explicitly recognise that banks have a portfolio of risks through which they can achieve economies of scale. Revell(157p.80) states there is a special relationship between risk and the

operations of financial institutions, because a large part of the function of these institutions is to reduce the risk of financial transactions for both the savers (who place funds with them) and the borrowers (who have use of these funds). Banks are thereby able to achieve diversified portfolios that are far less risky than individual portfolios.

The impression is therefore that the risk weightings, narrowly defined to reflect only three specific risks, are somewhat arbitrary. The risk weights vary from zero to a value of two. Commercial advances were taken as a benchmark to which a weight of unity is ascribed. There is, however, a vast difference in the risk quality of the commercial loans undertaken by banks and the failure of the Bank of England to make allowance for this disparity remains a major criticism of their risk appraisal. The 1972 EEC Draft Directive(158) recognised these issues by classifying loans into above normal, normal and below normal risk categories. The significance of the Bank of England stance is further exaggerated because commercial advances are the largest category of bank assets. Thus, they have a heavy weighting in the overall volume of adjusted risk assets which significantly influences a bank's risk asset ratio. It must be concluded therefore that the efficacy of the risk asset ratio is severely weakened by its own limitations.

4. Practical Application

The practical application of the capital ratios should be considered because it was necessary that the gearing ratio be calculable from publicly available information, and secondly

because depositors and creditors would also wish to establish a rudimentary measure of the risk inherent in a given bank's balance sheet. Table 19 overleaf gives the gearing and risk asset ratios for the London Clearing Banks since 1975, calculated from publicly available information.

The computations are given in Appendix 8 for each group. It is acknowledged the figures are only as accurate as the limited information available, but the trends are the important feature in this case. The ratios must be heavily qualified as they are based on the published reports and accounts for the banks for one day of the year. The figures do, however, give an indication of the interaction between risk and reward. Broadly speaking the higher the risk asset ratio, the lower is the risk taking by the bank - or conversely the banks with lower ratios should benefit in times of high profitability as they take the greatest risk. This trend is illustrated by the falling ratios of Barclays and Lloyds from 1979 to 1981 reflecting the increasing risk associated with their large scale international operations. The Midland's ratios fell sharply in 1981 reflecting the major acquisition of the American bank Crocker National.

Both ratios were substantially increased in 1978 in nearly all cases as a result of changing accounting policies. Since then the downward trend has continued. Midland, however, have benefited in 1978 and 1979 from sales of subsidiaries and a rights issue. The revaluation of properties can also have a distorting affect on the risk asset ratio, along with the widely differing treatments of deferred taxation.

TABLE 19: NEW CAPITAL RATIOS FOR LONDON CLEARING BANKS 1975-1981

BANK GROUP	YEAR						
	1975	1976	1977	1978	1979	1980	1981
<u>1. GEARING RATIO</u>							
BARCLAYS	3.37	3.19	3.61	4.42	4.72	4.54	4.01
LLOYDS	2.71	3.90	3.51	4.14	4.23	4.63	4.70
MIDLAND	3.96	4.37	4.64	5.61	5.20	4.80	3.93
NATIONAL WESTMINSTER	3.02	3.70	3.15	4.44	4.15	4.20	4.70
WILLIAMS & GLYN'S	3.90	4.09	5.61	5.28	7.76	7.52	6.92
<u>2. RISK ASSET RATIO</u>							
BARCLAYS	6.46	6.27	6.53	8.09	8.67	8.16	6.93
LLOYDS	5.34	5.76	4.91	4.67	7.15	7.10	7.00
MIDLAND	6.68	7.50	7.43	8.17	8.19	7.56	6.14
NATIONAL WESTMINSTER	7.41	7.64	6.96	8.23	7.33	6.93	7.25
WILLIAMS & GLYN'S	7.37	7.43	9.70	9.21	11.80	11.75	10.76

SOURCE: Reports and Annual Accounts

Nevertheless the ratios do offer an initial framework from which a crude assessment of the capital adequacy of a financial institution may be made. The public are unlikely to be able to calculate these ratios as accurately as the Bank of England, nor interpret them as flexibly. The important issue is that despite their limitations the ratios do illustrate that since 1978 bank capital ratios have again been declining. The risk asset ratio however should not be used as a proxy for the risk a bank assumes. The previous analysis detailed the inherent weaknesses of this ratio to which it must be added that it also fails to reflect such key factors as the adequacy of the management and the market's evaluation of that bank.

In the final analysis the gearing and risk asset ratios will provide a useful framework within which to assess the capital adequacy of financial institutions in the U.K. What is not clear, however, is the interpretation of these ratios and at what levels 'minimum' values will become established.

5.5. SUMMARY

Capital adequacy has been discussed as a banking problem. The foundation to the analysis was provided by an examination of the functions and definitions of bank capital. These concepts and factors causing the recent decline in bank capital ratios are generally accepted, but the measurement or assessment of bank capital adequacy is not so clearly defined. In this respect bank capital adequacy remains a nebulous concept.

Quantitative and qualitative methods for assessing capital adequacy were discussed. This relied heavily on U.S. experience resulting from the spectacular failure of many of their banks in the 1930's. The Bank of England however chose to reject a formalised ratio approach. Instead a more flexible treatment of individual capital positions is offered in the U.K. This approach was based on the need to maintain public confidence, reviewing each bank on a group balance sheet basis and as a going concern. A 'disaster valuation' was rejected because in the U.K. the Bank of England have demonstrated in a crisis they will come to the aid of the markets.

The assessment of capital adequacy in the U.K. relies heavily on two capital ratios, largely composed of confidential information only available to the bank concerned and the Bank of England. In this respect the Bank of England have kept considerable uncertainty regarding their ultimate assessment which is also tempered to include qualitative assessment. The latter is again vague and inconsistent with public assessments of a bank's capital adequacy. The Bank of England have agreed to recognise varying qualities of management in allowing for higher gearing, though the extent to which this is so is not clear. It is unlikely that they will weight this factor as importantly as the OCC formula of 1962 in the U.S., but they do recognise that market status and the ability to obtain additional liquidity frequently depend on management reputation. In the U.K. therefore it would be unexpected if capital adequacy were to replace the "...experienced and progressive management of a well-

However because of the inclusion of a quantitative assessment, we may also conclude that bank balance sheets could be affected by the current proposals even though no precise ratios are specified. The two ratios were defined in some detail, and it is to be expected, therefore, that whilst the Bank of England will not impose across-the-board ratios, it will impose requirements on individual institutions. The extent to which these requirements may be varied is not yet clear, but where minimum levels are encouraged by the Bank of England this could have serious implications for a bank's capital structure.

NOTES TO CHAPTER FIVE

1. See for example V.P. Apilado and T.G. Gies 'Capital Adequacy and Commercial Bank Failure', The Bankers Magazine (USA), Summer 1972, pp.24-30.
2. Discussed in N.A. Okidegbe, 'The role of commercial bank adequacy in the supply of money', Chapter 1, Ph.D. thesis, Howard University, USA, 1980.
3. In November 1984 the Bank of England issued new guidelines, slightly relaxing the very stringent conditions applying to loan capital when assessing capital adequacy. Note 4 below refers.

4. Interested readers should note the Bank of England paper published on 28 November, 1984: "Subordinated Loan Capital issued by Recognised Banks and Licenced Deposit-Takers". This paper could provide some relief to bankers. Perpetual debt may now count as 'primary' capital subject to certain restrictions. A key condition is that perpetual debt must be wholly convertible into equity should the existing equity capital of the bank be eroded by losses. However, the reader should note that, for example, the National Westminster US\$500m perpetual floating rate note issued in April 1984 does not qualify as primary capital under these new arrangements.

5. For further details see:
 - a) Professor J.R.S. Revell, Solvency and Regulation of Banks, Bangor Occasional Papers in Economics, No.5, University of Wales Press, 1975.
 - b) H.D. Crosse and G.H. Hempel, Management Policies for Commercial Banks, 3rd edition, Prentice-Hall, New Jersey, 1980.

6. Federal Reserve Bank of New York, 'A measure of Minimum Capital Adequacy', 21 December 1952. The formula was devised by Howard Crosse, then Assistant Vice-President in charge of Bank Supervision.

7. The discussion of current arrangements refer to the period prior to November 1984, and does not therefore include the Bank of England paper referred to in Note 4

above.

8. The liability of the Scottish and Northern Irish banks for their own note issue will not be included to the extent that it is covered by Bank of England notes and coin. Subordinated loan stocks, disallowed by the qualifying criteria for the capital base, will also be excluded.
9. The March 1984 budget reduced the taxation advantages of leasing by phasing out the 100 per cent 'First Year Allowance'. Thus, the amount of deferred tax realised by the banks as lessors can be expected to fall noticeably.
10. For more detailed analysis see:-
 - a) E.P.M. Gardener, Capital Adequacy and Banking Supervision, Bangor Occasional Papers No.18, University of Wales Press 19, pp.71-74.
 - b) Professor J.R.S. Revell, Solvency and Regulation of Banks 1975, Chapter 7.
 - c) H.D. Crosse and G.H. Hempel, Management Policies for Commercial Banks, 1980, Chapter 4.
 - d) Vernon Moore, 'The Control of Bank Exposure to Risk', Long Range Planning, October 1979, Vol.12, pp.35-38.
 - e) W.E. Moskowitz, 'Global Asset and Liability Management of Commercial Banks', Federal Reserve Bank of New York Quarterly Review, Spring 1979, pp.42-48.

CHAPTER SIX BANK LIQUIDITY

6.1. INTRODUCTION

6.2. BANK LIQUIDITY

6.3. BANK LIQUIDITY - MEASUREMENT

6.3.1. GENERAL CONCEPTS

6.3.2. THE U.K. APPROACH

6.4. APPRAISAL OF CURRENT ARRANGEMENTS

6.5. SUMMARY

6.1. INTRODUCTION

The approach to liquidity differs quite distinctly from capital adequacy and monetary control. The concepts of liquidity and liquidity management are central to balance sheet management. As in commercial business liquidity is the ability to meet obligations as and when they fall due, as opposed to solvency which is the ability to ultimately meet all your commitments. Liquidity is therefore concerned essentially with the day-to-day management of a bank. Thus, any attempt to apply direct control to a bank's liquidity will inevitably lead to conflict with bank management.

The nature of bank liquidity means that banks have long maintained internal controls to ensure that it does not become illiquid on a given date. The regulators' problem is to assess these internal controls. The problem is compounded by three further factors:

1. Liquidity or illiquidity can arise from several legitimate sources and so an accurate assessment must take account of all these factors.
2. The arrangements for ensuring adequate liquidity are often closely linked to the monetary control regime imposed by the central bank, and particularly their intervention techniques (what instruments the authorities are prepared to exchange for cash).
3. The objective of maintaining sufficient liquidity directly conflicts with the important objective of maximising bank profits. Brodt(159p.45) stated that in general the more profitable assets are also riskier and less liquid.

The Bank of England have now issued four discussion papers since 1975 in an attempt to produce a workable assessment of liquidity adequacy. The proposals have changed considerably because of the above factors and because of the elusiveness of liquidity adequacy. In Section 6.2. the nature of the problem will be examined, which will be followed by a discussion of all the Bank of England papers in 6.3. It is proposed to discuss all the papers rather than just the most recent as it was noted that approaches to liquidity measurement elsewhere have been limited and because these papers illustrate the difficulties of defining adequate liquidity. Finally, the current position will be analysed from which we will conclude that the prudential supervision of bank liquidity in the U.K. is essentially a monitoring procedure and not a direct control system.

6.2. BANK LIQUIDITY

Richardson defines liquidity adequacy as a "...particularly complex and elusive concept"(160p.22). Broadly speaking the need for liquidity arises from:(161p.242)

1. the need to be able to meet overall increases in demand for advances and/or withdrawals of deposits from timing differences in the maturity of assets and liabilities;
2. a shortfall in the anticipated inward cash flow usually as a result of the inability of a borrower to repay on the due date;
3. additional operating or capital expenditure;
4. losses.

Maintaining adequate liquidity is defined by Binder as requiring "...not just off-balance sheet efforts to gain funds during emergencies, but the organised and systematic implementation of strategies such as scheduling the investment portfolio so that a portion of it is always maturing".(162p.43) The crucial importance of liquidity management was noted by Einstein: "Banking is a risk business in most of its aspects; banks have traditionally lived or died by mismatching assets and liabilities in borrowing short and lending long."(163p.23) Thus liquidity will always be a banking problem because banks can only function as financial intermediaries by borrowing short and lending long.

Nevertheless, past practice has shown that where public confidence and a prudent level of mismatching are maintained, then this is sound banking practice. Banking supervision is therefore directed to areas of a bank's balance sheet where it is considered imprudent mismatched positions are being maintained. The skill for bank management is trading off the required liquidity against the potential profitability of investments, which are generally less liquid assets. The conflict arises because ideally a bank will attract funds from deposit and other sources until the marginal cost of attracting those funds is equal to the marginal return on investments.(164p.19) This does not ensure short-term liquidity.

The key factors to be considered in determining adequate liquidity are deposit volatility, turnover and maturity; potential credit demands; investors confidence; loan maturity

structures and investment maturity structures. Liquidity is consequently determined by movements on both sides of the balance sheet. A problem peculiar to the clearing banks concerns current account balances, which although in theory can be withdrawn overnight, clearly form one of their most stable sources of funds. By contrast Whitmore(165) argues the banks' lending on overdraft, though theoretically recallable, can rarely be instantaneously so in practice. A basic scenario is given by Brodt:

"Generally, deposits provide a substantial portion of bank funds, many of which are withdrawals on demand. Banks must be liquid enough to be able to meet both expected and unexpected net withdrawals and run-offs. The other reason liquidity is important is that banks usually have a policy of granting any reasonable loan requests made by depositors or customers."(166p.44)

Liquidity concerns liquid assets, liquid liabilities and operating flows. According to Revell(167p.86) the adequacy of a bank's liquidity is tested when the nature of these balance sheet structures forces a bank into action entailing losses, or which at best is sub-optimal, when an unexpected event occurs. The topic of adequate liquidity thereby entails more than liquidity risk, as it is also concerned with funding risk and interest rate mismatch. Thus the main concern is to have "...sufficient flexibility on the asset side of the balance sheet to keep pace with the rapid changes in the cost of funds".(168p.32)

Commercial banks do attempt to maintain adequate liquidity positions. McCabe and Blackwell(169p.114) ascertained that at each maturity level a bank will try to match the volume of its liabilities. In the U.S. the growth of variable rate lending and financial futures contracts would also suggest a positive move to manage liquidity. "Futures and forward contracts may be used, among other purposes, as a general hedge against the interest rate exposure associated with undesired mismatches in interest-sensitive assets and liabilities".(169p.33) Binder(170p.56) however would argue that it is not possible to completely eliminate interest rate risk by hedging or balanced positions.

Finally, however, it should be noted that "...liquidity, especially for larger banks, will increasingly be found off the balance sheet through purchasing funds".(172p.60) The growth of the wholesale markets and liability management have encouraged the use of 'purchased funds' to meet temporary liquidity shortages. Thus liquidity will also be determined by market status and the market's perception of bank management. Due weight must also be given to stand-by facilities and lines of credit. These views though were qualified by Jones and Pollack: "Whilst a case can be made that liquidity can always be purchased, a fundamental tenet of sound finances is being violated."(173p.13)

The concept of liquidity is therefore central to the business of banking by virtue of the maturity transformation that financial intermediaries necessarily engage in. The implication of inadequate liquidity is that a bank will fail

to meet its commitments on a given day, though solvency may ultimately be maintained. A shortfall of funds can arise from mismatching assets and liabilities, and from exposure to any banking risk. The concept of liquidity is therefore of crucial importance to bank management as it is central to banking business. In this respect bank management will strive to maintain a profitable but adequate liquidity profile - central bank intervention should only be required where the profile is imprudent or economic conditions threaten the liquidity of the banking system.

The characteristics of central bank supervision of bank liquidity were defined by Blanden(174p.28):- to maintain adequate liquidity in the system as a whole; to achieve a suitable approach for the assessment of individual banks; and to adopt an appropriate method by which the central bank can exercise its supervisory role. The importance of the first two was re-iterated by Richardson: "As a supervisory authority, we have to address ourselves not only to the adequacy of the individual institution, but also the liquidity available to the system."(175) The liquidity of the system as a whole is largely determined by the current monetary control techniques, so liquidity proposals generally concentrate on the liquidity of individual institutions.

6.3. BANK LIQUIDITY - MEASUREMENT

In the U.K. the Bank of England attempt to "...agree appropriate guidelines for the control and management of liquidity with each institution in much the same way as for capital."(176p.103). This broad brush approach however

differs from previous assessments. Morison and Tillet(177p.88) stated that the general approach is to relate prudential holdings of liquid assets to the extent of a bank's maturity mismatching. Adequate supervision should however take account of operating flows, management and the potential to purchase funds under normal conditions.

6.3.1. GENERAL CONCEPTS OF MEASUREMENT

The most popular approach to assessing a bank's liquidity has been some form of liquid assets ratio. In Chapter 3 the transition of the liquid assets ratio since 1951 as a percentage of deposits to the reserve asset ratio was discussed. Thus until 1981, UK banks were generally required to hold some measure of prudential liquidity in the form of cash, money at call and short notice with the discount market and British government treasury bills for example. A similar approach was adopted in the US, in which four ratios were noticeably prominent and related to total deposits in the following categories¹:-

1. Cash assets - required reserves + total U.S. Government securities.
2. Total loans
3. Total cash assets and U.S. Government securities
4. Cash due from banks + U.S. Government securities + Federal funds sold + securities purchased under agreement to resell - Federal funds purchased - securities sold under agreement to repurchase.

The liquid assets ratio is, however, too narrow a measure for the concept of bank liquidity. In particular Kaufman and

Lee(178p.56) noted it fails to distinguish the composition and reliability of deposits, the maturity structure of Government securities, the extent of any loan commitments outstanding and the availability of cash assets. An attempt to overcome these limitations was the Bank Liquidity Analysis Form developed in 1973 by the Comptroller of Currency. The computation is given in Table 20 in which a measure of net liquid assets is compared with net liabilities and with total loans. This format gives a much more accurate assessment of liquid assets - a realistic view of cash assets is used, maturity and pledging requirements are considered when analysing Government securities. This approach, however, remains a narrow assessment of a bank's liquidity position. The main problem identified by Crosse and Hempel(179p.182) concern the arbitrary nature of the calculations, lack of consideration of potential borrowing for liquidity, and the failure to consider the great variation in liquidity needs for loans and deposits among banks.

It may therefore be concluded from the Table that regulator's assessment of bank liquidity have been largely inadequate because they failed to provide a comprehensive analysis of a bank's liquidity needs and a bank's potential to fill those needs.

6.3.2. THE U.K. APPROACH

The assessment of bank liquidity in the UK since 1975 has been characterised by the following Bank of England discussion papers:-

TABLE 20: COMPTROLLER OF CURRENCY'S BANK LIQUIDITY ANALYSIS FORM

	Dollars
1. Total Liabilities (excluding val. reserves and capital)	XXX
(a) Less deductions ¹	<u> X</u>
2. NET LIABILITIES	<u> XX</u>
3. Cash and due from banks (including due from time)	X
4. Unpledged and Overpledged securities two years maturity or less (at market value)	X X
5. Other unpledged and overpledged securities two years maturity or less (at market value)	X X
6. Federal funds sold; US securities and other securities with up to two year maturities purchased under agreements to resell	<u> X</u>
7. GROSS LIQUID ASSETS (sum of lines 3,4,5 and 6)	XXX
8. Less deductions ²	<u> X</u>
9. NET LIQUID ASSETS	<u> XX</u>
10. PERCENT: NET LIQUID ASSETS TO NET LIQUID LIABILITIES (Line 9 as a percent of line 2)	<u> X%</u>
11. Gross Loans	X

MEMORANDA ACCOUNTS

1. Other unpledged securities with maturities of two years (at market value)	X
2. Assets eligible for discount at Federal Reserve Bank (Regulation A)	X
3. Other (describe fully)	X
4. Total	X
5. Secondary liquidity percent (Line 9 plus line 4 above divided by Line 2)	<u> X%</u>

SOURCES: (a) Kaufman and Lee, 'Planning liquidity', Magazine of Bank Administration,
February, 1977, p.59.
(b) Crosse and Hempel, Management Policies for Commercial Banks, 3rd Edition,
1980, Table 19.

NOTES:

1. Item 1 (a) Deductions:-
 - The smaller balance as between 'Due from Banks - Time', and 'Due to Banks - Time'.
 - The smaller balances as between 'Federal Funds Sold' and 'Federal Funds Purchased'.
 - Mortgage indebtedness
 - Contra Asset Accounts
 - Secured Liabilities (liabilities secured by eligible assets)
 - Interest collected, not earned.

2. Item 8 Deductions:-
 - The smaller balance as between 'Due from Banks - Time' and 'Due from Banks - Time'.
 - The smaller balance as between 'Federal funds sold' and 'Federal funds purchased.'
 - Reserve required by the Federal Reserve.

1. The Capital and Liquidity Adequacy of Banks, September 1975.
2. The Measurement of Liquidity, March 1980.
3. The Liquidity of Banks, March 1981.
4. The Measurement of Liquidity, July 1982.

The approach adopted bears close resemblance to the capital papers. The papers set out broad principles which can be applied generally to the assessment of bank balance sheets in the U.K. The Bank of England remain "...firmly opposed to rigid formulae which take no account of the differing characteristics of supervised institutions."(180p.103) It is however, the intention to develop a single comprehensive measurement of a bank's overall liquidity.(181para.9) In this context the 1975 paper was really an introductory paper, simply establishing the general principles of bank liquidity. It is however the second paper which has aroused the main body of discussion.

The 1980 paper established new principles for assessing bank liquidity. The need to ensure that adequate liquidity is held by the U.K. banking system as a whole was largely being ensured by the changing monetary controls, introduced a year later. The following were the main principles for ensuring adequate liquidity of a financial institution:

1. A bank's liquidity in sterling and foreign currency should be evaluated together.

2. Priority should be directed towards assessing the 'funding risk' (the banks may not have available the cash resources needed to meet their obligations on a particular day) but one weight should now be given to the 'interest-rate mismatch risk' (by engaging in maturity transformation a bank may suffer losses as a result of movements in interest rates).

3. Adequate liquidity can not be accurately assessed by liquid asset ratios. Such ratios also fail to distinguish between the two main classes of liquid asset:-
 - a) primary liquid assets - defined as cash or those assets in whichever currency are in all circumstances a ready source of cash, because the authorities stand ready either to purchase them or to accept them as collateral for last resort lending; and
 - b) secondary liquid assets - other liquid assets which are near-cash or readily marketable.

4. The traditional maturity transformation measures should be extended. The Bank of England had observed mismatched positions through two measurements:-
 - a) comparing the total liabilities with a remaining term of up to three months net of assets of a comparable maturity with holdings of negotiable instruments and firm standby facilities; and

- b) by comparing all foreign currency liabilities and assets according to their remaining term to maturity.

5. Liquidity requirements for prudential purposes should be expressed as norms and not as minimum levels.

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6. Liquidity measures should take account not only of the level of available liquid assets to total liabilities (or certain categories of liabilities) but also the ability of a bank to meet its commitments by examining the known flows of funds both on a particular day and in the future. To do this a distinction between the following must be made:-

- a) liabilities and assets which are maturity-certain;
- b) liabilities and assets which are maturity-uncertain;
- c) assets which have a fixed maturity date, but which can be mobilised sooner because they are normally readily marketable (such as Treasury bills or CDs).

Where this is done the need for liquid assets can be expressed in terms of a proportion of the gross maturity - uncertain liabilities and a proportion of any net liability position arising from its maturity-certain liabilities and assets in a range of time bands, with the proportions in the nearer bands being larger than those in the later bands. Thus a primary liquidity and total liquidity requirement were constructed to measure the liquidity of a bank's balance

sheet. Table 21 overleaf gives a hypothetical example of the proposed workings of this scheme.

The integrated measure therefore involved two tests of a bank's liquidity. The primary liquidity requirement was designed to monitor the protection of the system as a whole, while the total liquidity requirement was to ensure a bank had sufficient liquid assets which can be encashed in all circumstances in suitable currencies to cover the needs of their business. The Bank of England concluded that all banks should hold some primary liquid assets, but that this requirement should be applied more stringently to recognised banks. Primary liquid assets were defined as cash, balances with the Bank of England (excluding SDs), call money with the LDMA, U.K. and Northern Ireland Treasury bills, Local Authority bills, bank bills eligible for re-discount at the Bank of England and British Government stocks with less than one year to maturity. (This was almost identical to the definition of reserve assets prior to 1981). In addition LDTs were allowed claims on recognised banks maturing within eight days. On this basis, the primary liquidity ratio was set at 40% of the total estimated needs of each bank.

The scheme was not, however, well received: "It is hard to find a bank in the city which does not have reservations..."(182). This consultative document had necessarily to be limited in its application until the current monetary control framework had been implemented. The primary liquidity requirement for instance was based on the reserve asset ratio and did not represent a fresh approach to

TABLE 21: THE PROPOSED INTEGRATED TEST: A HYPOTHETICAL EXAMPLE (£'000)

A. The Calculation Of The Sterling Deposit Base For Primary Liquidity Calculation

	Maturity uncertain (3)	Standbys given and Interbank up to 1 month (4)	Maturity Certain					More than 12 months
			Other than Interbank 0-8 days	8 days - 1 month	1-3 months	3-6 months	6-12 months	
Sterling Liabilities	7,900	200	750	600	60	20	0	0
Sterling Assets	5	NIL ¹	832	80	100	52	5	0
Mismatch (→ surplus)	7,900	200	-82	520	-40	-32	-5	0
Surplus assets carried forward	-	-	-	-82	-	-40	-72	-77
Cumulative mismatch	7,900	200	0	438	0	0	0	0
Real (ignoring negative positions)								
Liquidity Coefficient	25%	100%	90%	75%	50%	25%	15%	5%
Sterling Deposit Base	1,975	200	0	329	0	0	0	0
Total Sterling Deposit Base = £2,504								
PRIMARY LIQUIDITY REQUIREMENT @ 40% = 1,002								

B. The Calculation Of The Estimated Overall Need For Liquidity

Sterling Liabilities	7,900	200	750	600	60	20	0	0
Currency Liabilities	74	300	66	20	425	297	110	66
Total Liabilities	7,974	500	816	620	485	317	110	66
Sterling Assets	5		832	80	100	52	5	0
Currency Assets	5	NIL	200	80	278	105	201	3,085
Total Assets	5	NIL	1032	160	378	157	206	3,085
Mismatch (→ surplus)	7,974	500	-216	460	107	160	-96	-3,019
Surplus assets carried forward	-	-	-	-	-	-	-	-96
Cumulative mismatch (ignoring negative positions)	7,974	500	-	244	107	160	-	-
Liquidity Coefficients @	25%	100%	90%	75%	50%	25%	15%	5%
Estimated need for total liquidity	1,994	500	0	183	54	40	0	0
Total estimated overall need for liquidity	= £2,771							

SOURCE: Bank of England, 'The Measurement of Liquidity', March 1980.

Notes:

- (1) Excluding liquid assets. Includes contractual repayments on term loans, etc. on their due date.
- (2) Surpluses are carried forward into the next maturity bands, but cannot be applied to deficiencies in earlier bands.
- (3) Includes sight and current accounts, deposits at call and callable at up to 7 days notice.
- (4) Net loans from banks up to 1 month and undrawn standbys given attract a 100% requirement because counterpart is treated as a liquid asset.
- (5) Not required.

the prudential supervision of banks' liquidity. The inclusion of cash in this definition would have given a competitive advantage to the retail banks who necessarily hold substantial sums of cash vis-a-vis the wholesale banks and LDTs. The distortion of the yield on primary liquid assets could also have been expected to continue under such a scheme.

The more pertinent criticisms concerned the derivation of the liquidity coefficients. The coefficients were tentative propositions. The 25 percent coefficient on maturity uncertain liabilities was based on the traditional 1:3 quick assets ratio and the 28 percent liquid assets ratio observed by the London Clearing Banks. The 100 percent coefficient on gross liabilities in respect of market deposits from banks up to one month and irrevocable standbys given to banks was required because in the hands of the counter-party bank these were treated as liquid assets - this therefore prevented the creation of illusory liquidity through the inter-bank market. This would of course impose severe constraints on the wholesale banks which are primarily funded from the inter-bank market. In fact the proposals as a whole did not give "...sufficient weight to the role of liability management - the ability of a bank to raise a new deposit rather than to realise an asset when it has to meet an unanticipated cash requirement."(183p.13) More generally the coefficients would tend to favour banks which raise deposits through current accounts and seven days notice to on-lend at fixed terms, at the expense of those banks who borrow at short fixed terms to lend at longer fixed terms.(184p.4) Thus the scheme had the

potential to "...raise the cost of credit. distort competition and excessively penalise some forms of wholesale banking in London."(185)

The proposals covering foreign currency business were equally subjective. Their contents are outside the scope of this work, but these proposals have now been significantly influenced by a Bank of England paper on 'Foreign Currency Exposure'¹.(186) and the Cooke Committee which studied a reporting model for a 'maturity schedule' of the external assets and liabilities of banks on a consolidated basis, "...enabling parent banks and parent authorities better to monitor the maturity transformation in the international operations".(187p.272)

The approach to liquidity measurement was revised during the following year as a result of the changing monetary controls and extensive disagreements over the 'integrated test'. In many ways the approach had represented a "radical change"(188) but these stiff proposals have now been modified.(189) These modifications represented the Morison and Tillett view that "...liquidity requirements differ from bank to bank in ways that cannot easily be embraced by a simple formula".(190p.87) Particular attention has now been given to liability management (as a source of liquidity) and the liquidity adequacy of individual institutions. The Bank of England now recognise three vital sources of bank liquidity:(191para.2)

1. Sufficient holdings of immediately available cash or liquifiable assets, subject to the qualification that marketable assets vary in quality in terms of the prices at which they are capable of being sold;
2. An appropriately matched future profile of cash flows from maturing assets, subject to the qualification that there may be shortfalls in practice if borrowers are unable to repay;
3. By maintaining an adequately diversified deposit base in terms of both maturities and range of counterparties (bank and non-bank) which, depending on the individual bank's standing in the market and on the general liquidity situation in the system at the time, may provide the ability to raise fresh deposits without undue cost.

The measurement system currently employed is based on a cash flow approach normally taking assets and liabilities in all currencies together, as shown by Table 22 .

In this approach, liabilities and assets are inserted in a 'maturity ladder', with the net positions in each time period being accumulated. The asset and liability categories are given in Appendix 9. The liquidity profile is only measured up to 12 months on the basis that the maximum excess of liabilities over assets normally occurs within the first six months, so this should allow a prudent margin. Thus the

TABLE 22: THE BANK OF ENGLAND'S LIQUIDITY ASSESSMENT 1982

	Maturity				
	Sight-8days	8 days-1 month	1-3 months	3-6 months	6-12 months
<u>Liabilities:</u>					
Deposits					
Commitments					
<u>Less Assets</u>					
Marketable					
Non-marketable					
Standby facilities available					
= NET POSITION					
+/- carried forward					
= NET CUMULATIVE POSITION					

SOURCE: Bank of England Quarterly Bulletin, September 1982, p.6.

measure provides a series of accumulating net mismatch positions in successive time bands, which will provide a framework for the discussion of individual bank's liquidity.

6.4. APPRAISAL OF CURRENT ARRANGEMENTS

In the U.K. the approach to prudential supervision of a bank's liquidity remains a monitoring procedure which is flexible in application. The present system effectively complements the capital paper in outlining balance sheet supervision for prudential purposes. The primary liquidity requirements have now been removed; the liquidity of the banking system as a whole has been assured by the more relaxed monetary controls and the Bank of England's continuing role as a lender-of-last resort. The present system provides a basis for assessing the adequacy of liquidity of all deposit-taking companies for the purposes of the Bank of England's continuing supervision under the Banking Act.

The approach is in many ways similar to that adopted for assessing the capital adequacy of banks. Across the board liquidity ratios will not be imposed, and full account will be taken of the particular characteristics and situation of each bank. In contrast the quantitative assessment is much simpler, though again relevant information will not always be publicly available. This might be important should the public require that "...each bank is seen to have sufficient liquidity."(192p.2) The formulas do however simply offer a framework from which an assessment of liquidity can be made.

The important facet of the new proposals is that the Bank of England have acknowledged the primary responsibility for ensuring the liquidity of a bank lies with its own management. The current procedure is thereby largely a monitoring procedure based on discussions with senior bank management. The analytical framework provided by the maturity ladder is a necessary but relatively unimportant guide in this respect.

6.5. SUMMARY

The assessment of bank liquidity remains a 'complex and elusive' concept. In the U.K. the Bank of England have chosen to monitor bank balance sheets rather than impose direct controls. Individual bank liquidity remains a management decision, though the Bank of England will require to be fully satisfied that banks have both adequate management systems and prudential policies. This qualitative assessment is flexible in approach and backed up by a basic quantitative measurement. It is unlikely that either feature will be imposed stringently.

In the context of our assessment of current bank balance sheet supervision and control in the U.K., the liquidity proposals are not therefore a significant factor in their present form. This is because the inherent nature of bank liquidity makes an overall assessment which can be uniformly applied an unlikely choice. In practice bank management maintain a level of adequate liquidity which is commensurate with a profitable level of business or their business

strategy. The 1980 proposals could have imposed severe constraints on profitability, both directly and indirectly through unfair competitive advantages. The present approach does not impose such stringent conditions, and is one in which particular attention is given to each institution's own system. This approach has provided a generally well accepted basis for the assessment of bank liquidity. In the final analysis the assessment of bank liquidity relies on discussions with senior management and confidential statistical returns.

NOTES TO CHAPTER SIX

1. For a more detailed discussion see Kaufman, D.J. and Lee, D.L., 'Planning Liquidity', Magazine of Bank Administration, February 1977, pp.55-73.

PART II - BANK SUPERVISION, OVERALL ASSESSMENT

AND IMPACT

**CHAPTER 7 U.K. BANK BALANCE SHEET CONTROL AND
SUPERVISION**

CHAPTER 8 CONCLUSION

CHAPTER 7 UK BANK BALANCE SHEET CONTROL AND SUPERVISION

7.1. INTRODUCTION

7.2. MONETARY CONTROL AND PRUDENTIAL SUPERVISION

7.2.1. MONETARY CONTROL

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7.4. NUMERICAL ANALYSIS

7.4.1. BALANCE SHEET

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7.5. SUMMARY

7.1. INTRODUCTION

The control and supervision of bank balance sheets in the U.K. is a continuing and flexible process. In theory monetary control and prudential supervision should not interact. The design of the two in the U.K., however, may encourage some overlapping through their wider implications. This will be discussed in Section 7.2.3. An illustrative model of a London clearing bank will be given in Section 7.3., showing balance sheet and trading profit account. This will provide a numerical illustration of the impact of monetary controls, the potential impact of prudential supervision and the interaction between the two. The results will be interpreted in Section 7.4.

7.2. MONETARY CONTROL AND PRUDENTIAL SUPERVISION

7.2.1. MONETARY CONTROL

The new system of monetary controls has removed much of the regulation from bank balance sheets. Direct lending controls have not been reintroduced, but the SD scheme remains as before. Why this arrangement was left unmodified is not yet clear, though it should be noted that since August 1981 no calls for SDs have been made.

The cash ratio and holding with the discount market are quite distinct controls. The cash ratio is a uniform 'tax' on all financial institutions in the newly defined monetary sector. The cash ratio is not important for monetary control. Instead it is the balances maintained by the clearing banks in excess of the mandatory requirement. These balances are important because the Bank of England have continued to

refuse overdraft facilities on their accounts. Thus the clearing banks must maintain additional prudential balances in excess of the cash required for the daily settlement of clearing transactions. The cash ratio therefore provides a source of income to the Bank of England, whereas the excess balances held by the clearing banks continue to provide the fulcrum for the Bank of England's daily money market operations.

The funds placed with the discount market appear, in retrospect, to serve two purposes.⁽¹⁹³⁾ Clearly such funds have allowed bill markets of sufficient size for the Bank of England's supervision of the monetary system, but this also ensures that the traditional role of the discount houses is maintained. The emphasis in the bill markets has now switched to commercial bills, only a limited use being made of Treasury bills and Local Authority bills. However, after 2.30p.m. the Bank of England will only deal in Treasury bills and Local Authority bills.⁽¹⁹⁴⁾

The minimum requirement has, however, ensured the continued existence of the discount market. In effect the Bank of England have continued to subsidise the operations of the discount houses vis-a-vis eligible banks by this requirement. This constraint imposed on eligible banks will be slightly offset by their ability to issue bills of finer maturities. Such funds placed by eligible banks do not represent sources of primary liquidity. The nature of the minimum requirement means that funds placed with the discount market can only be used as a prudential source to the extent that excess funds

over this requirement are placed. Thus the minimum requirement on eligible banks is an implicit tax on their operations - a feature that is unlikely to change whilst the Bank of England continue to support the functions of the discount market.

7.2.2. PRUDENTIAL SUPERVISION

The prudential supervision of banks in the U.K. is not as defined as the approach to monetary control. Instead it is more of a gradually evolving process which has developed considerably since the fringe banking crisis. The prudential supervision of banks in the U.K. is not a tight control system but rather a detailed checking procedure on the management systems in the banks.(195) Prudential supervision may impact on bank behaviour, with due regard to the circumstances of that bank. This might be so for LDTs and smaller recognised banks. Barge,(196) however, argued that it was generally accepted that the Bank of England do not have the confidence to enforce prudential changes on banks nearer the centre. In other words the Bank of England are unlikely to challenge the commercial judgements and operational decisions of the senior banks. Professor Tew(197) suggested this was simply because of the importance of the major banks to the U.K. economy. If a clearing bank had to cut back on lending to maintain its capital ratio, this could have serious repercussions for industry through the calling in of some overdraft facilities. The prudential papers do not represent a control or regulation package, but rather indicate some of the ways by which the Bank of England will monitor and appraise bank capital adequacy and

liquidity. However, where minimum ratios become established, then it is to be expected that the Bank of England will require a certain degree of undertaking from bankers not to breach these levels. The papers are not totally explicit on these issues as they were essentially measurement papers. Instead they provide a broader base on which to make decisions concerning capital and liquidity. The interpretation of these issues, particularly the comparability between banks, remains a matter of considerable judgement. Allen(198) suggested this is necessarily so because each bank works against the background of a unique combination of circumstances in terms of varying economic environments at home and overseas, differing currency and interest rate exposures and, not least, each bank has a different customer base. None of these are satisfactorily incorporated in the Bank of England's measurements of capital and liquidity. The papers do, nevertheless, represent an important step by disclosing that the Bank of England is monitoring banks' positions on a regular and systematic basis.

Therefore the supervision of the U.K. banking industry remains a highly confidential and subjective process, yet it is likely that banks' capital structures will be increasingly influenced under the current regime. The focal point is still the regular discussions with bank management and the quarterly statistical return forms. The Bank of England Banking Statistics return form BS is given in Appendix 10. This process has become more complex since 1975, but remains an individual approach. Cobbold(199) confirmed that attempts are being made to group banks, though suitable inter bank

comparisons have not yet been established. Thus a flexible and personal approach remains.

Finally it should be noted that unlike the monetary controls, the approach to prudential supervision is a dynamic one. The prudential supervision of banks in the U.K. is increasingly taking account of the international operations of banks and the gradual development of international banking supervision. The approach to assessing capital adequacy and liquidity is unlikely to change dramatically, but some modifications may be expected as a result of the Bank of England's current work on interest rate exposures and bank profitability.⁽²⁰⁰⁾ The Bank of England may shortly publish a paper on interest rate exposure, though a discussion paper on bank profitability is not expected in the foreseeable future. The assessment of interest rate exposures will have important repercussions for the appraisal of bank liquidity; the approach to capital adequacy may be influenced by an assessment of current earnings. This in turn would be a statement on bank liquidity as, in a crisis, the first and crucial difficulty would be liquidity; capital takes too long to realise for it to be of any practical benefit.

In sum Yates⁽²⁰¹⁾ argues that prudential supervision does not affect bankers short-term operational decisions, but rather attempts to ensure a regular and progressive plan for adequate levels of adequate capital and liquidity for each bank. Banking supervision is particularly dependent on the standing and reputation of each bank and its management. Thus Bank of England supervision is largely directed towards

LDTs and the smaller recognised banks. The clearing banks, merchant banks, discount houses and foreign bank subsidiaries are subject more to a monitoring and checking procedure.

7.2.3. INTERACTION OF MONETARY CONTROL AND PRUDENTIAL SUPERVISION

The interaction between monetary control and prudential supervision occurs most frequently through bank liquidity. Liquid assets are those assets which the Bank of England are prepared to exchange for cash. This range of assets is directly determined by monetary controls, which define the pool of assets that the Bank of England are prepared to deal in return for cash. Thus bank liquidity will be directly influenced by the prevailing monetary control regime. The Bank of England have retained the discount window facility for monetary control purposes, but this also serves an important prudential function by ensuring that the banking system will always be supplied with cash.¹

Monetary control may also interact with capital supervision where monetary policy is defined in terms of bank deposits. The U.K. currently emphasises three monetary targets which all contain eligible liabilities. The gearing ratio is expressed as a percentage of eligible liabilities. Thus where controls were imposed to influence bank capital adequacy, such controls could also have implications for monetary policy. Conversely Ta(202) argues that with the relaxation of monetary controls in the U.K., the Bank of England could be seeking to impose monetary supervision through capital controls. In the U.S., Golembe(203pp.21-22)

and Carey(204p.165) have both suggested that capital adequacy requirements are becoming an instrument of monetary policy. Whether or not capital requirements have actually been used for monetary policy purposes in the U.S., Leavitt(205) has considered capital adequacy requirements as a monetary policy instrument. Conceptually this was queried by Yates(206) as there was no evidence to support this hypothesis in the U.K. It would be a crude form of monetary control of limited accuracy as banks can always improve their capital base in response to changing gearing ratios.² In practice, it is unlikely the Bank of England will impose direct controls.

The current monetary control arrangements have widened the market for eligible bank bills. This may have an effect on banks' acceptance business which in turn would directly affect the risk asset ratio because of the risk weighting of 0.5 given to acceptances.

More specifically, the interaction between monetary control and prudential supervision will occur through the medium of a balance sheet. This link does not affect the preceding analysis in Part 1, but it is important to realise the possibility. A basic scenario is provided where an advance is made which results in a further bank deposit. This immediately has implications for bank liquidity where the maturities of the advance and deposit differ. Increased advances will require increased capital cover as the risk asset ratio will rise. The increase in bank deposits will require a corresponding increment in funds with the LDMA and cash balances at the Bank of England. The change in bank

deposits will also affect the gearing ratio and again new capital may have to be raised. Clearly some increase of the capital base will occur through the profit retained from the turn on lending and deposit rates, though a constraint is imposed where this increase in retained profits is not sufficient to meet the new and higher capital ratios. This illustration is basic but serves to show the interaction of bank liquidity, capital adequacy and monetary controls.

7.3. ILLUSTRATIVE MODELS

7.3.1. BANK MODELLING

The illustrative model developed below is that of a hypothetical London Clearing Bank. It represents a basic numerical analysis of the combined activities of the four main clearing banks. Thus real figures have been used to construct a simplified balance sheet and trading profit account. These figures are then used to investigate changes in particular parameters whilst holding all other items steady.

The approach adopted is a limited example of bank modelling. This is chiefly because of the lack of publicly available information which more complex models require. A bank planning model was developed by the Inter Bank Research Organisation (IBRO) which, for instance, required a growth rate to be set for each of its 46 deposit based liabilities(207p.2). A more advanced, general purpose deterministic simulation model was developed at Bangor University, known as SOFI - Simulation of Financial Institutions.(208) This would require information which

will not be made publicly available, for instance, the breakdown of fixed and variable rate lending to companies and individuals.

Such models require decisions about future interest rates, inflation levels, deposit growth, payment volumes and miscellaneous growth rates. With SOFI these decisions can be made using sensitivity analysis and testing for critical variables. The IBRO model(209p.2) establishes a base year from which the position in the following year is calculated by applying to the base year figures growth rates and parameters which define key relationships between variables, such as interest rates and inflation. Thus the user can project forward year by year alternative assumptions about how banking business and its environment might develop, and calculate the impact on banks. On the other hand a notable function of the SOFI model is to implement contingency testing. This is concerned with "...the thorny problem of uncertainty and a bank's corresponding ability to respond effectively to severe financial pressures that may occur during the time spanned by the financial plan".(210p.61) Again a detailed knowledge of the future environment is required. This is true for all descriptive models, where the user tests the behaviour of the system under different sets of environmental conditions.(211p.1.3)

Therefore because such detailed information is not generally disclosed in the U.K. and economic forecasting can be uncertain, it was decided not to follow the approaches of these bank models. Park(212p.13) also argued that a deterministic prediction tool of the future is quite obviously over-precise, could suffer from data hunger and,

where the detailed model becomes too complex, the significance of important variables could be lost. These are the main reasons why a basic numerical illustration is given below and not a computer based simulation model.

7.3.2. HYPOTHETICAL BALANCE SHEET AND TRADING PROFIT ACCOUNTS

The figures were extrapolated from the 1981 Reports and Annual Accounts of the big four London Clearing Banks. The limitations of this 'stock-orientated' approach are realised but this does not invalidate this hypothetical model which seeks only to illustrate the likely outcome. These illustrations were performed on the 'Supercalc' financial package⁽²¹³⁾ using a Superbrain micro computer.

1. Hypothetical Clearing Bank Balance Sheet as at 31.12.81.

ASSETS	(£m)
Liquid Assets - coin, gold, Bank of England balances	874.25
- money at call and short notice	4866.50
- Treasury bills	186.25
- Other bills	528.75
- British Government stocks	675.75
Other quoted investments	404.25
Unquoted investments	314.00
Certificates of Deposit and other	1962.50
Items in suspense and collection	838.00
Market loans to other UK residents	27083.25
Leased assets	1332.75
Trade investments	64.25
Investments in associated companies	146.25
<u>Fixed Assets</u>	<u>906.00</u>
<u>Total Assets</u>	<u>40182.75</u>

LIABILITIES

Deposits	36400.00
<u>Other non-capital liabilities</u>	<u>1179.75</u>
<u>Total Liabilities</u>	<u>37579.75</u>

CAPITAL

Share Capital and Reserves - issued share capital	216.00
- share premium	49.50
- preference share capital	3.50
- reserve revaluations	146.50
- retained profits	198.25
- other reserves	<u>1298.25</u>
Shareholders Funds	1912.00
Minority Interests	143.00
<u>Loan Capital</u>	<u>548.00</u>
<u>Total Capital</u>	<u>2603.00</u>

N.B. Contingent Liabilities £4308m.

2. Hypothetical trading profit account

A full trading profit account could have been constructed but for the purposes of illustration we need only consider interest receivable and payable. Thus other operating income and operating expenses are ignored. The illustration is effected by considering an initial deposit of £100 and how this is used. There are four simulations as the deposit can be raised through customers or the money markets, and a sterling advance can be made either to a customer or the money market. The basic scenario is as follows:-

	Amount (£)	Interest Rate(%) ¹	Interest (£)
Interest Payable			
Customer deposit	100	11.0	11.00
Money market deposit	100	11.5	11.50
Interest Receivable			
Customer advance	80	14.0	11.20
Money market advance	80	12.0	<u>9.60</u>
Other assets - LDMA holding ²	7.00	11.6	0.81
- Bank of England balance	0.50	-	-
- Treasury bills	1.50	11.8	0.18
- Other bills	6.00	12.5	0.75
- HMG stock	4.50	13.0	<u>0.59</u>
Total other assets			2.33

Notes:

1. Interest rates are estimated from 1981 figures.
2. Funds placed with the LDMA comprise 7% of ELs. This assumes the 6% average is effectively a minimum requirement and that excess balances amounting to 1% over this requirement will be held for operational purposes.

7.4. NUMERICAL ANALYSIS

7.4.1. BALANCE SHEET

The basic model was taken as a foundation on which certain key inputs were changed. This was done by changing the monetary and capital ratios - and secondly by altering certain balance sheet components. The necessary information

and adequate measurement system to test bank liquidity was not available.

1. Gearing Ratio

This hypothetical bank has a gearing ratio of 3.96%. Where a minimum ratio of 5% was given, this would require a 20.9% decrease in liabilities if capital remained constant, or a 26.4% increase in capital if liabilities were unchanged. The corresponding figures for a 10% gearing ratio would be a 60.4% decrease in liabilities or a 152.8% increase in capital. Clearly a bank could make a change to both liabilities and capital to satisfy a gearing ratio, but these figures demonstrate the very significant impact a gearing ratio could have on bank capital structure.

As might be expected, the gearing ratio is very sensitive to liabilities. A 5% increase in liabilities will lower the ratio to 3.76%, a 5.1% decrease. Similarly a 10% increase in liabilities will lower the ratio by 9.3%

2. Risk Asset Ratio

The model bank has a risk asset ratio of 6.3%. If a minimum cover of 8% was required, the bank would have to decrease risk assets by 21.2% where capital was unchanged, or increase capital by 26.9% where risk assets were constant. A 10% risk asset ratio would require a 58.7% increase on the existing capital base where no decrease in assets could be made. The figures are not as drastic as the percentage changes involved with the gearing ratios, but again highlight the problems where minimum ratios are imposed.

The change in balance sheet structure required to meet certain risk asset ratios is, however, a critical feature because of the risk weightings involved. For instance if a 10% ratio was imposed and capital could not be increased, then the bank will have to decrease its risk assets by 37% or £13,038.40. The problem is that the risk adjusted total of all balance sheet assets apart from advances is only £6,028.65. Contingencies are here valued at £2,154.00. Thus to meet a 10% ratio on these figures, this bank would still be £4,855.75 short even after writing off all contingencies and balance sheet assets apart from advances.

This arises because of the differing risk weights applied, which make advances and contingencies the crucial influences on the risk asset ratio. On the model a 10% change in market loans changed the ratio by 7.13%. Table 23 overleaf shows the effect of changing certain assets by 10% and the resulting change in the risk asset ratio.

The table demonstrates that the value of the risk asset ratio is heavily dependent on the value of market loans to other UK residents. Substantial changes in other important assets such as bills and CDs produce only very insignificant changes in the risk ratio. This suggests that the risk asset ratio is more a statement of the risk in bank advances than of all the risks associated with a bank's balance sheet. Furthermore, the risk weighting mean the ratio is more sensitive to bank assets rather than capital. This is shown by considering an addition of £50m to the capital base by a rights issue. It is assumed investment in fixed assets and

Table 23 Effects of Changing selected assets on the risk asset ratio

Item	Base figure (£m)	10% increase (£m)	Risk Asset Ratio New figure	Ratio % decrease
1. Money at call and short notice	4866.50	5353.15	6.29	0.27
2. Treasury bills	186.25	204.88	6.30	0.01
3. Other bills	528.75	581.63	6.30	0.03
4. CD's and other	1962.50	2158.75	6.30	0.11
5. Market loans to other UK residents	27083.25	29791.58	5.85	7.13
6. Leased assets	1332.75	1446.03	6.28	0.38
7. Fixed assets	906.00	996.60	6.27	0.51
8. Contingencies	4308.00	4738.80	6.26	0.61

associated companies will increase by £20m each. This leaves £10m for trade investments. Thus the capital base will increase by £50m but the total of risk adjusted assets increases by £85m because of the risk weightings. Therefore the effect of such a rights issue on these figures will only be to increase the risk asset ratio to 6.43%, a 2% change. Thus because of the risk weights, the risk asset ratio is more determined by asset structure rather than capital structure, and within asset structure advances are the crucial category.

3. Eligible Bank Ratio

The hypothetical bank maintains an average of 6% of liabilities or £2,254.79m with the LDMA. This ratio can be varied, and the resulting funds released will be reinvested in the money markets because they attract the same risk weight. A basic simulation would be as follows:

Table 24 Effects of changes of eligible bank ratio on capital ratios

Workings (£m)	Eligible Bank Ratio		
	4%	2%	0%
1. Funds released and reinvested			
in money markets	751.60	1503.19	2254.79
2. Increase in trading profit ¹	9.62	19.24	28.86
3. Taxation @ 16%	1.54	3.08	4.62
4. Increase in retained profits ²	8.08	16.16	24.24
5. New gearing ratio	3.98	4.00	4.02
6. New risk asset ratio	6.33	6.35	6.37

Notes:

1. Assumed differential between interest received on money market deposits and funds with the LDMA is 1.28%.
2. Assume no dividend.

The changing capital ratios show that where capital ratios come under pressure, the non-eligible bank could be in a more favourable position to contribute to its capital base, as

opposed to the eligible bank who will be forced to continue with lower capital ratios directly as a result of the eligible bank requirement.

7.4.2. TRADING PROFIT

The four simulations given overleaf are based on a hypothetical trading profit account and illustrate the effect on retained profits of alternative funding and borrowing sources.

Given these conditions the most profitable simulation is by raising £100 from customers and making an advance to customers. The least profitable is where the market advance is funded by money raised in the money markets.

What all the simulations show however is the danger of imposing capital controls where certain balance sheet controls already exist. In the simulation it was assumed the bank had to hold a minimum of 6% of ELs with the LDMA. If the bank was also required to observe a minimum gearing of 4%, then the increase in deposits of £100 would have to be accompanied by a rise of £4 in the capital base. All four simulations reveal that profits retained from this new business are unlikely to generate sufficient funds to maintain this gearing ratio. In this case a non-eligible bank may be able to increase its capital base through more attractive investment opportunities as it is not required to observe a minimum holding in the LDMA. The simulation

TABLE 25 SIMULATIONS OF HYPOTHETICAL TRADING PROFIT ACCOUNT

Income Statement	SIMULATIONS			
	A.Customer advance, Customer deposit	B.Market advance, Customer deposit	C.Customer advance, Market deposit	D.Market advance Market deposit
1. Interest Receivable £80 Advance	11.20	9.60	11.20	9.60
£20 Other assets	2.33	2.33	2.33	2.33
Total	13.53	11.93	13.53	11.93
2. Interest Payable £100 Deposit	11.00	11.00	11.50	11.50
3. Gross Profit	2.53	0.93	2.03	0.43
4. Taxation @ 16%	0.40	0.15	0.32	0.07
5. Net Profit ¹ Retained	<u>2.13</u>	<u>0.78</u>	<u>1.71</u>	<u>0.36</u>

Note:

1. Dividend payments are ignored.

highlights the difficulties a growing bank experiences in maintaining its capital ratios, particularly when it is subject to external controls.

7.5. SUMMARY

The state of Bank of England control and supervision is that monetary controls directly impact on bank balance sheets whereas prudential supervision serves as an important monitoring procedure. Section 7.2. discussed the logical reasons why prudential supervision remains, in the U.K., a monitoring rather than control system. The numerical illustrations in Section 7.4. demonstrated the dramatic balance sheet changes that would be required should specific capital ratios be implemented, particularly if these ratios were higher than those currently maintained by the banks.

NOTES TO CHAPTER SEVEN

1. The arguments may be extended. Many US academics, for example, believe that the lender of last resort function and the risk related deposit insurance may obviate much of the contemporary prudential supervisory apparatus.
2. Banks can always, in theory, improve their capital base to a limited extent by, for instance, a rights issue or raising subordinated loan capital. As discussed in Chapter 5 these methods are limited and may not be desirable. Nevertheless, a gearing ratio could be maintained without the necessity of reducing liabilities.

CHAPTER 8 CONCLUSION

8.1. REVIEW

8.2. CONCLUSIONS

8.3. SUGGESTIONS FOR FURTHER RESEARCH

8.1. REVIEW

The current position of U.K. bank balance sheet control and supervision has been discussed. The development of banking supervision in the U.K. was analysed, the importance of the 1971 reforms and the subsequent changes were discussed. During the 1970's, U.K. banks were subject to a variety of controls, principally for monetary reasons. Prudential supervision received considerable impetus after the fringe banking crisis. A Working Party was set up to review the capital and liquid adequacy of financial institutions; the Bank of England developed a supervisory department specifically for this purpose. The Banking Act increased the number of institutions who were to be supervised by the Bank of England. As Morison suggests(214p.45): "It is almost universally accepted that the public interest requires an important measure of control over banking activities in the interests of the economy in general and the depositing public in particular."

Prior to 1980, monetary controls and prudential supervision both existed but their form was not clearly defined. The recent Bank of England papers indicate these issues are being assessed in a more formal and comprehensive manner. More emphasis has been placed on prudential supervision, whilst the control of banks' assets and liabilities for monetary policy purposes has been tidied up. Prudential supervision is largely concerned with an individual bank whereas monetary control continues to be directed towards the banking system as a whole.

In Chapter 4 the present stance of the monetary authorities was discussed. We provided the rationale for reform, whilst noting that the overriding influence in determining a replacement system concerned whichever monetary target or aggregate the authorities would now consider as a prime indicator of monetary policy. It was stated that the government have been reluctant to move away from sterling M_3 , the traditional prime indicator. This has several important implications:-

1. The exclusion of wider measures of money means that monetary controls will continue to be directed towards the banking system as the prime control mechanism.
2. This factor more than any other will prevent the introduction of a monetary base control system - because such a system would be meaningless where the key target remained sterling M_3 .
3. Monetary control will need to be unambiguously related to a bank's eligible liabilities - as these represent the main constituent of sterling M_3 . Hence, balance sheet size, asset growth and credit creation will be of secondary importance to monetary policy.

In terms of this work, the key feature of the new system is that monetary controls have continued to be directed (in the first instance) to bank balance sheets. Definite ratios have again been prescribed. A degree of uncertainty remains, as the Bank of England can dictate the terms of liquidity to the

system as a whole. These issues were discussed in Chapter 4.4. The impact of monetary controls will continue to be influenced by how rigidly - and at what price - the authorities maintain the day-to-day liquidity of the banking system.

An assessment of the impact of monetary control is a function of two factors:- firstly, the balance sheet ratios and secondly, the terms (price, frequency) at which the Bank of England will supply the banking system, or even one bank, with the necessary liquidity. The ratios are defined but the terms of intervention remain unclear. Thus in many respects the monetary authorities have maintained their control over the banking system. This also means that the impact of the new monetary controls on bank balance sheets cannot be clearly defined because of this uncertainty in the system.

The same can be said to be true for prudential supervision, though for different reasons. This is largely because prudential supervision has now been defined in terms of an individual bank and not the system as a whole. The latter should (in theory) be protected because the LOLR facility has been maintained. As with the 'lifeboat', this should ensure the survival of the system where several banks suffer a liquidity crisis.

In Chapter 5 we questioned the rationale behind prudential supervision on the basis that commercial bankers will run a sound business, operating a risk/return profile commensurate with their position. In other words, bankers are likely to

maintain their own prudential policies. Therefore it could be argued that prudential supervision should be concerned with the monitoring of a bank's existing prudential policies. However it was revealed that bankers' own prudential policies did not always provide the kind of buffer against disaster that the Bank of England now hope is embodied in their proposals.

In the U.K., the Bank of England have (in common with other countries) concentrated on the topics of capital adequacy and liquidity. Chapters 5 and 6 discussed the often complex nature of these topics. It was noted that the approaches to the measurement of capital have been far more detailed than the assessment of liquidity - yet, ironically, a bank without capital can survive whereas a bank without liquidity cannot.

The capital chapter illustrated the particularly contentious nature of this subject. It ^{was} proved necessary to establish the need for an adequate capital base when it could be argued profitability and current earnings are more important. This contrasted with the views of Apilado and Gies, that capital is the most important indicator of a bank's financial strength. These arguments depended, of course, on the perceived functions of bank capital. The 'functions' are also open to debate. It was noted that since 1975 the Bank of England have changed their interpretation of the functions of bank capital. As a result of these different interpretations, many contrasting assessments have been made of the adequacy of a bank's capital base.

Extensive coverage has been given in the U.S. to capital assessment. Originally these approaches concentrated on a measure related to liabilities on the basis that a prime function of bank capital should be to protect depositors. However as the need for capital to absorb losses became apparent, the emphasis switched to the asset side of the balance sheet - or rather the risk inherent in those assets. In contrast, the 1962 OCC approach highlighted the importance of other factors such as the quality of management. Finally the Vojta method re-iterated the importance of liquidity and current earnings.

In the U.K. the importance of profitability is more of an implicit factor, whilst due account is also taken of certain qualitative factors. Although no ratios, or guidelines, have been published, it is the intention of the Bank of England to agree ratios with individual institutions. Furthermore, it is now a real possibility that a bank will be requested to bolster its capital base where it falls below an agreed level.

The approach to liquidity is not, however, as clearly defined. Bank liquidity is a function of the liquidity within a bank's balance sheet, the liquidity of the relationship between that bank and other banks, and the liquidity of the banking system as a whole. Given these factors, bank liquidity can be influenced further by the monetary authorities. Monetary controls have affected the liquidity of banks in the past - for instance the corset - and under the new system the need to maintain funds with the

LDMA is also a constraint on banks' liquidity. Bankers also face a dilemma - they have traditionally mismatched assets and liabilities to gain profit.

These issues were identified in Chapter 6. The area was complicated by the need to assess the impact of monetary controls and the policies of a bank's management. Most bank analysts agree that adequate liquidity is the ability to meet obligations as and when they fall due - but are unable to solve the practical problem of maintaining sufficient liquidity yet maximising profits by running a mismatched book. Brodt and others have argued that the more profitable business is usually riskier and therefore does not provide good liquidity.

Many authors argued the case for liability management and the ability (or possibility) to purchase liquidity from the market. However, recent events show that whilst this is a viable day-to-day policy, it should not be relied upon or included in a credible assessment of a bank's liquidity. Since the 1970's, standby facilities or credit lines between banks have been constantly under review. Indeed, the hint of trouble at a bank can have very serious repercussions on that bank's ability to buy funds in the market.

In the U.K. the approach to liquidity measurement bears some common characteristics to that adopted for capital assessment. Both measures are concerned with individual institutions and not the need to apply a single measure to the system as a whole. Both approaches have a key input

provided by a numerical assessment. For liquidity measurement, the Bank of England have constructed a maturity ladder. The ladder is not designed to be all-embracing, but offers a framework from which an assessment may be made. The ladder is not a sophisticated measure and is concerned only with the maturity mismatch positions over the next twelve months. We noted this approach has been accepted far more favourably than the 1980 proposals, but that further changes are to be expected.

The topic of liquidity adequacy remains a highly complex subject. The impact of the current proposals on bank balance sheets is open to debate:- in their current form, the assessment of bank liquidity would tend to be more of a monitoring procedure. Yet banks' balance sheets are being affected by the new monetary controls and capital guidelines - both of which have implications for a bank's liquidity.

To summarise, the review of banking supervision in the U.K. identified the widening role of the Bank of England - and how in many areas it now directly impacts on bank balance sheets. Monetary controls, almost by definition tend to be a more precise area of impact and assessment. Prudential supervision is less so:-

1. No precise ratios are prescribed, or can be prescribed where assessment is made of one bank and not the system as a whole.

2. The approach adopted with each bank will be in confidence because of the need to maintain confidence in the banking system.
3. Each assessment will attempt to take into account the individual circumstances of that institution. The Bank of England remain firmly opposed to rigid formulae which take no account of the differing characteristics of supervised institutions.

8.2. CONCLUSIONS

The Introduction gave the aims of this thesis as examining the growth of banking supervision in the U.K., defining the rationale for bank supervision, assessing the need for change and finally modelling the impact of supervision on a bank's balance sheet. In achieving these objectives this thesis remains one of the few works that has considered monetary control and prudential supervision together - as part of an overall package of bank intervention by the Bank of England. This intervention may be in the form of specific, direct balance sheet controls or more flexible guidelines for discussion. The thesis demonstrated the need to study these subjects collectively, as part of an overall assessment of banking supervision in the U.K. This view is shared by Lomax(215p.2):

"Monetary Control indicates the way the authorities intend to operate the monetary system, and the guidelines which will determine their own action: the prudential control papers

indicate correspondingly how the banking system will be forced to react to various stimuli from the authorities, and correspondingly how interest rates and balance sheet totals (which include the money supply) will move in response to official policy...a new system to which all four papers make a contribution."

The new monetary controls continue to impose direct controls on banks' balance sheets. The prudential reforms have concentrated on outlining the Bank of England's approach to the measurement of certain aspects of a bank's business. They do not specify the absolute levels to be maintained in applying that system of measurement(216p.548), but rather indicate the ways in which the Bank of England now assess and monitor a bank's capital and liquidity. These subjects are 'complex and elusive'. The approach to their assessment in the U.K. is characterised by Cooke(217p.55):

"At the end of the day in that slightly quaint, rather demure and faintly Victorian sounding system that we call prudential supervision, it is judgement not arithmetic that counts."

The other important conclusions from this work are as follows:

1. The need for a change and re-assessment of the Bank of England's supervisory role was justified. The 1979 Banking Act confirmed and strengthened the role of the

Bank of England. Their approach is cautioned and gradually determined. However significant changes have now been introduced to reflect the dramatic changes of the U.K. banking system and economy during the 1970's. The previous systems of supervision had broken down under the spectacular growth of the secondary banks against a background of massive oil price rises, persistantly rising inflation, volatile money and foreign exchange markets, and a rapidly increasing money supply.

2. The monetary control reforms represented, in many respects, a tidying-up of the previous system. The Bank of England now has greater flexibility in this area, with an increased emphasis on money market operations. However, the funds now placed with the LDMA have also ensured the continued existance of the Discount Houses at a time when many were questioning their validity.

3. The monetary authorities have rejected a move to monetary base control. The new controls allow the Bank of England to monitor the behaviour of the voluntary cash balances of the London Clearing Banks. However, Sterling M_3 remains a key indicator of U.K. Monetary Policy, whilst the Bank of England have also maintained control over short-term interest rates - neither of these features would be compatible with a system of monetary base control. Indeed the LOLR facility has been maintained; not only to ensure the liquidity of

the system as a whole but also to dictate the terms at which liquidity would be supplied.

4. The subject of prudential supervision has now been given comprehensive treatment in the U.K. This area will be subject to further change, but the Bank of England have now established a useful framework for the assessment of capital and liquidity. The framework has been subject to criticism but is generally accepted by the U.K. banking industry. The new systems are applied to the system as a whole, but exact requirements and measures are agreed with individual institutions.
5. Banks' capital ratios (however measured) have fallen during the last decade. Capital bases have been adversely affected by inflation, asset growth, problems of external funding and the squeeze on overall profitability. The Bank of England do, however, recognise varying qualities of management in allowing for higher gearing.
6. The achievement of the Bank of England's stated objectives in the assessment of capital adequacy is questionable:-
 - (a) To ensure the capital position is regarded as acceptable by depositors and other creditors - yet much of the information used by the Bank of England in their assessment is not publicly available.

- (b) To test the adequacy of capital in relation to the risk of losses inherent in a bank's assets - yet the assessment of risk by the risk asset ratio cannot be accepted as a surrogate for the assessment of risk in a bank's portfolio.
7. The capital ratios represent potentially serious threats if the downward trend of capital positions continues. The Supercalc models demonstrated the very severe impacts the gearing and risk asset ratios could have if minimum levels were imposed above the levels currently held by the banks. In practice it is logical to expect the Bank of England to agree guidelines with individual banks. Thus given the low capital ratios currently maintained, there is now a real possibility that commercial banks will be urged to change their capital structures in order to meet the Bank of England's recommendations.
8. The liquidity proposals represent a milder form of the original 1980 harsh guidelines. Today, the qualitative assessment to liquidity adequacy is flexible in approach and backed up by a basic quantitative measurement. It is unlikely that either feature will be imposed stringently.

In sum the supervision of the U.K. banking system has developed rapidly since 1970. The style and approach adopted by the Bank of England has often been unique and offers a blend of numerical analysis and in-depth discussion. The

system of monetary control is now more precise whilst the system of prudential supervision has been greatly enhanced.

8.3. SUGGESTIONS FOR FURTHER RESEARCH

DEA

This work has revealed many areas of uncertainty and possible areas for further research. Attention would focus on the issues of prudential supervision, though it is possible a change in monetary policy or direction would necessitate a further change in the monetary supervision of the banking system. More specifically further work could be done in the following areas:

1. Daily Settlements in the Money Markets

The Bank of England have refused to deal directly in the inter-bank market, preferring to settle the daily cash flows through the discount houses. Further work could be usefully carried out into the intervention techniques that are open to the Bank of England; why the role of the discount houses should be maintained; improving the methods of dealing with the daily shortages and surpluses; and defining the implications of these alternative techniques to monetary policy and bank liquidity. This could have important repercussions for bank profitability as, if the Bank of England were prepared to deal directly with the banking system, then it is likely the mandatory requirement to hold funds with the LDMA would be modified. This would release funds which could be invested more profitably elsewhere.

2. Bank Liquidity

The 1982 Bank of England paper on bank liquidity illustrated the particularly complex nature of this subject. Academic

material on defining adequate bank liquidity has been limited, preferring to concentrate on the broader issues of global asset and liability management. The management of bank liquidity is however of crucial importance in the day-to-day business of commercial banks. Therefore more work is required to define and assess bank liquidity in terms of maturity analysis and interest rate mismatch. A theoretical approach to managing bank liquidity could be developed to complement the systems currently employed by commercial bankers.

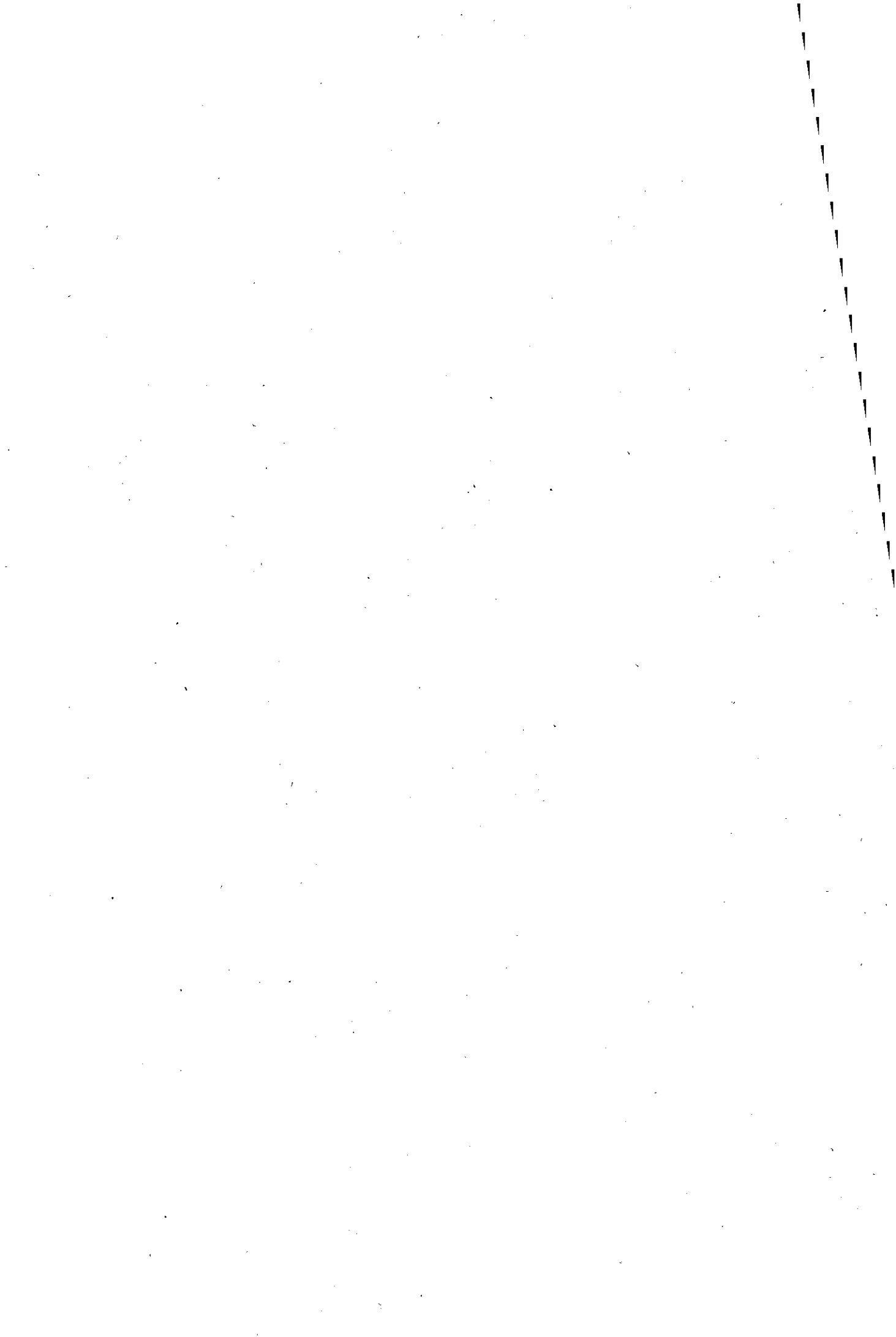
3. Capital Adequacy

The topic of bank capital adequacy is not as nebulous as bank liquidity. Nevertheless, the measurement of bank capital in the UK merely provides a basic assessment of these issues. It would therefore be a viable proposition to develop a more realistic model of bank capital adequacy. In particular, emphasis should be placed on the quality of assets. The work would benefit from an understanding and modelling of banking risks. This could be applied to the assets of a bank in order to determine a more realistic assessment of the risk supported by a banks capital. Alternatively the arguments of commercial bankers could be collated to establish a practical approach to assessing bank capital adequacy. Either of these methods would provide an alternative framework within which bank capital adequacy could possibly be more accurately assessed.

4. Domestic and International Bank Supervision

International bank supervision is a comparatively new topic. In many instances, however, international supervision and domestic supervision will be concerned with similar issues. Both areas are concerned with capital adequacy, liquidity and observing banks on a group or global basis. Thus a useful study would be to compare and contrast the approaches adopted for national and international supervision. This would be beneficial in highlighting both the domestic and international problems which face the bigger banks, thereby giving a global view of commercial banking and supervision.

The analysis could be made more specific by either considering bank supervision in a number of countries - for instance within the EEC - or between two countries - for instance the U.K. and the U.S. A detailed study of American bank supervision would be particularly useful because although it is a more legislated system, it exhibits many of the characteristics of the British system.



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APPENDIX 1 - MONETARY BASE CONTROL

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A.1. INTRODUCTION

Monetarism has provided the intellectual justification for monetary base control (1p.82). Griffiths⁽²⁾ argued that monetary base control is based on the conventional neo-classical theory of choice, in that the outcome for the money stock of a restriction on base growth is the result of maximising behaviour on the part of banks and the non-bank public, subject to the usual constraints of wealth and income. Central to this argument is the understanding that the stock of money in existence depends on how much the public wish to hold and is not a residual element. This is in direct contrast to CCC where the authorities set MLR₁ Treasury bill rate and rates in the gilt-edged markets to obtain, ceteris paribus, a given public holding of currency and bank deposits.

Prior to 1980 therefore, if the authorities wished to decrease the stock of money, they simply raised interest rates to reduce the demand for money as holders of bank deposits could switch into higher yielding assets. If an increase in the money stock was desired, the reverse would apply and the Bank of England would supply the banking system with the necessary reserve assets. The system had two inherent weaknesses:-

1. If at a given interest rate, the public decided to increase their liquidity and therefore sell gilts, the Bank of England will be forced to buy gilts to avoid rates rising. Thus, the money supply would rise. Similarly if the demand for advances increases, deposits (and the money supply) would also increase (in the absence of corset penalties) as the Bank of England supplied reserves.
2. It was difficult to predict the public's demand for cash with a tolerable degree of accuracy. To do so would require the Bank of England also to have predicted the level of real income, expected rate of inflation and the public's expectations of interest rates for example.

It was the conclusion of proponents¹ of monetary base control in the U.K. that such interest rate targeting techniques would inevitably introduce instabilities and distortions in the financial markets. According to Brittan "...whatever the difficulty of setting the latter (monetary targets) the ability to guess the level of interest rates appropriate at any one time is a billion times rarer and is not possessed by gods let alone mere central banks".⁽³⁾ The alternative is the direct control of the monetary base as a means of controlling monetary growth, though Friedman notes: "Of course, direct control of the monetary base will effect interest rates, but that is a very different thing from controlling monetary growth through interest rates"⁽⁴⁾. To be a viable alternative in the U.K. monetary base control would require certain reforms.

A.2 ESSENTIAL REFORMS

Monetary base control would require three essential reforms⁽⁵⁾ in the U.K. to be an effective alternative to interest rates as a means of controlling the rate of growth of the monetary aggregates. These are changes in the procedures by which the Bank of England conducts monetary policy, the accounting framework and certain institutional reforms.

1. Changes in Monetary Policy

This is the critical reform which would require the monetary authorities to choose a quantity (base money or the level of reserves) rather than the price (the rate of interest) as their operating target. This implies effective control of the supply of money can be achieved by controlling the means by which the banking system is able to create credit and money. This requires a change from the traditional belief that the total stock of money is not demand determined but primarily supply determined. Thus, it is the money markets that should determine interest rates. This implies disbanding the present methods of discretionary control by the Bank of England over key interest rates and the setting of a tap price for gilt-edged stock, in favour of a market demand and supply price (or 'auction' price). In its strictest form monetary base control would require flexibility on all interest rates and not just long-term rates.

2. Changes in the Accounting Framework

Certain changes in the present accounting framework would be required to place increasing emphasis on two ratios:-

- a) currency/money - the ratio of non-bank private sector holdings of notes and coin to total money;
- b) reserves/deposits - the banking system's holdings of till money plus bankers' balances at the Bank of England to deposits.

The authorities could then monitor the amount of base created and the demand for base money by the non-bank private sector and banking sectors. This would be consistent with publishing a new series of monetary base statistics.

3. Institutional Reforms

The present monetary controls would have to be redefined to solely consist of a cash ratio, defined in terms of base money (see A.4). This would necessarily imply changing the privileged position of the discount houses, though it should be noted that transition to monetary base control does not crucially depend on the withdrawal of the unique borrowing privileges of the discount houses.

A.3. TYPES OF MONETARY BASE CONTROL

There are generally three practical systems of monetary base control that could be implemented in the U.K., provided the technical changes were made and the authorities agreed to target base money and not influence interest rates. These are a negotiable licence, indicator and trigger systems.

A.3.1. NEGOTIABLE LICENCE (NL)

Where the monetary base is defined in terms of a NL it is essentially a unique reserve asset which will be created and controlled by the authorities. The banks, as controlled institutions, would be required to hold NLs directly in proportion to their deposits. By definition banks' balance sheets would have to be some multiple of the amount of NLs they held. The authorities would remain the sole suppliers of these licences so that the supply could be altered in line with the predetermined growth path. The NL could be defined in terms of Treasury bills, special documents, negotiable base assets or negotiable entitlements.

In practice, as deposits rise, banks will be forced to bid for NLs. Competition would ensure that if the flow of deposits into the banks tended to rise above the level implied by the existing stock of NLs, then the market price of NLs will rise. This will impose an additional marginal cost upon the banks. It would be expected that this cost will be covered by an increase in lending rates or credit restrictions - from which a contraction in credit may be expected. Thus the public's holdings of bank deposits at the ruling rate of interest would be commensurate with the level allowed by the stock of NLs.

By definition, however, the NL would be a form of direct control over the banking system, in many ways similar to the now disbanded corset. Under tight monetary policy (where the demand for deposits was increasing faster than the target) the increasing price of NLs would effectively impose a tax on the banking system. In such a situation, the danger is not so much the economic effects of increased lending rates (to choke-off demand) but disintermediation.

It is probably true that the weaknesses of such a system far outweighed its advantages. In particular the following disadvantages should be considered:

a) Disintermediation

When the price of NLs was rising it might be expected commercial bankers would encourage borrowers to borrow outside the controlled areas. This could be similar to the bill leak or possibly disintermediation through the Euro-sterling markets could be expected. This problem could only be limited to the extent controlled institutions paid a modest penalty for inadequate holdings of NLs. This would effectively put a ceiling on NLs and limit the implicit tax. Some disintermediation could, nevertheless occur and, of course, the lower the penalty the more ineffective the control becomes.

The effect of periodic disintermediation could encourage the movement of short-term paper into non-bank portfolios in substitution for bank deposits. This would probably be so to the extent the corset encouraged the development of a wider market in commercial bills. The development of wider short-term public and private sector debt markets could cause cosmetic variations in the money supply, leading to exaggerated market expectations of changing interest rates.

b) Bank balance sheets

Banks, particularly the clearing banks, lack the necessary short-term control over deposits and advances because depositors and borrowers are relatively interest-insensitive. Thus, where immediate action was required under a NL scheme this could aggravate their short-term control problems over assets and liabilities. This would also have implications for the acceptance of a NL scheme - in this form it is unlikely that it would be voluntarily accepted by banks and LDT's. In addition, neither the 1979 Banking Act nor the 1944 Bank of England Act could be used to cajole building societies into the scheme.

In addition banks would be expected to determine the appropriate level of interest rates to achieve their desired balance sheet growth. This is in direct contrast to the present system where bank rates are heavily influenced by the authorities determination of overall monetary conditions. This again would have serious implications for balance sheet management - unless credit could be financed off-balance sheet through some form of disintermediation.

For these reasons it must be concluded that under present arrangements, a NL scheme would not be a practical form of monetary base control. However, if the base was strictly related to the assets of the central bank then it could serve either as a useful indicator to the thrust of monetary policy or to trigger changes in other monetary aggregates. In both cases the monetary base is defined as a cash ratio, the exact definition of which is considered in A.4.

A.3.2. THE MONETARY BASE AS AN INDICATOR

To serve as a useful indicator of the thrust of monetary policy the monetary base would not be directly controlled but rather monitored as a leading indicator of changes in the money stock. Of course, many such indicators of future developments already exist - the success of this method is thereby dependent on the extent to which it would improve current knowledge of prospective movements in the money stock. Current indicators have, however, proven to be unstable - forecasts for the current banking month made half-way through the month can be half to three-quarter percent out.

In this respect the monetary base could have an important advantage. A necessary condition for the use of a variable as an instrument to control a target is that the instrument is under the control of the policymakers - and that movements in it result in and not from movements in the target. Under strict base control, changes in foreign exchange, Treasury Bills, issues of National Savings and the discount market will all directly lead to a change in the amount of base money outstanding. This in turn will lead to a change in the resources available to the banking system with which to change the rate of growth of the money supply.

As a leading indicator the monetary base would not necessarily induce disintermediation. This is because no institution will be significantly penalised for undertaking a transaction others cannot - the authorities response would be to affect market rates of interest to both lender and borrower. There are, however, four further qualifications to be made in a system where the monetary base is employed as an indicator of future monetary developments:- this would only be a minor variation of the present system in the sense that interest rates would remain an instrument of monetary control(6); the issue is complicated by the perversity known as Goodhart's Law² as any single measure of the money supply tends to become "...hopelessly distorted once it is the subject of official controls"(7); thirdly banks would most likely have a greater incentive to hold excess cash reserves if the costs of holding excess reserves were less than the costs and risks of finding itself short of cash reserves, thereby weakening the power of the cash base as an indicator; and finally the Bank of England have suggested "...the series could come to convey more useful information"(8para45), but that several years of monitoring would be required before such movements in the cash base could be adequately determined.

A.3.3. THE MONETARY BASE AS A TRIGGER MECHANISM

In common with the indicator system, the authorities would set a smooth, seasonally adjusted growth path for the monetary base. The difference is that any observed difference of the actual base from the predetermined path will be used to 'trigger' changes in the Bank of England's lending rates to correct this divergence. The size of the adjustment would be related to the size of the divergence, also set by a predetermined scale. This approach necessarily implies a mandatory cash base and the lender-of-last-resort facility. This contrasts to present arrangements in which the authorities use the volume of operational funds held voluntarily by the clearing banks as their datum point for controlling the general level of market interest rates.

The crucial characteristic of this system is that interest rates would be changed quasi-automatically. Thus, interest rate changes would be less of a political issue and more promptly adjusted. This would overcome certain problems with existing methods whereby interest rate changes are slower and less vigorous than perhaps they should be. Such adjustments would continue until the base was restored to it's targeted

path. Because interest rates would be promptly adjusted to divergences of the base this could strengthen confidence in monetary control.

In the short-run, financial markets would need to assess if the divergence of the base was likely to persist or whether it was erratic and likely to be reversed. The short-term markets would, as now, seek to anticipate changes in the Bank of England's lending rates; their expectations would determine the structure of short-term rates which would in turn affect banks' lending rates. Thus, given a system in which the authorities discretionary influences are constrained, short-term interest rates may not necessarily be more volatile than at present.

Increased confidence in monetary control would encourage greater long-term stability, particularly of interest rates, which would be advantageous to the gilt-edged and corporate bond markets. Such advantages could, however, only be achieved where certain rather severe handicaps were overcome. There would be notable political and social implications of such a system, particularly where a rigid or automatic interest rate rule applied.

The main disadvantage of such an automatic mechanism is that the scale of response would almost inevitably be somewhat arbitrary. The Green Paper(9p.13) illustrated that, as with the current system, the authorities do not know whether a given excess of money of X percent could be eliminated over a desired time period by a rise in interest rates of Y percent. The issue is complicated further by the existence of lags in interest rate policy. This is particularly pertinent where an adjustment is triggered by transient or erratic fluctuations in the growth of the monetary base, as this could increase the variability of short-term interest rates. It would therefore probably be preferable to 'override' the automatic adjustment, especially as this precludes the use (if so desired) of interest rates for any other purpose. Even so should the override facility be used frequently, this would severely curtail the advantages of the automatic mechanism.

Finally, the viability of this approach hinges fundamentally upon the Bank of England always acting as lender-of-last-resort (LOLR). The authorities open market operations would be constrained by the objective to achieve a predetermined path for the monetary base - the banking system can only maintain a minimum cash ratio by making use of the LOLR facility. This is in direct contrast to strict monetary base control which implies the end of the LOLR facility.

This is because without unlimited funds on a daily basis, then either the commercial banks must fail to meet their cash ratios by potentially massive amounts, or the financial system must suffer a liquidity crisis. This reflects the issue that under lagged or current reserve accounting, the authorities have no choice but to supply reserves if reserve requirements are to be met.

The spirit of base control might be maintained by a system of graduated penalties on LOLR borrowing - as under CCC, the control was afforded by changing the price of such reserves. Thus, to the extent the money stock was growing faster than the targeted base, the marginal cost of base money would rise automatically and hence market rates would tend to follow. The problem would be setting the borrowing tranches and penalties - the authorities do not know what penalties would return the system to equilibrium.

A.4. DEFINITION OF THE MONETARY BASE

To operate as an indicator or trigger system, the monetary base should be defined in terms of the liabilities of the monetary authorities - notes and coin in circulation with the public, notes and coin held by banks, bankers' balances at the Bank of England, potential liabilities of the Bank of England and public sector deposits with the Banking Department. This, however, must be qualified. The effectiveness of monetary base control will depend upon what liabilities the monetary authorities can control or seek particularly to control:

1. Notes and Coin in Circulation with the Public³

When held by the non-bank private sector, notes and coin are money⁴. When held by a bank, notes and coin represent a liability to a money creating institution. Approximately 6/7 of the total note and coin issue is held by the non-bank public.

The Bank of England have, however, argued that the "...amount of currency so held is hardly a variable over which the authorities would (or could) seek control"(10para7). This is particularly so where the aim of the authorities is to influence some monetary aggregate consisting primarily of bank deposits, as the banks' stake in the monetary base would be very small. On the February 1982 make-up day the wider definition of the monetary base was £11,747 million of which notes and coin constituted £10,557 million. Hence variations in the non-bank private sectors demand for cash could lead to undesirable fluctuations in the growth of monetary aggregates.

The analysis has been extended by Congdon(11p.33). His model assumes:

- a) the public's demand for cash has an interest elasticity of 10 percent;
- b) the public hold three times as much cash as the clearing banks, and
- c) the clearing banks can vary their cash holdings by up to 33 percent without straining prudential limits.

If the clearing banks raise their deposit rates from 10 percent to 11 percent (a 10 percent increase), the public would hand over 1 percent of their cash holding. The banks' cash holding will rise by 3 percent; their deposits would rise by as much as 4 percent. Bank deposits form part of the

money supply. A small change in interest rates has thereby caused a significant change in the money supply. In fact given the multipliers involved, the public's demand for cash would have to be almost totally interest inelastic to prevent such volatile fluctuations in the money supply.

2. Vault cash

Vault cash or till money is important as it provides the means of ensuring immediate convertibility of deposits. The inclusion of vault cash is, however, an operational rather than theoretical issue as banks have different business mixes and therefore differential cash holdings exist.

3. Bankers' Balances at the Bank of England

The advantage of defining the monetary base in terms of vault cash and Bankers' balances is that it would specifically be related to the assets of the banks(12para7). Bankers' balances are readily convertible into till money. Under CCC, the majority of these balances were provided by the cash ratio of the clearing banks.

Since 1960 bankers' balances have also included SDs. and SSDs between 1974 and 1980. Such items are best excluded from a definition of base money. An increase in their level is not an expansionary factor and should not therefore be regarded as a rise in the monetary base⁵. (SD's are deliberately called to withdraw liquidity from the banking system and are not liquid in the normal sense).

4. Potential liabilities of the Bank of England

Potential liabilities are those liabilities named as the counterpart to the assets that the Bank of England may have to assume because of commitments previously given or because of 'automatic' borrowing rights of others. The relevance of any component to the base must be the central bank's ability to control that liability. In the U.K., the banking system has a unique automatic resort to the discount window. The Bank of England cannot therefore control such a potential liability. A strict monetary base control regime would therefore exclude such liabilities. Moreover, their inclusion would imply a relationship between base money and the potential, not actual, stock of money.

5. Public sector deposits with the Banking Department

Public sector deposits include the government, government departments and foreign central bank holdings of sterling working balances⁸. Due to institutional arrangements such deposits tend to be small and stable. Their inclusion or omission is not important when examining base movements.

In sum a cash based definition of the monetary base is generally preferred, defined as vault cash and bankers' balances. A cash base would have four further advantages:

1. It would stop the seemingly inequitable subsidisation of issuers of reserve asset paper. The reserve asset definition adopted in 1971 meant that these assets were

of special attraction. This was inequitable because the main issuer had been the government.

2. Sales of gilt-edged securities to the banking system would not affect the money supply or the rate of growth of monetary expansion. This would give the authorities a much larger range of debt instruments by which they could raise finance for the government - there would therefore be less pressure to keep up the maturity of that debt.
3. It cannot be manufactured by the private sector.
4. There is less elasticity in it's division between bank and non-bank holdings.

Broader definitions of the monetary base would include notes and coin in circulation with the public. The advantage of this approach is that the base ceases to be affected by deposits and withdrawals of cash by the public. Though a much larger base, it should thereby be less volatile. Table 26 illustrates these liabilities from 1965 to 1981. The sub-total of columns (1-3) defines the broader definition, whilst (2+3) gives the cash base. Since 1969 the rapid growth of notes and coin in circulation with the non-bank public can be seen which substantiates the Congden argument for preferring a cash base definition.

A.5. NON-MANDATORY AND MANDATORY CONTROL

Given the general preference for a cash based definition of the monetary base, it is crucial to determine whether this should be a formal requirement on bank balance sheets. The nature of the system of control chosen will tend to imply whether a cash base should be non-mandatory or mandatory - the trigger mechanism for instance is dependent on a given cash ratio being maintained, whereas more relaxed versions of monetary base control suggest a non-mandatory system. Nevertheless, the issues are important and should be identified and discussed to give due consideration to systems of monetary control which impact on bank balance sheets in this manner.

A.5.1. OPERATING WITHOUT A MANDATORY CASH RESERVE REQUIREMENT

A non-mandatory scheme implies banks hold base money only for operational reasons. The size of this reserve will be determined by the subjective attitude of each bank to risk taking it's business mix and the rules under which the Bank of England deal with the banking system - for instance how large flows into and from the exchequer will be dealt with.

With a non-mandatory scheme the base could be regarded primarily as another monetary aggregate - possibly a leading indicator - movements in which could convey information on future developments. The efficiency of such a scheme will, however, depend crucially on there being a stable relationship over time between the banks' voluntary holdings of base money and their total balance sheets. In Switzerland such a relationship has proved sufficiently stable. Bankers' balances are voluntarily held with the Swiss National Bank

TABLE 26: LIABILITIES OF THE MONETARY AUTHORITIES; 1965 - 1981 ANNUAL AVERAGES

(£m) Averages of monthly figures	Notes & Coin in circulation out- side the Bank of England		Liabilities of the Banking Department			Sub-Total of Columns:	
	1 With the Public	2 Till Money	3 Bankers Deposits	4 Special Deposits ⁽¹⁾	5 Other Liabilities	1-3	2-3
1965	2426	515	269	59	121	3210	784
1966	2563	548	268	144	138	3379	816
1967	2633	561	285	204	144	3479	846
1968	2766	586	315	219	165	3667	901
1969	2871	640	288	225	177	3799	928
1970	3067	682	192	270	181	3941	874
1971	3332	705	231	268	306	4268	936
1972	3644	653	209	10	361	4506	862
1973	4091	703	246	919	364	5040	949
1974	4591	764	259	1047	374	5614	1023
1975	5341	791	281	964	454	6413	1072
1976	6106	784	308	1143	486	7198	1092
1977	6832	812	338	1062	561	7982	1150
1978	7943	849	389	992	709	9181	1238
1979	9031	914	460	550	679	10405	1374
1980	9763	945	516	116	701	11224	1461
1981							

SOURCE: Bank of England Quarterly Bulletin March 1981 Table A p.39 and update.

(1) On several occasions between 1974 and 1980 this item also included supplementary special deposits.

(SNB), and are included in the monetary base. Until 1978 the Swiss monetary base proved to be a stable lead indicator of movements in M_1 (which was not targeted after 1978). This success might not, however, be expected in the United Kingdom because:

1. Bankers' balances at the SNB are virtually the only form of domestic primary liquidity. Thus, until recently such balances were the only assets of Swiss banks which were in all circumstances very liquid.
2. The Swiss banks were in fact required to meet cash requirements on four days each year. This is relatively unimportant except that on such days the SNB always ensured adequate cash was readily available.
3. There were large fluctuations in the monetary base and money supply. Brittan argues this was accepted only because of "...widespread confidence that lower inflation will persist and that these aberrations will prove temporary"(13)

In the U.K. it is unlikely that such a stable relationship will exist because of four factors:

1. The U.K. has highly sophisticated and developed markets in primary liquidity. A U.K. bank will therefore hold a portfolio of such primary liquid assets and not solely prudential balances with the Bank. Shifts in the attractiveness of the various assets would almost certainly lead the banks to adjust, in no easily predictable fashion, their preferred liquid assets portfolio.

In fact it might logically be expected that where prudential balances were held, these may be more a function of small shifts in the relative, actual or expected short-term interest rates, rather than being indicative of some current or future change in the stock of money.

There is no guarantee that banks would hold balances at the Bank of England - even the clearing banks might not be prepared to do so if they could obtain overdraft facilities for clearing house settlements.

2. In the U.K. the volume of inter-bank transactions are not necessarily good indicators of immediate or future movements in a monetary aggregate. The Green Paper(14p.21) found they could reasonably be expected to be a function of the expected values of both average volume and the variability is that volume, of all transactions - including inter-bank payments - passing through the banking system.
3. A non-mandatory ratio has the inherent weakness of being unable to distinguish between a banks' holding of prudential reserves and excess reserves. Additional reserves may well be held as the counterpart to a decline in the demand for bank credit or an increase in the bank's demand for liquidity.

4. It is felt(15p.9) that a bank's requirement for cash in the U.K. would depend more on the total level of transactions and type of business than on the size of it's balance sheet.

The efficiency of a non-mandatory cash base is therefore consequent upon the U.K. financial structure. To induce banks to hold the bulk of their prudential balances with the Bank of England rather than in short-term liquid assets would require a major change in the structure of the money markets. If the LOLR facility was withdrawn the function(s) of the discount market would be radically changed. This in turn may well encourage banks to hold prudential cash reserves which were related to their liabilities. Such institutional changes may well be deemed necessary, but until the present financial structure is modified, the usefulness of a non-mandatory cash ratio must be questioned.

A.5.2. MANDATORY CASH RATIO

Notwithstanding the criticism of a non-mandatory ratio, it is not clear if the imposition of a mandatory cash ratio would be essential to improving the predictability of the monetary base. The recent imposition of the half percent cash ratio would however, seem to favour this approach.

There are two main advantages to a legally imposed cash ratio(16p.39):

- a) It is non-discriminatory between the clearing and non-clearing banks. The two groups will be subject to the same requirement, but any excess or voluntary balances also held will merely be reflecting their varying business mixes. This overcomes the issue that the clearers have a substantially higher volume of retail business and therefore hold a considerably larger proportion of cash in their portfolios.
- b) The cash ratio implies that both groups are equally taxed by holding non-interest bearing cash balances. This is important to the non-clearers who could be at a competitive disadvantage if cash holdings (including excess holdings) were interest bearing.

The main disadvantage under a mandatory scheme would be if the level imposed was higher than that which banking system would hold in the absence of such control. But more relevant to the current situation, a mandatory ratio could cause a paradox. If the requirement was a small proportion of deposits, then unexpected daily movements in the base which currently occur could be very large relative to the size of the balances. Under such conditions, the banks may find it technically difficult to maintain the required ratio. The solution might require three additional features:-

- a) institutional changes, such as the government placing funds with the commercial banking system rather than repaying debt for example through the Issue Department of the Bank;

- b) very low penalties for anything except an 'unreasonable' short fall in required reserves;
- c) some form of averaging procedure rather than strict day-by-day adherence to the required minimum.

The alternative would be to require large interest-bearing balances so that unpredictable fluctuations were less significant relative to the size of the base. This would, however, necessitate large structural changes in the money markets.

One further problem remains which concerns how the mandatory relationship between base money and deposits can be expressed. This is examined in Section A.6.

A.6. RESERVE ACCOUNTING FOR MANDATORY CONTROLS

In the context of this appendix this section will be predominantly concerned with the problems of reserve accounting when applied to monetary base control. These issues raised are nevertheless very pertinent to the current system of monetary control in the U.K. as the mandatory half percent cash ratio is placed on a lagged basis (as was the former reserve asset ratio), the disadvantages of which will be discussed below.

A mandatory relationship between base money and deposits can be expressed in one of three ways:-

1. Lagged accounting - banks hold base assets at a time $(t+1)$ related to the level of deposits in time t .
2. Current accounting - banks hold base assets at time t in relation to deposits in time t .
3. Lead or reverse-lag accounting - banks limit their deposits at time t to some multiple of base assets held at a previous time $(t-1)$.

Stewart stated: "Whether there should be lagged, current or lead accounting can be endlessly argued about"(16). The issues are, however, important because they have been considered in designing present monetary control arrangements, increasing research is being conducted into reserve accounting and a move to monetary base control would only be complete where the base was calculated on the correct accounting basis. We shall not therefore 'endlessly argue' the issues but offer a concise appraisal.

A.6.1. LAGGED ACCOUNTING

Lagged accounting is used in virtually all countries for the purpose of calculating required reserves, and is indeed suitable when the purpose of reserve ratios is to provide a fulcrum for money-market operations to control interest rates(17para40). Virtually by definition, however, when the total of required reserves is related to the past level of deposits and where there are no excess reserves at the outset in the system, changes in deposits must cause the authorities to allow changes in bank reserves, and not vice versa. Thus

monetary base movements can hardly either control, cause or even indicate future movements in bank deposits.

The present half percent cash ratio is lagged to eligible liabilities in the previous six months. Thus, the amount of cash so held is predetermined. The danger occurs where this level does not correspond with (and in particular is greater than) the level of the base desired by the authorities at that time. Three reconciliations can be suggested(18p.24):

1. To define the mandatory base such that banks would normally hold substantial excess balances, by setting a low ratio and paying interest on such balances. This though has a similar disadvantage to a non-mandatory scheme, in that the relationship between base assets and monetary growth becomes weakened as the volume of excess base assets increases.
2. To modify the requirement so that it was not absolute but that additional base money would only be supplied on penal terms. But under this option the resurgence of disintermediation must be considered a possibility. In practice such penalties would tend to fall on those banks seeking to maintain some stability in their lending rates. Such banks would be induced to disintermediate, switching business to offshore associates or into uncontrolled forms, rather than loose business. The risk of excessive disintermediation is of course the risk of any penalty system.

It has been suggested that two further disadvantages would result(19p.11):-

- a) as banks tried to escape penalties they could be expected to bid vigorously for base money. Thus market rates and bank lending rates would rise dramatically. But because of the lag before interest rates significantly affect bank lending, instability in monetary growth and interest rates could be considerable.
 - b) The Bank of England may not be able to achieve the desired level of base money through open market operations - if only because of the large unforeseen swings in and out of government. Thus, the amount of penal-term lending, and the penalties on the banking system could sometimes differ from the amounts intended.
3. The authorities should provide the additional base assets to enable the banks to meet the mandatory requirement. This, of course, implies an acceptance by the authorities that the base assets on any day may differ from that desired level. Such a scheme would be against the grain of base control (cash should not be supplied on demand) but may be reconciled if a scale of progressively penal rates were applied and control of the base was being achieved over a period and not daily.

Should the Bank use the cash ratio as a form of trigger mechanism, then this method will prove to be particularly conducive to its efficiency on a lagged accounting basis.

Since September 12, 1968 a system of lagged accounting has operated in America. The two changes to Regulation D made then were: (20)

1. Coincident reserve requirements of reserves based on deposits in that week were to be lagged to deposits two weeks ago, and
2. Banks' current reserves were to consist of balances on deposit at the Federal Reserve Bank plus the amount of vault cash held two weeks previously.

Several authors⁶ have, however, argued that lagged accounting has in fact reduced the FRS's control over monetary aggregates and increased the cost of reserve management to individual banks.

A.6.2. CURRENT ACCOUNTING

Similar problems would occur with a system relating required reserves to current liabilities. The clearing banks, with their large branch networks and vulnerability to fluctuations in demand for deposits would be particularly troubled. At the time when they still had the opportunity to bid for base assets, they would not know what their requirements at the close of business would be. There would inevitably be delays in obtaining current information on movements in liabilities and vault cash held at branches. Thus, the banks would note what adjustments would be necessary during the course of the day to meet their required ratios. This uncertainty was often apparent under CCC when the scramble for funds on make-up day caused large interest rate fluctuations.

A.6.3. LEAD ACCOUNTING

The Bank (21 para 42) have recognised that it would be more in the spirit of base control for the reserve ratio to be put on a lead accounting basis. This approach is favoured by Laurent (22) as it would allow the authorities to set the level of required reserves accurately from week to week, thereby improving control over targeted monetary aggregates. This could yield two further advantages as it would be effective no matter how low the mandatory level was set and secondly it could decrease a banks' portfolio management costs.

The strictness of the regime could then relate to the adjustment time allowed, the averaging procedures adopted and the penalties imposed for non-compliance. The efficiency of the system would depend upon the ability of the banks to predict their future balance sheets, and controlling them to meet that forecast. This is clearly a problem given the uncertainty of certain bank facilities (overdrafts, term loans) and that the banking system provides residual finance for the Exchequer, whose position neither the authorities nor the banks can accurately predict in the short term.

Nevertheless, there would have to be some penalty for inadequate or excess holdings of base money - otherwise banks would have little incentive to make realistic forecasts. Two further problems remain. In the absence of penalties on excess holdings then, because of future uncertainties, banks may well hold base assets in excess of their requirement. Thus, a change in the demand for base money could signal a change in banks' precautionary holdings of excess base money or relative yields - but not in expectation of their future deposit liabilities. Secondly severe penalties for inadequate holdings of base money may cause disintermediation. A bank might respond to an under-prediction of their deposit level by ensuring that business over and above this level (for which they had previously acquired base assets) was done through channels which were outside the mandatory requirements, such as the Euro-sterling markets.

It is largely due to their respective technical problems that neither current lead accounting has been adopted in the U.K. Nevertheless it has been shown that the possible disadvantages of lagged accounting for reserve requirements may warrant future research into an accounting system which could overcome such technical problems.

NOTES TO APPENDIX 1

1. See 'Annual Monetary Review', 17 February 1981, Vol.3, City University, London.
2. Goodhart was a former chief monetary economist at the Bank of England.
3. Since 1854, Northern Ireland and Scotland have been authorised to issue their own notes in excess of the fiduciary issue, provided the excess issues are backed by holdings of Bank of England notes. Such excess issues are not therefore liabilities of the Bank of England and are not included in the monetary base.
4. Strictly speaking coin is not a liability of the Bank of England as it is issued by the Royal Mint, a government trading fund. In circulation, however, notes and coin are interchangeable and in fact coin is only a small fraction of the total.
5. Special deposits and supplementary special deposits are however liabilities of the Bank of England to money creating institutions. A compromise has been therefore adopted by the IMF by making an offsetting adjustment to the base every time the rate of call changes.
6. See for example, Journal of Money, Credit and Banking:-
 - a) May 1976, 'Lagged reserve accounting and the money supply mechanism'.
 - b) May 1976, 'Contemperateous v. Lagged reserve accounting'.
 - c) November 1977, 'Money supply control and lagged reserve accounting'.
 - d) August 1979, 'Reserve requirements - are they lagged in the wrong direction?'

APPENDIX TWO CITIBANK DEBT EARN BACK TEST

B.1. ASSUMPTIONS

A hypothetical example is considered using a 100 million, 25 year debt issue:-

- a) after-tax return on assets is 0.60 percent, net of operating expenses, bad debts and the interest cost associated with the new debt issue;
- b) the debt/capital leverage ratio is 16.67. This determines the level of new assets that can be supported by the debt;
- c) the assets/equity ratio is also assumed to be 16.67. This determines the amount of new assets that can be supported by the retained earnings generated;
- d) time required to reach the maximum leverage factor is assumed to be immediate, implying that either the institution can acquire the new assets and the additional funding immediately, or, that the assets have already been acquired and the institution uses the issue to restore its capital ratios;
- e) the dividend payout ratio is 40 percent, and therefore the earnings retention rate is 60 percent.

B.2. THE SIMULATION

The simulation is given by Table 27 and is explained as follows. The assumptions state that the debt will be leveraged 16.67 times immediately. Thus, a \$100m debt issue is leveraged by acquiring \$1567m of short-term liabilities and investing the total funds in new assets. \$1667m of new assets are therefore acquired (column 3). From assumption (1), \$1667m assets will produce \$10m in earnings (column 6), of which 60 percent or \$6m are retained.

In Year 2, the debt has already been leveraged 16.67 times, but the \$6m retained earnings from year 1 is added to the equity base and may now be leveraged. This produces another \$100m in assets ($16.67 \times \$6m$). Total assets now of \$1767m will give an after-tax return of \$11m from which \$7m will be retained. The cumulative contribution to retained earnings from both years' earnings is then \$13m (column 9).

By the twelfth year the contribution to retained earnings will have reached \$101m at which point Citibank claim the debt will have 'earned itself back'. Over its entire life, this debt will contribute \$331m to retained earnings, though only the original principal of \$100m is considered capital.

Therefore if the premise that capital debt is an equity supplement is accepted, then if that debt generates sufficient earnings to replace itself over its life, it should be included within the capital base when assessing capital adequacy.

TABLE 27: DEBT EARN BACK TEST ON A \$100 MILLION 25 YEAR DEBT ISSUE (\$M)

Beginning Year (1)	Debt Outstanding (2)	Assets Supported by		Total Assets (5)	Earnings (6)	Dividends (7)	Retained Earnings:-	
		Debt (3)	Retained Earnings (4)				Annual (8)	Cumulative (9)
1	100	1,667		1,667	10	4	6	6
2	100	1,667	100	1,767	11	4	7	13
3	100	1,667	206	1,873	11	4	7	20
4	100	1,667	312	1,986	12	5	7	27
5	100	1,667	440	2,107	13	5	8	35
11	100	1,667	1,330	2,997	18	7	11	70
12	100	1,667	1,507	3,174	19	8	11	101 ¹
13	100	1,667	1,698	3,365	20	8	12	113
20	100	1,667	3,394	5,061	30	12	18	222
24	100	1,667	4,723	6,390	38	15	23	306
25	100	1,667	5,104	6,771	41	16	25	331 ²

SOURCE: Howard & Hoffman Citibank 1980 Exhibit 8

APPENDIX THREE

EFFECT ON CAPITAL RATIOS OF INFLATION/SIMULATION MODEL

C.1. ASSUMPTIONS

- a) A highly simplified bank is considered where its assets are assumed to be homogeneous and to earn the same rate of return.
- b) The bank initially operates with a capital ratio of 5 percent given:
- | | |
|----------------------|-----|
| | £m |
| Capital and reserves | 5 |
| Deposits | 95 |
| Total | 100 |
- c) The interest margin between the rate paid on deposits and the return received on assets is 4 percent. This margin is related to total assets.
- d) Fees and commissions are ignored.
- e) The gross surplus or profit before tax is 1 percent of total assets.
- f) Corporation tax is 50 percent, as is the dividend payout ratio.

C.2. THE SIMULATION

The initial assumptions are summarised in Column A of Table 28 below.

Table 28 Simulations of the effects of growth in deposits on bank profitability and capital ratios (£m)

	A	B	C	D
Gross earnings margin	4.0	4.8	6.0	4.80
Operating costs	3.0	3.6	3.6	3.30
Profits before tax	1.0	1.2	2.4	1.50
Tax	0.5	0.6	1.2	0.75
Profits after tax (net surplus)	0.5	0.6	1.2	0.75
Dividends	0.25	0.3	0.3	0.3
Retained Earnings	0.25	0.3	0.9	0.45
Capital ratios (%)	5.0	4.4	4.9	4.5
Dividend yield (%)	5.0	5.7	5.1	5.5

Source: J.R.S. Revell, Costs and Margins in Banking - An International Survey, Table 7.2, page 89.

In the first simulation it was assumed that deposits had increased by £20 million to £115 million, a purely inflationary growth where prices rise by the same proportion. This is summarised in Column B. Because all other assumptions remained unchanged, all the figures in B are 120/100 times the equivalent figure in Column A. Thus, to maintain a 5 percent capital ratio, the bank needs to add £1 million to its capital from retained earnings - yet the bank is unable to add more than £0.3 million at this level of earnings after covering operating costs, taxation and dividends.

The bank cannot therefore continue to operate with a gross earnings margin of 4 percent with inflation at 20 percent unless the supervisory authorities and the market are prepared to see its capital ratio dropping sharply.

Column C of Table shows the effect of raising the gross earnings margin to £6 million, with the same £20 million increase in deposits as in the first simulation. The possibility for a real growth in deposits is allowed for in Column D by assuming that the general price level rises by a little over 10 percent but that deposits rise by £20 million again. The table shows the clear difference between inflationary growth of deposits and real growth in the effects on the operating account and capital ratios.

APPENDIX FOUR

EXTERNAL FINANCING OF MAJOR LONDON CLEARING BANKS

D.1. NON-DEBT CAPITAL FINANCE OF MAJOR LONDON CLEARING BANKS 1969-1981

1. Barclays Bank

None, but effectively raised £85 million by acquiring Investment Trust Corporation for shares and then selling it to the General Post Office Pension Fund in July 1978.

2. Lloyds Bank

£76 million rights issue, February 1976.

3. Midland Bank

a) £53 million rights issue March 1975.

b) £99 million rights issue February 1978.

c) £51 million raised through disposal of interest in Bland Payne Sedgewick Forbes, February 1979.

d) £45 million raised through disposal of interest in Standard Chartered Bank, October 1979.

e) £38 million raised through disposal of interests in Bland Payne Sedgewick Forbes and Standard Chartered Bank, January 1980.

4. National Westminster

£67 million issued, July 1976.

SOURCE: Grievson, Grant & Co., The English Clearing Banks - Results, Risks and Prospects, May 1980.

APPENDIX CONT.

D.2. LOAN CAPITAL OF MAJOR LONDON CLEARING BANKS 1970-81

1. BARCLAYS BANK GROUP

a. BARCLAYS BANK PLC	£m
pre 1969 8½% Unsecured Loan Stock 1986-1993 £59m	59.0
b. BARCLAYS BANK INTERNATIONAL LTD.	£m
pre 1969 7½% Unsecured Capital Loan Stock 1986-1991	10.1
1972 8½% Unsecured Capital Bond 1986 (US\$21m)	9.4
1975 9½% Unsecured Capital Notes 1982 (US\$47.4m)	21.3
1976 9½% Unsecured Capital Bonds 1985 (US\$50m)	22.5
1976 9½% Unsecured Capital Bonds 1987 (US\$25m)	<u>11.3</u>
	74.6
	<hr/> <hr/>
c. BARCLAYS AMERICAN CAPITAL CORPORATION	
1981 14½% Guaranteed Capital Notes 1991 (US\$100m)	52.2
d. BARCLAYS OVERSEAS INVESTMENT COMPANY	
1977 8½% Unsecured Guaranteed Bonds 1992 (US\$89.7m)	40.4
1978 4½% Unsecured Notes 1988 (Sw Fr 60m)	16.9
1979 6½% Unsecured Bearer Bonds 1979-1989 (DM 100m)	26.0
1979 Guaranteed Floating Rate Notes 1990 (US\$100m)	45

2. LLOYDS BANK GROUP

Year of Issue

a. LLOYDS BANK PLC	
1973 7½% Convertible Subordinated Unsecured Loan Stock 1984	53.4
1974 9% Subordinated Notes 1980-1989 (US\$20m)	9.0
1974 9% Subordinated Loans 1981-1984 (US\$75m)	<u>33.7</u>
	96.1
	<hr/> <hr/>
b. LLOYDS EUROFINANCE IUV	
1975 Guaranteed Floating Rate Notes 1983 (min.7½%) (US\$75m)	34.1
1980 Guaranteed Floating Rate Notes 1990 (min.8%) (£ or US\$payable)	50.0
1980 Guaranteed Floating Rate Notes 1992 (min.5½%) (US\$100m)	<u>41.8</u>
	125.9
	<hr/> <hr/>
c. LLOYDS FIRST WESTERN CORPORATION	
1974 8½% Promisory Notes 1982-1994 (guaranteed and subordinated) (US\$40m)	18.0
d. LLOYDS BANK CALIFORNIA	
1974 4½% Capital Notes 1975-1989 (Subordinated) (US\$8.4m)	3.8
e. LLOYDS AND SCOTTISH PLC	
1981 Debentures payable in more than five years (controlling interest in Lloyds and Scottish, acquired 1981)	6.5

3. MIDLAND BANK GROUP

	£m
a. MIDLAND BANK PLC	
1972 7½% Convertible Subordinated Unsecured Loan Stock 1983-1993	83.0
1972 10¾% Subordinated Unsecured Loan Stock 1993-1998	31.1
1975 Floating Rate Capital Notes 1982 (US\$50m)	22.4
1976 Floating Rate Capital Notes 1983 (US\$50m)	<u>22.4</u>
	158.9
b. MIDLAND GROUP SUBSIDIARIES	
1974 9.9% Secured Loan due 1997	3.7
1976 8¾% Guaranteed Bonds 1986 (US\$70m)	31.5
1977 Guaranteed Floating Rate Notes 1987 (US\$50m)	22.4
1977 8¾% Guaranteed Bonds 1992 (US\$75m)	33.7
1978 Guaranteed Floating Rate Notes 1993 (US\$125m)	56.1
1979 Guaranteed Floating Rate Notes 1989 (US\$125m)	56.1
1980 Guaranteed Floating Rate Notes 1992 (US\$150m)	62.9
1980 8½% Guaranteed Bonds 1980-1990 (DM180m)	38.5
1981 4.6% Capital Notes 1989 (US\$8.9m)	4.7
1981 Guaranteed Floating Rate Notes 1991 (US\$150m)	78.6
1981 Guaranteed Floating Rate Notes 1994 (US\$75m)	39.3
1981 5¾% Convertible Subordinated Debentures 1996 (US\$4.3m)	2.2
1981 Other Long Term Borrowings	<u>122.9</u>
	552.6

4. NATIONAL WESTMINSTER BANK GROUP

a. NATIONAL WESTMINSTER BANK LTD.	
1970 9% Subordinated Unsecured Loan Stock 1993	20.6
1970 8¾% Subordinated Unsecured Loan Stock 1980(?)	8.7
1973 8% Bearer Bonds, Subordinated, 1979-1988 (DM 90m)	23.4
1976 9% Subordinated Capital Bonds 1980-1986 (US\$50m)	22.4
1978 9% "B" Capital Bonds 1983-1986 (US\$75m)	37.6
1978 Floating Rate Capital Notes, Subordinated 1982-1990 (min.5½%) (US\$150m)	67.2
1979 Floating Rate Capital Notes Subordinated, 1983-1994 (min.5¼%) (US\$100m)	44.8
1979 3¾% Subordinated Loan 1987 (Sw Fr 25m)	7.1
1979 3 11/16 % Subordinated Loan 1987 (Sw Fr 25m)	<u>7.1</u>
	234.9
b. SUBSIDIARIES	
1977 Floating Rate Capital Notes, Subordinated, 1981-1984 (min.6%) (US\$120m)	53.9
1979 US\$ Floating Rate Capital Notes 1980	8.4
Various 3½-6½% Debentures Repayable in More Than Five Years	<u>25.5</u>
	87.8

SOURCE: (1) Reports and Annual Accounts

(2) N.S. Coulbeck, Funds Management in UK Clearing Banks 1970-1980, Unpublished paper, 1982, Table 22.

E.2. DEFINITIONS

The risk asset categories were defined as follows:

- a) Riskless Assets - were a banks' required reserves and highly liquid assets, specifically covering:-
 - (i) cash, accruals and prepaid, treasury bills and US government securities maturing within five years, and
 - (ii) bankers' acceptances and Federal Reserve Banks' Stock, which were of comparable quality and short term maturity.
- b) Minimum Risk Assets - loans and investments that have less than normal credit risk or those that may be readily pledged or sold.
- c) Normal Risk v. Portfolio Assets - assets with normal or usual banking risks.
- d) Substandard Assets - assets with a greater than normal banking risk as a result of the financial condition or unfavourable record of the obliger, insufficiency of security or other factors. This category recognises that some aspects of banking business will involve a greater banking risk but that such assets do not necessarily contain an element of loss.
- e) Workout Assets - to realise will require costly actions with a high degree of uncertainty. They are unlikely to be repaid without bank intervention and the bank is unlikely to be repaid in full.
- f) Fixed and Loss Assets - defined to include bank premises, furniture and fixtures because they are not considered bank investments in a true sense. These assets therefore require the full 100 percent capital cover.

SOURCE: Revell, J.R.S., Solvency and Regulation of Banks, 1975, p.31.

APPENDIX SIX

FORM FOR ANALYSING BANK CAPITAL

F.1. 1956 FORM FOR ANALYSING BANK CAPITAL

(Dollar Amounts in Thousands)

	AMOUNT		CAPITAL REQUIREMENT		LIQUIDITY CALCULATION	
	OUTSTANDING		Percent	Amount		
(1) PRIMARY AND SECONDARY RESERVE					47% of Demand Deposits ipc	\$ _____
Cash Assets	\$ _____		0%		36% of Time Deposits ipc	_____
Gross Portion of CCC or V-loans	_____				100% of Deposits of Banks	_____
Coins, Paper, Bnk Accept. & Buks' Lns	_____				100% of Other Deposits	_____
U.S. Govt. Secs:			0.5%	\$ _____	100% of Borrowings	_____
Bills	_____				Allow. for spec. factors, if	_____
Certificates, etc. (to 1 year)	_____				info. available (+ or -)	_____
Other (1-5 yrs.) (Incl. Treas.	_____					
Inv. Series A & B)	_____					
Other Secs. Inv. Rtns 1&2 or	_____		4.0%	_____	A. Total Provision for	_____
Equiv. (to 3 yrs.)	_____				Liquidity	_____
TOTAL:	\$ _____				B. Liquidity available from	_____
(2) MINIMUM RISK ASSETS					Prim. and Secondary Res.	_____
U.S. Govt. Secs. (5-10 years)	_____				("amt.outstanding" less	_____
Inv. Portion FHA Rep. & Mod'n Loans	_____				cap. required thereon)	_____
Loans on Passb'ks, U.S. Secs, or	_____				C. Liquidity to be provided	_____
CSV Life Ins.	_____				from assets in Groups 2,	_____
Short-term Principal Loans	_____				3 or 4 (zero if B equals	_____
TOTAL:	\$ _____		4%	_____	or exceeds A, otherwise A	_____
(3) INTERMEDIATE ASSETS					less B)	_____
U.S. Govt. Sec. (Over 10 years)	_____				D. Liquidity available from	_____
FHA and VA Loans	_____				Min. Risk Assets (90% of	_____
TOTAL:	\$ _____		6%	_____	"amt.outstanding" in line	_____
(4) PORTFOLIO ASSETS (Gross of Res.)					2)	_____
Investments (not listed elsewhere)	_____				E. Liquidity to be provided	_____
Loans (not listed elsewhere)	_____				from assets in Groups 3 or	_____
TOTAL:	\$ _____		10%	_____	4 (zero if D equals or exc-	_____
* Plus 15% of 1st \$100,000 of portfolio, 10%					ceeds C, otherwise C less D)	_____
of next \$100,000 and 5% of next \$300,000.					F. Liquidity available from	_____
(5) FIXED, CLASSIFIED & OTHER ASSETS					Intermediate Assets (35% of	_____
Bk. Prem., Furn. & Fixt, Other Real	_____				"amt.outstanding" in line 3)	_____
Estate	_____				G. Liquidity to be provided	_____
Stocks & Defuncted Sec.	_____		100%	_____	from Portfolio Assets (zero	_____
Assets Classified as "Loss"	_____				if F equals or exceeds E,	_____
Assets Classified as "Doubtful"	_____		50%	_____	otherwise E less F)	_____
Assets Classified as "Substandard"	_____		20%	_____	* * * * *	_____
Accruals, Fed. Res. Bk. Stock, Prep.	_____				Extra Capital Required on Any Assets in	_____
Expen.	_____		0%	_____	Groups 2-4 Used for Liquidity	_____
TOTAL ASSETS:	\$ _____				6.5% of line C	_____
6) ALLOWANCE FOR TRUST DEPT. (Amt. equal to 300% of annual gross					4.0% of line E	_____
earnings of Department)					9.5% of line G	_____
7) EXTRA CAP. REQ. IF ANY ASSETS IN GROUPS 2-4 USED FOR						_____
LIQUIDITY (zero if line C in Liability Calculation is					II. Total Extra Cap. Req.	\$ _____
zero, otherwise Total in line 4)						_____
8) ALLOW. FOR SPEC. OR ADJUT. FACTORS, IF INFO. AVAILABLE (+ or -)						_____
(See notes on reverse side)						_____
9) TOTAL CAPITAL REQUIREMENT (1 thru 5)				\$ _____		_____
9) ACTUAL CAP. ETC. (Sum of Cap. Stock, Surplus, Undiv. Profits, Res. for Coating., Loan Valuation Res.,						\$ _____
Net unapplied Sec. Valuation Res., Unallocated Charge-offs, and any comparable						_____
items) (Exclude Depreciation and Amortization Reserves)						_____
1) AMOUNT BY WHICH ACTUAL IS:						_____
MORE than requirement (10 minus 9)						+\$ _____
or						_____
LESS than requirement (9 minus 10)						-\$ _____
2) AMOUNT OF ACTUAL CAPITAL, ETC. TO REQUIREMENT (10 divided by 9)						_____ %

F.2. NOTES REGARDING FORM FOR ANALYSING BANK CAPITAL (1956)

A thorough appraisal of the capital needs of a particular bank must take due account of all relevant factors affecting the bank. These include the characteristics of its assets, its liabilities, its trust or other corporate responsibilities, and its management - as well as the history and prospects of the bank, its customers and its community. The complexity of the problem requires a considerable exercise of judgement. The groupings and percentages suggested in the Form For Analysing Bank Capital can necessarily be no more than aids to the exercise of judgement.

The requirements indicated by the various items on the form are essentially "norms" and can provide no more than an initial presumption as to the actual capital required by a particular bank. These "norms" are entitled to considerable weight, but various upward or downward adjustments in requirements may be appropriate for a particular bank if special or unusual circumstances are in fact present in the specific situation. Such adjustments could be made individually as the requirements are entered for each group of assets; but it usually is preferable, particularly for future reference, to combine them and enter them as a single adjustment under Item 8, indicating on the Analysis Form or an attached page the specific basis for each adjustment.

The requirements suggested in the Analysis Form assume that the bank has adequate safeguards and insurance coverage against fire, defalcation, burglary, etc. Lack of such safeguards or coverage would place upon the bank's capital risks which it should not be called upon to bear.

ITEM (4) - PORTFOLIO ASSETS

Concentration or Diversification - The extra requirement of 15% of the first \$100,000 of portfolio, 10% of the next \$100,000, and 5% of the next \$300,000, as specified in item 4, is a rough approximation of the concentration of risk (lack of diversification) which is likely in a smaller portfolio, and which is usually reflected in the somewhat larger proportion of capital shown by most banks with smaller portfolios. This requirement is applied to all banks, but is naturally a larger portion of the total capital requirements of banks with smaller portfolios. However, a particular portfolio, whatever its size, may in fact have either more or less concentration of risk than other portfolios of similar size. If there is in fact substantially greater or lesser concentration of risk in the portfolio assets of the particular bank - as for example dependence upon a smaller or larger number of economic activities - it would be appropriate to increase or decrease requirements correspondingly.

Profits Accepted by Bank - When drafts have been accepted by the bank, ordinarily the customers' liability to the bank should be treated as Portfolio Assets if the acceptances are outstanding, or the acceptances themselves should be so treated if held by the bank.

ITEM (5) - FIXED, CLASSIFIED, AND OTHER ASSETS

Rental Properties - Bank premises, furniture and fixtures, and other real estate are assigned a 100% requirement as a first approximation, since these assets usually are not available to pay depositors unless the bank goes into liquidation, and even then they usually can be turned into cash only at substantial sacrifice. However, some properties which bring in independent income, such as bank premises largely rented to others, may be more readily convertible into cash by selling or borrowing on them, and in such situations it may be appropriate to reduce the 100% requirement by an amount equal to an assumed "sacrifice" value, such as, say, two or three times the gross annual independent income.

Stocks - In the case of stocks, their wide fluctuations in price suggest a 100% requirement as a first approximation. However, in some cases it may be appropriate to reduce the 100% requirement against a stock by an amount equal to an assumed "sacrifice" value, such as the lowest market value reached by the stock in, say, the preceding 36 or 48 months.

Hidden Assets - In some cases assets may be carried at book values which appear to be below their actual value, and may thus appear to provide hidden strength. However, any allowance for such a situation should be made with great caution, and only after taking full account of possible declines in values and the great difficulty of liquidating assets in distress circumstances.

ITEM (6) - ALLOWANCE FOR TRUST DEPARTMENT

Deposited Securities - The requirement for the trust department should in no event be less than the amount of any securities deposited with the State authorities for the protection of private or court trusts, since such securities are not available in ordinary circumstances to protect the bank's depositors.

LIQUIDITY CALCULATION

Percentages of Deposits - The provision for 47% liquidity for demand deposits of individuals, partnerships and corporations actually represents 33-1/3% possible shrinkage in deposits, plus 20% of the remaining 66-2/3%. 36% of time deposits i.p.c. represents 20% shrinkage, plus 20% of the remaining 80%. In both instances, the provision for 20% liquidity for remaining deposits is to help the bank continue as a going concern even after suffering substantial deposit shrinkage.

Among possible special factors to be considered in connection with the liquidity calculation would be concentration or diversification of risk among deposits. This might be due to such things as dependence upon a smaller or larger number of economic activities, or preponderance of large or small deposits - large deposits usually being more volatile.

Liquidity Available from Assets - Liquidity available from primary and secondary reserves is assumed to equal the amount of those assets less only the regular capital required thereon, since the regular capital specified for these assets assumes forced liquidation. However, the regular capital specified for other assets (i.e. those in Groups 2-4) is only a portion (approximately 40%) of that required for forced liquidation. Therefore, in determining the liquidity available from such other assets, the amount of such other assets must be reduced by more than the regular specified capital.

Extra Capital Required - This extra capital is to cover possible losses in forced liquidation of assets other than primary and secondary reserves in case they had to be used to provide liquidity. The 4% indicated for Line E amounts to an automatic addition to the 6.5% that has already been applied to Line C, and results in a total extra requirement of 10.5% of the liquidity to be provided from Intermediate Assets. Similarly, the total extra requirement on the liquidity to be provided from Portfolio Assets is 20%. If the same amounts of extra capital were stated as percentages of the assets to be liquidated rather than of the liquidity to be provided, the percentages would be smaller, namely, 6% of Minimum Risk Assets, 9% of Intermediate Assets, and 15% of Portfolio Assets.

F.J. 1972 FORM FOR ANALYSING BANK CAPITAL

	LIQUIDITY CALCULATION			MEMORANDA	
	Amount Outstanding	Per Cent	Calculation		
Demand deposits, IFC	_____	35	_____	(a) "Other Liabilities" & Loans: Consumer instalment" are shown net of: Dealers reserves..... Income collected but not earned.....	
Savings deposits	_____	25	_____		
Time deposits, IFC, under \$100,000	_____	30	_____		
Time deposits, IFC, \$100,000 and over	_____	80	_____		
Deposits of banks	_____	80	_____		
Other deposits	_____	80	_____		
TOTAL DEPOSITS	_____		_____		
Borrowings	_____	100	_____		(b) "LIQUIDITY AVAILABLE FROM ASSETS" is to be aggregated only until it equals "TOTAL LIQUIDITY CALCULATION"
Other liabilities (a)	_____	100	_____		
Special factors:	_____	100	_____		(c) "Cash Assets" are shown net of: Required reserves.....
TOTAL LIQUIDITY CALCULATION (b)	_____		_____	(d) "TOTAL ASSETS" are shown net of assets classified as: Doubtful..... Loss.....	

	Amount Outstanding	Capital Calculation Credit Risk Percent	Capital Calculation Market Risk Amount	Liquidity Available From Assets Amount	Liquidity Available From Assets Aggregate (b)
		Percent	Percent		
(1) PRIMARY RESERVE					
Cash assets (c)	_____	0	0	0	
Federal funds sold	_____	0	0	0	
(1) TOTAL	_____	0	0	0	
(2) SECONDARY RESERVE					
Commercial paper & bankers acceptances	_____	1	1		
Securities maturing under 1 yr:					
U.S. Treasury	_____	0	*		
Government Agencies	_____	0	*		
State, county & municipal	_____	0	*		
Other Group 1	_____	0	1		
(2) TOTAL	_____	0	1		
(3) MINIMUM RISK ASSETS					
Securities maturing 1-5 yrs:					
U.S. Treasury	_____	0	*		
Government Agencies	_____	0	*		
State, county & municipal	_____	2	*		
Other Group 1	_____	2	6		
(3) TOTAL	_____	2	6		
(4) INTERMEDIATE ASSETS					
Securities maturing 5-10 yrs:					
U.S. Treasury	_____	0	*		
Government agencies	_____	0	*		
State, county & municipal	_____	3	*		
Other Group 1	_____	3	15		
Loans especially secured or guaranteed	_____	3	15		
(4) TOTAL	_____	3	15		
(5) PORTFOLIO ASSETS					
Securities maturing over 10 yrs:					
U.S. Treasury	_____	0	*		
Government agencies	_____	0	*		
State, county & municipal	_____	5	*		
Other Group 1	_____	5	25		
Loans: Real estate	_____	5	25		
Consumer instalment (a)	_____	5	25		
All other	_____	5	25		
(5) TOTAL	_____	5	25		
(6) FIXED, CLASSIFIED & OTHER ASSETS					
Bank premises	_____	50			
Furniture & fixtures, other real estate	_____	100			
Group 2 securities	_____	50			
Group 3 & 4 securities	_____	100			
Assets classified substandard	_____	20			
Accruals & other assets	_____	0			
(6) TOTAL	_____				
(7) TOTAL CAPITAL CALCULATED FOR MARKET RISK					
(8) TOTAL CAPITAL CALCULATED FOR CREDIT RISK					
(9) TOTAL ASSETS (d)			2		
(10) TRUST DEPARTMENT GROSS EARNINGS			200		
(11) SPECIAL FACTORS					
(12) TOTAL CAPITAL CALCULATION (sum of lines 7 through (1)					
(13) ADJUSTED CAPITAL STRUCTURE: & CAPITAL STRUCTURE INDEX (Adjusted capital structure divided by line (2)).....\$					
(14) ADJUSTED EQUITY CAPITAL ² & EQUITY CAPITAL INDEX (Adjusted equity capital divided by line (12)).....\$					

CAPITAL RATIOS

Adjusted capital structure as a percent of:

total assets _____ %; total assets minus primary reserves, U.S. Treasury and Agency securities _____ %;
total deposits _____ %.

Adjusted equity capital as a percent of:

total assets _____ %; total assets minus primary reserves, U.S. Treasury and Agency securities _____ %;
total deposits _____ %.

¹ Adjusted capital structure = Total capital accounts plus reserves on securities and loans minus assets classified less than 50 percent of assets classified doubtful

² Adjusted equity capital = Total capital accounts minus reserves on securities and loans minus assets classified doubtful

1.4. NOTES REGARDING FORM FOR ANALYSING BANK CAPITAL (1972)

A thorough appraisal of the capital needs of a particular bank must take due account of all relevant factors affecting the bank. These include the characteristics of its assets, its liabilities, its trust or other corporate responsibilities, and its management - as well as the history and prospects of the bank, its customers and its community. The complexity of the problem requires a considerable exercise of judgment. The groupings and percentages suggested in the Form for Analysing Bank Capital can necessarily be no more than aids to the exercise of judgment.

The requirements indicated by the various items on the form are essentially "norms" and can provide no more than an initial presumption as to the actual capital required by a particular bank. These "norms" are entitled to considerable weight, but various upward or downward adjustments in requirements may be appropriate for a particular bank if special or unusual circumstances are in fact present in the specific situation. Such adjustments may be entered under "Special factors" indicated on the Analysis Form.

The requirements suggested in the Analysis Form assume that the bank has adequate safeguards and insurance coverage against fire, defalcation, burglary, etc. Lack of such safeguards or coverage would place upon the bank's capital risks which it should not be called upon to bear.

* **SECURITIES COMPUTATIONS** which take account of quality, yield and narrower maturity ranges. For determining market risk take the following steps:

1. Distribute the bank's holdings of U.S. treasury, U.S. Agency and State and Political Subdivisions in the following markets:

Years Over Through	U.S. Treasury			U.S. Government Agencies and corporations			States and Political Subdivisions		
	Avg. Cpn. Rate ¹	Par	Book	Avg. Cpn. Rate ¹	Par	Book	Avg. Cpn. Rate ¹	Par	Book
1		\$	\$		\$	\$		\$	\$
1 2									
2 5									
5 10									
10 20									
20									
Totals		\$	\$		\$	\$		\$	\$

Years Over Through	U.S. Treasury		U.S. Government Agencies and Corporations		States and Political Subdivisions		HIGH YIELDS		
	Avg. Cur. Mkt. Yld. ²	Market ²	Avg. Cur. Mkt. Yld. ²	Market ²	Avg. Cur. Mkt. Yld. ²	Market ²	US Treasury	US Government agencies and corporations	States and political sub-divisions
1		\$		\$		\$	7.75	8.21	5.07
1 2							7.78	8.23	5.11
2 5							7.82	8.29	5.32
5 10							7.64	8.39	5.65
10 20							7.30	7.98	6.08
20							7.07	8.12	6.43
Total Market Value		\$		\$		\$			

¹ Average coupon rate. The preferred method is to obtain by computing actual annual coupon income generated by securities in a given cell and dividing such annual coupon income by the par value of the cell. In the alternative, the average coupon rate may be imputed as described overleaf.

2. (Not necessary to complete if average coupon rate is known). Average current market yield (approximate yield base for market value shown) may be obtained from actual knowledge of yields used to obtain above market value or by selecting a single investment issue for each cell that is representative of that particular cell, e.g. for State and political subdivisions with maturities of from 10-20 years, select a medium grade issue maturing in 15 years or as close to 15 years as is available. Divide the market value of the issue by par value and locate the resultant value in the Comprehensive Bond Value Tables under the coupon rate of the issue selected and trace across to maturity yield. Enter maturity yield under "Avg. Cur. Yld." above. If information concerning the individual securities comprising each cell is unavailable, enter market yield obtained from a general review of rates prevailing at or near the time of pricing.
2. Price the securities in each cell to yield at the high yield rate set forth in the high yield matrix. Note: Price as though each cell was a single issue using average coupon rate and total par value. Assume maturities for each cell as follows: 1-(1 year); 1-2(1½ years); 2-5(3½ years); 5-10(7½ years); 10-20(15 years); 20(25 years (except assume 20 years for U.S. Agencies)). Note: If bank has a concentration of lower quality municipal securities add about 50 basis points to high yield for "States and political subdivisions".
3. Determine the amount of maximum probable market depreciation in each cell by subtracting the market value obtained from step 2, above from the book value of securities. Enter actual figure for maximum potential market loss in the appropriate market risk column, combining where necessary in order to conform to distribution as appears on the front of the Form. If computations show potential market appreciation enter zero for market risk.

Method for Imputing Coupon

Par value + Market value = Assumed price

Locate assumed price in the Comprehensive Bond Valuation Tables assuming a coupon equal to average current yield. Trace the price to the yield to maturity column in the tables. The yield to maturity is the imputed average coupon rate of that particular cell. (Note: Owing to the restraints of the table size the yield may have to be interpolated; a more precise method for obtaining the yield may be achieved by utilizing the mathematical equation for determining such yields).

Note: If the above data are unavailable and as an alternative but less desirable method, the following percentage charges may be used:

All securities maturing under 1 year, 1 percent; 1-5 years, 8 percent; 5-10 years, 15 percent; over 10 years, 25 percent.

SOURCE: G.J. Votje, Bank Capital Adequacy, Citibank, 1973.

The disaster valuation approach based on the 1930's can be seen in the liquidity calculations. The percentages for demand and time deposits of individuals, partnerships and corporations are determined from the worst deposit 'shrinkages' experienced during the 1980's. To this is added a 20% margin, supposedly to enable the bank to maintain itself as a going concern. Thus a 47% requirement on time deposits ipc actually represents a thirty-three and a third percent shrinkage plus 20% of the remaining sixty-six and two thirds percent. Similarly 36% is 20% shrinkage plus 20% of 80%.

It is interesting to note, however, the 100% requirement against all other deposits. Thus if primary and secondary reserves are not sufficient to cover these liquidity requirements, then assets in successive less liquid categories will have to be used. Again incorporating the disaster valuation approach, if such assets are used then they will be valued on a forced sale basis or gone-concern.

Of more analytical importance, however, is the notes accompanying the statistical breakdowns. It notes that special factors to be considered in connection with the liquidity calculation will be excentration or diversification of risk among deposits. But it also noted that the capital needs of a bank must take into account all relevant factors affecting the bank. Thus whilst no guidelines were laid down for judging the management, history and prospects of a bank, the Board of Governors would consider these factors. Interestingly enough though their conclusion was 'The complexity of the problem requires a considerable exercise of judgment. The groupings and percentages suggested in the form for Analysing Bank Capital can necessarily be no more than aids in the exercise of judgment.'

In 1972 form ABC was revised to take into account the two 'credit crunches' of 1966 and 1969. Thus, the disaster valuation was now to be based on the experiences of the period 1950-1971. The new features were now:-

1. Distinction between credit risk and market risk.
2. Cash assets to be calculated net of reserve assets.
3. Market risk to be calculated for different classes; coupons and maturities of marketable securities in an 18 cell matrix.
4. The liquidity calculation shows reduced requirements against ipc time and demand deposits under \$100,000, but time deposits over \$100,000 have a requirement of 80% because of the volatility of ON's.

APPENDIX 7

THE MEASUREMENT OF CAPITAL SEPTEMBER 1980

G.1. OBJECTIVES

The two most important objectives are:

1. To ensure that the capital position of an institution is regarded as acceptable by its depositors and other creditors; and
2. To test the adequacy of capital in relation to the risk of losses which may be sustained.

It was concluded that the first objective is broadly met by relating current liabilities to capital resources - a free resources or gearing ratio - which is to be constructed as far as possible from elements available to the public. For the purpose of supervision the second objective is the more important, and will be measured by a risk asset ratio. This requires information, an important part of which is likely to be available only to the supervisory authority and the institution itself.

G.2. DEFINITION OF THE CAPITAL BASE

For both ratios there is a common definition of shareholders funds to which certain adjustments will be made.

1. Shareholders Funds
 - a) Share Capital.

The amount paid up (whether in full or in part) on the issued ordinary and non-redeemable preference shares, plus the share premium.
 - b) Loan Capital.

Loan capital which is fully subordinated to other creditors (including depositors), which has a minimum initial term of five years to maturity and incorporates no restrictive covenants: subject to a maximum of one third of the total capital base net of outstanding goodwill and to straight line 'amortisation' in the last five years of life.
 - c) Minority Interests.

When included in accounts as a result of the consolidation of subsidiary companies not wholly owned.
 - d) Reserves.

Comprise balance on profit and loss account and general reserves, however described, including 'inner reserves'.
 - e) Provisions.

General bad debt provisions less any associated deferred tax asset.

2. The Gearing Measurement

The gearing of free-resources ratio is determined by incorporating the following deductions to shareholders' funds:

- a) Investments in subsidiaries and associated companies and trade investments. The preferred treatment is to consolidate the business of the subsidiary and the parent, but where this is not done a deduction from the parent's capital will be made. Such investments are likely to be used as a basis for gearing by the affiliate, and unless some adjustment is made the capital in the parent will therefore be geared on twice. In addition lending to such companies which has the character of capital should also be deducted in full.
- b) Goodwill.
This is justified on the grounds of the uncertainty of the value of that part of the cost of acquiring an asset which exceeds its net value.
- c) Premises.
- d) Equipment and Other fixed assets.
A full deduction of these fixed assets is made on the basis that it is imprudent to employ depositors' funds to finance the offices from which banks operate and the equipment used in the business.

3. The Risk Measure

Some of the deductions from the capital base made in the gearing ratio are equally appropriate for the risk asset ratio. Thus investments in subsidiary and associated companies, trade investments, goodwill, and investment in plant and equipment will be deducted as before. However, in terms of capital risk, bank premises are no more vulnerable to loss than other property assets. For the risk and calculation premises will therefore not be deducted but will be treated like other balance sheet assets.

In calculating the capital base for the purpose of the risk, extra adjustments may be made to reflect any genuine hidden values in the balance sheet and to any over-statement of assets in relation to their market value.

G.3. CAPITAL RATIOS

1. The Gearing Ratio

The gearing ratio measures the adjusted capital base against all other non-capital liabilities apart from contingent liabilities which are incorporated within the balance sheet. Acceptances are excluded because they are more appropriately considered within the risk measure of capital adequacy, and secondly because they are not always separately identified in published balance sheets, they are inconsistent with the objective that the gearing ratio should, so far as possible, be capable of being calculated from published accounts.

2. The Risk Asset Ratio

The risk asset ratio establishes the proportion of the adjusted total of risk assets represented by the capital base as modified above. Each category of asset currently identifiable from statistical returns is ascribed a risk weight. These weights attempt to reflect the relative risk of loss arising from credit or investment and forced sale risks inherent in a particular class of asset. The adjusted total of risk assets is calculated by multiplying each balance sheet asset by its risk weight. Assets and their risk weights are classified as follows:

- (a) Nil weight
- Bank of England notes and UK coin
 - Other sterling notes
 - Balances with Bank of England
 - Special deposits with Bank of England
 - Debits in course of collection on banks in the United Kingdom
 - Balances with overseas offices of the reporting bank
 - Lending under special schemes for exports and shipbuilding
 - Certificates of tax deposit
 - Items in suspense
 - Refinanced lending at fixed rates
 - Gold physically held in own vaults
 - Gold held elsewhere on an allocated basis.
- (b) 0.1 weight
- Foreign currency notes and coin
 - UK and Northern Ireland Treasury bills.
- (c) 0.2 weight
- Debit items in course of collection on overseas banks
 - Market losses with listed banks, discount markets, etc.
 - Market loans to UK local authorities and public corporations
 - Balances with banks overseas with a maximum term of up to one year (including claims in gold)
 - Bills other than UK and Northern Ireland Treasury bills
 - Other loans and advances to Northern Ireland Government, UK local authorities, public corporations and other public sector
 - British government stocks with up to eighteen months to final maturity
 - Acceptances drawn by UK and overseas banks and UK public sector
 - Claims in gold on UK banks and members of the London Gold Market.
- (d) 0.5 weight
- British government stocks with over eighteen months to final maturity
 - Northern Ireland government stocks
 - UK local authority and other public sector stocks and bonds

Acceptances drawn by other UK and overseas residents
Guarantees and other contingent liabilities.

- (e) 1.0 weight
Market loans with other UK residents
Other loans and advances, net of specific provisions for bad debts, but excluding connected lending
Assets leased to customers
Working capital provided for overseas offices of the reporting bank, both in the form of deposits and in other forms
Balances with banks overseas with a term of one year or over (including claims in gold)
Claims in gold on non-banks
Aggregate foreign currency position (as defined in the Bank of England's paper on 'Foreign Currency Exposure')
Other assets e.g. silver, commodities and other goods beneficially owned by the reporting bank
Other quoted investments, not connected.
- (f) 1.5 weight
Connected lending (to be looked at case by case and to exclude market-type lending where this can be separately identified)
Unquoted investments (subject to case-by-case treatment)
- (g) 2.0 weight
Property (includes all land and premises beneficially owned by the reporting bank).

3. Composition of gearing and risk asset ratios

	<u>Gearing ratio</u>	<u>Risk asset ratio</u>
(a) Capital base	Share capital Loan capital Minority interests Reserves General provisions	
(b) Adjustments to capital base - deduct	Investments in subsidiaries and associates Goodwill Equipment Other fixed assets	Investments in subsidiaries and associates Goodwill Equipment Other fixed assets
(c) Adjusted capital base (a-b)		
(d)	Deposits and other non-capital liabilities	
(e)	Gearing ratio (c:d)	

- (f) Adjusted (Derived total of risk assets from the application of the risk weights)
- (g) Risk asset ratio (c as a percentage of f)

Source: Bank of England, 'The Measurement of Capital', Bank of England Quarterly Bulletin, September 1980.

APPENDIX 8

CAPITAL RATIOS FOR LONDON CLEARING BANKS 1975-1981

H.1. The following tables represent a rudimentary measure of the gearing and risk asset ratios for the major clearing banks. The data has been taken from publicly available information. In this respect the study is limited but serves a useful exercise by illustrating the basic trends and key components of the ratios.

The information disclosed by the banks is not consistent, but an attempt has been made to structure the data in a comparable fashion. The following assumptions have been made:

1. Deferred taxation has been left out of the computations of the capital base. The uncertainty and differing treatments of deferred taxation make this omission necessary. It is of course appreciated that where substantial sums accrue to reserves instead of the deferred tax account then this will improve the capital ratios.
2. The figures for general provisions until public disclosure in 1978 are calculated as one percent of market loans to other UK residents.
3. Certificates of Deposit and inter-bank placings over 30 days are grouped together. Lloyds Bank do not, however, disclose these figures.
4. The disclosure of foreign currency liabilities is generally limited. Where disclosed they would significantly increase the value of risk assets.
5. The distinctions between acceptances, engagements and guarantees are not always clear. Where this distinction is not made, the figure for acceptances and engagements are taken to include contingent liabilities in respect of guarantees as well.
6. Securities guaranteed by the British government were given a risk weighting of 0.3, as the relevant maturity schedules are not publicly available.
7. All the information was taken from the published annual reports and accounts.

	A	B	C	D	E	F	G	H	I
	BARCLAYS BANK GROUP 1975-1981								
	BASE FOR GEARING RATIO (£m)								
	YEAR								
ITEM	1975	1976	1977	1978	1979	1980	1981		
Share Cap	201	202	203	232	233	282	284		
Pref Cap	0	0	0	0	0	0	0		
Ret Prof	41	60	100	199	305	296	275		
Res Rev	21	74	77	77	148	150	156		
Other Res	497	535	625	780	995	1231	1514		
Share Prem	12	13	14	70	74	33	38		
Total Res	571	683	816	1126	1523	1710	1983		
=====									
S/H Funds	773	884	1019	1358	1756	1992	2267		
=====									
Gen Prov	106	127	149	111	145	177	202		
Min Int	59	66	70	68	86	102	132		
Loan Cap	122	178	240	227	262	323	432		
=====									
Total Cap Base	1059	1255	1478	1764	2249	2593	3033		
=====									
Less;									
Trade Inv	29	34	36	28	35	35	39		
Inv Ass Cos	85	114	129	159	168	190	229		
Prem & Equip	428	529	565	594	713	795	924		
=====									
Adj Cap Base	517	579	748	983	1332	1574	1842		
=====									

	A	B	C	D	E	F	G	H	I
68	RISK ASSETS								
69	Risk Weight								
70	YEAR								
71	& ITEM	1975	1976	1977	1978	1979	1980	1981	
72	0.1 Treas Bills	567	553	312	299	356	259	386	
73	0.2 Call money/short noti	1624	2080	2529	2136	3614	4326	4895	
74	Bills other T Bills	545	307	346	282	328	481	782	
75	CDs(Bank placings >30 days	N/A	N/A		3472	4142	5510	6704	
76	0.3 HMG Stocks	483	393	502	525	433	822	727	
77	0.5 Acc/Engagements	1490	1978	2018	2186	3205	4089	5504	
78	Fgn Curre	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
79	Guarantees	See E/Accepts							
80	1.0 Mkt loans to other UK	10569	12717	14857	13504	15364	18662	26807	
81	Leased Assets	157	193	193	304	867	1408	2054	
82	Debtors	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
83	Instal Finance	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
84	Other quoted Inv:								
85	UK	33	26	21	19	26	22	32	
86	Elsewhere	273	454	601	721	836	906	790	
87	1.5 Con Lending:								
88	Trade Inv	29	34	36	28	35	35	39	
89	Assoc Cos	85	114	129	159	168	190	229	
90	Unquoted Inv	245	280	292	208	242	174	224	
91	2.0 Property	367	462	501	526	606	652	749	
92	=====								
93	Total Risk Assets	16465	19590	22335	24368	30222	37537	49922	
94	=====								

	A	B	C	D	E	F	G	H
37	GEARING RATIO							
38	=====							
39	YEAR							
40	ITEM	1975	1976	1977	1978	1979	1980	1981
41	=====							
42	Deposits	9085	10746	12394	13521	16009	18118	25309
43	Non-Cap Liabs	113	135	171	42	79	118	206
44	-----							
45	Total N-C Liabs	9198	10881	12565	13563	16088	18236	25515
46	Adj Cap Base	250	425	441	561	681	844	1200
47	-----							
48	Gearing Ratio (%)	3	4	4	4	4	5	5
49	=====							
50								
51								
52		RISK	ASSET	RATIO				
53	CAPITAL	BASE						
54	=====							
55	YEAR							
56	ITEM	1975	1976	1977	1978	1979	1980	1981
57	-----							
58	Tot Cap Base	758	986	1053	1245	1424	1706	2253
59	Less:							
60	Trade Inv	75	71	78	95	111	148	147
61	Inv in Ass Cos	55	58	64	81	99	134	133
62	Equip & FAs	40	46	58	88	97	117	143
63	-----							
64	RA Adj Cap Base	587	811	853	982	1117	1309	1830
65	=====							

	A	B	C	D	E	F	G	H
	Year							
	1975	1976	1977	1978	1979	1980	1981	
96	Weighted Risk Assets							
97	Weighting							
98	1975	1976	1977	1978	1979	1980	1981	
99	-----							
100	0.1	11	2	6	4	0	3	0
101	0.2	366	376	478	512	551	530	734
102	0.3	136	156	148	130	85	100	150
103	0.5	3209	4450	6456	8891	877	1180	1894
104	1.0	6352	8050	9169	10294	12844	15194	21631
105	1.5	253	270	289	344	392	496	481
106	2.0	676	772	825	841	872	928	1258
107	-----							
108	Total risk adj assets	11001	14075	17373	21015	15621	18431	26148
109	=====							
110	Risk adj Cap Base	587	811	853	982	1117	1309	1830
111	-----							
112	Risk Asset Ratio	5	6	5	5	7	7	7
113	=====							

	A	B	C	D	E	F	G	H
68	RISK	ASSETS						
69	Risk Weight	YEAR						
70	& ITEM	1975	1976	1977	1978	1979	1980	1981
71		-----						
72	0.1 Treas Bills	499	279	431	209	277	256	203
73	0.2 Call money/short noti	1152	1593	1291	2182	3076	3483	5023
74	Bills other T Bills	147	189	374	394	317	408	479
75	CDs(Bank placings >30	126	186	424	76	198	325	347
76	0.3 HMG Stocks	466	368	378	530	563	866	802
77	0.5 Acc/Engagements	1383	1853	2142	2339	2844	2875	4961
78	Fgn Curre	1960N/A	N/A	N/A	N/A	N/A	N/A	N/A
79	Guarantees	See E/Accepts						
80	1.0 Mkt loans to other UK	6041	6955	8003	9467	12315	15977	27597
81	Leased Assets	79	121	175	304	439	572	799
82	Debtors	174	207	262	244	253	287	334
83	Instal Finance	143	185	247	318	430	491	799
84	Other quoted Inv:							
85	UK	23	19	27	33	68	98	99
86	Elsewhere	31	47	49	67	97	222	284
87	Other assets	69	77	76	86	207	158	160
88	1.5 Con Lending:							
89	Trade Inv	12	18	19	41	63	36	35
90	Assoc Cos	115	140	150	148	97	108	122
91	Unquoted Inv	7	12	11	18	28	37	597
92	2.0 Property	259	271	288	285	448	509	968
93	=====							
94	Total Risk Assets	12687	12517	14347	16740	21720	26708	43608
95	=====							

	A	B	C	D	E	F	G	H
1	NAT WEST BANK			GROUP		1975-1981		
2	-----							
3	CAPITAL	BASE FOR GEARING		RATIO (£ m)				
4		YEAR						
5	ITEM	1975	1976	1977	1978	1979	1980	1981
6	-----							
7	Share Cap	184	222	225	228	234	235	237
8	Pref Cap	14	14	14	14	14	14	14
9	Ret Prof	38	63	81	153	289	259	277
10	Res Rev	233	181	179	168	165	164	281
11	Other Res	391	423	497	732	815	1106	1372
12	Share Prem	0	30	31	32	36	37	39
13	Total Res	662	697	787	1085	1306	1566	1969
14	-----							
15	S/H Funds	859	933	1026	1326	1554	1815	2220
16	-----							
17	Gen Prov	91	106	120	73	91	115	125
18	Min Int	14	15	21	25	22	19	23
19	Loan Cap	134	231	163	275	323	331	654
20	-----							
21	Total Cap Base	1098	1284	1330	1699	1989	2280	3022
22	-----							
23	Less;							
24	Trade Inv	83	80	80	35	38	35	36
25	Inv Ass Cos	53	62	72	80	88	98	101
26	Prem & Equip	550	554	613	673	742	785	987
27	-----							
28	Adj Cap Base	412	589	566	913	1122	1362	1898
29	=====							

I	A	II	B	III	C	IV	D	V	E	VI	F	VII	G	VIII	H	IX
96	Weighted Risk Assets															
97	Weighting															
98			1975		1976		1977		1978		1979		1980		1981	
99			-----													
100	0.1		13		22		24		19		18		26		16	
101	0.2		544		644		699		846		1085		1332		1506	
102	0.3		181		160		205		201		192		194		202	
103	0.5		634		839		897		908		974		1078		1490	
104	1.0		9576		11228		12854		15201		19817		24486		31887	
105	1.5		228		238		268		207		737		680		797	
106	2.0		966		959		1063		1058		1154		1124		1456	
107	-----		-----													
108	Total risk adj assets		12142		14090		16010		18438		23977		28919		37353	
109	-----		-----													
110	Risk adj Cap Base		900		1076		1115		1517		1756		2004		2710	
111	-----		-----													
112	Risk Asset Ratio		7		8		7		8		7		7		7	
113	-----		-----													

	A	B	C	D	E	F	G	H
37	GEARING RATIO							
38	=====							
39	YEAR							
40	ITEM	1975	1976	1977	1978	1979	1980	1981
41	=====							
42	Deposits	1574	1688	1687	1839	2007	2286	3174
43	Non-Cap Liabs	29	35	43	71	62	67	85
44	-----							
45	Total N-C Liabs	1603	1723	1730	1910	2069	2353	3259
46	Adj Cap Base	63	70	97	101	161	177	226
47	-----							
48	Gearing Ratio (%)	4	4	6	5	8	8	7
49	=====							
50								
51								
52		RISK	ASSET	RATIO				
53	CAPITAL	BASE						
54	=====							
55	YEAR							
56	ITEM	1975	1976	1977	1978	1979	1980	1981
57	-----							
58	Tot Cap Base	129	145	175	182	260	284	344
59	Less:							
60	Trade Inv	9	10	9	9	9	8	8
61	Inv in Ass Cos	8	8	8	9	10	11	12
62	Equip & FAs	6	7	10	12	13	15	20
63	-----							
64	RA Adj Cap Base	107	121	148	151	227	251	304
65	=====							

I		A	B	C	D	E	F	G	H	I
68		RISK	ASSETS							
69		Risk Weight	YEAR							
70		& ITEM	1975	1976	1977	1978	1979	1980	1981	
71		-----								
72	0.1	Treas Bills	42	50	28	2	35	5	1	
73	0.2	Call money/short noti	262	251	246	270	272	433	822	
74		Bills other T Bills	20	20	19	22	39	56	26	
75		CDs(Bank placings >30	5	12	50	31	30	30	25	
76	0.3	HMG Stocks	28	10	148	129	81	75	75	
77	0.5	Acc/Engagements	186	234	230	234	230	257	225	
78		Fgn Currs	N/A	N/A	N/A	N/A	N/A	N/A		
79		Guarantees	See E/Accepts							
80	1.0	Mkt loans to other UK	1149	1288	1142	1246	1477	1589	2164	
81		Leased Assets	13	14	21	32	59	89	130	
82		Debtors	4	5	7	9	9	7	9	
83		Instal Finance	N/A	N/A	N/A	N/A	N/A	N/A		
84		Other quoted Inv:								
85		UK	4	0	0	3	3	12	13	
86		Elsewhere	1	1	1	1	2	3	8	
87		Other assets	N/A	N/A	N/A	N/A	N/A	N/A		
88	1.5	Con Lending:								
89		Trade Inv	9	10	9	9	9	8	8	
90		Assoc Cos	8	8	8	9	10	11	12	
91		Unquoted Inv	1	4	0	2	3	4	1	
92	2.0	Property	44	50	51	51	67	73	78	
93	=====									
94		Total Risk Assets	1775	1956	1959	2051	2326	2649	3598	
95	=====									

	A	B	C	D	E	F	G	H	I
97	Weighted Risk Assets								
98	Weighting	Year							
99		1975	1976	1977	1978	1979	1980	1981	
100		-----							
101	0.1	4	5	3	0	4	1	0	
102	0.2	57	57	63	65	68	104	175	
103	0.3	8	3	44	39	24	22	22	
104	0.5	93	117	115	117	115	128	112	
105	1.0	1171	1307	1171	1292	1550	1699	2324	
106	1.5	26	33	26	30	32	33	32	
107	2.0	88	100	101	101	133	147	156	
108		-----							
109	Total risk adj assets	1449	1623	1523	1644	1927	2134	2822	
110		=====							
111	Risk adj Cap Base	107	121	148	151	227	251	304	
112		-----							
113	Risk Asset Ratio	7	7	10	9	12	12	11	
114		=====							

APPENDIX NINE

THE MEASUREMENT OF LIQUIDITY BANK OF ENGLAND JULY 1982

The Bank of England assessment of bank liquidity incorporates the following definitions:

I.1. LIABILITIES

1. Deposits of all types are included according to earliest maturity.¹ The stability and diversification of the deposit base will be taken into account in discussion of appropriate guidelines.
2. Known firm commitments to make funds available on a particular date are included in the appropriate time band at their full value.
3. Commitments which are not due to be met on a particular date are considered unlikely to be met in full and cannot therefore be treated precisely. The extent to which undrawn facilities will be included will be determined with each bank, having regard to its past and prospective draw-down experience.
4. Contingent liabilities are not included in the measurement, unless there is reasonable likelihood that the conditions necessary to trigger them might be fulfilled.

(It may however be appropriate for certain special categories of deposit, for example those where it is agreed that set-off should apply, to be netted off against specific assets and excluded from the calculation. The Bank of England would expect to agree such treatment with individual banks).

I.2. ASSETS

Assets are measured by reference to their maturity, unless, as in the case of overdrafts, they are repayable on demand in practice only nominally, or unless they are marketable, or are known to be of doubtful maturity.

1. Lending repayable on demand only nominally may yield some regular cash flow but this cannot be measured at all precisely. The Bank of England therefore propose an individual treatment with each bank.
2. The treatment of marketable assets takes account of the extent to which they can be sold for cash quickly (or used as security for borrowing), incurring little or no cost penalty; and of any credit or investment risks which may make their potential value less predictable. It is important that the market for the asset should be sufficiently deep to ensure a stable demand for it. An important factor in this is the willingness of the central bank to use the asset in its normal market operations. These considerations are recognised in the measurement by applying varying discounts normally against the market value of marketable assets, all of

which, are included at the start of the maturity ladder. The following discounts apply to sterling assets:-

Nil Discount -Treasury, eligible local authority and eligible bank bills.
-Government and Government guaranteed marketable securities with less than twelve months remaining term to maturity.

5% Discount -Other bills and certificates of deposit with less than six months remaining term to maturity.
-Other Government, Government guaranteed and local authority marketable securities with less than five years remaining term to maturity or at variable rates.

10% Discount -Other bills, certificates of deposit and FRNs with less than five years remaining term to maturity.
-Other Government, Government guaranteed and local authority marketable debt with more than five years remaining term to maturity.

Discount to be determined - All other marketable assets.

(Similar discounts will obtain on comparable foreign currency assets. Assets not covered above will be a matter for agreement, on a common basis, arising out of discussion with individual banks.

3. Assets known to be of doubtful value are excluded from the measurement, or treated on a case-by-case basis.
4. Contractual standby facilities made available to the bank by other banks provide support which should be recognised, and they are therefore included as a slight asset. Due regard, however, will be paid to their remaining term and the possibility that they may not be renewed. Standby facilities provided by a bank to other banks are treated in the same way as commitments to lend at some uncertain future date.

I.3. OTHER ITEMS

1. Where items in course of transmission or collection are material, credits in course of transmission are deducted from debits in course of collection and the balance added to assets at the start of the maturity ladder.
2. Items in suspense are normally treated on a gross basis.

In principle the measurement takes in all assets and liabilities. Thus, liabilities should include any significant non-deposit liabilities which mature within the time span of the measurement: for example tax liabilities. Similarly assets should include non-financial assets which are marketable within the time span of the measurement.

Source: Bank of England, 'The Measurement of Liquidity'.
Bank of England Quarterly Bulletin, September 1982.

J.2.

Assets

Item no.		£000s	
		Column 1 Sterling	Column 2 Other currencies
10	Cash		
10-1	Bank of England notes and UK coin		
10-2	Other notes and coin		
10-3	Balances with Bank of England (excluding special and supplementary deposits)	*	
11	Debit items in course of collection on		
11-1	UK offices of the reporting bank	*	
11-2	Other banks, etc., in the UK	*	
11-3	Banks and banking offices overseas		
12	Market loans		
12-1	Placed with listed banks, listed discount market institutions and listed brokers		
12-2	Money at call with listed discount market institutions	*	
12-3	Other money with listed discount market institutions	*	
12-4	Money at call with listed brokers	*	
12-5	Other money with listed brokers		
12-6	Balances with and loans and advances to listed banks: correspondent balances	Interest bearing	Non-Interest bearing
12-7	: other	*	*
12-8	Certificates of deposit issued by other listed banks		*
12-9	Promissory notes, bills and other negotiable paper issued by other listed banks		*
12-10	Placed with other UK residents		
12-11	UK local authorities		
12-12	UK public corporations		
12-13	Other UK residents		
12-14	Placed overseas: balances with, and loans and advances to, overseas offices of the reporting bank		*
12-15	: balances with, and loans and advances to, other banks overseas		
13-1	Special and supplementary deposits with Bank of England: special		
	: supplementary		
14	Bills (excluding lending under special schemes – item 15 below)		
14-1	UK Treasury bills	*	
14-2	Northern Ireland Treasury bills	*	
14-3	UK local authority bills: eligible for rediscount at Bank of England	*	
14-4	others		
14-5	Other public sector bills		
14-6	UK bank bills: eligible for rediscount at Bank of England	*	
14-7	other		
14-8	Other UK bills		
14-9	Overseas bills		
15	Lending under special schemes for exports and shipbuilding		
15-1	Exports		
15-2	Medium and long-term refinancable lending at fixed rates		
15-3	Short-term lending at rates related to base rate		
15-4	Shipbuilding		

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