BANK LENDING TO LARGE COMPANIES:
A TEST OF WHETHER BANKS OBTAIN INSIDE INFORMATION

Volume I

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This thesis reviews the theory and evidence on bank lending to companies and uses an event study to test the hypothesis that banks obtain inside information about borrowers. The argument is that a stock market response to announcements concerning bank loans indicates that banks do obtain inside information, which is signalled by the announcements. US event study evidence supports the information hypothesis for smaller quoted companies but not larger ones. This study is the first to use UK data and the results show less response to loan announcements than in the USA, which is consistent with other evidence that banks in the UK do not, as a rule, obtain inside information about large borrowers.

It is important to test the information hypothesis because the established view of the rationale for bank lending assumes that it is true. There are several reasons why more information would give banks an advantage and enable both the average cost of their loans to be lower and the cost of each loan to reflect the risk of the borrower more accurately. But as the evidence indicates that banks do not have an information advantage for large borrowers, it is suggested that their lending in these cases is better explained by the service and commitment they can offer and by their capacity to negotiate with companies in difficulties. Bond investors are as well informed as banks but are not organised to cope with bad debts, which explains why the eurobond market is restricted to very safe issuers. This is believed to be the main factor limiting the development of markets in corporate debt.

The thesis includes a brief history of the financing of business in the UK which establishes that securities markets have been an important source of funds for quoted companies since the 1920s and that banks have not been involved in corporate management or ownership since the mid nineteenth century. There is also a comprehensive review of event study methods which demonstrates their surprising diversity and justifies the choice of method for this study, which is believed to be the first in the UK to use daily data throughout.
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2.1 Lenders Lose Out with Riskier Projects
4.1 Bond Plus Swap
I spent four years as a credit analyst and lending officer in two British merchant banks in the later 1980s, thereby becoming familiar with the process of lending to large companies and, less thoroughly, with arrangements for issuing securities. On moving to an academic post I wanted to research, somehow, the extent to which bank lending is an efficient way of funding business. I discovered that this would have to be done without access to banks' lending files as no bank would provide such access, even to historical files. But this reinforced the advantage of having been 'on the inside'.

Bank lending matters because in the UK and most other countries except the USA, banks are a much more important source of funds to industrial and commercial companies than are the share and bond markets. Yet lending receives far less attention in finance textbooks than does stock market investment. I was curious about this and it seemed an under-researched area relative to financial markets. I have since found that there is in fact a great deal of recent research on debt and the role of banks, especially theory papers, but it has only just begun to find its way into texts.

Many financial journalists, practitioners and academics believe that 'traditional bank lending' is in decline and is being replaced by issuance of securities. If this is true then the nature of corporate banking is indeed changing radically, and perhaps 'bank' would be the wrong term to apply to an institution whose main business is neither taking deposits nor making loans but acting as an issuing house. So the efficiency or otherwise of bank lending affects both how business is funded and the development of banks.

The modern view of the rationale for bank lending emphasises the advantages of inside information about borrowers which banks are assumed to obtain. Yet in my experience and that of other bankers I have spoken to, banks do not normally obtain inside information from quoted borrowers. A specific purpose for the thesis suggested itself: to assess the importance and truth of the information hypothesis.
PUBLICATIONS

In conformance with the University's regulations, publications related to the thesis are recorded below. They were written solely by the author.


Copies of these papers are included in Volume II together with the appendices.

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DECLARATION

I declare that this thesis was composed by me and that it is all my own work.

Seth Armitage
October 1994
Chapter 1

INTRODUCTION

The subject area of this thesis is the provision of finance to industry and commerce, and specifically the question of the value of bank lending to large companies. It offers new evidence pertaining to our understanding of this question.

1.1 BANKS AND BONDS: BACKGROUND

Large organisations\(^1\) enjoy a wide choice of ways in which to borrow money. A distinction can be made between a loan from a bank and an issue of debt securities; both types of finance come in many shapes and sizes. It is widely believed that securities markets are replacing banks as the major source of debt, for those with access to the markets. This is a crucial qualification since at present only a few hundred companies in the UK are large enough to issue bonds. But many believe that 'securitisation' will extend to smaller companies as the markets develop.

The argument supporting this belief is that securities markets must be a cheaper source of funds than banks because they cut out the intermediary and therefore a layer of expense. Some large organisations have credit ratings equal to or better than the ratings of most banks, in which case it is at least as risky to lend to the bank as it is to the ultimate borrower. Assuming that the cost of taking deposits and making loans exceeds the cost of arranging bond issues, bank finance must be more expensive for highly rated borrowers since banks can not borrow more cheaply and they are less willing to subsidise large scale lending now that the Basle rules on

\(^1\) Many borrowers on the syndicated loan and eurobond markets are not industrial or commercial companies and the term 'organisations' is sometimes used instead of 'companies' to reflect this. 'Non-corporate' borrowers include financial institutions, special purpose vehicles for issuing securities, housing associations, governments and other public sector bodies. In particular, many continental borrowers are state owned utilities. However we are primarily concerned with lending to organisations which do not enjoy a government guarantee.
capital adequacy have prompted them to attend to the return on the capital supporting their loan books. For riskier borrowers the bond market should still prove cheaper unless, for some reason, banks are able to charge less per 'unit of risk'. The bond market may also lose its advantage for small amounts if there are high fixed costs of issue, as is the case. A further argument in favour of market finance is that many investors collectively should price the cost of funds to reflect risk more efficiently than will a single institution, unless the institution has better information.

The Economist is particularly certain that bond markets will replace banks. It regularly argues that banks are more expensive and disputes the claim that they have superior information about borrowers. The 1994 survey of international banking notes that in 1960 the debt outstanding of US companies was almost exactly 50% bonds and 50% bank loans. In 1992 the proportions were 51% bonds, 4% commercial paper, 30% bank loans and 15% non-bank loans, mainly from finance companies (source: Federal Reserve). The survey comments that

at first only blue-chip companies could raise capital by issuing commercial paper, but the practice has moved inexorably down the credit spectrum, robbing banks of more and more of their best customers... What lies behind this sharp reduction of bank lending? Banks once monopolised knowledge about borrowers, and therefore about the risk that extending a loan to them would entail. Computers have made much of this knowledge cheaply available to all investors, diminishing their need to work through a bank... [Banks have costs of complying with regulations and a management consultant] reckons that the total cost of intermediating a security over the life of an asset is well under 50 basis points... In contrast, the cost of bank intermediation is well over 200 basis points. And securities, moreover, are liquid: unlike a loan made by a bank, their value can be fixed in the marketplace... Small commercial and industrial loans were once considered insufficiently uniform to be bundled together and priced in this way. Yet they are now securitised too. The process looks unstoppable (pp. 9-10).

Judging by the Federal Reserve figures, one might imagine that US banks are more concerned about the growth of finance houses than of the bond and commercial paper markets, as indeed they may well be (Business Banking Board, 1993). One might also suspect the Economist
of American bias. Unfortunately Financial Statistics does not include comparable data on the outstanding debt of UK companies, but on average during 1980-90, 19.5% of their total sources of funds was from bank loans and only 2.7% from bond and preference share issues (from table 3.3, p. 98).

Nevertheless there is a belief that the UK is moving towards the US pattern. Companies have made net repayments of bank loans during 1991-93 and the share of securities in their total sources has grown. The following quotations from the Financial Times indicate current opinion. 'Income from lending to large companies will probably never recover to levels where it gives an acceptable return on capital' (8/6/94); 'Few on Wall Street or in London doubt that the US banks have mapped out the future for wholesale finance' (18/5/94); 'Financial intermediation - the task of taking deposits and lending - has become less profitable and has been shrinking in importance' (21/4/94). And so on.

Amongst academics, there is also a view that the substitution of markets for intermediaries is the 'next stage' in the evolution of financial systems in developed countries. Lewis & Davis (1987) argue that, while intermediaries used to be seen as a 'step up' from market-based arrangements, in the modern view they are seen as a 'step down from a system of direct financing via markets. Indeed, far from improving matters, financial intermediaries under some circumstances can misinform and distort the workings of the system' (pp. 29-30). Similarly, Rybczynski (1985) believes that

the evolution of the financial system which occurs as the economy expands involves three phases. The character of the financial system is initially a bank-orientated one... It then moves to a market-orientated one (where capital markets channel a large proportion of savings directly), and later to a strongly market-orientated system (where financial institutions increasingly dispose of and trade in their assets - the process described as securitisation - and where financial risk-hedging markets play a growing role) (p. 39)

This view was first expressed by Gerschenkron (1962) and is endorsed by Buckle & Thompson (1992, pp. 40-42) and Rose (1992, pp. 5-7) despite the lack of evidence for it in the UK which they document.
Chapter 3 of this thesis outlines the historical development of bank lending in the UK and shows that securities markets have in fact been an important source of funds for business since the 1920s and that there is as yet no long term trend for their role to increase. Chapter 4 compares in detail the current arrangements for corporate loans and bond issues and the costs of each. It includes new questionnaire results on how corporate treasurers perceive bank loans and bonds to differ and reviews other empirical evidence on the role of banks. It is striking that the eurobond market in effect rations credit very tightly to borrowers perceived to be of investment grade or above. In the UK this cohort probably numbers fewer than 200. There is no 'junk bond' market. If securitisation is to make progress, bond market investors will need to become more willing to lend to smaller companies.

1.2 THE TEST

The key issue in whether bond markets will replace banks is the extent to which the two sources of debt are different. This is discussed in chapters 2 and 4 from a theoretical and practical perspective respectively. Ultimately we would expect the method which is the most efficient in funding business to prevail. Three major differences have been identified.

1. Banks obtain non-public, inside information about borrowers (the information hypothesis). It is an empirical question whether and to what extent this is true. Many theories of bank lending assume it to be true and then proceed to analyse ways in which inside information is valuable to banks and helps provide a rationale for bank lending.

2. Bank lending takes place in the context of a relationship with the borrower which is valuable in a number of ways. Bond market investors have no contact unless renegotiation is required, though a borrower may have continuing relationships with one or more investment banks which organise issues.

3. It is probably easier for one or a few banks to negotiate with
and support borrowers in financial distress than for many bondholders. This helps avoid unnecessary liquidations and reduces the costs of distress which are now recognised as arising, insidiously, well before a company is bankrupt and as being much larger than the costs of bankruptcy itself.

The empirical task in the thesis is to test the information hypothesis using UK data. It will be shown in chapter 2 that the hypothesis underpins the leading explanation for bank lending, so it is important to our understanding of the role of banks whether or not it is true. The review of the existing evidence in chapters 4 and 5 indicates that, while there is no doubt that banks obtain inside information about small companies, there is little evidence that they do about the very largest. Yet it is with respect to large companies that the banks' hypothesised information advantage is most critical in the choice of financing arrangements, since only these companies have the choice of issuing securities instead.

The information hypothesis has been tested in various ways. Discussions with corporate bankers and treasurers by the author and others are reviewed in section 4.1. The majority on both sides value the banking relationship but the larger the borrower, the less likely it is that the bank obtains inside information. Event studies measure the stock market response to loan announcements. The argument is that, if the information hypothesis is true, a new loan or renewal should be positive news while a cancellation or renewal on less favourable terms should be negative news. Abnormal returns at the time of loan announcements would constitute evidence that the announcements do indeed convey new information which is not already 'in the price' and would therefore be consistent with the information hypothesis. Although an indirect test, an event study has the merit that it quantifies the response of a whole market and is very sensitive to the existence of any abnormal returns. The existing studies, all from the USA, are discussed in detail in chapter 5. Their results support the information hypothesis for smaller quoted companies but not for larger ones, defined as those with a market capitalisation above the mid-point size.
Construction of the event study yielded two surprises. First, despite the huge number of event studies since the first one in 1969, the methodology is not standardised, at least not in detail. This prompted a full review of event study methods and evidence on their performance which is given in chapter 6 and justifies the choice of method used. Second, to the author's knowledge this is the first UK event study to use daily data throughout, though use of daily data increases the power of the test and has been standard practice in the USA since the late 1970s.

Chapter 7 describes the event study and analyses the results. Treatment of dividends, taxation of share returns, computing procedures and categorisation of announcements all required much thought. The sample consists of all announcements concerning syndicated loans to UK quoted companies during 1988-91, numbering 574. The results are analysed both by category of announcement and by size of company and provide much less support for the information hypothesis than does the US evidence.

This leaves us in chapter 8 with two puzzles.

1. It appears that, in the case of quoted companies in the UK (and larger quoted companies in the USA), the leading rationale for bank lending is based upon a false assumption. Yet the evidence indicates that these companies continue to borrow from banks on a large scale (chs. 3 and 4), to some extent confounding the believers in securitisation.

It is suggested that we have, in part, a mistaken understanding of the value of bank lending to large borrowers. Instead of assuming that banks have an information advantage, we should consider more the value of the continuing relationship with the borrower and the nature of the service which a bank can provide and its capacity to manage bad and doubtful debts. While the service aspect has been rather overlooked, the bond market can no doubt continue to become more flexible and issuer-friendly, as it has over recent years. But the reluctance of bond investors to accept non-negligible credit risk arises from their lack of capacity, in terms of staff and systems, to
negotiate with borrowers in difficulties. This has always been a bank function and bond investors do not appear to be as well placed to perform it.

2. Why are the US and UK event study results different for smaller quoted companies? No one reason has emerged for this and it remains something of a puzzle. Many loans are reported as separate news items in the Wall Street Journal which is widely read by US investors and is an obvious source for announcements with clear-cut announcement dates. The Financial Times does not provide equivalent coverage and virtually all bilateral loans in the UK are secret. It is suggested that the difference in reporting of loans may account for the difference in event study results. It is possible that banks in the USA obtain more information about quoted companies than they do in the UK but there is no reason to expect this and no other evidence for it.
Chapter 2
THEORIES OF DEBT AND BANK LENDING

In recent years there has been, and continues to be, an enormous expansion in the theoretical literature on debt, part of a more general growth of interest in the economics of information. The modern analysis of debt can be traced to the development of agency and signalling theories in the later 1970s but has since become a sub-field of its own. This chapter seeks to show how the modern theories have greatly increased our understanding of the rationale for debt and bank lending and to establish the role and importance of the assumption in these theories that banks obtain inside information about borrowers.

The chapter includes three overviews which summarise in note form the central idea(s) in each of the main papers. These overviews are intended to help in comparing the papers and make the organisation of the chapter more transparent. They are on pages 9, 28 and 47.

2.1 INTRODUCTION TO BANKING THEORY

Theories of lending are hard to put in context because they are part of both the corporate finance and the banking literatures. This section introduces the latter as the thesis is concerned with bank lending. Issues from the government's perspective - supervision and regulation, and the interrelations between banks and monetary policy - are beyond our scope. Good general reviews of banking theory include Baltensperger (1980), Santomero (1984), Lewis & Davis (1987, chs. 2 to 4) and Goodhart (1989, ch. 5).
'TRADITIONAL VIEW' OF BANK INTERMEDIATION (2.1)

Banks reduce transactions costs. Their deposits are more liquid than their loans. Doesn't explain why banks are needed rather than investment funds.

Topics in the literature:
- Asset management: proportion of liquid assets; portfolio diversification; credit rationing.
- Liability management: proportion of capital.
- Analysis of market for bank products and services.
- 'Costs of production' and economies of scale.

Not much on lending process itself or information issues.

Kane & Malkiel (1965), Ainger & Sprenkle (1968) argue lending relationship gives banks inside information which reduces uncertainty about borrower and makes it harder for borrower to change bank.

Black (1975), Fama (1980), in contrast, assume no information asymmetry between company and financiers. Banks are then merely portfolio managers.

'NEW VIEW' OF DEBT AND BANK LENDING (from early 1980s) (2.2 onwards)

Information asymmetry explains reason for debt. Lending process is the unique feature of banks. New subject created in effect.

Source papers (2.2) all assume information asymmetry.

Jensen & Meckling (1976): financing arrangements affect agency costs and, therefore, value of company.

Leland & Pyle (1977): market for funds is a 'lemons' market. Lack of information means 'good' borrowers are overcharged, 'bad' undercharged. Proportion of shares owned by manager is a costly signal of company quality; alternatively better information, also costly, alleviates lemons problem. Banks have incentive to collect information because they can exploit it through lending.

Ross (1977): gearing and bankruptcy penalties agreed to can also signal quality.
The Traditional View of Intermediation

As many have noted, it is difficult to explain the existence of financial intermediaries in a (fictional) world of 'frictionless' markets with no transactions costs and in which agents have perfect information. The difference between older and newer theories of intermediaries can be seen as one of differing emphasis between these 'imperfections', the older focusing on certain transactions costs of providing finance and the newer analysing the consequences of imperfect information about borrowers. The term 'traditional view' is used by Goodhart (1989) and Hellwig (1991) to refer to analyses of financial intermediaries in which their primary function is to transform financial assets and reduce transactions costs. This approach is often credited to Gurley & Shaw (1960). They characterise intermediaries as purchasers of primary securities issued by organisations requiring funds, and sellers of claims on themselves in forms demanded by the public such as bank deposits and life assurance policies. Thus 'the product of intermediation is the indirect financial asset coined from the underlying primary security and bearing its own bundle of utilities' (p. 193). Intermediaries exploit economies of scale in both lending/investing and attracting funds. A large portfolio of assets enables risk to be reduced through diversification and large numbers of small depositors mean the intermediary's assets can be much less liquid than its liabilities, since net demands for withdrawals are small relative to total liabilities. Gurley & Shaw also stress that intermediaries facilitate saving and investment by providing a wide choice of saving vehicle which would be impossible or at least more costly for the ultimate borrowers to offer.

Many other writers have subsequently used this framework to explain the contribution of intermediaries to the efficiency of the financial system. For Goodhart (1989, ch. 5), for example, intermediaries have three functions within the traditional view. First, the primary rationale for investment funds is to exploit economies of scale in portfolio administration and brokerage; in the absence of these transactions costs, individuals could achieve diversified holdings as efficiently for themselves. There are also
economies of scale in being able to make large loans and security issues which banks and stockbrokers make possible. The 'specialised knowledge of borrowers' creditworthiness' (p. 108) is recognised as part of what enables the intermediaries to offer loans and issuing services.

Second, the provision of insurance is regarded as a separate service for which intermediaries are required. The profitability of insurance depends on people being risk averse, so that they are willing to sacrifice a lower expected income for protection against the possibility of financial loss. The expertise particular to insurance is the actuarial calculation of expected future claims, which enables insurance companies to set premiums such that income plus expected investment returns exceed expected claims and operating costs. Since the present value of premiums exceeds that of claims, purchasers have lower expected income as a result.

Third, intermediaries satisfy the demand of the public for safe, liquid assets, together with ancillary services such as financial advice or current account services. People receive a lower return on such assets than borrowers are willing to pay for longer term loans which are risky to the bank. So the intermediary transforms both the maturity and risk of financial assets. In the traditional view, 'information costs and problems were regarded as important, but in a rather vague and general manner' (p. 113). Similar accounts of the role intermediaries can be found in all texts before the late 1980s.

The view that banks hold diversified portfolios of assets which they transform into deposits is not wrong but it does not explain why banks exist. The same functions can be carried out by investment funds, such as money market mutual funds in the USA, which invest in securities rather than make loans. The modern view identifies the lending function, which investment funds lack, as being the unique feature of banks. As Gertler (1988) puts it, 'there exist perfect substitutes for bank liabilities, but not for bank assets' (p. 579).
Theory of the Bank as a Business

The (traditional) essence of a bank is that it takes deposits and makes loans, and much of the economic theory of banking concerns liability and asset management. Choice of assets has attracted most attention; the earliest analysis is credited to Edgeworth (1888). Recent theories of loan contracts can be seen as coming into the field of bank asset management only in a loose sense, as they address questions which are new or at least neglected previously. But it is useful to give a feel for other issues in the field, which include reserve management, portfolio choice and credit rationing.

On reserve management, the basic question is what proportion of the bank's assets should be held as reserves, ie in liquid form. The cost of holding reserves is that, as a rule, the more liquid the asset, the lower its return. The benefit is that, the larger the proportion of reserves, the less chance there is of the bank experiencing difficulties in the event of an unexpectedly large outflow of deposits. The bank's optimum level of reserves is then a function of the rates of return on liquid and illiquid assets, the probability distribution of expected outflows of deposits and the estimated costs of a liquidity crisis, for example emergency borrowing, emergency selling of assets or even closure. More reserves means lower return on assets but also lower expected costs of liquidity crisis, so reserves should be held to the point at which the marginal benefit equals the marginal cost, assuming there are some levels for which the benefit exceeds the cost. Since the future is uncertain, the optimum level of reserves can only be guessed.

There would be less need for reserves if loans, like securities, were marketable; Lucas & McDonald's (1987) model of bank asset choice is built around this distinction. They assume that banks can hold either risky loans or safe securities - liquid reserves. Securities can be sold at their market value but loans can be sold only at a discount because buyers lack information to assess their true value and so assume that the loan must be low quality for the bank to want to sell. So the market for second hand loans is assumed to be a 'lemons market' (see section 2.2 below). In this
model the advantage of holding securities is that they act as a buffer before the bank has to sell loans at below their fair value to raise cash in the event of large withdrawals of deposits and/or drawdowns under loan commitments.

Asset management is not simply a matter of choosing between reserves and loans: the bank can be viewed as holding a portfolio of assets, as does an investment fund. Therefore the benefits of reducing risk by means of diversification are available to banks and should influence their lending decisions. Indeed, as with stock market investment, there is no optimal level of risk which all banks should aim for. The 'risk profile' of each bank depends on the degree of risk aversion of its managers/owners and on the regulatory regime. Regulators seek to control risk-taking, though, as is widely recognised, deposit insurance and government support for banks in trouble provide incentives for banks to take more risk than they would in the absence of government protection.

But the applicability of portfolio theory to bank asset choice is limited because there are important respects in which banks differ from investment funds. First, unlike securities, loans are not readily marketable and banks lend in the context of a relationship with the borrower. Second, rather than being a price-taker, the bank may be viewed as possessing some degree of monopoly control over its loan price and some papers assume this. Third, banks are very highly geared which means that they may limit exposure to a single company even though the specific risk of a larger loan would still be diversified away. The Bank of England requires banks to report all exposures representing ten per cent or more of their capital and exposures of 25 per cent or more require explicit permission. It only takes a few of these large loans to go bad at the same time for the bank to be in trouble. Banks also monitor exposure to industry sectors.

Nevertheless, many would argue that banks make avoidable mistakes by not measuring and controlling the risk of their loan portfolios efficiently, citing over-exposure to less developed countries in the late 1970s and to property companies in the late
1980s as examples. To the author's knowledge, banks do tend to look at the risk of each loan entirely in isolation, without attempting to measure its effect on the risk of their loan portfolio. Evidence from the USA indicates that 'the risky portion of bank portfolios is relatively undiversified, with banks often specializing in loans to a particular industry or locality' (Lucas & McDonald, 1987, p. 474). There is an argument that, if deposits are insured by the government, banks should not diversify as they will increase the value of the insurance by increasing their risk and shareholders can diversify for themselves. In sum, the real world 'imperfections' that give rise to bank lending mean that it is not equivalent to investing in securities and there is to date no accepted model which quantifies the required return on loans.

Credit rationing is a further important feature of lending: banks typically ration credit on a non-price basis by refusing many loan applications altogether and, for all borrowers, not just large ones, setting limits to how much they will lend. Recent explanations, for example Stiglitz & Weiss (1981), argue that credit rationing is a response to problems of obtaining information about borrowers, as are loan contracts themselves.

On the liabilities side of the balance sheet, the analysis of the optimal ratio of capital to deposits is similar to that for the ratio of liquid assets to loans mentioned above. The cost of funding lending by means of equity rather than deposits is the difference between the bank's cost of share capital and the rate(s) it pays on deposits. The benefit of more capital is that it makes insolvency and the associated costs less likely and capital should be raised to the point at which the marginal benefit equals the marginal cost. The higher a bank's gearing, the greater both the cost of capital and of deposits are expected to be. Since the 1987 Basle Agreement on capital adequacy, if not before, the focus of prudential supervision has been on the capital rather than liquidity decision.

Banks provide an increasing variety of services or products in addition to deposits and loans, and confront decisions on their scale and scope of operations. These are affected by the bank's 'costs of
production', the levels of demand for its services and the nature of the competition in the various markets in which it operates or could operate. The standard analysis of the theory of the firm can be applied in theory; the bank expands to the point at which marginal cost equals marginal revenue in each market, subject to the constraints of maintaining adequate liquidity and capital ratios. Ultimately competition should ensure that banks operate at a size at which efficiency is maximised from economies of scale and scope. But measuring 'costs of production' and the nature of competition is difficult in practice; Kolari (1987) reviews the research in this area.

Theories of lending abstract from the other aspects of a bank's operations because they model efficient arrangements for funding business rather than running a bank. But they address the crucial question of why lending is not equivalent to investing in securities and so analyse what a bank does that an investment fund can not do.

Early Theories of Lending

Until the early 1980s the loan contract and lending relationship had received little attention, except incidentally in work on credit rationing. Baltensperger (1980) notes that 'uncertainty, ie incomplete information about various aspects of its activities plays a central role in many of the models of bank asset selection' but adds that 'the degree of uncertainty is treated as completely exogenous in most of these models' (p. 8). But it was recognised that uncertainty about both borrowers and depositors can be reduced, at a cost, by acquiring more information about them. For example, Ainger & Sprenkle (1968) treat costs of acquiring information about borrowers as a cost of production of a loan. In their model, banks overestimate default probabilities so the benefit from this spending is a lower estimated probability of default on a loan of given size. Lenders can profit from this by offering loans of larger size than they would have in the absence of the additional information. As Baltensperger remarks, information is also valuable if the bank has underestimated the default probability. Ainger & Sprenkle do not discuss the nature of information acquisition but
hypothesise that there are diminishing returns, in terms of greater accuracy of estimation of default probability, per unit spent on acquiring it.

One of the earliest papers to offer explicit analysis of the bank-corporate lending relationship is Kane & Malkiel (1965). They seek to show that refusing to grant a loan to an existing corporate customer can sometimes increase the risks to the bank and reduce future profits and that therefore banks may lend more than might be expected when demand for credit increases or when credit is constrained. The interesting part of the paper for our purposes is the discussion of the lending decision. The authors focus on large, valued customers with whom the bank has a long-standing relationship. Refusal to lend may 'alienate' such customers, thus increasing the likelihood that they withdraw deposits and future loan business. This makes the bank's deposit base more uncertain, which increases its risk, and the loss of both types of business reduces profits. Furthermore, the previous investment of effort in building up the relationship and acquiring knowledge of the borrower may be wasted, whereas granting the loan may improve relations. If the bank lends when credit is constrained, it 'seems natural' for the borrower to return to the same bank at other times. The customer is valuable because, though it is large and stable, the bank can still make a good return because 'perfect information does not characterise the loan market. What is known to whichever bank a valued applicant is now a depositor can be but loosely perceived by competing banks' (p. 123), so competitors will not necessarily offer a lower margin as the risk of lending is, for them, greater and the costs of investigating the loan request higher. Ainger & Sprenkle make the same point (p. 163).

On the other hand, some writers assumed that the debt market is efficient with respect to information about borrowers, in which case bank lending is similar to managing a portfolio of securities. Black (1975) and Fama (1980) offer accounts of this type, though Fama (1985 and 1990) has since argued that banks do have a competitive advantage in obtaining information. In Black's discussion of bank operations the possibility of obtaining non-public information about companies
is ruled out, at least if their shares are traded.

When the corporation has traded stock, the price of the stock will be the primary piece of credit information. The bank also needs information on the corporation's liabilities other than the bank loan, and information on whether the corporation is in default on any of the terms of the loan. In an efficient market, there is no reason for the bank to try to get information about the company and its prospects on its own. It is very unlikely that the bank will get any information that isn't already discounted by the stock price. And it will have no way of knowing when it has such a piece of information. If the bank's loan officers have the ability to obtain and identify information on companies that is not already identified, they would be better off as security analysts' (p. 329).

Of course in an inefficient market it is precisely because loan officers work in banks rather than stockbrokers that they might be expected to have access to inside information. But in Black's view the cost of loans should rise and fall with the price of the company's shares, to compensate the bank for the risk of default when the value of the company is low, and should also depend on the variance of return on the shares as the primary measure of the risk of the company. If default threatens, the bank's main protection is that the company can sell shares to raise cash, and expected cash flow only matters indirectly in that it affects how much can be raised from share issues.

Towards Modern Theories

The remainder of this chapter reviews the ways in which debt contracts generally and features of bank lending in particular have been justified by theorists. This literature is now much too large to review comprehensively. The central issue, in terms of motivating the empirical research, is the rationale for bank lending and whether, in providing a rationale, it is necessary to assume that banks obtain inside information.

The argument in many papers is made in the context of a model which postulates a simplified version of reality containing a few characteristics, for example two types of company, those with a profitable project (the good type) and those without (the bad). The
model-builder then works out in what way finance will be provided to companies in the world of the model, and why. Other issues are beyond our scope. The intention is to present enough detail of each model as seems necessary to understand the argument of interest, but no more. Reviews of the 'new view' of intermediation include Gertler (1988), Goodhart (1989, second half of ch. 5), Bhattacharya (1991), Hellwig (1991) and Davis (1992, chs. 1 & 2).

2.2 EARLY AGENCY AND SIGNALLING THEORIES: JENSEN & MECKLING (1976), LELAND & PYLE (1977) AND ROSS (1977)

In these three papers agency and information costs mean, pace Modigliani & Miller, that a company's capital structure affects its value. The insights they contain underpin the modern view of debt and corporate finance. The introduction of agency theory to finance is generally credited to Jensen & Meckling (1976). They regard a company as a 'legal fiction which serves as a nexus for contracting relationships' among individuals (p. 311) and focus on the agency costs of the contracts between shareholders and management and between lenders and shareholders. They define an agency relationship as 'a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent' (p. 308). Agency costs arise because the interests of principal and agent typically differ and it is costly to try to ensure that the agent acts in the principal's interests. Agency costs consist of costs of monitoring the agent, costs incurred by the agent to guarantee that he will act in the principal's interests (bonding costs) and residual losses to the principal which arise to the extent that the agent still does not act in the principal's interests.

There is an agency relationship between shareholders and managers if the latter do not own all the shares, and the less of the company they own, the less incentive they have to act in shareholders' interests, ie to maximise the value of the company. Jensen & Meckling believe that the most significant way in which managers with few or no shares in their company may fail to maximise
its value is through neglecting 'creative activities such as searching out new profitable ventures' (p. 313) - the entrepreneurial spirit will be lacking. Other writers have been more concerned about empire-building: managers seeking growth in sales or assets beyond the level which would maximise profits (eg Baumol, 1959). Jensen & Meckling do not discuss how effective are monitoring and bonding activities in reducing residual loss to shareholders, but the methods they mention include auditing, formal control systems, budget restrictions, performance-related payment schemes, 'explicit bonding against malfeasance on the part of the manager and contractual limitations on the manager's decision making power' (p. 325).

The other agency relationship they consider is between debtholders and shareholders, whose interests can diverge as gearing increases because shareholders have more incentive to use borrowed money to invest in riskier projects. The incentive arises because the payments on debt are (usually) not related to the success of the borrower. If investments turn out well, all the surplus after interest and loan repayment goes to shareholders: if the company makes losses, obligations to lenders may not be met. So, given two investments with the same cost, total expected return and beta but different variance of return, shareholders will choose the investment with the higher variance because it gives them a higher expected return because there is a greater chance of lenders bearing some of the losses if the investment fails (see figure 2.1). The problem may become particularly acute in situations of financial distress in which the shares are already worth very little and the managers are likely to lose their jobs. Then they may be tempted to use, in effect, lenders' money to undertake high risk projects with negative NPV, as they have little more to lose from such a gamble whereas the company could be saved if the outcome is unexpectedly good.
Lenders Bear More of the Risk of Riskier Projects

The diagram shows the probability distributions of returns from two investments. Both have the same cost and expected return (area under the curve) but investment A is less risky than B. Assume for simplicity that the investments 'mature' at the same time, that the value of the company is wholly determined by their outcome at this time and that full repayment of debt principal and interest is due then. This obligation is labelled D. For outcomes to the left of D, the total value of the company is less than the amount owed to lenders, who then bear some of the loss from the investment. Wherever D is placed, the expected loss is greater under B than under A, so lenders always prefer the company to choose A.
If lenders are unable to prevent decisions which increase risk and did not fully anticipate them when negotiating the cost of funds, then wealth is redistributed from lenders to shareholders if such decisions are made. However, to the extent that they are expected, the cost of debt will be higher. Lenders have an incentive to monitor loans to reduce the risk of loss; the costs of monitoring will be included in the costs of the loan. This means that managers have an incentive to see that monitoring is performed in the lowest cost way.

Suppose, for example, that the bondholders (or outside equity holders) would find it worthwhile to produce detailed financial statements such as those contained in the usual published accounting reports as a means of monitoring the manager. If the manager can produce such information at lower costs than they (perhaps because he is already collecting much of the data they desire for his own internal decision making purposes), it would pay him to agree in advance to incur the cost of providing such reports and to have their accuracy testified to by an independent outside auditor. This is an example of what we refer to as bonding costs (pp. 338-9).

Jensen & Meckling include bankruptcy costs as agency costs which are related to debt because the probability of bankruptcy increases with gearing. They emphasise that companies which are some way from bankruptcy but perceived to be at risk can find it more difficult to operate normally because of concerns of employees about their jobs and purchasers about service contracts, for example.

The main advantage of debt is the tax subsidy on interest payments. In the absence of this its use by privately owned companies is still predicted if they have insufficient internal sources and if the agency costs of issuing equity publicly would be higher than those of debt. The authors do not discuss the case of large companies that are already publicly owned and recognise this as a limitation of the analysis (p. 356).

Agency theory helps explain why information is valuable to suppliers of capital but it does not analyse how information costs can be minimised. These can be viewed as another example of transactions costs, as in Benston & Smith (1976). They point out that loan covenants can reduce the agency cost of debt by restricting
the freedom of action of management, while the taking of security can reduce the need for monitoring. Also noteworthy is their belief that banks have a comparative advantage in obtaining information about borrowers because they are discreet with it (p. 223).

The second source paper for the modern view of lending is Leland & Pyle (1977). Most of the paper presents a model of company capital structure, the distinguishing feature of which is that the entrepreneur signals the inside information he has about the company's prospects by the proportion of equity which he retains. He can not simply reveal what he knows because external providers of finance would not trust him. They are not able (costlessly) to verify the information and the entrepreneur has an incentive to exaggerate the company's prospects, because he can thereby lower the cost of funds and/or obtain larger amounts. This problem of moral hazard hampers information transfer. But entrepreneurs with 'good quality' projects still want to convey this somehow, as otherwise lenders will tend to assume that their projects are low quality and charge a high price for funds.

The argument that purchasers, or in this case lenders, will tend to assume the worst about products whose quality they can not verify is credited to Akerlof (1970), who analysed the market for used cars. The problem is that, if purchasers are unable to distinguish in advance a decent car from a rotten one (a 'lemon'), they will offer a price somewhere in the middle between what a decent car and a lemon is worth. But this will put off would-be sellers of decent cars, so that the quality of used cars coming onto the market deteriorates, purchasers begin to realise this and reduce their offers further, and at the extreme the market may collapse altogether. This all presupposes that purchasers are completely unable to determine the quality of cars, which is unrealistic, but the point is to demonstrate the importance of information in the functioning of markets for products whose quality matters, varies and is difficult or costly to ascertain.

Returning to the entrepreneur seeking to raise funds, retaining equity in his company is a credible signal of its quality because the
more he retains, the more he has to lose if it fails. The cost to him of this signal is that his personal portfolio is not as well diversified as it could be otherwise. One purpose of Leland & Pyle's formal analysis is to demonstrate that in equilibrium the entrepreneur's share of the equity in his company is positively related to its value.

The last section of their paper is concerned directly with intermediation and is clearly not fully developed. The question posed is why (more) information about borrowers is not gathered and sold publicly. One problem suggested is that the information producer 'may be able to appropriate only a fraction of what buyers in totality would be willing to pay' because 'purchasers... may be able to share or resell their information to others, without diminishing its usefulness to themselves' (p. 383). This seems a dubious argument; most information one can think of in financial markets is valuable only so long as competitors do not have it, so that a more plausible problem for the information producer would be to convince potential purchasers that the information had not already been exploited by others. But this might be viewed as a case of the second problem Leland & Pyle mention, which is the difficulty of verifying the quality of the information. An intermediary, in contrast to an information producer, is able to realise a fuller return from its inside information because it does not try to sell it but rather uses it to choose its assets, the returns from which the intermediary alone enjoys. The authors believe this to be a 'primary reason' for the existence of intermediaries and suggest that their quality is primarily determined by how effective they are at gathering information. As with other companies, quality can be signalled by the proportion of equity retained by the 'organizers'.

Finally, they argue that 'sellers of risks with favorable characteristics wish to be identified, and would deal with an informationally-efficient intermediary rather than with an uninformed set of lenders offering the value of the average risk' (p. 384). In fact it seems to be the other way round in capital markets: the largest and safest companies are less likely to borrow from banks than from (perhaps) relatively uninformed securities markets. As
with used cars, the implicit assumption that the purchaser or market investor is completely ignorant is too strong. But Leland & Pyle's suggestion may be correct for some markets. Calem & Rizzo (1992) argue that banks are better informed about public hospitals in the USA than bond investors and that the better hospitals do rely more on bank loans (see section 5.2).

We may ask why, if management can signal their company's quality by the proportion of the equity they own, is there a need for further information gathering? Leland & Pyle do not discuss this, though they do say that it is 'typically' information about individuals which is worth obtaining, the inference being that they are unable to signal. But it is apparent that the signalling mechanism presented is only one of the ways in which information about companies is transmitted.

The third of the early papers, by Ross (1977), also presents a signalling model; this time the proportion of debt in the company's capital structure is what signals its value. In this case perhaps the best way to explain the argument is to present the simple version of the model. There are two types of company, A and B, and two time periods, time 0 (now) and time 1. At time 1, type A companies will have a value of a and type B of b; \( a > b \). Companies are financed by equity and by debt which has a face value of \( F \) at time 0. Managers are paid according to how much their company is worth now, \( V_0 \), and at time 1, \( V_1 \), and incur a penalty with value \( L \) if their company is bankrupt at time 1. Ignoring the time value of money for simplicity, their payment schedule is

\[
M = \alpha_0 V_0 + \alpha_1 (V_1 \text{ if } V_1 \geq F; V_1 - L \text{ if } V_1 < F),
\]

where \( \alpha_0 \) and \( \alpha_1 \) are fixed weights. Managers act to maximise their pay, \( M \), and the only thing they can decide at time 0 is the level of debt, \( F \). They know their company's type, ie its time 1 value, but no one else does. Investors can observe \( F \) and use it to infer the company's type. Let \( F^* \) be a critical level of financing, with

\[
b < F^* < a.
\]
If 

\[ F > F^*, \]

then we shall assume that the market perceives the firm to be of type A, and if 

\[ F \leq F^*, \]

the market perceives the firm to be of type \( B' \) (pp. 28-9).

To signal their company type, A managers choose debt with face value \( F^a \) such that 

\[ F^* < F^a \leq a, \]

and B managers choose \( F^b, \)

\[ F^b \leq b. \]

Will the signal be credible, i.e., have managers of both A and B type companies an incentive to choose the level of debt which investors believe indicates the type of company they manage? A managers have no incentive not to borrow \( F^a \), since they are paid more if they signal that \( V_1 = a \) rather than \( b \) and, since they know for certain that \( F^a \leq a \), there is no risk of bankruptcy. The payment schedule for A managers which have borrowed \( F^a \), \( M^a(F^a) \), is 

\[ M^a(F^a) = (\alpha_0 + \alpha_1)a, \]

which exceeds \( M^a(F^b) = \alpha_0 b + \alpha_1 a, \)

the schedule for A managers which have borrowed \( F^b \). The schedules for B managers are 

\[ M^b(F^b) = (\alpha_0 + \alpha_1)b, \]

and
\[ M^b(F^a) = \alpha_0 a + \alpha_1 (b - L), \]

since bankruptcy will be certain in this case. So the signal will be true if

\[ \alpha_0 (a - b) < \alpha_1 L. \]

Ross does not attempt to prove that \( L \) will be set at such a level that the inequality is satisfied, or that signalling via the amount of borrowing is the only method. However, he argues that, if managers are remunerated according to the value of their companies, \( A \) managers have an incentive for their payment schedules to permit the value of their company to be signalled, for example by announcing that the penalty \( L \) to which they will be liable in the event of bankruptcy is large enough so that the above inequality is satisfied. To attempt a false signal, \( B \) managers would then also have to declare themselves liable to \( L \) in bankruptcy, but it would not pay them to signal thus.

The insights of these papers can now be summarised. Because the interests of shareholders, managers and lenders do not fully coincide, and because of information asymmetry (managers being better informed about the company than external shareholders and lenders), a company's financing arrangements can affect its value. Financiers are unable to determine the quality of companies accurately and are exposed to the moral hazard that managers may act in ways which are detrimental to them. Realising this, financiers charge on the basis that companies are of low quality (some of the best may be deterred from seeking external finance by the cost), and that company managers will exploit them if they can. To the extent that quality can be ascertained or signalled, and that ways can be found of controlling managers or giving them incentives not to exploit financiers, the cost of funds can be reduced, at least to higher quality companies. But monitoring, signalling, controlling and providing incentives all themselves have costs. The financing arrangements which emerge will be those which minimise the total costs.
Diamond's (1984) model of the bank as a delegated monitor of credit risk has become the established explanation for the existence of banks. It is built on the agency problems resulting from information asymmetry. Diamond first considers a situation without monitoring in which an entrepreneur wishes to raise funds for a project with an uncertain future outcome $y$. At the end of the project, the entrepreneur knows the actual outcome, $y$, but not the financiers. They need to be offered an expected return of $R$ in order to supply the funds; the cost of the project is one unit and the expected return exceeds $R$. Both financiers and entrepreneurs are risk-neutral. The problem is to design a contract in which the entrepreneur has incentives to pay the financier an expected return of $R$, otherwise the project will not be funded. The solution is to allow contracts with non-pecuniary penalties: penalties where the entrepreneur's loss is not enjoyed by the lenders... these are best interpreted as bankruptcy penalties. Some examples include a manager's time spent in bankruptcy proceedings, costly 'explaining' of poor results, search costs of a fired manager, and (loosely) the manager's loss of 'reputation' in bankruptcy. Physical punishment is a less realistic example. Projects which could not be undertaken at all without the penalties can be operated using the penalties (p. 396).

Although Diamond does not spell it out, it is the feature of debt that default enables the lender to initiate bankruptcy proceedings that explains the subsequent proof that, with information asymmetry, the optimal financial contract is debt rather than equity.

Projects could not be undertaken using externally supplied equity because the investors are assumed not to know their outcomes and entrepreneurs have no, or insufficient, capital themselves. In Diamond's model, the information asymmetry at the end of projects creates an agency problem which equity is unable to resolve. If the entrepreneur declares that the project has earned nothing, equity investors can not check this, their shares are worthless and there is nothing further they can do. Of course, it may be argued that the world of the model is too unrealistic. The information asymmetry seems rather extreme and shareholders, as owners of the company, can
OVERVIEW OF SECTIONS 2.3 AND 2.4

Information asymmetry is endemic.

DIAMOND (1984) AND SUBSEQUENT VARIANTS (2.3)

Diamond (1984): debt is an efficient contract because bankruptcy enables a borrower's true value to be determined in default by imposing non-pecuniary penalties equal to the shortfall in amount owed. The alternative to bankruptcy is monitoring all borrowers to establish true value. If one bank lends, duplication of monitoring is avoided.

Gale & Hellwig (1985): similar model. Bankruptcy process itself achieves monitoring, which only occurs in default. Debt is 'incentive-compatible', ie entrepreneur has no incentive to lie about project returns.

Krasa & Villamil (1992): similar to Diamond but adds cost to depositors of monitoring bank in default.

Seward (1990): role for equity created if outcomes of some of borrower's projects are assumed observable. Banks monitor better than bond investors because they lend more to each borrower, as in Leland & Pyle.

Harris & Raviv (1990): monitoring in default avoids unnecessary liquidations.

THE LENDING RELATIONSHIP AND ONGOING MONITORING (2.4)

Mayer (1988), Aghion & Bolton (1989), Hellwig (1989, 1991): debt is an incomplete contract, not specifying what should happen in all eventualities. Lending relationship only possible with a bank and is vehicle for implicit contract of commitment in which bank supports borrower when in difficulties and borrower provides bank with business in good times.

Banks are in a better position to negotiate with borrowers than are bond investors.

Monitoring (inside information) helps but is not essential.
OVERVIEW OF SECTIONS 2.3 AND 2.4 CONT.

Diamond (1991): monitoring assumed to be ex ante (screening) and ongoing. Reduces borrower investment in negative NPV projects which transfer wealth to shareholders from lenders.

Bernanke & Gertler (1985): bank finance needed for risks which can not easily be evaluated using public information.

Fama (1990): endorses delegated monitoring story on ongoing basis. Bank willingness to lend signals borrower creditworthiness to other creditors.

Sharpe (1990): analyses consequences of borrowers finding difficulty in changing banks due to potential new lender lacking inside information. Causes 'first period' cost of funds to be too low and 'second period' cost too high for successful but 'captured' borrowers. May be implicit contract not to exploit 'captured' borrowers, breach of which would damage bank's reputation.
do something — they can replace the managers, which would, arguably, impose similar non-pecuniary penalties on them to those resulting from bankruptcy. These comments are made to highlight the features of the model which cause debt to be the optimal financing contract.

The optimal contract (which has not yet been shown to be debt) maximises the entrepreneur's expected return, $E_y$, given a minimum expected return to lenders of $R$. Let $z$ be the payment which the entrepreneur makes to the lenders and $\phi(z)$ be the non-pecuniary penalty function. The optimal contract solves

$$\max E_y[\max \tilde{y} - z - \phi(z)]$$  \hspace{1cm} (2.1a)

subject to

$$z \in \arg \max_{z \in [0, \tilde{y}]} y - z - \phi(z)$$ \hspace{1cm} (2.1b)

and

$$E_z[\arg \max_{z \in [0, \tilde{y}]} \tilde{y} - z - \phi(z)] \geq R, \hspace{1cm} (2.1c)$$

where $\epsilon$ means 'is a member of' and 'arg max' denotes the set of arguments that maximise the objective function that follows. The requirement is to maximise the entrepreneur's expected return (2.1a). Given the outcome $y$ and the nature of the non-pecuniary penalties, he will choose the payment to lenders $z$ which maximises his net return, including non-pecuniary penalties (2.1b). The expected return to lenders has to be at least $R$, given that the entrepreneur will maximise his expected return when the outcome emerges (2.1c). 1

1. In the paper this constraint is '$E_y$...' rather than '$E_\tilde{y}$...' but '$E_y$...' must be an error because, if not, the constraint is incomprehensible. Diamond states explicitly that the constraint requires 'a competitive return to lenders to be provided (p. 397). The return to lenders depends on the expected value of $z$, the payment they receive, not $y$. 30
Diamond proves (extremely tersely) that the optimal contract is 'a debt contract with face value $h$ and a non-pecuniary bankruptcy penalty equal to the shortfall from face, $h$, where $h$ is the smallest face value which provides lenders with an expected return of $R'$ (p. 397). In symbols,

$$\phi^*(z) = \max (h - z, 0).$$

$h$ is the smallest solution to

$$(P(\bar{y} < h) * E_p[\bar{y} | y < h]) + (P(\bar{y} \geq h) * h) = R,$$

ie the probability of $y$ being less than the face value times the expected value of $y$ in this range (| means 'such that') plus the probability of $y$ being greater than the face value times the face value has to give the required rate of return. One unit is actually borrowed, so the face value (amount to be repaid) $h$ exceeds one and, from the entrepreneur's point of view, should be minimised. If the entrepreneur tries to cheat at the end of the project by paying out less than $h$ or $y$ if $y < h$, he is bankrupt and suffers non-pecuniary penalties equivalent to what he has saved, so there is no incentive for him to cheat and lenders know this.

The proof that the optimal contract is as set out above follows from these points. By construction, constraint (2.1c) is satisfied at the minimum level of $h$, given $\phi^*(z) = \max (h - z, 0)$. A contract of this form is necessary to induce lenders to lend in the world of the model. But does this contract maximise the entrepreneur's expected return? The only alternative is to imagine a contract with a higher $h$, $h^+$.

If $z = h^+$ is incentive compatible (fulfils (2.1b) given contract $\phi(z)$), it must be true that

$$y - h^+ - \phi(h^+) \geq \max_{z' \in [0, h^+]} y - z' - \phi(z') \quad (2.2a)$$

or for all $z' \in [0, h^+]$,

$$\phi(z') \geq h^+ + \phi(h^+) - z' \quad (2.2b)$$

$$\geq h + \phi(h^+) - z' \quad (2.2c)$$

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\[ h - z' \geq 0 \]  
\[ = \phi^*(z'). \]  

(2.2d)  

(2.2e)

The final inequality follows from the requirement \( \phi(z) \geq 0 \) for all \( z \). Combined with the result that \( \phi^*(z) = 0 \) for all \( z \geq h \), this implies that \( \phi^*(z) \) gives the smallest penalties such that it is incentive compatible to fulfil (2.1c), implying that \( \phi^*(z) \) maximises (2.1) (p. 397).

What does this mean? We are imagining an alternative contract in which the entrepreneur contracts to repay \( h^+ \) instead of \( h \), and his non-pecuniary penalty function is correspondingly changed. For the entrepreneur to accept this contract, it must maximise his net return given the outcome \( y \). If \( y \) is at least \( h^+ \), then the repayment \( z = h^+ \). (2.2a) says that the net return (including non-pecuniary penalties) must at least equal that given any repayment \( (z') \) and its associated non-pecuniary penalties \( (\phi(z')) \). (2.2b) is (2.2a) rearranged. The author's understanding of the argument from (2.2b) to (2.2e) is as follows. If \( h^+ + \phi(h^+) \) is a lowest cost combination of repayment and non-pecuniary penalty, then it must be at least as low as any alternative, so

\[ z' + \phi(z') \geq h^+ + \phi(h^+). \]  

(2.2b re-arranged)

But lenders would be satisfied with \( h \) (2.2b to 2.2c), so the entrepreneur would only pay more if he received a compensating non-pecuniary reward, i.e. if \( \phi(h^+) \) were negative, but this is ruled out. So if \( h \) is paid, \( \phi(h^+) \) must be zero (2.2c to 2.2d) and a repayment \( z' > h \) would never occur. If \( z' < h \), there is no point in having penalties worth more than the shortfall, so \( \phi(z') = h - z' \) is the optimal non-pecuniary penalties function (2.2d to 2.2e).

The above argument offers a rationale for debt contracts but not for intermediaries to provide them. This is done by introducing the possibility of costly monitoring of borrowers which allows outcomes to be observed, thus eliminating the need for bankruptcy proceedings. The cost of monitoring is incurred before the entrepreneur knows the project's outcome. Whether a debt contract with monitoring will be chosen depends on the cost of monitoring compared with the expected costs of bankruptcy (the expected value of
the non-pecuniary penalty). In Diamond's model many lenders are required to finance each project. If each lender monitors, there will be duplication of effort. If the task can be delegated to one monitor, this will avoid duplication, but there is a cost in providing incentives to the agent to monitor and enforce the contract. Diamond assumes that the monitor will be a bank, which collects deposits and makes loans as well as monitoring. He does not discuss the possibility of a pure monitor or information producer (e.g., a rating agency) acting on behalf of direct lenders.

Depositors are assumed not to observe project outcomes, only the bank. Their contract with the bank is analysed in the same way as the financing of an entrepreneur in the absence of monitoring; the optimal contract is a loan with non-pecuniary bankruptcy penalties on the borrower in the event of default. The possibility of incurring these penalties constitutes the cost of delegating monitoring to the bank, which is in addition to the resource cost of monitoring, which is assumed the same for banks and direct lenders. Given this, a bank which only lends to one entrepreneur is not viable because, if the project yields less than the value of the deposits, the bank faces the same bankruptcy penalties as the entrepreneur would have done, but has also spent resources on monitoring. It would be cheaper to borrow directly without monitoring. However, if the outcomes of projects are independently distributed, the risk of the loan portfolio and the probability of bankruptcy for the bank reduce with the number of projects it finances. As loans are added, the cost of delegation per loan diminishes. The alternatives to bank lending with delegated monitoring are bank lending without monitoring and direct lending without monitoring (which dominates direct lending with monitoring because the sum of direct lenders' monitoring costs is assumed to exceed the entrepreneur's expected cost of bankruptcy). In both these cases the expected bankruptcy cost per loan is incurred by the entrepreneur and does not diminish as more loans are made. Under bank lending with monitoring, the cost per loan includes the resource cost of monitoring but the expected bankruptcy cost of the bank diminishes as more loans are added. Beyond a certain number, the combined resource and bankruptcy costs become less than the bankruptcy costs without monitoring.
In this model, the benefit of monitoring is not that it enables banks to make better lending decisions but that it avoids the need to bankrupt entrepreneurs with poor projects. Because banks can hold diversified portfolios of projects, they are much less likely to go bankrupt than individual entrepreneurs, so the expected bankruptcy costs in the economy are reduced by their presence. This is also the benefit from diversification, since all agents are assumed to be risk-neutral and so their welfare is not increased directly by risk reduction.

Diamond also presents a different model in which all agents are risk-averse and entrepreneurs never default because they have sufficient wealth not to. In this model, monitoring appears to be essential because without it 'no incentive compatible payment schedule can depend on the realization $y$, because the entrepreneur could always claim a low value occurred' (p. 403). The rationale for intermediation is more straightforward as diversification of loans in a portfolio reduces the risk per loan and, as costs are now positively related to risk, the bank bears the risk of the project more cheaply than the (undiversified) entrepreneur and can charge less than an (undiversified) direct lender. If direct lenders have insufficient wealth to finance whole projects, the problem of duplication of monitoring provides a further reason for intermediation, as in the original model.

Finally, it is worth quoting Diamond’s comments on why it is difficult to create markets in second hand loan contracts.

If the intermediary were to sell a loan and transfer the monitoring and enforcement to someone else, the acquirer would have to incur the monitoring costs again, duplicating the effort of the first intermediary. These costs would be in addition to any physical costs of transferring ownership. Adverse selection of which loan an intermediary chooses to sell could be another complication caused by the private information possessed by the intermediary. The centralization of monitoring each loan by a single intermediary will mean that there are not active markets for these assets (p. 410).
Variations of the Diamond Model

In Diamond's model debt contracts either require bankruptcy in default but no monitoring or monitoring but no bankruptcy. Gale & Hellwig (1985) offer a variant in which debt is again the optimal financial contract but in which the bankruptcy process is itself a means of monitoring. There is one period, at the start of which entrepreneurs require external funds to finance projects. At the end of the period, an entrepreneur knows the return on his project but, due to information asymmetry, it is costly for financiers to find out. There is assumed to be a pecuniary 'observation cost', in addition to which the entrepreneur incurs a non-pecuniary penalty. The entrepreneur will lie about the return on the project if he has an incentive to do so. This arises if the payment to the financier is related to the return on the project and he can fulfil the terms of his financing contract, satisfying the financier, by announcing a smaller return than the project has really produced. What sort of contract provides the entrepreneur with no incentive to lie, ie is 'incentive compatible'?

The entrepreneur's wealth, $W$, at the end of the period is a function of the true return on the project, $P_t$, and the return he announces, $P_a$:

$$W(P_t, P_a) = P_t - R(P_a),$$

where $R$ is the return paid to the financier. Gale & Hellwig argue, first, that $R(P_a)$ must be fixed unless it is not paid in full, in which case the financier requires to find out the true project return. Otherwise the entrepreneur has no incentive not to announce a low project return when it is in fact higher. If the actual return is above the fixed payment, the entrepreneur has no incentive to lie as he does not have to pay more to the financier. Second, if the fixed payment is not met in full, the financier observes the project return and recovers as much as possible. Since this entails both an observation cost and a non-pecuniary penalty on the entrepreneur, he has an incentive to meet the payment if possible. There would be no advantage in claiming falsely that $P_a$ was below the fixed payment.
nor, if the actual return is below this level, in understating it, since it will be observed anyway. These arguments show that debt is an incentive-compatible contract, which requires 'a fixed repayment when the firm is solvent, requires the firm to be declared bankrupt if this fixed payment cannot be met and allows the creditor to recoup as much as possible from the firm's assets' (p. 648). Without the third feature, the fixed repayment would need to be higher to maintain the financier's return, which would also mean more cases of costly bankruptcy. Gale & Hellwig do not discuss the role of intermediaries in supplying debt.

Krasa & Villamil (1992) make similar assumptions to Diamond (1984) and analyse a situation in which it is not possible for a bank to eliminate risk entirely by diversifying its portfolio (they assume a limited number of entrepreneurs), implying that there is a non-negligible chance of the bank defaulting. In default each depositor has to monitor the bank to verify the value of his claim and the information obtained as a result of monitoring the bank is private to each depositor. Without ex post monitoring of the outcomes of entrepreneurs' projects, these are unknown to financiers. With this information asymmetry and in the absence of intermediaries, the optimal contract is a debt contract in which 'each investor must monitor each entrepreneur with whom he/she contracts in bankruptcy states and duplicative monitoring is inherent' (p. 201), as in Gale & Hellwig. As in Diamond, intermediation avoids duplicative monitoring but, in this model, there is an extra layer of monitoring by depositors if the bank defaults and the question is in what circumstances intermediated debt remains more efficient than direct debt.

The answer depends on how many entrepreneurs the bank lends to and on the cost of monitoring an entrepreneur relative to the cost of monitoring a bank. Assuming that entrepreneurs appear identical ex ante, that each has the same expected return and that returns are independently distributed, increasing the number of entrepreneurs to whom a bank lends reduces the variance of the return on its loan portfolio - the usual benefit from diversification. Then 'the costs of monitoring the monitor go to zero if [the return promised to each
depositor] is less than the intermediary's expected return from one entrepreneur... and if the intermediary is sufficiently large' (p. 205). It can be seen that there will be a minimum size of bank, in terms of the number of entrepreneurs it lends to, above which the expected costs of monitoring with direct debt exceed those with intermediated debt (unless the actual cost of monitoring a bank increases exponentially with its size, which is assumed not to be the case). If bank default is sufficiently rare, the expected saving of duplicated monitoring of bankrupt entrepreneurs exceeds the expected cost of monitoring bankrupt banks.

Seward (1990) points out that in Diamond's model there remains no role for externally owned equity and offers a version in which monitored debt (bank loans) and equity owned by both outsiders and company managers can all have a role. The crucial difference is that, whereas Diamond assumes that all returns are unobservable without monitoring, Seward's model assumes that a company has one project with freely observable returns and another with unobservable returns unless they are monitored. However, when the return on the observable project is known, there is assumed to be a minimum feasible reported return on the unobservable project. The two projects have unequal risks and how capital is allocated between them is known only to the company.

In the absence of an intermediary which monitors, the optimal means of financing is via both debt and external equity. Under the assumptions, all debt would lead to over-investment in the riskier project as this transfers wealth to the shareholders. All equity would allow no mechanism to prevent under-reporting of the true returns of the unobservable project: it would be the optimum contract in a full information setting. Debt enables the true returns to be observed, at a cost, if there is default (though in Seward's model verification is forgone if the company reports that it is only marginally insolvent). The equity is viable because, given the assumption that the outcome of the observable project sets a minimum credible value on the outcome of the unobservable project, there is some possibility that the company reports a total return greater than the face value of the debt. 'The optimal contractual allocation must
consist of payoff structures which simultaneously mitigate the
incentive to shift risk and control the incentive to misrepresent the
firm's true output' (p. 361).

However, banks operating as delegated monitors provide debt
more efficiently than a bond market and so bank loans are preferred
to bonds. The model does not 'prove' this, but Seward asserts that
'while the total gains from the act of monitoring may be quite large,
each individual investor's expected personal gain is likely to be
quite small. Hence, there is an inefficient amount of monitoring in
this framework since investors have inadequate incentives to do so'
(p. 366). As before, there is still a role for external equity.

In Harris & Raviv's (1990) model, debt is assumed to be
valuable because it enables better decisions to be made about whether
firms should be liquidated. They assume that managers always seek to
avoid liquidation even when liquidation would maximise the firm's
value. But financiers provide funds at a lower cost if they have a
mechanism, debt contracts, for enforcing liquidation in some
circumstances. This provides more protection for their investment
than there would be if only equity were available.

Debt enables information to be generated, at a cost, if the
borrower defaults. The investigation reveals current earnings and
further information about the company's 'quality'. On the basis of
these findings, lenders decide whether the company should be
liquidated. Value is preserved by the liquidations which are
required. Shareholders 'choose the debt level to maximise the value
of their equity taking into account the cost of default and the fact
that upon default an optimal liquidation decision based on the then
available information will be made' (p. 329). The higher the
liquidation value (tangible assets) and the lower the default costs,
the higher the level of debt and of firm value.

Discussion

In models of the Diamond type, information asymmetry is assumed
to be endemic and the crucial feature of debt is that it provides a
mechanism—nonpecuniary penalties and/or monitoring in bankruptcy—for the lender to be repaid as much as possible if the borrower defaults. This alleviates the moral hazard problem, at a cost. In return for agreeing to this costly enforcement mechanism, the company can keep any surplus return above the amount promised to lenders. Debt would exist without banks, but banks are efficient providers of debt because it is assumed that monitoring yields inside information and that banks can monitor at less cost than can securities market lenders collectively. The models in this section focus on information asymmetry and monitoring ex post, on completion of projects or more narrowly in cases of default, so they do not explain the initial screening and ongoing monitoring performed by banks. The value of the debt contract has been established but there is more to say about the role of the bank.

2.4 THE LENDING RELATIONSHIP AND ONGOING MONITORING

Mayer (1988) and Hellwig (1991) argue that the crucial difference between bank and market finance is that banks show greater commitment to borrowers than market investors. In particular, they will continue to support companies in times of financial distress, whereas investors will simply seek to sell and be unwilling to become involved in restructuring. Closely related to this is the view that bank lending is an efficient way of allocating control of the borrower. In normal circumstances, control rests with the borrower’s management, but if things start to go wrong and the risk to the lender increases, loan contracts enable banks to renegotiate or, if necessary, take control. The critical terms which increase control are maturity, covenants and security. The shorter the maturity, the earlier the bank has an opportunity to renegotiate or be repaid; the tighter the covenants, the less scope for misfortune the company has without there being an event of default. A floating charge enables the bank to appoint a receiver to take over the company and act in the bank’s interests. A bank is in a better position to renegotiate because it is only one lender instead of many via a securities market and because it already has a relationship with the borrower and may have inside information as a result of monitoring. If there are many lenders to a borrower in financial distress, there is an incentive
for each to free ride on the efforts and further lending of others.

The idea that lending relationships and features of loan contracts help control the risk of lending is not incompatible with monitoring also doing this; indeed monitoring which generates inside information is unlikely to be possible outside the context of a more general relationship. Hellwig (1991) provides an excellent discussion of the two approaches, both of which he sees as alleviating 'problems of moral hazard or asymmetric information in relations between firms and financiers... Moral hazard concerning managerial effort, moral hazard concerning the riskiness of firms' strategies, and moral hazard concerning return realizations ex post' (p. 44). He notes that a problem with long term contracting is writing contracts which cover all eventualities.

In fact Aghion & Bolton (1989) and Hellwig (1989) argue that both corporate capital structure and intermediation are usefully analysed in terms of incomplete contracts. The incompleteness often emerges in cases of financial distress and restructuring; for example, creditors to a company in difficulty may want to be repaid and/or acquire more security. They can not all be satisfied and the terms of conventional debt contracts do not specify exactly what should happen, who should be repaid, who should be in control, and so on: negotiation is required. From this perspective, a company's financing arrangements are those which minimise the expected costs of contracting and negotiation. These include the 'up front' costs of the contract, the presumption being that complexity increases cost, though 'it is very difficult to define precisely what the costs of writing a more or less complex contract are' (Aghion & Bolton, p. 288). They also include the subsequent costs which may arise from contracts being incomplete.

These are not simply a matter of the costs and uncertainties arising from the negotiations required due to incompleteness. As Hellwig (1991) and others have argued, borrowers or lenders, depending on the circumstances, may be prone to exploitation by the counterparty in long term borrowing arrangements. This may threaten the provision of long term capital. For example, suppose a bank is
considering rescuing a company by making a loan. The bank requires a return sufficient to compensate it for the risk, which is greatest in the early stages. There is an 'interim' stage by which it is clear whether or not the company has recovered, but before it is in a position to repay. At this point the borrower may try to refinance the loan on cheaper terms. Knowing this, the bank initially can either make a short term loan at a very high margin, or try to lock the company into a term loan at a margin above what would be offered by a new lender at the interim stage, assuming recovery, to compensate for the initial risk of failure. But it may not be possible to agree such a contract; in practice the best the bank could hope for is a small prepayment fee. So if any loan is made, it will be very expensive and short term.

On the other hand, the company will be in a weaker bargaining position at the interim stage if its bank has better (inside) information about its health than other would-be lenders, as Kane & Malkiel (1965) recognised. This will reduce the competitiveness of their offers. If a long term lending relationship is required to obtain inside information, such relationships may promote long term lending by the relationship bank, as borrowers doing well are less likely to be poached by competitors.

So part of the value of a lending relationship might be analysed as an implicit contract which supplements the incomplete explicit terms of the debt contract. The bank supports the borrower through difficult times, in return for which the borrower continues to use the bank when it is doing well. This is not written down formally but is understood by both parties. It may be reinforced by bank possession of inside information, which will reduce the risk of lending and make it harder for the borrower to use a new bank. But privileged access to information does not seem to be essential to explain lending relationships, so long as both parties perceive them to be valuable.

According to the incomplete contract approach, bank finance should be observed when the lending is not straightforward for whatever reason and so the incompleteness of debt contracts is a
disadvantage. If flexible funding is sought or complications are possible, such as a request for revision of terms, direct involvement is called for, ranging from a telephoned agreement to a further drawdown, to effectively taking control of the company. A bank is in a better position to be involved than a host of securities market investors, even if it lacks inside information. Lending which is not straightforward includes risky loans (because there is a non-negligible chance of financial distress), loans with fluctuating drawdowns (because regular contact and action are needed) and any loan with complicated terms or purpose, such as project finance, because meetings with the company will probably be the best way to understand the deal.

**Monitoring Again**

Diamond (1991) models the borrower's choice between bank loans and issuing debt securities. The crucial difference between the two is that loans involve monitoring whereas bonds do not. In contrast to his earlier (1984) model, the monitoring is assumed to be ex ante and ongoing. There are known to be three types of borrower. Type G have safe, positive NPV projects and never default. Type B have risky projects with negative NPV and sometimes default, but if successful a risky project returns more than a safe one. Type BG have a choice between safe and risky projects and choose risky projects unless they have an incentive not to, because it is assumed that the expected value left for the borrower after repaying debt plus interest is higher for risky projects, unless the interest rate is very low. The higher the rate of interest, the more attractive is the risky project. So lenders to type BG are subject to moral hazard. Any default implies that a borrower is not type G and, in the absence of monitoring, it can not borrow thereafter.

Monitoring is costly and enables the selection of risky projects to be detected with error. If a risky project is detected, either the loan is not made or, if it already has been made, the bank enforces early liquidation. If monitoring is sufficiently effective, the type BG borrowers, who are the only ones with a choice, have an incentive to choose safe projects. If a type BG is caught with a
risky project, it makes no profit now nor in the future because it can never borrow again. The less chance there is of being caught, the higher the expected value of the risky project. If monitoring is not sufficiently effective to induce borrowers to select safe projects, it still has a (lower) value as a screening device; some borrowers with risky projects are identified (the possibility of misidentifying a safe project is not discussed).

Borrowers are assumed to have a credit rating based on public information including their track record in meeting obligations to creditors, whether or not they issue bonds. Those with the highest rating pay such a low rate of interest that, even if they are type BGs, most will choose safe projects, so that monitoring has little value as an incentive or screening device. It will then be cheaper to issue bonds, which saves the cost of monitoring. Reputation also acts as an incentive for type BGs to choose safe projects. The longer a borrower maintains a good track record, the more it has to lose by defaulting or being caught with a risky project, because its cost of borrowing will be falling so long as the good track record is maintained. For lower rated borrowers, monitoring is more valuable and, below a certain rating, it will be cheaper to borrow from a bank and be monitored than to issue bonds. At the same time, the lower the credit rating, the higher the interest rate payable and so the less effective monitoring is as an incentive device to choose safe projects, because the attraction of the risky alternative increases with the cost of debt. In this model, monitoring is thus most valuable to lenders for borrowers with reasonably high ratings, for which it is most likely to act as an incentive device. The choice between banks and bonds depends on the cost and accuracy of monitoring and on the proportion of borrowers with an incentive, in the absence of monitoring, to choose risky projects. For example, the model predicts that if real interest rates increase, a higher risk of moral hazard would be perceived and fewer borrowers would find the bond market cheaper.

Bernanke & Gertler (1985) also argue that the crucial difference between bank and non-bank lending is that banks can obtain better information about borrowers, so that 'banks specialise in the
provision of credit for projects which, because of high evaluation and monitoring costs, cannot easily be funded by the issuance of securities' (p. 1). The efficiency with which they provide this service affects companies' cost of capital and access to it, and this is the main reason why banks matter to real activity (p. 8). Bernanke (1983) provides evidence that a major banking crisis can indeed impair industrial performance (see section 4.7). To the extent that information problems become less severe, perhaps due to 'innovations such as improved information technology and new financial instruments' (p. 37), then the distinction between bank and non-bank credit becomes less and the role of traditional bank loans may decline, a view which is now widely held.

Fama (1990) argues that the structures of different types of organisation can best be understood as least cost solutions to agency problems; the choice of financing arrangements is only one part of the structure. Most stakeholders, including employees, suppliers and lenders, contract to receive fixed payments: shareholders receive what is left after fixed claimants have been paid. It is argued that debt has a place in the capital structure of many companies because, as lenders have a strong incentive to monitor default risks, their willingness to lend signals that the borrower is creditworthy and trustworthy, avoiding or reducing the need for other stakeholders owed fixed payments to monitor. So from this perspective, the primary advantage of debt is that it reduces duplication of monitoring costs by other stakeholders, not just lenders. The willingness of companies to pay fees for unused lines of credit is interpreted as evidence that companies are aware of the value of signals from banks about default risks. Companies issuing traded securities have to make much more information available than others and, often, pay for ratings, to avoid duplication of monitoring costs by bondholders. The reason why it is large organisations which are observed to issue securities is that it is relatively easy for them to provide the public information required since they are already likely to produce it for internal management purposes. As Fama remarks, the analysis 'is not rich enough to provide detailed predictions about how revenue and cost conditions combine to produce different portfolios of centralized information, monitoring and
bonding devices in different circumstances' (p. 90), but the idea that lending decisions might be viewed as signals suggests a further rationale for monitoring and is crucial to the event study evidence reviewed in chapter 5.

Sharpe (1990) presents a model with two periods and two types of company, those which succeed after period one and those which fail. It is assumed that a bank which has lent at the outset learns the borrower's type at the end of period one, but that other banks do not know for sure - they observe a noisy signal. The worse their information, the more chance they have of lending to a failed company and so the more excess profit the existing lender can make in period two by just undercutting the best offer from a new bank but still charging more than the risk of lending to a known successful company warrants. However, these excess profits in period two are anticipated and competition at the outset forces the period one rate below the breakeven rate on companies of unknown quality. The result is that over both periods banks expect to make a normal return but that 'too much capital is loaned out in the first period, when less is known about the quality of firms, while too little capital is borrowed in the second period by those firms which perform well', in comparison with the case in which all lenders know a company's type after period one (p. 1081).

Alternatively, it could be assumed that banks can not exploit their successful 'captured' customers if loan agreements involve an implicit contract not to do so. Breaking the implicit contract would damage the bank's reputation and its prospects for further business. In this case the implicit contract is credible if the expected cost of lost business from breaking it exceeds the expected gain. In the model, if banks do not discount their stream of future earnings and one broken implicit contract means that no other borrower will trust such a contract from that bank, rates charged will be the same as if there were no information problem. This is an equilibrium because the allocation of funds will be more efficient, so both borrowers and lenders will earn more profit compared with the case without implicit contracts in which banks overcharge successful borrowers. The crucial assumption is that, whereas a company's quality can not be
observed accurately by outsiders, breach of an implicit contract can be; everyone knows about and believes companies which assert foul play. This seems unrealistic: unfortunately Sharpe says nothing about the dissemination and credibility of such information.

**Discussion**

The theories reviewed in this section suggest that there is more to the rationale for bank lending than avoidance of duplication of monitoring. Monitoring itself has a value beyond enabling ex post observation of the worth of borrowers ('costly state verification'). Screening and ongoing monitoring provide incentives for companies to make more optimal investment decisions, and signal creditworthiness. The effectiveness of monitoring depends on the closeness of the relationship between lender and borrower, but the relationship is also valuable to the extent that long term commitment between the two results in a lower cost of finance and better investment decisions. A relationship is viewed as possible between a bank and a borrower but not between bond market investors and a borrower. So a second reason for bank lending emerges: it can be done in the context of a relationship which is valuable. A third suggestion is that it is more efficient to negotiate with one or a few banks than with many bondholders in the event of financial distress, especially if the bank already knows the borrower well.

**2.5 INCENTIVES TO INVEST TOO LITTLE AND TOO MUCH**

An important idea in the early agency papers is that a company's financing arrangements can affect its investment decisions. This has spawned many new theories of capital structure which offer reasons why borrowing may result in companies adhering more closely to the rule of investing if NPV is positive.
Information asymmetry is endemic.

INCENTIVES TO INVEST TOO LITTLE AND TOO MUCH (2.5)

Myers (1977): borrowers may not undertake positive NPV projects if they are so indebted that all the gain goes to lenders. If true and lenders realise it, ex ante cost of borrowing is higher to compensate. Monitoring could reduce such underinvestment.

Myers & Majluf (1984), Myers (1984): borrowers may not undertake positive NPV projects if they need external funds to do so because raising funds signals overvaluation and makes shareholders worse off. Debt is preferred to equity because its value is less sensitive to value of company and thus borrowing signals less overvaluation.

Greenwald & Stiglitz (1990): companies underinvest because entrepreneur has to own excessive fraction to signal confidence and so can not diversify his risk efficiently, as in Leland & Pyle.

Berkovitch & Kim (1990): model in which companies have incentives to invest too much as well as too little. Superior information means pricing of debt reflects risk more accurately and reduces incentives to deviate from investing in all positive NPV projects.

FEATURES OF DEBT WHICH REDUCE MISPRICING AND SIGNAL QUALITY (2.6)

Note conflicting predictions in this section.

Maturity and seniority

Flannery (1986): good quality companies borrow short to signal quality, otherwise overcharged for long term debt (lemons problem). A costly signal if there are refinancing costs. Better information would enable lenders to discriminate better ex ante.

Diamond (1993): motivates mixture of short and long term debt for 'good' borrowers and 'bad' who must copy to avoid signalling their type. Again, better information would improve fairness of pricing.
OVERVIEW OF SECTIONS 2.5, 2.6 AND 2.7 CONT.

Loan commitments
Duan & Yoon (1993): loan commitments cause overinvestment, so long term loans are dearer than short term to compensate. 'Good' borrowers buy long term. Signals quality because they've more chance of surviving and benefiting from the commitment.

Security
Igawa & Kanatas (1990): 'good' borrowers offer more collateral because can be depended on to look after assets without costly monitoring by lender.

RELATED ISSUES (2.7)

Intermediaries as information producers
Campbell & Kracaw (1980): banks are reliable information producers because they lend on the basis of their information.

Credit rationing
Stiglitz & Weiss (1981): higher pricing causes adverse selection of riskier borrowers and induces more choice of riskier projects. So above some level higher pricing reduces expected returns and there is credit rationing. Better information reduces credit rationing.
Besanko & Thakor (1987): offering a lot of collateral signals quality but there will be credit rationing if sufficient collateral is unavailable. Again, better information reduces need for rationing.
The work of Myers has been influential in this field. His first study (Myers, 1977) seeks to explain 'why it is rational for firms to limit borrowing, even when there is a genuine tax advantage' (p. 148). He imagines a company which has a project or 'growth opportunity' in which it must decide whether to invest next period (time 1). The option to invest has a cost now (time 0) which can be financed by equity or equity and debt. The real-life correspondents of this cost can presumably be viewed as research and development and some of the day-to-day costs of keeping the company running. If the company does not borrow at time 0, new share capital is raised and invested at time 1 if the estimated value of the project is greater than its cost, i.e. it has a positive NPV. But if the company borrows at time 0, it will only proceed with the project at time 1 if the value exceeds the cost plus the value of the debt to be repaid, since otherwise the shareholders expect to make a loss after repaying the lenders. But this means that projects with a positive NPV (from a time 1 perspective) which is less than the value of the debt owed are not undertaken, reducing the present value of the company at time 0.

If the project is not undertaken, the option to do so expires and the lenders are assumed to receive nothing, so lenders will limit the credit they provide to finance options to invest in the future; they will be more willing to lend against assets already in place.

It is in the interests of lenders that positive NPV projects at time 1 be undertaken, because then they will receive some repayment. Since lenders will pass on the costs of expected losses to borrowers via the fees and interest margin charged and/or limit the amount they will lend to control the risk of loss, it is also in borrowers' interests that expected losses to lenders from future suboptimal investment decisions are minimised. The problem is that the various arrangements for reducing future losses to lenders are themselves costly or not feasible. It would be almost impossible to enforce a debt contract requiring the borrower to undertake all future investments with a positive NPV because management are in the best position to value an investment and 'will no doubt be appropriately pessimistic if their unbiased estimate' of its NPV is less than the value of the debt (p. 157). The same problem hampers ex post renegotiation in the event of financial distress. Short term loans
offer 'the setting for continuous and gradual renegotiation' which 'seems to be a good solution, but there are costs of maintaining such a continuous, intimate and flexible relationship' (p. 159). Monitoring by lenders is another partial and costly solution. The problem does not arise if the company has cash in hand to finance its investments, which Myers regards as 'a strong rationale for restrictive covenants on dividends' (p. 160).

As Myers recognises, this paper is a partial theory of the corporate borrowing decision; it does not discuss reasons in favour of borrowing, which are taken to be the tax shield and agency costs of equity. The well-known 'pecking order theory' (Myers & Majluf, 1984; Myers, 1984) is more complete. In particular, it provides an explanation for why companies use internal cash flow as their main source of funds and predicts that, of external sources, debt will be used in preference to equity. Myers (1984, p. 582) remarks that he 'used to ignore the pecking order story because I could think of no theoretical foundation for it that would fit in with the theory of modern finance' until work based on asymmetric information started appearing.

The easiest way of understanding the model in Myers & Majluf (1984) is through their numerical example (pp. 192-4). A company has an asset in place and an investment opportunity at time -1. At this time the expected values are known to investors and managers. The probability distribution is

<table>
<thead>
<tr>
<th>State</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>State 1</td>
<td>50%</td>
</tr>
<tr>
<td>State 2</td>
<td>50%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Asset in place</th>
<th>Investment opportunity (NPV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>20</td>
</tr>
<tr>
<td>50</td>
<td>10</td>
</tr>
</tbody>
</table>

The investment costs 100. At time 0 managers know the true values but not investors, who only learn them at time +1. So at time 0 managers have superior information about the value of the company. They are assumed to act in the interests of existing shareholders,
who are assumed to be passive - they do not buy new shares when the company issues them. Managers decide at time 0 whether or not to issue new shares to the value of 100 and invest in the project.

Since the investment opportunity has a positive NPV in both 'states of nature', it might seem as though the company would undertake it in either case. If managers announce they will do this, the value of the old shares is 0.5(170) + 0.5(60) = 115 at times -1 and 0 and the new shares are sold for 100 at time 0, so the value of the company is then 215. At time +1 investors learn the true value, which will be either 270 (state 1) or 160 (state 2). If it is 270, the value of the old shares will be (115/215)270 = 144.4; if 160, the old shares will be worth (115/215)/160 = 85.6. But if the management do not invest, the value of the old shares in state 1 will be 150, so their preferred policy at time 0 will be to do nothing if state 1 occurs. So managers will not announce that they will always invest in positive NPV projects because this can commit them to investments which do not maximise the wealth of existing shareholders when they know that the company's shares are undervalued but have to issue them anyway to undertake the investment.

However, under these circumstances, if the company does issue and invest, this signals state 2 and the value of the old shares drops to 60 at time 0 (compared with 50 at time +1 if management had done nothing). Then the value of the company at time -1 is 0.5(150) + 0.5(60) = 105, a loss of 10 compared with its value if it were always to undertake positive NPV investments. This under-investment is avoided if the company has sufficient 'financial slack - eg, large holdings of cash or marketable securities, or the ability to issue default-risk-free debt' (p. 188). In the model, the decision to issue always signals bad news and causes the share price to fall because not issuing means that the true value of the assets in place plus slack exceeds the value of the old shares if new shares are issued. So issuing signals that the worse of two outcomes has occurred; the share price prior to this decision reflected the possibility of the superior outcome occurring. (However, a point which Myers & Majluf do not make explicitly is that, in their model, a share issue does not necessarily signal that the shares are
overvalued. If the NPV of the investment opportunity turns out to be much higher than expected (above 30.44 in the example given above), the shares may in fact be known to be undervalued at time 0. The problem is that managers have no credible way of conveying this and, as at time 0, an issue signals bad news given what investors know at that time about the expected value of the investment opportunity.)

The choice between debt and equity is also analysed and, if the company raises external finance, debt is always preferred. The argument is as follows. Debt or equity will only be issued if the NPV of the investment opportunity equals or exceeds the increase (if any) in the value of the new shares ($dE$) or bonds ($dD$) between times 0 and 1, when investors discover the true value of the company. Otherwise the old shareholders will suffer a loss in value compared with doing nothing, as in state 1 in the example.

Of course if the debt is default-risk-free, $dD = 0$, and the firm always issues and invests when $b \{\text{NPV of investment}\} > 0$. Thus, the ability to issue risk-free debt is as good as financial slack. If the debt is not default-risk-free, $dD$ may be positive or negative. Option pricing theory tells us that $dD$ will have the same sign as $dE$, but that its absolute value will always be less (pp. 207-8).

$dd < de$ because debt is less risky and less sensitive to the value of the company. But since $dD$ or $dE$ represents a gain at the expense of existing shareholders, managers acting in their interests will always prefer debt to equity. Also, investments with an NPV between $dD$ and $dE$ will be undertaken using debt but not equity, reducing under-investment.

Greenwald & Stiglitz (1990) also argue that companies lacking financial slack will tend to under-invest, due to information asymmetry and entrepreneurial risk aversion. They hypothesise under-investment in activity which improves productivity (R & D). The problem is that if the entrepreneur 'both is and is known to be better informed about his own prospects for productivity improvement than investors at large, then the firm's owner/manager will be constrained to hold an excessive fraction of the firm in order to signal confidence in his own prospects' (pp. 161-2). This means he
is unable to diversify his risk efficiently and thus bears unsystematic risk with respect to his investment in his company. This makes him more risk averse regarding managerial decisions than he would be were there no information asymmetry and he were not obliged to signal his company's worth by over-investing in it. Spending on R & D is risky because the returns on it are uncertain; hence the entrepreneur will spend 'too little' on R & D. Increases in the financial strength of the company reduce risk and enable greater spending on R & D.

Berkovitch & Kim (1990) is an example of a relatively simple model in which the imperfect correspondence between the interests of shareholders and lenders can lead to under or over-investment, i.e. failing to invest in projects with positive NPV or wrongly investing in projects with negative NPV. At time 0 a company has an existing project, x, financed partly by debt, which yields an uncertain return at time 2. There are two states of nature time 2. Low returns, state L, occur with probability P and high returns, state H, with probability 1-P. There is no discounting. At time 1 the company can invest in a new project, y. It is assumed that the new project is paid for entirely by debt which is junior to the existing debt. The time 2 returns on the projects are:

<table>
<thead>
<tr>
<th>State</th>
<th>Probability</th>
<th>Gross returns from old project x</th>
<th>Gross returns from new project y</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td>P</td>
<td>$X_L$</td>
<td>$Y$</td>
</tr>
<tr>
<td>H</td>
<td>1-P</td>
<td>$X_H$</td>
<td>$Y+s$</td>
</tr>
</tbody>
</table>

These parameters are common knowledge at time 1; lenders are as well informed as companies. All debt is zero coupon, repayable in time 2. Old debt has a face value of $F_0$ and default is possible, so

$$0 < X_L < F_0 < X_H.$$

New debt has a face value of $F_1$ and default on new debt is also possible, so
The market value of the new debt is what is invested at time 1, \( I_1 \). New debt is assumed to be junior to old and its value is

\[
I_1 = PZ + (1-P)F_1
\]

where

\[
Z = \max(X_L + Y - F_0, 0).
\]

This says that in state \( H \) the face value is fully repaid; in state \( L \) the face value of the old debt is paid first and any surplus goes to repay the new debt.

If the company does not undertake the new project, the market value of its equity, \( E_X \), is

\[
E_X = (1-P)(X_H - F_0).
\]

If it does undertake the new project, the market value of its equity, \( E_1 \), is

\[
E_1 = (1-P)(X_H + Y + s - F_0 - F_1)
\]

or

\[
E_1 = E_X + (1-P)(Y + s - F_1),
\]

where the latter term is the NPV of undertaking the new project. But the NPV of the new project itself is

\[
Y + (1-P)s - I_1.
\]

The difference between the NPV of undertaking the new project and of the project itself is
\[(1-P)(Y + s - F_1) - [Y + (1-P)s - I_1] = I_1 - (1-P)F_1 - PY.\]

Since

\[I_1 = PZ + (1-P)F_1,\]

this difference amounts to \(P(Z - Y)\). It is this term which can cause non-optimal investment. Remember that \(Z = \max(X_L + Y - F_0, 0)\), \(Y\) is the return on the new project in state \(L\) and \(X_L (< F_0)\) is what the old debtholders receive in state \(L\) if the new project is not undertaken. Note that \(Y\) can be negative but the NPV of the project positive, depending on the values of \(s\) and \(P\). If \(Y\) is negative then the old debtholders receive less than \(X_L\) in state \(L\) but the shareholders and new lenders lose nothing more as they have already lost everything. So undertaking the project transfers wealth from the old debtholders to the shareholders and this can lead to the company undertaking projects which themselves have a negative NPV, i.e. over-investing, as in Jensen & Meckling (1976). We can observe that if \(Y\) is negative, \(P(Z - Y) > 0\), because \(Z\) is 0.

If, on the other hand, \(Y\) is positive, then the old debtholders gain in state \(L\), because they will obtain more than \(X_L\), given that they have seniority. This reduces the expected value of the new debt, so new lenders will require a higher interest rate to compensate than they would if they had first claim on \(Y\) and the company will forego some projects with positive NPV, i.e. under-invest. With \(Y\) positive, \(P(Z - Y) < 0\), because \(Z\) is \(X_L + Y - F_0\) which is less than \(Y\).

Having modelled the problem, Berkovitch & Kim relax the assumption that the existing debt is senior to new debt. They show that the incentives to deviate from investing in all positive NPV projects are minimised if the new debtholders have first claim on the new project and the old debtholders on the old project, an arrangement they characterise as project financing. Over a wide range of positive values of \(Y\), the under-investment problem is eliminated because \(Y\) goes to repay the new rather than the old lenders, although the over-investment problem remains for negative \(Y\).
The seniority conditions of any new debt are established as part of the terms of old debt. If asymmetric information is assumed at time 1, lenders do not know the parameters of new projects, \( Y \) and \( s \), and new debt is priced based on the average quality of new projects. In this case the incentives to over or under-invest can not be reduced as effectively, which is a cost of the information asymmetry. All new lenders assume the same expected value for \( Y \) in state \( L \), \( EY \), and it remains optimal to give them first claim over \( Y \). But this means that companies at time 1 with \( Y \) above (below) the market's perception of \( EY \) will under (over) invest because the new debt will be priced too high (low) relative to the true expected payment to new lenders, \( PY + (1-P)F_1 \); \( \min PY = 0 \) if \( Y < 0 \).

Discussion

Models of debt contracts (section 2.2) start with the moral hazard problem that financiers can not trust companies' reports about themselves. The advantage of debt is that it provides a mechanism for the lender to be repaid as much as possible if the borrower defaults. Banks are an improvement because they monitor efficiently and lend in the context of a relationship. Models of funding investment start with the problem that companies have incentives to invest suboptimally. Myers believes they are prone to underinvest because they pay 'too much' for external finance because raising external finance tends to be interpreted as a signal that the company is overvalued. The advantage of debt is that its value is less sensitive to the value of the company than equity, and therefore financiers are less concerned about the company being overvalued on issue of debt than of equity. We have an additional rationale for debt. However, there is an offsetting incentive to overinvest after loans have been made, to redistribute wealth from lenders to shareholders.

We also have additional reasons for monitoring. If lenders can not determine the quality of companies and charge the same 'pooled' rate to all, good ones will be charged too much and bad ones too little. Ex ante and ongoing monitoring enables debt to be priced to reflect borrower quality more accurately and reduces the scope for
borrowers not acting in lenders' interests. These are different benefits from verification of borrower value. Models of funding investment therefore augment the rationale for debt and monitoring.

2.6 FEATURES OF DEBT WHICH SIGNAL QUALITY AND REDUCE MISPRICING

We have seen that, given information asymmetry, the cost of debt will not reflect borrower risk/quality accurately. The papers in this section analyse features of debt as (costly) ways of signalling quality and thus reducing mispricing. Their focus is not the rationale for debt itself, or for bank lending. A role for debt is simply assumed and it is also assumed that monitoring is not fully effective or not attempted.

Maturity and Seniority

The importance of the commitment implicit in long term bank-borrower relationships has been mentioned. Several writers have considered the rationale for explicit contractual commitment via long term loans or committed facilities. Flannery (1986) analyses companies' choice of debt maturity. There are two periods and projects only pay out at time 2, so short term debt has to be refinanced at time 1. At this stage some projects have increased in value and will not default; the rest have decreased in value and some of these will default. There are good and bad borrowers and the bad have a higher probability of default. Lenders know the proportions of each but not the type of a particular borrower (they do not have inside information), though they know that the cohort which has decreased in value after period one contains a higher proportion of bad borrowers than does the initial full population. Let \( R_g \) and \( R_b \) be the rates good and bad borrowers would pay were lenders able to distinguish them, and \( R \) be the rate charged to both otherwise. In the circumstances described, good borrowers would prefer to borrow short term and refinance, because \( R > R_g \) and at time 1 the good borrower expects to refinance on more favourable terms, which is not possible with a two period loan. Bad borrowers will also borrow short term as to do otherwise would signal their status.
But if there are fixed transactions costs every time a loan is made then borrowing short will have higher transactions costs. If these costs are sufficiently high, the gap between \( R \) and \( R_g \) large and the gap between \( R_b \) and \( R \) small, then it may still be worthwhile for good borrowers to borrow short but not for bad ones to copy them, in which case there will be a separating equilibrium. On the other hand, the smaller the gap between \( R \) and \( R_g \), the less likely they will be to find it worthwhile to borrow short, in which case both types will borrow long. In this model the inability of lenders to assess borrower type results in suboptimal costs of funds whether or not there is a separating equilibrium. If there is, good borrowers incur short term refinancing costs purely to signal their type: if there is not, both types pay the same long term rate which is 'too high' for good borrowers and 'too low' for bad ones.

Diamond's latest model (1993) focuses on maturity and seniority. There are two periods. Borrowers require funds to invest at time 0 and can pay nothing until time 2. Long term debt matures at time 2; short term debt must be refinanced from the existing lender or another at time 1. The time value of money is assumed to be zero, for simplicity, so the long term debt pays no interest at time 1. If refinance is impossible, the borrower defaults and the management lose control. There are two types of borrower: good ones, type \( G_s \), have positive NPV projects; bad ones, type \( B_s \), negative. Borrowers know their own type at time 0 but not lenders; at time 1 all lenders, not just those which actually lent to a particular borrower, receive imperfect information about each borrower's type. The signal or rating ranges from one (definitely a good borrower) to zero (definitely bad). Type \( G_s \) receive a higher average score than type \( B_s \) but it is possible, though unlikely, for a type \( G \) to receive a score close to zero and for a type \( B \) to receive a score close to one.

If the information at time 1 were perfect, and all type \( G_s \) could be sure of receiving a score of one, they would arrange short term finance. Lenders at the outset have to charge a cost reflecting the credit risk of the average borrower, but with short term debt type \( G_s \) would only have to pay this for one period instead of for two
with long term debt. In period two type Gs would be charged a lower short term rate and type Bs liquidated. Type Bs would prefer long term debt, but this would signal their type, in which case they would not be funded, so they too seek short term debt. But as the period 1 information is not perfect, there is a chance that a type G might receive such a low score that it is forced to default, because it can not refinance the maturing short term debt. Default might result in liquidation.

Type G borrowers have some scope for avoiding liquidation even if they default by management pledging their control rent to the lender. This is the value of the management's expertise at running the company, measured by the period two cash flow under the existing management less the cash flow under the best available new management brought in after period 1. Control rent is simply assumed to exist. Let the period two cash flow from a positive NPV project be $P$, the flow from a negative NPV project be $N$, the value of the control rent be $C$ and the time 1 credit signal be $s$ ($1 \geq s \geq 0$). If a borrower defaults, the lender takes control and can either continue the company or receive the liquidation value, $L$; $P > L > N$. Under continuation, the expected value of the time 2 cash flow available to lenders is $sP + (1-s)N - C$. The management can pledge to give up all or part of $C$ to the lender to keep control and avoid liquidation, but only if $s$ is high enough that $sP + (1-s)N \geq L$. If $s$ is too low for a type G company, it is 'wrongly' liquidated even though the management know it is type G. Therefore type G managements wish to minimise the risk of wrong liquidation.

Borrowers can eliminate the possibility of time 1 liquidation by raising long term debt initially which ranks below any short term debt. The worst possible time 1 signal is $s = 0$, in which case the total time 2 cash flow is known to be $N$. So short term debt with a face value of $N$ or below can always be refinanced after period 1, and there is no chance of liquidation, which can only be compelled if there has been a default. But type G managements will not want an initial mix of debt which precludes liquidation altogether because then no type B companies will be liquidated, though it is in lenders' interests to do so because the liquidation value exceeds the time 2
cash flow ($L > N$). Lenders realise this and would charge accordingly; in effect type $Gs$ would be subsidising type $Bs$. Type $Gs$ want an initial mix in which borrowers with a very poor time 1 signal are liquidated, as they are likely to be type $Bs$, and in which there is as much short term debt as possible, as type $Gs$ expect a good signal and therefore a lower cost of short term debt in period 2. All companies pay the same rate on long term debt, set at time 0.

By borrowing short term an amount greater than $N$, there is a risk of a type $G$ being wrongly liquidated if it receives a sufficiently poor rating. Say $N+x$ is borrowed short term and the signal is 0.1. If $N+x > 0.1P + 0.9N$, the company will be liquidated even though all the future cash flow is pledged to repay short debt at time 2 and the long term debt as at time 1 is worth nothing. Since the control rent represents what management have to lose from wrong liquidation, the higher the control rent, the lower the proportion of short term debt in the mix. The optimum initial mix involves minimising the sum of the cost of wrong liquidation (the control rent) times its probability, plus the expected extra interest cost from some long term debt being used (this cost is not known for sure because it depends on the actual time 1 rating received).

The result of the model is that type $Gs$ will initially use a mix of short and long term debt. The short term debt will be senior to the long term and the long term contract will not restrict how much of the time 2 cash flow can be pledged to short term lenders at time 1. This is to maximise the proportion of short term debt. The proportion is a decreasing function of the value of the control rent, as more short term debt makes wrong liquidation more likely, which destroys control rents. Type $Bs$ will initially seek the same mix as type $Gs$ since to do otherwise would reveal their type. The seniority of short term debt, the threat of liquidation that default provides and the possibility of pledging control rents to short term lenders mean that there can be conflicts of interest in some situations between long term lenders (bondholders) who would prefer liquidation and short term lenders (banks) who can renegotiate on terms which dilute the interests of bondholders.
In both Flannery's and Diamond's models, better quality borrowers use short term debt, despite having long term projects, because lenders are assumed to obtain improved information as time goes on, which enables them to refinance at a cheaper rate. Poor quality borrowers also borrow short term to avoid revealing their type, if this tactic is worthwhile. In these models better information enables loans to be priced more accurately, reduces unnecessary liquidations and makes better borrowers more likely to choose long term debt.

**Loan Commitments**

Loan commitments can also be explained as a response to information asymmetry. Maksimovic (1990) focuses on the competitive advantage in the product market afforded by guaranteed access to funds but this would not be an advantage if creditworthy companies could depend on ready access anyway. In Berkovitch & Greenbaum's (1991) model, the existence of loan commitments depends, inter alia, on lenders' not having an information advantage. A two stage investment process is envisaged. At time 0 a certain amount is borrowed, say for R & D. At time 1 information is available to the entrepreneur, but not the lender, on how much extra investment is required to bring the project to fruition in time 2. The less extra he needs to borrow, the better. If the project is abandoned, the borrower defaults and the bank loses the initial loan. If the project proceeds, an uncertain return is produced at the end of period 2.

Lending at time 0 is more risky because of the possibility of default at time 1, so loans for period 1 only are more expensive than for period 2 only. Under the assumptions of the model, all companies choosing to borrow at time 1 can do so at the same rate. (Projects are assumed to pay \( R \) at time 2 with probability \( q \) or 0 with probability \( 1-q \). Entrepreneurs will not borrow unless \( qR \) exceeds their time 2 loan obligation. Risk neutrality is assumed, so the extent to which \( qR \) exceeds the loan obligation makes no difference; the expected return to the lender is constant. The quality and viability of the project depend solely on how much extra investment
is required at time 1).

From the lender's point of view, the project should proceed if the expected return at time 2 exceeds the extra loan required at time 1 plus interest on it (i.e., the extra investment has a positive NPV). Any surplus goes towards repaying the initial loan plus interest, which is all lost if there is default at time 1. But the entrepreneur only wishes to continue if the expected return exceeds all loan obligations. Therefore there is under-investment at time 1, because the entrepreneur does not regard the original loan as a sunk cost (as in Myers, 1977). If the time 1 information were available to the lender as well as the entrepreneur, they could negotiate so that all projects with positive NPV in period 2 could continue, but information asymmetry at time 1 is assumed. In this case, Berkovitch & Greenbaum argue that a two-period committed facility with non-utilisation fee on undrawn amounts alleviates the under-investment problem. The lender is able to charge a lower initial interest rate than the rate for a one-period loan at time 0 because it recoups some of the difference from the non-utilisation fees and because fewer projects are abandoned. The more marginal the project, the more additional investment is required at time 1, so entrepreneurs with marginal projects pay lower fees and the same interest rate in period two as those with more successful (less costly) projects. Thus more marginal projects with positive NPV are continued in period 2 because the period 1 interest rate is lower for all and the more marginal the project, the lower the cost of funds in period 2. However, this result—that stronger borrowers pay more, including fees, than weaker in period 2 (p. 91)—is perverse, and there is no explanation of what prevents borrowers with low cost projects from refinancing at time 1 with another bank to avoid the non-utilisation fees.

Another example of a model in which loan commitments exist as a consequence of information asymmetry is Duan & Yoon (1993). As usual they envisage two periods; companies invest in projects at time 1 and can borrow at the spot rate then or arrange a loan commitment before (time 0) at a committed rate. The quality of companies varies and affects the probabilities with which their projects will be
successful. First assume that lenders know company quality, so that committed and spot rates reflect this. The general level of interest rates in the economy may change between time 0 and time 1. If they rise, then companies with loan commitments have a committed rate below the time 1 spot rate offered. They will use the loan commitment and will therefore over-invest because they apply too low a discount rate: some of what they invest has a negative NPV. If rates fall, then all companies will borrow spot and invest the correct amount. Over repeated periods there will be too much investment. Lenders know this and set the initial fee for loan commitments high enough to compensate them. Therefore at time 0, the expected cost of finance including fee is greater for the loan commitment than the spot loan, because lenders pass on the expected cost of negative NPV investing in the commitment fee. So no loan commitments would be demanded.

Now assume that information asymmetry exists, so that lenders are unable to distinguish company quality directly. Duan & Yoon show that high quality companies can signal their type by buying loan commitments; the higher their quality, the larger the facility they will buy. The up-front fee, which includes the expected cost of over-investment, is more than compensated for by the lower committed rate offered, reflecting the high quality revealed. The signal is credible because a low quality company buying a large loan commitment would be worse-off as a result, because it pays the fee for certain but has less chance of benefiting from the lower committed rate, because its project is more likely to fail. Therefore only genuinely high quality companies buy large loan commitments. It is also possible to signal quality by over-borrowing and investing at time 1 in the spot market, but 'since loan commitment signalling will induce overinvestment only in high interest rate states whereas spot market signalling will cause overinvestment in every state, loan commitment can thus be viewed as a dominant signalling device' (p. 658).

Security

The use of collateral has also been rationalised as a way of alleviating information problems. The argument is that higher
quality borrowers are willing to offer more collateral because their projects are more likely to succeed, which means that they are likely to maintain their assets carefully and not to sell them or put them to a different use. Therefore they lose little by pledging these assets as security, because they are unlikely to want to do anything different with them from that which a lender would want them to. Lower quality borrowers sacrifice more by pledging their assets as they are less likely to want to maintain them well in their existing use. Therefore willingness to offer collateral, while costly, can be seen as a way of signalling quality so long as it is incentive compatible, ie it costs more for weak borrowers to mimic strong ones by offering collateral than they save from lower interest.

Igawa & Kanatas (1990) present an example of a model of this type. Borrowers have the choice between unsecured debt, secured debt and conducting sale and leaseback transactions - selling assets and leasing them back. With both secured debt and sale and leaseback, the lender or purchaser is assumed to monitor use and maintenance of the asset to protect its value. This adds to the cost of finance, so that if information on firm quality were freely available, unsecured debt would be cheaper than the other two alternatives. If the lender can not determine borrower quality, though, above average borrowers will be charged too much and below average too little. But lenders offer a menu of loans with different interest rates and collateral requirements. These are designed so that the borrowers' choices successfully reveal their quality. Those whose projects are 100 per cent certain to succeed (top quality) offer most collateral as a percentage of their loan and are not monitored because the lender knows they will spend enough to maintain their assets at the highest standard. Those less certain of success offer a smaller percentage of collateral and are charged a higher rate, including the cost of monitoring of maintenance expenditure. The less chance of success (the lower the quality), the less collateral, the higher the rate and the more is spent on monitoring.

In this model the cost of offering collateral arises from the monitoring that goes with it and because the lender is assumed to require more to be spent on maintenance than is optimal, given the
project's chance of success. The less chance of success, the more monitoring is required. Borrowers have an incentive to reveal their true quality because, if they claim to have more chance of success than is the case, they have to offer more collateral, which entails greater overspending on maintenance than for a higher quality borrower, and outweighs the benefit of a lower rate. If they understate their chance of success, the increase in interest and monitoring cost outweighs the saving from less overspending on maintenance. Because offering security is costly, the lowest quality borrowers do not offer any, as the signal has no value. The cost of a sale and leaseback is assumed to be fixed with respect to lessor quality at a level which may or may not be competitive with the cost of debt for some borrowers. An obvious problem with this theory is that it predicts the opposite of what generally happens in practice, which is that loans to riskier borrowers are more, not less, likely to involve taking security.

Discussion

This section has been included to show how theorists are explaining aspects of debt in great detail within the 'new view' framework. The new point on the rationale for debt is that the many combinations of feature enhance its usefulness helping to reduce mispricing and signal borrower quality. The predictions of the theories are sometimes inconsistent with each other and we have not sought to arrive at an established explanation for each feature of debt. The fundamental problem addressed is that information asymmetry means that loans are mispriced and, given moral hazard, it is not straightforward for companies to convey information about themselves. If monitoring were fully effective the theories in this section would be redundant, as they usually point out.

2.7 RELATED ISSUES IN INTERMEDIATION

Intermediaries as Information Producers

Some theorists have pursued Leland & Pyle's idea that the primary function of financial intermediaries is the production of
information about borrowers. In Campbell & Kracaw's (1980) analysis, if companies can not easily communicate their value or quality directly to financiers, those above average are willing to pay for information to be produced about them while those below average are willing to pay for information not to be produced about them, or for false information to be produced. Intermediaries emerge as reliable information producers by putting their money where their mouths are: investing in companies they declare to be creditworthy. The loan on its own could function as a signal. However, we could envisage information brokers whose reputation on its own gave them an incentive to be reliable, without them acting as financiers. Ramakrishnan & Thakor (1984) also model financial intermediaries as information brokers, selling information they produce about borrowers and saving others the task of duplicating information production. Although the quality and extent of the intermediary's research effort is not publicly observable, its results are, and the intermediary's reputation depends on the reliability of the information it disseminates, judged ex post. An assumption is that the borrower can not itself produce or signal information more cheaply than the intermediary. The authors view each intermediary as a collection of information producers. In their model, the reward of an individual producer, acting independently, is uncertain because the borrowers which purchase the services of an information producer are assumed to judge the standard of research imperfectly, although the higher the standard, the larger the reward is likely to be. But there is a risk that the producer may deliver a high standard but not receive a fair reward.

The advantage of individual producers coalescing into intermediaries does not derive from economies of information production, though these may exist, but from diversification of the risks of each producer not receiving a fair reward, as the intermediary can charge according to its overall performance. 'Even if the intermediary's assessed performance with a particular firm is not good, the firm is willing to pay a high fee if the intermediary did well with all other firms' (p. 420). Internal monitoring prevents individuals within the intermediary from free riding. The individuals (and intermediary) are assumed to be risk averse and
since coalition reduces risk at no extra cost, coalition reduces the price of information production. If internal monitoring is costly, there is a minimum size below which the costs of monitoring exceed the benefits of diversification. The authors offer an issuing house as an example of an intermediary which, over time, is rewarded according to the quality of the information it produces, and which can be viewed as a coalition of producers (teams working on different issues). The quality of information is judged, imperfectly, by whether an issue is mispriced. But rating agencies are probably the best example of pure information brokers. Ramakrishnan & Thakor’s model and others like it are interesting partly because they do not assume or show that information producers need be banks.

**Credit Rationing**

There is a large literature on this topic which is beyond our scope, but much of it is closely related to theories of debt contracts, the well-known paper by Stiglitz & Weiss (1981) being a good example. They use an agency approach to explain the phenomenon of credit rationing, in which there is unsatisfied demand for funds by borrowers at market rates of interest and some agents are unable to borrow, or unable to borrow what they would like to, even by offering to pay higher interest rates. This is because banks' expected profits may fall as interest rates offered rise beyond a certain point, in which case banks may refuse to lend to some loan applicants at any interest rate. Two reasons are offered to explain this.

First, there may be a problem of adverse selection if banks are unable to distinguish the riskiness of borrowers due to inadequate information. Consider projects with the same expected return but different risk, so that the range of possible outcomes varies from one to another. The loan and interest due on it represent a fixed liability. The higher the interest rate set, the larger the fixed liability and the more safe projects will not be undertaken; with higher interest rates only riskier projects remain worthwhile for the borrower. So with increasing interest rates there is a trade-off between the higher interest received from successful projects and the
greater adverse selection of riskier projects which are more likely to be unsuccessful. Stiglitz & Weiss suggest that, if banks can not determine the riskiness of borrowers, they may turn away some even though they would be willing to pay a high rate of interest, on the grounds that this willingness shows they are likely to be relatively risky. Credit rationing occurs when banks have a limited supply of deposits at prevailing interest rates which is insufficient to finance loan demand, yet they are unwilling to increase their rates as they would make a lower return on their lending.

Second, a higher interest rate may change the behaviour of the borrower. If two projects have the same expected return but one is riskier, a risk neutral borrower with a fixed liability will choose the riskier project because the present value of the possible outcomes which exceed the fixed liability is greater for that project (see figure 2.1, p. 20). The higher is the interest rate, the greater is the incentive to choose riskier projects, and banks are assumed to have no control over this choice. Stiglitz & Weiss argue, further, that banks may not increase collateral requirements as a way of reducing risk of lending and loan demand as more collateral may not, in fact, reduce the risk. Their argument is that willingness to provide collateral increases with wealth and that risk aversion is likely to diminish as wealth increases, so that more stringent collateral requirements may result in selection of wealthy borrowers with riskier projects.

Finally, the assumption that banks are entirely unable to assess risk can be relaxed. In this case, the easier it is for a bank to assess the risk of the borrower, the more likely it is that a loan will be made to worthwhile applicants. Opaque borrowers are excluded if it is more profitable to lend elsewhere even if they are in fact creditworthy, because offering more security or to pay more interest convey the opposite signal in this model. The value of information about borrowers is very clear: better information reduces credit rationing and improves the allocation of funds to borrowers with positive NPV projects. These gains can be shared between lenders and borrowers. However, producing and obtaining information has costs; an implication of the paper is that the lower are these
costs, the less credit rationing should be observed.

In Stiglitz & Weiss' model, it is necessary that the supply of deposits at a particular interest rate be finite for credit rationing to occur. In Besanko & Thakor's (1987) model, deposit supply at the prevailing rate is assumed to be infinite, yet credit rationing may still occur due to a combination of information asymmetry and the inability of applicants to put up sufficient collateral. There is competition between lenders who are unable to determine the riskiness of applicants. The more risky applicants know themselves to be, the less willing they are to deposit collateral; they will pay more in interest to avoid collateral than will safe borrowers. Lenders therefore offer contracts with relatively low interest rates but high collateral requirements, which will be accepted by safe borrowers who know they are unlikely to default, and contracts with relatively high rates and low collateral which will be accepted by risky borrowers. But this sorting mechanism can not function if the collateral safe borrowers can offer is below the level at which risky borrowers are deterred from seeking low-cost-high-collateral contracts. In this case lenders are forced to ration these contracts, so that risky borrowers prefer to obtain a high cost contract for certain than risk being turned down. Safe borrowers have more to lose by opting for a high cost contract, so are more likely to run the risk of being turned down for a low cost one. Again, the better is lenders' information, the better they can assess applicants' risk; 'if the bank can perfectly sort borrowers into distinct risk classes based on observable differences alone, then there would not be any rationing' (p. 678).

2.8 SUMMARY

The 'traditional view' that intermediaries transform safe, liquid deposits into risky, long term loans is incomplete. It does not explain why a bank is required to do this rather than an investment fund. The 'new view' assumes that information asymmetry and agency costs are endemic and offers explanations for why, in this setting, debt contracts and bank lending are efficient means of funding business.
There are two types of explanation for debt contracts, from the perspective of lender and borrower respectively. First, debt alleviates the moral hazard attending external finance of returns being under-reported. It requires a fixed payment to be made, default on which results in bankruptcy and loss of control by managers/shareholders. Second, external finance is prone to be mispriced and there are features of debt which enable the mispricing to be reduced.

How do banks improve the efficiency of debt provision? First, concentrating lending to each borrower via one or a few banks reduces monitoring costs. But a monitor does not need to be a financier as well. Second, bank lending takes place in the context of a relationship with the borrower. Third, it may be easier for one or a few banks to negotiate or assume control in the event of default than for numerous bondholders.

Monitoring is only effective if it yields inside information, as assumed by the theories. Better information is valuable because it enables the cost of debt to reflect risk more accurately, reduces credit rationing and, by restricting the scope for managers/shareholders to act in way which are contrary to lenders' interests, it reduces the agency costs of debt. As a result of these improvements, borrowers have less incentive to deviate from investing in all positive NPV projects. A relationship is valuable because it enables there to be commitment between bank and borrower and it enables ongoing monitoring to take place. It may facilitate the provision of valuable features including short maturities, committed facilities and project finance. It may also facilitate negotiations or assumption of control in cases of financial distress. Assuming control in such cases is valuable because it protects lenders' interests, reducing the cost of funds, and helps avoid unnecessary liquidations.
How Important Is the Information Hypothesis?

The purpose of this chapter has been to report and compare theories of debt and bank lending, not comment on the realism of their assumptions. Indeed the papers themselves generally say surprisingly little about this. Clearly some can be questioned. Our concern is with the assumption that banks obtain inside information. Would there be a rationale for bank lending if this assumption were false?

It would mean that banks do not monitor in the sense of obtaining inside information assumed in the theories. This would invalidate the delegated monitoring explanation for bank lending, which still leaves the (remaining) value of the relationship and ease of negotiation in financial distress. In fact information asymmetry is the reason for debt itself and for various features of debt which a relationship helps provide. But there are different stages at which monitoring can occur. Diamond's original (1984) theory does not assume that banks screen or monitor on an ongoing basis, only at the end of 'projects', while Harris & Raviv assume that only borrowers which default are monitored. So even if banks only obtain inside information after a long lending relationship and/or in cases of default, that is enough for some versions of the delegated monitoring explanation. The point remains that all theories of bank lending assume that banks monitor effectively at some or all stages of the lending process. Tests of the information hypothesis uncover the extent to which this assumption is justified and their results significantly affect our understanding of the rationale for bank lending. First we consider the historical evidence on the role of banks.
Chapter 3
THE EVOLUTION OF FINANCE FOR COMPANIES

The provision of finance to companies has been of concern to policymakers and academics since the 1920s or earlier and the question of the efficiency or otherwise of bank lending to business is a recurrent theme. This chapter is intended to introduce the debate as it has been conducted in the UK and to provide a brief account of the evolution of lending arrangements and the finance of industry.

3.1. PRE 1914

Before the Joint-Stock Bank Act 1826, all banks in England and Wales were partnerships with a maximum of six partners, with the exception of the Bank of England. Larger partnerships were permitted in Scotland. There were 715 banks at the time of the Act and they were small and local; few operated branches. During the remainder of the nineteenth century, the numbers and importance of private (partnership) banks steadily declined as joint stock banks were established and expanded through opening branches and mergers.

The exact nature of bank involvement with businesses remains somewhat obscure. Writers in the field emphasise the shortage of data on bank balance sheets and company finance and the need for further research. But there is agreement that companies in the nineteenth century were largely dependent on private funding from individuals and retained profits for their long term capital.

Bank assets consisted of cash (coin, Bank of England notes and balances at the Bank); money at call and short notice lent to the London discount houses, other banks and stock market brokers; bills of exchange; government securities; and overdrafts and other loans. Finance to industry was predominantly short term and this has turned out to be an enduring feature of British banking. Bills of exchange were, and are, extensively used in transactions between companies. The seller of goods or services (drawer) sends the bill to the purchaser (drawee) for his signature (acceptance), which commits him
to pay the amount stated on the bill at an agreed future date, often three months later. An accepted bill can then be sold by the drawer to a third party such as a bank, at a discount to the amount payable at maturity. Hence purchase (discounting) of bills by banks is a way of providing short term loans to companies.

Banks would also accept bills, for a fee, i.e. add their name to that of the drawee, thereby enabling the holder at maturity to apply to the accepting bank for repayment should the drawee default. This increased the value and liquidity of the bill; those accepted by a reputable bank could be sold (rediscouned) on the London discount market. Bills were also drawn directly on banks.

Until the 1930s much of the business of the merchant banks consisted of accepting and discounting bills of exchange used in financing international trade, and in domestic banking bill discounting was a major form of lending for much of the nineteenth century. Such loans were automatically self-liquidating and the fact that bills could be sold on the London discount market meant that banks were not solely dependent for funds on local deposits. But by the turn of the century inland bills only accounted for about 4% of bank assets (Collins, 1988, p. 110), although money lent to the discount market was mostly invested in commercial bills and so was financing industry at one step removed.

Regarding other bank lending, 'extremely little is known about it in detail', but it is estimated that it accounted for around half of bank assets, at least during the second half of the century (Collins, 1988, p. 111). Most of this lending is believed to have been short term but not all, with the overdraft replacing bill discounting as the main method of lending from the 1860s onwards. Several historians emphasise the close and long term links between banks and companies owing to small scale, local operation. For example, Best and Humphries (1986) state that personal relations between bankers and industrialists encouraged the greater sharing of information and reduced risk compared with anonymous market relations. Possessing intimate knowledge of industrial circumstance and personalities, mid-nineteenth-century local banks were
willing to advance a certain amount of long-term as well as short-term capital to industry (p. 227).

However, these small banks held relatively undiversified loan portfolios and were vulnerable to adverse conditions in their local area. It seems that, as time went on, bankers became more concerned about liquidity and security for lending, and less willing to make long term loans to business (though the preference for short term and self liquidating loans which became increasingly standard towards the end of the century was adumbrated as early as 1830 in Gilbart's History and Principles of Banking [Hu, 1984, p. 12]). One reason put forward for this is that they were learning from the experience of a sequence of bank failures in 1825-6, 1837, 1839, 1847, 1857, 1866 and 1878; between 1846-57, for example, about 100 banks failed. According to Kennedy (1987),

the rash of mid Victorian bank failures can be attributed directly to banks' becoming too closely linked with local firms and over-lending as these firms attempted to expand... These failures reached a crescendo with the failure of the City of Glasgow Bank in 1878. This marked a final watershed for British banking before 1914... no longer would banks become willingly involved in the long-term financing of industry (pp. 121-2).

Tilly (1989) argues that British banks were unwilling (formally) to make long term loans or underwrite and hold securities because they could not depend on the Bank of England to guarantee their liquidity, and contrasts this with the policy of the German Reichsbank, established in 1875, of providing 'virtually unlimited access' to its discounting facilities for credit banks, which did provide long term risk capital to German companies. It was also noticeable that towards the end of the century banking became more professional, homogeneous and rigid, partly due to the appearance of a number of growing national banks. However, some writers would argue that Kennedy and Tilly overstate the case. Cottrell (1980, ch. 7) analyses the lending practices of four provincial banks between the 1840s and 1890s and one metropolitan bank between 1890 and 1914; his view is that they were well informed about their industrial clients and that each 'went as far as it possibly could' to meet their needs and made 'substantial loans of a duration of a year or more, sometimes to finance capital projects' (p. 236). Lavington (1921)
states that the great majority of loans were secured and, though nominally short term, 'a considerable part' were lent for several years (p. 144).

Securities markets appear not to have played any part in the provision of finance for industry before the passage of limited liability laws in the late 1850s and early 1860s (Best and Humphries, 1986), except for the discount market indirectly. Thereafter companies did issue shares on the provincial stock markets established during the railway booms of the 1830s and 40s, but the money raised tended to be local and many issues were private placings. The provincial stock exchanges did not provide much 'outside' capital, from individuals not linked to issuers. The London Stock Exchange was far larger but was dominated by British and foreign government securities and railway stocks; in 1873 commercial and industrial securities were 1% of the total by number and still under 10% by 1914. However, during the thirty years preceding the war, the process of issuing shares on an exchange was becoming established, enabling the exchanges to assume a much larger role in the provision of 'outside' capital in the 1920s.

Whether investment in late Victorian Britain was constrained by lack of long term capital is a matter of debate, in particular whether the low volumes of security issues were due primarily to the difficulties and costs of making such issues and to lack of demand for them, or whether the low volumes merely reflected the adequacy of funds internally generated and privately raised for industrial investment. A near contemporary account (Lavington, 1921, chs. 28-33) indicates that share issues by domestic companies were indeed often problematic. He notes an 'absence of strong intermediary agencies with machinery available for the investigation of industrial propositions and the organization requisite for the efficient marketing of their securities' (p. 213), and describes how this role was played successfully by German banks. In the UK, issuers had to rely on promoters or market their securities themselves, with the result that the provision of reliable information about new issues was, in Lavington's view, inadequate, leading to inefficient allocation of capital. This was also a concern of the Macmillan
Committee. The secondary market in industrial shares was very illiquid. There is little doubt that the market for industrials was less developed than for government stocks; it is much harder to estimate the extent to which this impeded the supply of external capital to companies.

3.2 1918 TO THE 1960s

This period has been separated out because there was little change in bank lending practices during it and the banking system generally had evolved into a stable state. By 1920 the 'big five' (Barclays, Lloyds, Midland, National Provincial and Westminster) accounted for 80% of English bank deposits and were operating an interest rate cartel. The merchant banks concentrated on trade finance and organising issues of securities.

There are no aggregate data on sources of company finance before 1949. However, table 3.1 shows estimates for the years 1919-48 of security issues by companies in production, trade and transport and of increases in bank lending by the London Clearing Banks. These numbers should be treated with caution. First, the security issues are gross of redemptions, although these would be minimal for share capital at least, which accounted for around 60% of the total (Thomas, 1978, table 2.3). Redemptions of debt securities are also likely to have been small given the low amounts falling due from before 1914 and the fact that new debentures were very long-dated, with an average life of over 30 years. Second, there are other estimates of securities issues; the one shown is by the Midland Bank. A series produced by the Economist tends to have lower amounts and one by the Bank of England starting in 1927 has higher amounts (Thomas, 1978, table 2.1). Although the trends in the series are similar, there can be large differences in amounts for individual years. For example, for 1935 the Midland Bank estimate of corporate security issues is £121.1m, the Economist's is £67.7m and the Bank of England's is £155.3m. Third, the increases in lending include all lending, not just to companies, and exclude non-clearing banks.

These shortcomings notwithstanding, it is clear that by this
stage the stock exchanges had become a major source of external finance for UK companies. In most years the amounts raised via securities issues exceeded net new bank lending and in seven of the 21 interwar years total bank lending actually fell. During the depression the banks were contracting their lending to industry rather than to individuals and other borrowers; in 1929 the proportion of advances lent to industrial and commercial companies was 60% and this was down to 46% by 1937 (Collins, 1991, p. 72). Bank lending also fell sharply during the war, with banks being enjoined to lend to the government or else only for uses which would contribute to the war effort.

Why did securities markets become an important source of funds for domestic companies in the 1920s? The literature does not provide a clear-cut answer but several explanations have been put forward. The scale of investment was increasing, calling for larger blocks of capital than could be supplied from retained profit or from individuals connected with the company. There was a greater willingness on the part of owners to dilute or relinquish control. The bank interest rate cartel made banks a relatively expensive source of funds during the interwar era. Institutional investors did not begin to purchase shares of industrial companies until after the First World War. Whatever the reasons, the amounts raised appear to have been much greater than before the war.

The nature and role of bank lending, on the other hand, changed little. Bankers did not regard it as their business to provide long term capital to companies or become involved in their management and, if the Macmillan Report (1931) is to be believed, businessmen did not wish them to become involved; 'industry, having grown up on strongly individualistic lines, has been anxious to steer clear of anything which might savour of banking control or even interference, this attitude coinciding with the views which prevail in this country as to the province of sound banking' (p. 171). Advances continued to be made by way of overdraft or loans which were usually
Table 3.1

Securities Issues and Bank Lending 1919-48 (£m)

<table>
<thead>
<tr>
<th></th>
<th>Gross security issues by domestic companies in production, trade &amp; transport</th>
<th>Increases in bank lending, including commercial bills discounted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1919</td>
<td>151.0</td>
<td>264.6&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>1920</td>
<td>245.8</td>
<td>93.3</td>
</tr>
<tr>
<td>1921</td>
<td>63.5</td>
<td>-91.6</td>
</tr>
<tr>
<td>1922</td>
<td>66.1</td>
<td>-32.6</td>
</tr>
<tr>
<td>1923</td>
<td>68.6</td>
<td>39.0</td>
</tr>
<tr>
<td>1924</td>
<td>69.0</td>
<td>54.2</td>
</tr>
<tr>
<td>1925</td>
<td>82.5</td>
<td>34.3</td>
</tr>
<tr>
<td>1926</td>
<td>90.0</td>
<td>21.1</td>
</tr>
<tr>
<td>1927</td>
<td>102.7</td>
<td>26.3</td>
</tr>
<tr>
<td>1928</td>
<td>137.8</td>
<td>59.8</td>
</tr>
<tr>
<td>1929</td>
<td>110.9</td>
<td>10.8</td>
</tr>
</tbody>
</table>

Advances only<sup>2</sup>

<table>
<thead>
<tr>
<th></th>
<th>In total</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>65.4</td>
<td>-28.0</td>
</tr>
<tr>
<td>1931</td>
<td>25.3</td>
<td>-31.1</td>
</tr>
<tr>
<td>1932</td>
<td>45.6</td>
<td>-118.7</td>
</tr>
<tr>
<td>1933</td>
<td>54.8</td>
<td>-44.4</td>
</tr>
<tr>
<td>1934</td>
<td>63.0</td>
<td>14.7</td>
</tr>
<tr>
<td>1935</td>
<td>121.1</td>
<td>20.6</td>
</tr>
<tr>
<td>1936</td>
<td>123.0</td>
<td>112.2&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>1937</td>
<td>86.8</td>
<td>95.4</td>
</tr>
<tr>
<td>1938</td>
<td>59.5</td>
<td>-17.0</td>
</tr>
<tr>
<td>1939</td>
<td>29.8</td>
<td>37.0</td>
</tr>
<tr>
<td>1940-44</td>
<td>19.0 in total</td>
<td>-261</td>
</tr>
<tr>
<td>1945</td>
<td>16.1</td>
<td>59</td>
</tr>
<tr>
<td>1946</td>
<td>100.4</td>
<td>170</td>
</tr>
<tr>
<td>1947</td>
<td>107.8</td>
<td>221</td>
</tr>
<tr>
<td>1948</td>
<td>108.8</td>
<td>166</td>
</tr>
</tbody>
</table>

Notes

1. Increase during last nine months only, ie from 31 March 1919.

2. Disaggregated figures for commercial and government bills are not available for 1930-39. See sources below.

3. Advances of the District Bank are first included in the total figure for 1936, so some of this is not an increase.

Sources

for short periods of between six and twelve months and in the case of industrial users [they] were usually made to finance stocks of raw materials, work in progress or finished goods, and quite often they were renewed for new transactions. A cardinal point of English banking practice was that there should be no 'lock-up' of funds, a view which was endorsed by the Committee on Financial Facilities of 1919. In making advances banks had to be reasonably confident that the transaction would be self-liquidating in the short term, or that the amount advanced could be obtained with 'reasonable promptitude' if the bank demanded repayment (Thomas, 1978, pp. 53-4).

Fixed period loans were usually secured by collateral and about half of overdrafts were secured. Occasionally loans might be granted for up to three years but in all cases they were subject to annual review. Interest was charged at a margin above bank rate which ranged from 0.5% to 1.5%, with a minimum of 4.5% pa which was not always adhered to during the 1930s.

The process of considering loan applications varied amongst the big banks. Midland, National Provincial and Westminster gave their branches tiny discretionary limits, so that most applications went to head office. Lloyds had local committees which gave opinions while Barclays had local boards with sufficient discretion to decide on most cases. According to Thomas (1978), 'while there was concern for the security of the collateral there was little in the way of "searching credit analysis" when granting loans' (p. 58).

Despite the stress on short term exposure, there are many cases of banks choosing to continue lending to companies in difficulties for periods of several years rather than seeking repayment via putting them into liquidation. The postwar boom of 1919-20 occasioned a surge both of new issues and bank lending but thereafter several 'old' industries including coal, iron and steel, textiles and shipbuilding entered an era of chronic overcapacity. The extent to which banks became involved in the management of companies in difficulties and in the broader reorganisation of industrial sectors is a matter of debate, but Collins, who is at pains to be neutral in the related debate about whether banks should have been more involved with industry, writes in summary that 'British banks did not undertake a wholesale reform of their lending and investment
practices' (Collins, 1988, p. 259; see also Collins, 1991, pp. 75-82 for a review of 'specific instances of deeper industrial financing').

The major official enquiry of the time was conducted by the Macmillan Committee, whose Report published in 1931 was the first of three for the government on the financial system and monetary policy so far this century, all of which consider in some detail the operations and role of banks and the adequacy of provision of external finance to companies. The Committee's views are contained in a chapter entitled 'Proposals Relating to the Capital Market for Home Investment'. This starts by outlining the closer links that exist between banks and industry in Germany, France and America as a background to the central question of 'what, under modern conditions, is likely to be the relationship between finance and industry most beneficial to the community at large' (p. 164). The Report's comments on this question may be summarised as follows.

1. Rationalisation of industries suffering overcapacity would be facilitated by businessmen 'working in the closest cooperation with powerful financial and banking institutions in the City' (p. 165).
2. There should be more professional guidance available to stock market investors (then predominantly individuals), so that savings are more likely to be invested in 'the most fruitful and generally useful enterprises offering at home' (p. 166). Issues of foreign stocks are arranged by 'first-class houses', but usually not home issues, which are promoted in an ad hoc way by companies themselves or by a 'finance company or syndicate - few large, many small, some good, some indifferent, some bad' (p. 167). But for a first class house to vouch for a new issue would require 'a close and continuous relationship with the industry concerned, different in kind from the relationship now existing between the joint stock banks and industry' (p. 168).
3. Provision of short term funds to industry is 'adequate and satisfactory', though more use could be made of commercial bills. The supply of intermediate (one to five year) and long term funds could be improved. Three specific shortcomings are identified; the relatively poor organisation of domestic security issues already mentioned, a lack of longer term credit facilities for sales and
contracts abroad, and the difficulties of raising small amounts of long term capital 'up to say £200,000 or more' - the famous Macmillan gap. It went without saying that long term capital should be raised via securities issues; the possibility of long term bank loans was not even mentioned.

4. The specific recommendations were:
(i) The establishment of one or more institutions specialising in industrial finance, owned by the joint stock banks. The functions envisaged for such an institution were similar to what most British merchant banks were doing by the 1970s - organising securities issues, providing financial advice, and lending, sometimes for longer periods than was customary in the clearing banks.
(ii) The establishment of a company to organise and subscribe to smaller industrial and commercial issues.
(iii) The Committee did not recommend any change in the operations of the joint-stock banks; 'we have indeed no sympathy with the idea that the banks should in any way manage industry' (p. 168). The problem was perceived to lie with the organisation of new issues. In particular, expert, reliable issuing houses with 'close and continuous' relationships with domestic industries were thought to be needed. The criticism in effect was that the new issue market, if not the secondary market, was operating inefficiently because the individuals who provided the capital were too ill-informed to make sensible decisions. This meant that funds were misallocated to companies which did not deserve them while others which did, found making an issue difficult and expensive. The Committee wanted to see issuing houses and if necessary new institutions take the real investment decisions by only bringing to the market issues on which they would stake their reputation. This would give them every incentive to learn as much as possible about potential issuers and the industries in which they operated.

Why the Committee did not regard banks as suitable candidates for the role of allocating capital is not spelt out in the Report, but the impression given is that provision of long term capital was perceived as a fundamentally different business from banking, ie taking deposits, investing in liquid assets, making short term loans and running the payments system. The banks had developed a system
which, though limited, was efficient and above all safe, and neither bankers nor businessmen seem to have had much wish to change it. Nevertheless, the Committee believed that the flow and allocation of capital to companies could be improved by the presence of more professional intermediaries, with the incentive to be well informed and promote worthwhile issues. This would leave less of the decision-making to 'the market', the investing public. In fact, the putative institution to organise small issues was envisaged to buy and hold them itself, so it would act like a venture capitalist rather than an issuing house (which the ICFC did, though it was only set up 15 years later).

Various institutions were indeed established in the years following the Macmillan Report to improve the provision of long term capital to industry. By 1930 the Bank of England had become involved in several corporate rescues and was actively promoting rationalisation in industries such as cotton and steel. Its own lending was managed by a wholly owned subsidiary, the Securities Management Trust Ltd, formed in 1929. It also set up the Bankers' Industrial Development Company in 1930 which was 'to provide capital for worthy projects submitted by the industrialists themselves for reorganising their own basic industries' (Collins, 1991, p. 79) and was financed by the Bank, the clearing banks and other financial institutions. However, the Bank of England lacked the staff and experience to manage industrial reorganisation and ultimately did not see this as part of its role. Its initiatives in the 1930s had only mixed success (for example, see Tolliday, 1986, for a critical account of its efforts in the steel industry), and it had withdrawn from direct involvement with industry by 1945.

Within the private sector, several investment companies specialising in the provision of finance for small business appeared, of which the largest were Charterhouse Industrial Development Co Ltd (1934), Credit for Industry (1934) and Leadenhall Securities Incorporation (1935). Such companies offered long term loans and some would invest via preference and ordinary shares. But they were small, with combined share capital of under £1m, and the funds they actually invested were tiny both in absolute terms and relative to
the demand. For example, Credit for Industry had loans outstanding of £384,909 in July 1939 (Thomas, 1978, p. 119), while Charterhouse Industrial Development had only financed 17 companies by 1940, from over 7,000 applications (Collins, 1991, p. 86).

In July 1945, the Bank of England initiated the creation of a much larger scale organisation to finance small businesses, the Industrial and Commercial Finance Corporation (ICFC). This was owned by the clearing banks; the Bank had a 3% stake. It invested through both loans (partly fixed rate) and equity and had a portfolio of £26.3m in 1953, £66.3m in 1965 and £224.7m in 1975. By 1977 over 2,200 companies had received finance. The majority of loans by number were under £50,000 even in the 1970s. In some cases it became involved in the management of companies it was financing, having staff 'intended to move into a business when trouble was brewing, diagnose the cause and propose the remedy' (Kinross, 1982, p. 135). Although the clearing banks provided all ICFC's funds until 1959, the managing director, John Kinross, regarded them as generally uncooperative because they saw it as a competitor; 'the relationship with our shareholders was often extremely difficult, particularly in the Fifties' (Kinross, p. 151).

Set up at the same time as ICFC was the Finance Corporation for Industry (FCI), 15% owned by the Bank of England and the remainder by insurance and investment trust companies. It provided medium term loans at floating rates with a minimum amount of £200,000. 'Throughout the 1950s and 1960s the scale of operations was very modest and at 31 March 1971 loans and investments outstanding amounted to £70m' (Thomas, 1978, p. 334). In view of the rapid adoption of floating rate term loans after they were introduced by American banks in the 1960s, there was probably scope for FCI to have operated on a much larger scale. ICFC and FCI were merged in 1973 to form the Finance Corporation for Industry which became known as Investors in Industry (3Is) in 1983. While ICFC and later 3Is have been reasonably successful, they were never a channel for government support for investment and were not a major source of capital for industry. As Hu (1984) describes, government-subsidised long term credit institutions operated on a much larger scale on the continent.
and in Japan.

We now turn to more general developments after the war. As a result of the Companies Act 1948, data became available on the financing of quoted companies specifically. This was first aggregated and analysed by Tew & Henderson (1959) for 1949-53; compilation of the data for subsequent years was taken over by the Board of Trade. 'Before this Act, published company accounts were of very limited use for economic analysis, not only owing to the inadequate degree of standardisation, as between different companies, of the itemisation and conceptual basis of the accounts which they published, but also because of the absence of consolidated accounts' (Tew & Henderson, 1959, p. 1).

The data on quoted companies is particularly interesting because it is these companies, together with the largest unquoted ones, for which the securities markets are an accessible source of funds. But compiling a time series of such data proves to be difficult. The original tables starting with Tew & Henderson were published in Economic Trends but only up to 1962. Similar information for 1960 onwards appears in Financial Statistics for the first time in the March 1963 issue with the same source as the Economic Trends series, the Board of Trade. The tables specifically relating to quoted companies are discontinued after the November 1979 issue; the last year for which there is data is 1977. By this time similar data was being published in Business Monitor MA3: Company Finance, but not in the same detail, so there is a three year hiatus for 1978-80, after which a new table in Business Monitor MA3 again provides the requisite data. However, this new table relates to a sample of around 2,000 large companies rather than specifically quoted ones. This difference is not important because a large unquoted company can still issue debt securities (creditworthiness allowing) and could be floated on the Stock Exchange should its shareholders wish. Unfortunately Business Monitor MA3 ceased publication in 1992 and it would appear that no aggregate data on the finances of large or quoted companies are currently being published.

Using data from the above sources, the percentage of total
sources of funds of quoted or large companies from securities issues and bank lending can be calculated for the years 1949-90, except for 1978-80. This is shown in table 3.2 for 1948-62 and table 3.4 (p. 100) for 1963-90.

During the 1950s, securities issues net of repayments were a very important source of funds for quoted companies, typically accounting for 15% to 20% of total sources. This includes securities issued to pay for acquisitions. Debt securities, mostly debentures, provided about a third of these amounts. Additions to bank borrowing were a much less important source, usually accounting for less than 5% of the total; in 1952 and '53 there was a net aggregate repayment to banks.

During most of the 1950s there were government restrictions on bank lending which had a major impact. The figures in table 3.2 suggest, tentatively, that the banks could have supplied a higher proportion of quoted companies' funds were it not for constraints. When they were removed temporarily in July 1958, clearing bank advances rose by 64% in absolute terms over the next two years and the share of advances in total assets rose from the low level of 29%, around which it had been for a decade, to 43% (Collins, 1988, p. 441). The proportion of total sources accounted for by additions to bank lending was relatively high at 6.9% in 1960 and 8.2% in 1961. Restrictions were reintroduced early in 1960 in the form of calls for special deposits at the Bank of England, but Thomas (1978) comments that 'despite efforts by the banks to push large borrowers to the new issue market, demands from big firms continued and banks faced the usual problem that despite the pressures of higher interest rates and those on liquidity, further growth was almost inevitable in view of commitments made before official restraint was applied' (p. 195).
<table>
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<tr>
<th>Year</th>
<th>Ordinary shares</th>
<th>Preference shares</th>
<th>Debt securities</th>
<th>All securities</th>
<th>Increase in amounts owing to banks</th>
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</tbody>
</table>

Notes

1. The figures relate to companies’ accounting years ending between 6 April of the year shown and 5 April of the following year.

2. Net receipts from security issues include issues to sellers of acquired companies as well as cash issues.

Sources

1949-60: Calculated from Economic Trends, December 1962, table C, 'Income and Finance of Quoted Companies, 1949-1960'. Figures relate to all companies in 'manufacturing and distribution' which were quoted in 1959. This is a linked series.

1961-62: Calculated from Financial Statistics. See table 3.4 for further details (p. 100).
This willingness - indeed, 'anxiety' - of banks to increase their private sector lending was also noted in the Radcliffe Report (1960), which includes quite detailed descriptions of the operations of financial institutions and markets. It is clear that, as regards lending practices, little had changed since the late nineteenth century. 'The banks retain a strong preference for short-term lending of "self-liquidating" types' (p. 46), though 'the Scottish banks have traditionally been more willing to acknowledge the long-term nature of some of their advances and have not been reluctant to act accordingly' (p. 55). However, the Report is at pains to emphasise that there has been 'much relaxation in the attitude of the lending banker' (p. 49), citing as examples the introduction of medium term credits for exports, guaranteed by the Export Credits Guarantee Department, and longer term personal loans. Other banks operating in the UK, the accepting houses (merchant banks) and some 75 foreign banks (half of which were the head offices of British banks whose other offices were overseas), lent via bill discounting and otherwise in a similar fashion to the clearing banks. Both groups had relatively small outstandings at this stage (1958); the accepting houses had advances to UK borrowers of £41m and the foreign banks £145m, compared with clearing bank advances of £2,096m.

While bank lending remained substantially unchanged in nature and constrained in volume, the securities markets had evolved considerably. In particular, the issuing houses and stockbrokers had further reorientated their business to domestic issues, partly because the flow of overseas issues had been much reduced since the early 1930s. They were now acting in a way similar to that recommended by the Macmillan Committee and to how they continue to act today. They have a close relationship with clients which extends beyond organising issues to corporate finance advice of all types and may include lending if the institution is a bank. Issues are always sponsored by a member of the Stock Exchange and larger ones are usually underwritten. The Radcliffe Report commented that 'the market is now far better organised to meet the needs of British industry' (p. 80), although there remained concern about small company finance; 'there is... no recognised and readily accessible channel, corresponding to the new issue market for large firms,
through which the small industrialist can raise long-term funds' (p. 324). New issues were vetted during the 1950s by the Capital Issues Committee but most applications were agreed to and, unlike the controls on bank lending, it was not viewed as having reduced the flow of domestic issues significantly, though all putative overseas issuers were excluded from the London market except Commonwealth governments.

The Radcliffe Committee seemed generally satisfied with arrangements for the provision of finance to companies. It did not make any major recommendations, but commented favourably on the ICFC and suggested setting up an Industrial Guarantee Corporation which would guarantee a proportion of loans made to finance the commercial exploitation of technical innovation, along the lines of ECGD for export finance. This never materialised. The only recommendation regarding bank lending was that 'banks should be ready to offer term loan facilities within reasonable limits, having due regard to their liquidity requirements, as an alternative to running an overdraft for creditworthy industrial and commercial customers', especially small businesses without access to the securities markets (p. 326).

3.3 THE 1960s TO THE PRESENT

We have seen that, up to the 1960s, the stock market and associated institutions had become increasingly geared towards raising capital for UK companies whereas bank commercial lending had changed little and by the 1950s was, by volume, a much less important source of funds for quoted companies. But over the last 30 years there have been major changes in commercial banking in the UK both in terms of bank operations and the facilities/products offered to companies. These changes include the growth of the interbank market and of eurobanking, the introduction of floating rate term loans and syndicated loans, much greater involvement of banks in securities markets and, in the 1980s, the development of swaps and other derivative products. The result of these changes has almost certainly been to increase the role of banks in financing companies, especially larger ones. The main developments in the securities markets have been reorganisation of the London Stock Exchange in 1986
and the growth of foreign share dealing in London, the eclipse of the domestic bond market by the eurobond market and the introduction of shorter term debt securities.

We shall focus on the changes as they affect corporate banking and bond markets. Much of the impetus for change came from the British merchant banks and the foreign banks which specialised in wholesale and corporate business and eventually came to dominate the market in financial services to large companies. The number of foreign bank offices in London grew from around 40 in 1960 to 350 in 1990 (Buckle & Thompson, 1992, p. 68). They came to London because during the 1960s it emerged as the largest centre for eurocurrency banking, the eurobond market and foreign exchange, as it still is.

These banks had no branch networks and had always been dependent for funds on the money markets, companies and other financial institutions, rather than individuals, and in the 1960s they began increasingly to lend to each other rather than the discount market. This practice was stimulated by the growth of eurodollar banking, i.e. deposit-taking and lending denominated in dollars but transacted outside the USA, which was itself motivated to avoid domestic monetary regulations in the USA and to service American companies expanding overseas. The discount market being a sterling market was not a part of eurocurrency banking. According to Revell (1968) it was the British merchant banks rather than foreign banks which initiated eurodollar banking; surprisingly, in retrospect, the American banks were its 'main critics' (p. 43). It should be appreciated that the development of the interbank market was, at the time, a radical departure from the 'unbreakable convention of English deposit banking that no bank may be seen to borrow from another' (p. 33).

Growth of the interbank market facilitated the introduction of the floating rate term loan, of which the syndicated loan is a larger scale variant. This was designed to be funded by means of interbank borrowing rather than from retail or corporate deposits. The crucial change for the borrower was the commitment to lend for more than a few months. By the mid 1970s the floating rate term loan had
replaced the overdraft as the standard way of lending to larger companies. The success of this product suggests that previously it had been banks' unwillingness to lend for longer periods rather than lack of demand for such loans on the part of companies which had restricted bank funding to the short term, a view supported by Carrington & Edwards (1979) whose book is an attempt to show that financial systems have a major impact on economic performance and who argue in particular that the lack of long term bank lending was a cause of the UK's relatively low levels of investment and growth. It is worth quoting in full a leading text of the time, Revell (1973), on the reasons for the popularity of the new term loans.

(1) During a period of credit squeezes, when overdraft limits might be drastically reduced, the security of a term loan was particularly attractive. (2) While overdraft limits are suitable for working capital and represent a generalised form of finance for all the activities of a company, term loans tie in with the newer forms of investment appraisal (such as discounted cash flow) and facilitate budgeting. (3) Because the basis for the granting of a loan is generally the cash flow of a particular project rather than the assets of a company, the creditworthiness of companies is extended by the use of term loans; even first-class companies can borrow more from the banking system than they could on overdraft alone. (4) The liquidity which companies built up during the war was not finally exhausted until about 1960, and since then companies have leaned heavily on the banking system to finance capital investment because new issues could not grow fast enough to compensate for the decreased availability of finance from internal sources - the cash flow (pp. 243-4).

Point (1) highlights the impact government controls can have on bank willingness to lend even to large, safe borrowers. On (2) and (3), we may note that term lending has in fact subsequently become a 'generalised form of finance'. The majority of facilities are now general purpose rather than for specific projects and term loans as such have largely been superseded by more flexible committed revolving facilities, which are available for several years and can be drawn down and repaid at will. These lines of credit are, in effect, term overdraft facilities. Point (4) suggests that the demand for longer term funds was not being entirely satisfied by the stock market and that term lending was making bank finance a closer alternative to security issues.
Before 1971, term lending was undertaken by the 'secondary banks' only, which included American and other foreign banks, merchant banks, wholesale banking subsidiaries of the clearing banks, British overseas banks and consortium banks. By this time the proportion of overdrafts to total loans of the secondary banks was 'probably small. The remaining loans are for a fixed period, ranging from a few months up to five or seven years', some of which have a fixed interest rate (Revell, 1973, p. 243). Such loans were an aspect of the growth of eurocurrency banking; as at December 1970, 90% of the advances of secondary banks were in foreign currencies and 77% were to overseas residents (pp. 241 & 126). They were restricted to 'large companies with first-class names' (p. 249). Some of the term loans were funded by matching term deposits or certificate of deposit issues, though 'deposits fixed for periods of more than one year are still uncommon and expensive' (p. 246). Revell emphasises the importance, to secondary banks, of matching the terms of assets and liabilities, and states that 'its application in British banking is new. The need for it has arisen from the growth of large deposits and loans for fixed terms and in foreign currencies' (p. 246).

In fact, though, it is not necessary for a floating rate loan to be funded by deposits of matching term, so long as there is a liquid interbank market in the currency concerned and the bank has free access to it. The loan can be funded by means of a series of interbank loans each of three or six months' duration. The rate charged for such loans, the London interbank offered rate (LIBOR), is a market rate which varies continuously, so the cost of each three or six month interbank loan will differ and depend on the market rate on the date when the bank repays its existing loan and arranges a new one. But these changes are passed on to the customer via the floating rate, so the cost of a term loan is usually three or six month LIBOR plus a fixed margin. This means that, though the bank is borrowing short and lending long, there is no interest rate risk and no risk of demand for early repayment of the interbank loan.

Clearing bank participation in term lending was limited to loans related to exports and shipbuilding which were guaranteed and
subsidised by the government. Also, with many customers, they were prepared to allow continuous borrowing on overdraft which 'was little different in principle from a loan for a number of years and often as difficult to cut back' (Revell, 1973, p. 138). Their slowness to change was at least partly due to the clearing banks alone being subject to official directives imposing quantitative limits on total lending which meant that 'there was little scope to promote term loans because the banks had to reserve such lending margins as were available towards meeting the essential working-capital requirements of industry and trade' (London Clearing Banks' Evidence to the Wilson Committee, 1980, p. 147). Quantitative limits ended in 1971 with the introduction of Competition and Credit Control and certainly the clearing banks became wholehearted providers of term loans during the 1970s, so that by 1976 over 40% of commercial lending was on a medium term basis, 47% including export finance facilities (Evidence, p. 149). According to the Scottish Clearing Banks' Evidence, it was also the case that before 1971 the interbank market was 'not available' to the clearing banks (p. 16), which were therefore unable to fund term loans in the same way as foreign and merchant banks.

The other means of obtaining term finance were hire purchase and leasing, both mostly provided by finance houses. Neither was an important source of funds for business; in December 1970, advances outstanding to UK companies were £3,918m from deposit banks and £1,982m from secondary banks, compared with outstanding balances of £322m for hire purchase and £165m for leasing in December 1969 (Revell, 1973, pp. 126, 317 & 344). Hire purchase arrangements had existed since the mid nineteenth century; under them the hirer is given the option to purchase the goods, usually for a nominal sum, once all the instalments have been paid and also to terminate the hiring and return the goods at any time. Leasing is hiring without the option to purchase and was unknown in the UK before 1960. It was apparently 'introduced' by the American Banks (Scottish Clearing Banks' Evidence, p. 19) and was stimulated by the capital allowance scheme of 1971 which enabled equipment purchasers to write off 100% of the cost against taxable profit in the year of purchase, reducing the present value of tax payments compared with the cost being written off against profit gradually via depreciation. However,
realisation of this benefit was contingent on a company having sufficient taxable profit. If it lacked this, the bank could buy the equipment, lease it, and share the tax break with the lessee. Leasing became more popular in the 1970s and though capital allowances were phased out in the late 1980s and leased assets now have to be shown on the balance sheet, it remains a significant source of funds, especially for smaller companies.

The growth of eurocurrency banking and term lending are not the only major changes in commercial banking over the past thirty years. Banks have become more competitive and much more active in marketing themselves and their new ideas. The American and merchant banks started this change in culture in the 1960s which was continued by the arrival of many more foreign banks touting for business in London. In the 1980s the Japanese banks were notoriously aggressive and there is no doubt that by then the market for large corporate business had become intensely competitive. The process was also reinforced and sanctioned by the 1971 Competition and Credit Control package of regulatory provisions, which brought in a much less constraining regime, especially for the clearing banks, and signalled official encouragement for greater competition. The change in modus operandi was profound for the clearing banks, which have since displayed 'a much greater willingness to diversify and to compete actively on price. The importance of the historical perspective is that it shows how unusual this attitude and experience has been over the past one hundred years' (Collins, 1988, p. 584).

Chick (1986, 1988) argues that the combination of the development of the interbank market and the banks' competing for both deposits and loans has greatly increased their capacity to lend. The improved rates on deposits relative to other financial assets means deposits are held as investments, alternatives to securities, as well for liquidity, increasing the supply of funds to the banks. The presence of the interbank market and a central bank which seeks a stable financial system mean that banks are less concerned with the liquidity of their assets than previously, to the extent that 'reserves virtually disappear as a constraint on bank behaviour. Banks are now able to meet any reasonable rise in the demand for
loans’ (Chick, 1986, p. 197).

The transformation in banking practice was not entirely smooth. The secondary banking crisis of 1973-75 was, perhaps, an unfortunate result of the new freedom to lend. From 1973, all banks, not just clearing banks, were subject at times to control on growth of interest bearing liabilities and therefore of lending via the Supplementary Special Deposits Scheme (corset), which was abolished in 1980. But in the view of the American Bankers’ Association of London (ABAL),

the problem for ABAL members with brief exceptions has been a lack of demand, not an inability to meet it. This is particularly true in sterling. The only exceptions were the two periods when the corset was imposed and then reimposed... Even here, once the banking system was able to assess its position, the problem eased. Any shortage, therefore, was not a result of any underlying unwillingness or inability to lend (Evidence to the Wilson Committee, p. 40).

Contemporary lending and bond market practices are discussed in the next chapter.

Government policy towards banks in the last two decades has had three main features. First, the primary function of regulation has switched from direct control of credit expansion to the maintenance of prudential standards to avoid banks collapsing. The move away from credit controls began in 1971 with Competition and Credit Control and was completed in 1980 with the abolition of the corset. Thereafter interest rates have been the main instrument of monetary policy. More formal prudential control was introduced by the Banking Act 1979 which required all banks to be licensed by the Bank of England, transferred supervision of smaller ones from the Department of Trade and Industry to the Bank and established a deposit protection scheme. The Act implemented the First EC Banking Directive, adopted in 1977, which set minimum legal requirements for credit institutions to be authorised. The Banking Act 1987 updates and extends the authorisation requirements. It gives statutory authority to the Bank’s veto on proposed takeovers of UK banks and its prior approval for a stake of more than 15%. It also requires that exposure (the maximum amount a bank can lose) to one client
which exceeds 10% of a bank's capital must be notified to the Bank, and permission sought for intended exposure of more than 25% of capital.

The second point is that, within the prudential area of policy, attention is now focused on whether banks are adequately capitalised. This has displaced the earlier emphasis on liquidity ratios, i.e. the proportion of a bank's assets which are liquid, though this is still monitored. The main reason for this change was probably the impact of the less developed country (LDC) debt crisis which arose suddenly in August 1982 when Mexico and many other large LDC borrowers defaulted on their international loans, over half of which were by then provided by commercial banks. Had the banks attempted to provide fully for these bad debts, many would have been insolvent; had this caused a loss of confidence and mass withdrawals by depositors, there would then have been a liquidity crisis. But the problem was a lack of capital to cover losses on loans rather than a lack of liquid assets.

In 1987 the USA and UK reached an agreement on minimum standards of capital adequacy for banks and a year later the Basle Committee on Bank Regulations and Supervisory Procedures issued proposals for the international convergence of capital measurement and standards. These have since been implemented by central banks with varying degrees of speed and rigour; in practice British banks have met the standards since 1989. The 'Basle rules' define what counts as capital and attach risk weights to assets. Banks are supposed to maintain capital to a minimum value of 8% of risk weighted assets. The risk weight is one for commercial loans and 0.5 for facilities unused but committed for one year or more. Capital is also required to support exposures under forward foreign exchange contracts, interest rate swaps and other derivative products. The Basle rules have had a major impact on bank behaviour. Explicit allocation of capital to different products and areas of business has been a factor in their increasing emphasis on profitability rather than growth, and capital ratios are now a primary indicator of a bank's strength, reflected in its credit rating.
The third feature of recent government policy has been a series of measures to facilitate funding of small businesses, such as the Business Expansion Scheme, Loan Guarantee Scheme and subsidies via regional enterprise agencies. The Wilson Report (1980) concluded that, in general, banks and the financial system were functioning efficiently and that there was no constraint in the supply of funds to industry, so there was no need for government involvement or major changes in policy. But the Report expressed concern about the low level of corporate bond issues and, once again, about the provision of finance to small firms (p. 372). No measures were taken to reactivate the bond markets; this happened of its own accord with the surge of eurobond issues in the mid 1980s.

3.4 RECENT PROVISION OF FINANCE TO COMPANIES

From 1963, information becomes available on sources of funds for all industrial and commercial companies, not only quoted ones. This is summarised in table 3.3, which shows the annual percentages of total sources from increased bank lending, issues of shares and bonds net of redemptions and other external sources during 1963-93. During the 1960s, bank loans as a proportion of total sources were usually in the 10-15% range, net ordinary share issues 2-4%, and net bond and preference share issues 5-10%. Subsequently these proportions have fluctuated considerably, but generally loans have become a more important source, accounting for as much as 30% of the total in 1972-3 and again in 1988-9. In 1991, 92 and especially 93, however, companies made net repayments of loans. Net share issues have usually represented less than 5% of the total, but often more than that during 1985-93, including highs of 16.8% in 1987, 13.9% in 1991 and 18.0% in 1993. Companies raised very little via bonds (including eurobonds) and preference shares from the early 1970s to the mid 1980s, since when they have accounted for around 5% of total sources. 'Other loans and mortgages' includes leasing, non-bank loans and commercial paper; these have accounted for 3-5%, rather more during 1988-91. 'Other capital issues' includes issues connected with management buy-outs and employee share schemes and investments in UK subsidiaries by foreign parents via securities. These sources have generally accounted for less than 2% but increased
in importance in the late 1980s, accounting for 13.0% in 1992. Finally 'other overseas investment', which covers increases in amounts owed to foreign parent companies and borrowing arranged abroad, has also become much more important recently, accounting for more than 10% of the total since 1989.

In a similar exercise, Mayer (1988) estimates the sources of finance during 1970-85 for the stock of non-financial assets in the corporate sector in 1985. Retentions accounted for 74%, bank loans 21%, shares 4%, trade credit 2% and bonds 0%. He also estimates net proportions by subtracting from the flow of each external source the flow of corporate investment in the equivalent financial asset. So the net flow of bank funding is the increase in bank lending less the increase in bank deposits for the corporate sector. The net proportions were: retentions 107%; loans 5%; shares -4%; trade credit -2%; bonds -2% (presumably rounding accounts for why the total is 104%). The reason for the net outflow of share capital is shares being bought for cash by companies making acquisitions. These findings are discussed further in the next chapter.

The data for all companies can be compared with those given in table 3.4 for large companies. For the year 1964 onwards, data becomes available on the amounts of security issues made to pay for acquisitions; prior to then these amounts were not distinguished in the figures from which table 3.2 is calculated. It is a moot point whether such issues represent a source of finance. They do for the issuing companies, but they do not raise funds for companies as a whole, unlike issues for cash. The figures show that, as in the 1950s, security issues in total were a much more important source of funds than banks until the mid 1970s, but that from 1967-72 well over half of the issue value was not for cash. In fact share issues for cash were always less than 3% of total sources until 1975. Debt issues for cash usually accounted for between 3% and 10% of sources and increases in bank borrowing for a similar proportion.

1. Footnote 1 is on p. 102.
Table 3.3
Sources of External Funds of Industrial and Commercial Companies, 1963-93

Percentage of Total Sources

<table>
<thead>
<tr>
<th></th>
<th>Bank borrowing</th>
<th>Ordinary share issues</th>
<th>Bond &amp; pref issues</th>
<th>Other capital issues</th>
<th>Other overseas investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1963</td>
<td>14.8</td>
<td>3.2</td>
<td>3.2</td>
<td>5.8</td>
<td>1.3</td>
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<tr>
<td>1964</td>
<td>17.1</td>
<td>3.6</td>
<td>3.6</td>
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<tr>
<td>1965</td>
<td>12.0</td>
<td>5.3</td>
<td>1.5</td>
<td>8.2</td>
<td>1.0</td>
</tr>
<tr>
<td>1966</td>
<td>10.2</td>
<td>2.7</td>
<td>1.6</td>
<td>9.3</td>
<td>0.4</td>
</tr>
<tr>
<td>1967</td>
<td>12.8</td>
<td>3.0</td>
<td>5.8</td>
<td>3.9</td>
<td>1.0</td>
</tr>
<tr>
<td>1968</td>
<td>12.3</td>
<td>3.5</td>
<td>2.9</td>
<td>5.6</td>
<td>0.3</td>
</tr>
<tr>
<td>1969</td>
<td>18.0</td>
<td>4.6</td>
<td>0.6</td>
<td>2.9</td>
<td>1.2</td>
</tr>
<tr>
<td>1970</td>
<td>12.1</td>
<td>2.5</td>
<td>2.0</td>
<td>3.6</td>
<td>1.9</td>
</tr>
<tr>
<td>1971</td>
<td>29.2</td>
<td>1.1</td>
<td>2.9</td>
<td>3.5</td>
<td>0.8</td>
</tr>
<tr>
<td>1972</td>
<td>30.5</td>
<td>2.8</td>
<td>0.6</td>
<td>1.1</td>
<td>1.4</td>
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<tr>
<td>1973</td>
<td>20.7</td>
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<td>0.3</td>
<td>-0.3</td>
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</tr>
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<td>1974</td>
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<td>7.1</td>
<td>0.5</td>
<td>4.0</td>
</tr>
<tr>
<td>1975</td>
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<td>4.2</td>
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<tr>
<td>1976</td>
<td>11.4</td>
<td>1.9</td>
<td>3.3</td>
<td>0.0</td>
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</tr>
<tr>
<td>1977</td>
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<td>3.2</td>
<td>-0.5</td>
<td>0.6</td>
</tr>
<tr>
<td>1978</td>
<td>11.5</td>
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<td>2.5</td>
<td>-0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>1979</td>
<td>20.7</td>
<td>2.7</td>
<td>2.9</td>
<td>0.0</td>
<td>2.9</td>
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<tr>
<td>1980</td>
<td>16.7</td>
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<td>1981</td>
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<td>-0.4</td>
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<td>1982</td>
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<td>0.9</td>
</tr>
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<td>1984</td>
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<td>4.7</td>
<td>6.6</td>
<td>3.1</td>
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</tr>
<tr>
<td>1985</td>
<td>15.9</td>
<td>2.5</td>
<td>9.3</td>
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<td>1.9</td>
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<td>1986</td>
<td>15.7</td>
<td>4.7</td>
<td>16.8</td>
<td>5.7</td>
<td>2.8</td>
</tr>
<tr>
<td>1987</td>
<td>31.5</td>
<td>7.0</td>
<td>4.4</td>
<td>4.4</td>
<td>2.7</td>
</tr>
<tr>
<td>1988</td>
<td>31.4</td>
<td>9.4</td>
<td>1.7</td>
<td>5.7</td>
<td>7.3</td>
</tr>
<tr>
<td>1989</td>
<td>23.2</td>
<td>9.5</td>
<td>3.3</td>
<td>4.0</td>
<td>9.1</td>
</tr>
<tr>
<td>1990</td>
<td>-1.3</td>
<td>6.1</td>
<td>13.9</td>
<td>7.8</td>
<td>8.8</td>
</tr>
<tr>
<td>1991</td>
<td>-3.8</td>
<td>4.6</td>
<td>9.0</td>
<td>3.7</td>
<td>13.0</td>
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<tr>
<td>1992</td>
<td>-14.2</td>
<td>5.7</td>
<td>18.0</td>
<td>3.6</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Notes on Headings

1. Bank borrowing includes bank purchases of commercial bills.
2. Other loans and mortgages: 'comprises instalment credit received, loans from the public sector (including refinanced shipbuilding credits), loans by financial institutions (including loans by pension funds to their parent organisation), shares of retail co-operative societies, net sterling and foreign currency commercial paper liabilities and cash expenditure by the central government on acquiring certain industrial and commercial companies'.

3. Share and bond issues are net of redemptions and of issues to pay for acquisitions of UK companies, as these do not raise cash for the company sector.

4. Other capital issues: 'comprises issues connected with management buy-outs and employee share schemes', capital issues taken up by central government, and purchases of capital issues of UK subsidiaries and associates by overseas parent companies, all net of redemptions.

5. Other overseas investment: 'changes in branch indebtedness to head office and in inter-company accounts and borrowing abroad from banks etc by UK companies'.

Source

Calculated from an unpublished version of Financial Statistics, table 8.2. 1993 figures are from the August 1994 issue (now table 10.6B). In the monthly issues of Financial Statistics, only five years of data are shown. Unfortunately the amounts for each year can vary depending on which issue one refers to. For example, 'total identified sources of funds' for 1988 are £83,167m in the October 1990 issue and £97,819m in the August 1993 issue. This means the choice of data is arbitrary for a time series of sources of funds using published issues of Financial Statistics. The author wrote to the Central Statistical Office in August 1993 enquiring about this and requesting a complete record of table 8.2, which was sent, though without any explanation of why the numbers in different issues are inconsistent. But presumably the complete record represents the best estimates at the time.

### Table 3.4 (Continues Table 3.2, p. 86)

**Percentage of Total Sources of Funds of Quoted Companies from Securities Issues and Bank Lending, 1963-90**

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<tbody>
<tr>
<td><strong>Net cash from:</strong></td>
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</tr>
<tr>
<td>Ordinary &amp; pref shares</td>
<td>na</td>
<td>2.1</td>
<td>0.9</td>
<td>-0.4</td>
<td>0.9</td>
<td>2.9</td>
<td>2.4</td>
<td>0.8</td>
<td>1.5</td>
<td>1.9</td>
<td>0.3</td>
<td>0.7</td>
<td>6.4</td>
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<td>3.7</td>
<td></td>
<td>10.1</td>
<td>3.4</td>
</tr>
<tr>
<td>Debt securities</td>
<td>na</td>
<td>4.3</td>
<td>6.7</td>
<td>11.6</td>
<td>9.4</td>
<td>4.4</td>
<td>3.3</td>
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<td>6.7</td>
<td>3.3</td>
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<td>0.4</td>
<td>3.0</td>
<td>2.4</td>
<td>4.0</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Security issues in exchange for subsidiaries</td>
<td>na</td>
<td>4.9</td>
<td>5.7</td>
<td>6.1</td>
<td>10.6</td>
<td>17.6</td>
<td>10.0</td>
<td>14.0</td>
<td>9.9</td>
<td>14.0</td>
<td>3.6</td>
<td>1.0</td>
<td>0.5</td>
<td>0.8</td>
<td>1.6</td>
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<td></td>
<td></td>
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<tr>
<td>All securities</td>
<td>17.0</td>
<td>11.3</td>
<td>13.3</td>
<td>17.3</td>
<td>20.9</td>
<td>24.9</td>
<td>15.7</td>
<td>19.2</td>
<td>18.1</td>
<td>19.2</td>
<td>8.0</td>
<td>2.1</td>
<td>9.9</td>
<td>8.2</td>
<td>9.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase in amounts owing to banks</td>
<td>5.2</td>
<td>3.9</td>
<td>6.8</td>
<td>4.5</td>
<td>1.1</td>
<td>3.1</td>
<td>6.3</td>
<td>2.6</td>
<td>-2.1</td>
<td>14.1</td>
<td>9.9</td>
<td>-0.6</td>
<td>7.2</td>
<td>4.0</td>
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<tbody>
<tr>
<td><strong>Net cash from:</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ordinary &amp; pref shares</td>
<td>6.0</td>
<td>3.6</td>
<td>7.2</td>
<td>3.1</td>
<td>12.1</td>
<td>6.7</td>
<td>9.8</td>
<td>8.2</td>
<td>6.2</td>
<td>10.7</td>
</tr>
<tr>
<td>Debt securities</td>
<td>2.7</td>
<td>-4.2</td>
<td>-7.1</td>
<td>4.7</td>
<td>-1.4</td>
<td>7.1</td>
<td>6.6</td>
<td>5.7</td>
<td>8.0</td>
<td>10.1</td>
</tr>
<tr>
<td>Security issues in exchange for subsidiaries</td>
<td>1.0</td>
<td>0.4</td>
<td>0.3</td>
<td>0.8</td>
<td>3.2</td>
<td>3.3</td>
<td>4.1</td>
<td>2.3</td>
<td>1.5</td>
<td>1.1</td>
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<tr>
<td>All securities</td>
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<td>-0.2</td>
<td>0.4</td>
<td>8.6</td>
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<td>16.3</td>
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</tr>
<tr>
<td>Increase in short amounts term owing to loans</td>
<td>2.6</td>
<td>5.0</td>
<td>-0.7</td>
<td>1.3</td>
<td>-5.7</td>
<td>-5.7</td>
<td>0.9</td>
<td>0.3</td>
<td>-0.3</td>
<td>-0.8</td>
</tr>
<tr>
<td>Increase in term owing to banks</td>
<td>7.2</td>
<td>6.1</td>
<td>6.3</td>
<td>9.4</td>
<td>-4.4</td>
<td>-2.5</td>
<td>-0.5</td>
<td>11.5</td>
<td>15.2</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**Notes**

1. The figures relate to companies' accounting years ending between 6 April of the year shown and 5 April of the following year.
2. Net cash from security issues excludes issues to sellers of acquired companies, which are shown separately under 'security issues in exchange for subsidiaries'. These figures first became available in *Financial Statistics*, March 1966; prior to that figures for security issues include those made to pay for acquisitions.

3. Short term loans are defined as 'loans, other than bank loans, which are wholly repayable within 5 years' (Notes to Tables, *Business Monitor MA3*, 17th issue, 1986, p. 64). From the 20th issue (1989), short term is defined as less than one year. This affects the figures from 1986. It seems that securities with up to five years to maturity would be counted under 'increase in short term loans' before 1986 and thereafter those with one to five years to maturity would be counted as debt securities.

**Sources**

1961-77: *Financial Statistics*, various issues, table headed 'Income and Finance of Quoted Companies', section relating to those in 'manufacturing and distribution'. 'Companies whose main interests are in agriculture, shipping, insurance, banking, finance and property and those operating wholly or mainly overseas are not included' (Notes and Definitions, April 1976, p. 34). The number in the sample varies year by year but a large majority of the quoted companies in manufacturing and distribution are included. Figures are taken from the last issue before the year in question was removed to ensure they are the final versions. This table was discontinued after 1977.

1978-80: *Business Monitor MA3*: Company Finance, 13th-15th issues (1982-84), table 4, 'All Industries, Sources and Uses of Funds, Listed Companies'. The same types of company are excluded as for the *Financial Statistics* table except that property companies are included. Again, the number in the sample varies each year. Unfortunately net receipts from security issues are only given in total and the increase in amount owing to banks is not given as a separate figure. This table was discontinued after 1980.

1981-90: *Business Monitor MA3*: Company Finance, 16th-23rd issues (1985-92), table 7, 'Large Companies: All Industries, Sources and Uses of Funds'. This table gives more detail than is available in earlier issues. For 1981-83, a large company is defined as one which had capital employed (shareholders' funds plus debt) of £4.16m and over in 1975. The largest 500 are all included and a sample of several hundred others, which presumably includes some unquoted companies. For 1984-87, the sample is the largest 2,000 companies which filed accounts in 1981 and 1982. For 1988-90, it is the largest 2,000 which filed accounts in 1988.

After the early 1970s, the proportion of large companies' funds provided by securities in total fell to less than 10% until 1985, since when it has been in the 15-20% range as in the 1950s and 60s, though not all of this is via securities markets; the figures include issues to parent or other group companies. In 1982, 1983 and 1985 there were net debt security repayments. The proportion of total issues not for cash has been relatively low, always below 5%, so in the later 1980s the securities markets were a significant source of funds for large companies. The proportion accounted for by loans has remained below 10% except in 1974, 1988 and 1989. It is a pity that this series stops in 1990.

The data in the tables in this chapter do not support the view that the development of securities markets is resulting in an increase in their 'market share' in the provision of funds to companies over the medium or long term. For the corporate sector as a whole (table 3.3), banks, if anything, appeared to be gaining market share, at least until 1991. Most recently, during 1991-93, companies have made net repayments of bank loans and the share of securities markets has increased. It remains to be seen whether this change is permanent.

1. Unfortunately the comparison is problematic. The Financial Statistics data for all industrial and commercial companies (ICCs) are compiled from a variety of sources, the Business Monitor data from company accounts. In all but one year during 1981-90, the total sources for large companies exceeded those for all ICCs, and in all but four years the net cash raised from securities issues by large companies exceeded that raised by all ICCs. In 1989, for example, total sources for large companies were £164bn compared with £108bn for all ICCs and large companies raised £9.2bn in cash of ordinary share capital, compared with £1.9bn for all ICCs. An explanation is obviously called for, but one suspects that this would require its own research project to do properly. The large company sources are gross of taxes and dividends; the ICC data are net of these, but this does not seem to be the full story. Regarding securities issues, all new capital from issuing securities not via UK markets would come under other capital issues and other overseas investment in the ICC data; the large companies data include securities sold abroad or placed with parent or other group companies. The figures for increases in bank borrowing appear to be more in line with expectations, with increases for all ICCs significantly exceeding those for large companies for all years.
For companies large enough to issue securities if they wish (tables 3.2 and 3.4), the truth is that the share and bond markets have long provided more of their external funds than banks — probably since the 1920s — though at times large proportions of issues have paid for acquisitions, which do not raise cash for companies as a whole. What was unusual, from a longer term perspective, was the relatively low level of bond issues from the early 1970s to the mid 1980s. The main reason for the collapse of the domestic bond market was the inflation of the mid and late 1970s which caused high nominal interest rates, long as well as short term; average gross redemption yields on 20 year gilts were over 14% pa in 1974-76 and remained in the 12-15% range until 1983. This made companies reluctant to issue bonds, to the extent that new issues of domestic bonds virtually ceased. By this stage the eurobond market had appeared and it grew rapidly from the late 1970s onwards, providing a cheaper and more convenient way of issuing bonds than the domestic market for companies with a good enough 'name' to have access to it. Nevertheless, it was not until the mid 1980s that bonds again became a significant net source of funds; indeed in 1982, 1983 and 1985 large companies made net repayments. Also very few companies actually issue eurobonds; according to a list supplied by IFR only 90 non-financial companies made issues during 1988-91.

3.5 SUMMARY

Several conclusions can be drawn from this brief historical account. First, since the mid nineteenth century banks in the UK have not normally been involved in the management or ownership of companies. Second, formal provision of term facilities only became widespread in the 1970s, though before then borrowers had often been allowed to run permanent overdrafts. Third, for large (quoted) companies the share and bond markets have been a more important source of external funds than banks since the 1920s. In this sense, 'securitisation' is nothing new and the evidence does not support the view that securities markets are gaining in importance relative to bank finance until the last three years. Both securities markets and banks have increased the range and sophistication of their 'products' and in the later 1980s large companies raised unusual amounts from
both sources. Fourth, growth in bank lending was constrained by the authorities for most of the time up to 1980. Finally, there has been continuing concern about provision of finance to small businesses since 1931. For larger companies the three official enquiries, while aware of different lending practices abroad, have generally expressed satisfaction with banks' commercial lending activities and, since the 1950s, with the operations of the securities markets.
Chapter 4

THE CHOICE BETWEEN BANKS AND BONDS

This chapter briefly describes current practices of lending to larger organisations and of issuing bonds, with particular reference to the information obtained by banks and the bond market and to evidence on the value of bank lending. The syndicated loan market is reviewed during the sample period for the event study, 1988-91, loan and bond volumes compared and new evidence presented on the relative costs of syndicated loans and eurobonds and on how they are perceived by corporate treasurers. The chapter considers why access to the eurobond market is restricted to very large organisations and why these still borrow extensively from banks. Chapter 5 reviews specific tests of the information hypothesis.

4.1 LENDING TO LARGE COMPANIES

Large scale commercial lending is very much a separate market and activity from lending to individuals and small businesses, which is part of retail banking. The latter is dominated by the clearing banks and building societies and is carried out from their branches. Clearing bank training is reflected in the Associate of the Chartered Institute of Bankers (ACIB) syllabus and is focused on branch banking; for example, the set text for the paper 'Banking Operations - UK Lending and International Business', Davies & Kearns (1992), assumes throughout that lending is from a branch and that the customer is, at the largest, a small business, the current and deposit accounts of which are held at the branch and therefore available for inspection. It is also assumed that management accounts and budgets will be made available if they exist.

In contrast, the market for lending to large organisations is dominated by banks operating in London and British banks have less than 20% of this business. There is some overlap between the retail and wholesale sectors in lending to medium-sized companies which are too big to be serviced by an ordinary branch. Some will use a local
bank such as the regional or head office of a clearing bank, or a branch of a merchant or foreign bank.

Banks vary in the details of how they assess loan proposals and monitor facilities but discussions with lending officers in different banks suggest that procedures are rather similar in their important aspects and experimental evidence for this from the USA is presented in Danos et al (1989). The heart of assessment of both new proposals and existing facilities is credit analysis. This is similar to investment analysis in that it involves careful study of accounting information, calculation of ratios and consideration of all available information. However, the question the credit analyst seeks to answer is not whether the company’s shares are over or under valued but whether the borrower will be able to meet interest and capital payments on the loan. This accounts for the emphasis in loan appraisals on future cash flow, the level of gearing and what security, if any, is available. Banks normally hope to be repaid from cash flow. In the days when they only lent short term to finance stocks or debtors they could often tie repayments to receipts from particular sales contracts. This is less often possible with longer term facilities, and for these the banker will try to predict the general viability of the company during the term of the loan. On the other hand, if cash flow should prove inadequate bankers like to know they can be repaid by selling assets. The more marketable the assets are, the better. High gearing not only makes the company more risky but also reduces the asset cover for the bank’s loan.

Taking security improves the bank’s position with respect to the assets charged. A fixed charge or mortgage transfers ownership to the bank and enables it to take control of them if there is an event of default. The bank also ranks first with respect to payments from the sale of the assets in the event of liquidation. A floating charge covers all the borrower’s assets but ranks behind any fixed charges. The borrower is required to notify the holder of a floating charge if it agrees to any fixed charges for another creditor.
Some observers draw a distinction between 'traditional' credit analysis, in which the borrower is assessed on a liquidation or gone concern basis, and appraisal of the borrower as a going concern. These are contrasted by the American Banks Association of London in their evidence to the Wilson Committee (1980).

The liquidation approach appraises the assets and liabilities of the borrower, adjusts for the impact of an immediate or forced sale of assets and looks for an additional safety margin. This view is short term and often allied to the taking of security over specific assets. The going concern approach looks to the continuing viability of the company to generate sufficient funds to service principal and interest on the loan. This requires the lender to have some knowledge of and control over the company's future level of total borrowings (Evidence, p. 34).

Some feel that the gone concern approach leads bankers to be too cautious and reliant on being able to take adequate security. This remains an issue; for example, Berry et al (1993) write at the end of their study on bank lending practices that 'the continued bank reliance upon the gone concern approach, we would suggest, has been a major contributor to small business problems in securing finance' (p. 199). This approach is probably less prevalent in large scale lending, much of which is medium term and unsecured. In the author's experience, commercial banks are only interested in lending to companies which are clearly viable going concerns and likely to remain so for the foreseeable future. Asset backing and security are of secondary importance, and this is reflected in commercial banks' internal documents. For example, Hongkong Bank's (1987) guide to credit lists the following factors to consider in granting a facility to a company: integrity and reliability of the borrower; nature of the proposition; source of repayment; profitability (to the bank) of the facility; and finally the security offered. The entry under this last heading is worth quoting.

Every good proposition should stand on its own. However as most propositions entail risk the bank generally will only grant the advance if it is sufficiently secured. Where a proposition is bad no amount of security should justify an advance. To lend money against security knowing full well that one is likely to have to realise
that security is bad lending. Besides, the realisation of securities is often a lengthy, costly and complicated business (s. C.4, p. 4).

In practice Hongkong Bank does not insist on security for its facilities to larger UK companies.

Covenants, however, are a common feature of large scale loan contracts as they are with bonds. Citron (1992) studies extracts from 22 commercial loan contracts and 12 standard contract forms from 1988-89. Much the most common covenants are those specifying minimum net worth (85% of the sample), minimum interest cover, ie profit before interest and tax divided by interest (79%), maximum gearing, ie total borrowings divided by net tangible worth (79%), and a minimum current ratio, ie current assets divided by current liabilities (38%). 22 (65%) of the sample contain sections dealing with provision of accounting information; of these, all require the latest audited accounts, 45% management accounts, 23% unaudited interims and 14% forecasts. Similar studies on loan contracts in the USA and Australia show that covenants are also widely used in those countries. The most common in the USA are restrictions on dividend payments and maintenance of a minimum amount of working capital, neither of which are prominent in the UK.

For the purposes of this thesis, the most important aspects of bank lending are the nature of the bank-corporate relationship and how much information banks obtain as a result of it. A major UK investigation into these questions has recently been completed by Berry et al (1993). They received completed questionnaires from 192 branches and offices of the clearing banks and 62 foreign banks, and interviewed about half those numbers of bankers. They concentrate mainly on small business lending, but their sample includes the whole spectrum of lending.

It is clear from this study and other sources such as Davies & Kearns (1992) and Danos et al (1989) that, in small business lending, the banker's relations with the businessman and judgement of his character are extremely important and that banks are generally given
as much financial and other information as they ask for, if the business produces it. Information not specifically requested tends not to be given though the borrower may have it, and banks neglect non-financial indicators used by companies to monitor their own and competitors' performance. (Berry et al, 1991, p. 30). But the most usual problem is that the business itself does not have the information (eg forecasts) which the banker would like to see. It is typical for the small business to use one bank, so that the bank can monitor all its cash flows. The picture is similar for lending to medium sized companies, defined in Berry et al (1993) as having an annual turnover of between £1.4m and £5.75m, except that these companies are more likely to produce for their own purposes the information the bank wants, and may use more than one bank. The large sample questionnaire survey by Binks et al (1993) contains evidence on bank relations from the small businesses' point of view and confirms that they also value close relations (pp. 48-58). In fact some respondents imply that their banks are not involved enough; for example, nearly 40% are not confident that their bank manager understands their business. 72% agree that 'it is important to provide my bank manager with timely and regular management information' and only 9% disagree with this.

Berry et al (1993) find that the largest companies, especially if they are quoted, resist providing information, giving security and agreeing to covenants. As a rule, the larger the company, the weaker the position of the bank in demanding these because competitors may be willing to lend without them. They state that 'US banks are much more successful in obtaining the information required to effectively adopt the going concern approach' (p. 22), but unfortunately do not elaborate on this. Generally, in the case of 'blue chip companies'... banks tended to be unsuccessful in imposing any covenants. In terms of information, management accounts related to the past were seen as desirable and where possible the provision of this information was a precondition of the loan agreement. However, it was found that in the case of larger companies they often refused to submit this information with the loan application (p. 18).
It is worth considering exactly what are the sources of information not in the public domain which the research finds are used by banks, and commenting on their availability in the case large companies (these comments are mostly from the author's experience and discussions with commercial bankers).

The company's bank account. This is the most frequently used private source according to Berry et al (1993), and is the primary way in which borrowers not known to be in trouble are monitored (Berry et al, 1991). But this reflects the dominance of small business lending in their research. Most large companies use several banks, so any one of them is not in a position to monitor its cash flows, even if it does provide a current account or accept deposits from the company. In practice this is simply not a source available in the large company market. Nevertheless, it is emphasised by Fama (1985) who argues that it is the main way in which banks obtain inside information not available to other lenders. He does not discuss the extent to which this is the case for bank lending to quoted companies in the USA.

Interviews with the management. Meetings with the borrower are an extremely important part of large scale lending and are usually the main source of any inside information the bank manages to obtain. How much will be provided varies enormously. It is likely that for specialised lending such as project finance (eg developing a shopping centre or purchasing an oil rig), or a loan to a management buy-out vehicle, the borrower will have to provide detailed plans, forecasts, surveys, valuations and so on, most of which will be confidential and commercially sensitive. In such cases the borrower almost certainly provides much more information to a bank than it would be willing to disclose publicly to the bond market, though it would probably have to provide similar information to a rating agency. Assuming the borrower is large enough to issue bonds, it has presumably chosen to go to a bank because the ability to explain the project fully but privately means the finance is likely to be cheaper and/or more flexible, discreet, quicker, or advantageous in other ways related to
the service a bank can provide but not a bond market (see section 4.5).

However, the majority of facilities are for 'general corporate purposes' and in these cases the company may well say little or nothing which is not already public knowledge. As a rule, the larger the borrower, the less will be disclosed. Meetings will be concerned with the terms of the facility rather than the circumstances of the borrower.

Management accounts and other documents supplied on a regular basis such as financial forecasts and breakdowns of debtors and creditors. These are supplied by large companies in a minority of cases and are more likely to be insisted upon if the borrower is in difficulties and dependent on its banks for continued access to funds. Satisfaction or otherwise of financial covenants is determined by reference to the publicly available accounts (Citron, 1992), though the bank may have forewarning if a covenant is likely to be breached.

Information obtained from third parties. The most common case in large scale lending is valuations of property and other assets. But third parties are not often consulted in appraising large general purpose unsecured facilities. Small businesses are sometimes introduced to a bank by their accountant, but large ones are competent to deal with banks directly.

Visits to the premises. Meetings with large companies often take place at their offices and bankers are sometimes shown parts of their operations. Similar comments on information obtained apply to those made above regarding interviews.

More light is shed on the nature of relations between banks and the largest companies in a recent study by Holland (1993) and in the many articles on bank-corporate relations in the Treasurer, the Journal of the Association of Corporate Treasurers. Holland
interviewed treasury officials at 15 UK multinational companies between 1986 and 1990, all of which were in the top 200 by turnover, together with ten commercial bankers. The main findings are as follows.

1. All the multinationals maintain relations with banks. They have a first tier of two to 14 banks with which they have close relations, five to 25 banks which they use for specialist services and ten to 200 further banks with which they transact occasionally.

2. "Close" relationships generally involved rich information flows, regular flows of low margin business, privileged access to big fee deals, high loyalty and commitment between the parties and expectations of fair dealing and longevity of the relationship' (p. 275).

3. The substance of close relations is regular contact and informal agreement with regard to future business. The company expects support from the bank at all times, a ready response if it needs funds quickly, eg for a takeover, and competitive prices for its services; it is well informed about prices charged by competing banks. The bank expects a regular flow of business. Contacts are at different levels of the organisations, are of a social as well as business nature and the company may have direct on-screen access to quotations for the bank’s products.

4. The closeness of relations varies inversely with the health of the company and the economy generally, as is suggested in the financial press.

5. There is a recent tendency to raise more funds from securities markets, which is linked to the increasing competence of corporate treasury departments. These are 'seen as internal equivalents to external bank suppliers and are treated as profit centres rather than cost centres' (p. 281). At the same time the companies are tending to foster closer relations with a smaller number of banks, due partly to recession by the end of the interviewing period. According to Holland, the willingness to 'shop around' for the best prices 'reflected the need to provide a market discipline for close relations rather than [constituting] a long term replacement for them' (p. 281).
These findings are similar to those of an earlier review of bank relations with large companies in the US by Moriarty et al (1983), though they argue that the larger and safer the borrower, the more a close ('lead bank') relationship is valued by the bank rather than the customer, the primary benefit being that it enables the bank to bid for more business and sell its products effectively. Unfortunately neither paper says much about the nature of the 'rich information flows' which are part of close relations. The banks are clearly eager to make their services and prices accessible and to market new products. The impression gained of the flow from the company's side is that they show the relationship bank a reasonable amount of treasury business and let the bank know if it is uncompetitive or they want changes in the service. This is inside information of a sort, but it is not especially useful in assessing the company's creditworthiness and prospects. One of the direct quotations from corporate treasurers is revealing:

Our main board will meet the bank directorate once a year, and this is an opportunity to discuss our objectives and strategy with the inner circle of banks. We treat bank relations in a similar fashion to investor relations and the same presentation is given to bankers as to fund managers and stockbrokers (Holland, p. 276).

In summary, good long term relations with banks are still valued by the largest companies but they do not necessarily imply that the banks obtain inside information useful in appraising the riskiness and prospects of the company.

4.2 SECURITIES MARKETS ALTERNATIVES TO BANK LOANS

There is now a wide range of debt securities in issue, but the 'straight' bond which pays a fixed coupon and is repaid in one go at maturity remains the most common debt instrument issued by UK companies. Other types of bond include: floating rate notes, which pay interest linked to LIBOR and have so far not been issued by non-financial companies; bonds with a low or zero coupon, issued at a deep discount to face value; bonds convertible into shares or other
bonds, or issued together with warrants; bonds with 'call provisions' for early redemption by borrower and/or bondholder. The point to make for our purposes is that this range of choice increases the flexibility of securities and therefore their appeal to borrowers and investors. However, many of these features, such as provision for early repayment and options on interest rates, are also available with bank loans. The role of interest rate and currency swaps in both the bond and loan markets is now extremely important.

The traditional domestic bond market in the UK is run by the Stock Exchange. Issue procedures are similar to those for shares, though the rights issue principle of offering new shares to existing shareholders first does not apply. Domestic bonds are registered securities listed on the London Stock Exchange which pay a fixed rate of interest half-yearly net of standard rate income tax. Maturity is at least 15 years. Most are secured, in which case they are known as debentures, or loan stock if unsecured. New issues always require a prospectus and each is organised by a member of the Stock Exchange, a stockbroker or merchant bank. Issuers do not need to have shares listed or have the bonds rated and one advantage of the domestic bond market is that issues are feasible for much smaller companies than on the eurobond market. The minimum value of issue is only £200,000 compared with £50m for eurobonds. Issuers are mainly UK companies; domestic bond issues by foreign organisations ('Bulldog' bonds) are now rare. As with eurobonds, issue volumes increased substantially in the mid 1980s and, according to Bank of England figures quoted in Harrington (1992), UK borrowers raised a total of £15bn gross during 1985-91 via the domestic bond market. This compares with a total of $59bn (say £39bn using an exchange rate of $1.5/£) raised by UK companies (excluding financial institutions) over the same period via international bonds (from table 4.1a below). So the domestic bond market remains an important source of funds. Investors are mainly UK institutions and the secondary market is not very active.

The term international bonds refers to both foreign and euro bonds. A foreign bond is issued on the domestic market of a country
foreign to where the issuer is resident. The currency is always the same as that of the country in which the bond is issued. So a bond issued by a UK company on the US domestic market is a foreign bond. The textbook definition of a eurobond is one issued in a different currency from that of the country(s) in which it is issued. So any sterling bond issued outside the UK is a eurobond. This is somewhat inaccurate since the centre of the eurobond market is London and sterling eurobonds are issued there. The real distinction is that it is a separate market from domestic bond markets.

Eurobonds are unsecured bearer securities which pay interest annually gross of tax. Interest is accrued on the basis that each month has 30 days, making a 360 day year, as in the US domestic bond market: UK domestic bonds accrue interest according to the actual number of days since the bond was purchased. Maturities range from one to thirty years but most are in the ten to twenty year range. The standard covenants are 'negative pledge', 'pari-passu', 'cross default' and 'force majeur'. A 'negative pledge' or 'no security elsewhere' clause means that the borrower contracts not to offer security to any other creditor. 'Pari-passu' means that the bonds rank equally with other unsecured creditors, present and future, in the event of liquidation. A 'cross default' clause says that if the borrower defaults on any of its other borrowings, the eurobonds will be considered as in default. 'Force majeur' means that the lead bank and underwriters are discharged from their obligations in the event of certain specified disasters. Financial covenants are unusual.

Settlement is effected electronically via two competing systems, Cedel and Euroclear. Many eurobonds are listed in Luxembourg although most issued by UK borrowers are listed on the London Stock Exchange. The most important differences from the domestic market are the larger size of issue and borrower, different issuing procedures and the international pool of investors. Eurobonds are distributed amongst banks and investing institutions from many countries and paid for via the eurocurrency banking system; the eurobond market could not easily exist without the operation of
bank accounts in foreign currencies. Some eurobonds are sold via intermediaries to wealthy individuals ('Belgian dentists'), though the proportion retailed in this way is declining. A large majority of the international bonds issued by UK borrowers are eurobonds.

The issuing process starts with the award of a mandate to an investment bank to be lead manager of the syndicate to which the bonds will be sold. Syndicate members both underwrite the issue and arrange its placing with other investors. The small group of banks taking large allotments are known as co-managers and are invited into the syndicate before the issue is announced on screen and via invitation telexes. Preliminary prospectuses are sent to banks considering joining, who have a few days to respond. During this time there may be a 'grey market'; banks joining sell in advance bonds they anticipate being allocated at a price quoted relative to the (unknown) issue price, for example this price minus 20 basis points. About ten days after the announcement the issue price and other terms are finalised, depending on the level of interest shown, and, on offering day, allotment telexes and final prospectuses are sent to syndicate members, who place the bonds with other investors over the next two weeks. During this time the lead manager attempts to support the price at which the bonds are sold if it is much below the issue price. The public subscription is closed on the closing day, the proceeds are paid to the borrower and public trading of the bonds begins. There is at least one market-maker, usually the lead manager, though secondary trading is limited except for large 'benchmark' issues. A common variant of the above procedure is the 'bought deal' in which the bonds are sold to a small group at an agreed price, which then distributes them as quickly as possible. This is quicker for the borrower and removes the uncertainty in the final terms between the launch and offering days. Walmsley (1991) contains a full account of the eurobond and note markets.

The costs of a eurobond issue consist of the redemption yield at the issue price, fees paid to the syndicate and for a rating (if any), and, not least, the management time and effort required. The
yield is customarily expressed in terms of how much higher it is than the yield on a government bond of the same currency and maturity. So if the eurobond is yielding 8.6% pa and the equivalent government bond 8.0% pa, the 'spread' is 60 basis points. The size of the spread is determined by the credit rating of the borrower, maturity, terms such as call provisions, the size of the issue (the larger it is, the more liquid it is likely to be and the lower the spread) and a variety of other factors.

Total fees are usually in the range of 1.5% to 2% of the issue price (Davis, 1992, p. 128), but the amounts quoted and reported in International Financing Review (IFR) and Euroweek are not fully realised if syndicate members can only place the bonds below the issue price, sacrificing some of their selling commission; 'competition between banks in offering discounts and real allowances has reduced actual fees to... levels of 3/4% to 1 3/8% which are typical of domestic markets' (Davis & Mayer, 1991, p. 11). Fees tend to increase with maturity of the bond. Typical selling and underwriting commissions are 1.25% and 0.375% respectively; syndicate members pay the issue price less these percentages for the bonds. In addition a management fee of the order 0.25% would be spread amongst the lead and co-managers and a maximum specified of, say, £50,000, for printing the prospectuses, obtaining a listing, and legal, trustee and paying agency fees.

A distinctive feature of the eurobond market is that issuers are large, well-known organisations of high credit standing. They include governments and state agencies, the World Bank, and major companies and financial institutions. As a rule of thumb, issuers are confined to those whose debt is rated at least 'BBB', the minimum investment grade. In fact a large majority of the issues which are rated are at least single 'A'. However, it is by no means necessary for issues to be given a credit rating and IFR's list of eurobond issues by UK borrowers during 1987-92 shows that only about a third of them were rated. The pattern is for smaller companies not to seek a rating. It appears that the advantage, if any, from paying a lower
yield exceeds the costs only if a rating of at least 'A' is expected. The role of the rating agencies is discussed separately below.

Larger companies usually choose to issue euro rather than domestic bonds because eurobond issuance is somewhat quicker and easier and they can expect to pay a slightly lower yield. A larger range of investors participate than on the domestic bond market. For the USA, Kim & Stultz (1988) show that, during 1975-85, there was a small but statistically significant positive average abnormal return on the announcement of eurobond issues by US companies, but only when domestic bonds were yielding more than equivalent eurobonds, so they interpret the positive response as being due to the issuer obtaining relatively cheap debt. They note that 'the available evidence suggests that the noninterest costs of a bond issue are higher on the eurobond market' (p. 194) but lack data to quantify the difference.

One limitation of bonds compared with bank loans is that a bond issue is a one-off event. The borrower receives all the funds at once, can not borrow more (from the bond market) without a separate issue being arranged, and has no or limited discretion over repayment. In contrast, the borrower has full control over how much and when it borrows under a revolving loan facility. To improve the flexibility of securities markets in this respect, investment banks have introduced ways in which borrowers can issue notes or paper in amounts, and with maturities, of their choosing. Commercial paper and medium term notes are imports from the USA. Commercial paper is unsecured traded debt with a maximum maturity of 365 days (270 days in the USA). The commercial paper line is designed as an alternative to the overdraft facility for top names and first appeared in London in 1986. Companies sell paper at their discretion via one dealing bank, which does not underwrite sales. Purchasers are mainly other banks. The borrower usually has a back-up committed bank lending facility to ensure it has access to funds if there is a problem in selling its paper. Medium term notes (MTNs) are 'straight' unsecured eurobonds with a maturity of between one and ten years; like commercial paper they can be issued without having to prepare new
documentation each time, once a programme has been set up with an investment bank. They are sold to investing institutions as long term investments, so there is little secondary trading. A large part of the bank's role is the negotiation of placings with institutions; often it is the bank or institution which initiates an issue rather than the borrower, which issues if it can be persuaded that the yield demanded is good value.

Euronotes are the same as commercial paper except in the way they are issued, which is under revolving underwriting facilities (RUFs) and note issuance facilities (NIFs), introduced in 1978. Both are underwritten by a syndicate of banks; there is often a larger tender panel of banks which bid for the notes and if the issue cannot be fully sold at or within a maximum agreed margin over LIBOR, the underwriters will buy the remainder of the issue at the maximum margin or lend the equivalent amount. Perhaps the culmination of these developments is the multiple option facility (MOF) which in its fullest form incorporates a committed revolving loan and acceptance credit facility from a bank syndicate and tender panel, a tender panel to bid for notes, a commercial paper and MTN line, and provision for multi-currency borrowing. The idea is that the borrower can choose the cheapest from the range of alternatives.

Flexible facilities for issuing securities are, from the borrower's point of view, the nearest thing to bank loans which the securities markets have to offer. Yet they have not proved as popular as was expected when they were introduced. IFR data for 1987-92 show gross amounts in the region of $1bn pa of new euronote facilities and $1bn pa of MTN issues for UK borrowers; gross commercial paper issues have averaged $10bn pa but this figure includes certificates of deposit issued by UK banks. None of these amounts is tending to increase, though anecdotal evidence suggests that MTN programmes are becoming more popular. MOFs also form a very small proportion of total syndicated credits (Bank of England, 1990). Several reasons can be suggested why alternatives to the straight bond issue have grown slowly. There are few companies in the UK with
a good enough credit standing for their commercial paper or MTNs to be sold to non-bank investors. MOFs and tender panels have proved complicated to organise and operate. Banks which buy notes or paper make a very marginal return over LIBOR and do not, in the process, develop a relationship with the borrower with opportunities for further business or inside information, unless they manage the facility. Yet the credit risk is similar to that of a normal bank loan.

4.3 BOND RATINGS

It is conventional in the USA for publicly issued securities to be rated by one or more of the rating agencies. Ratings are paid for by issuers and strictly speaking it is the security which is rated, as the risk of different securities in issue from the same borrower may vary slightly according to their terms. In the UK domestic bonds are not rated but an increasing proportion of eurobonds and commercial paper issues are. The cost for a previously unrated issuer is in the region of $30-50,000 and about half this for subsequent issues (Financial Times Credit Ratings International, 1993, p. 11). Eurobond ratings are dominated by two US agencies, Moody's and Standard & Poor's; the only European agency, IBCA in London, specialises in rating banks. EuroRatings was established in London in 1987 as a direct competitor to the US agencies, but failed to attract enough paying issuers and closed in 1989.

The rating process is important since it represents the main way in which inside information about borrowers is signalled to the eurobond market, and a bond's rating is the primary determinant of its yield relative to other bonds of the same maturity. Credit research for bond investors by securities houses is rare. The lead manager may have some access to inside information but a company's relationship with an investment bank would not normally be as close as with a main lending bank. Once the issue is sold the lead manager has no exposure to the borrower unless it has chosen to keep some of the bonds. Though underwriting banks in a bond issue should perform
a credit analysis before agreeing to underwrite, they will not generally have private information; bond prospectuses rarely reveal anything that was not already known (except about the terms of the issue) and do not, for example, provide more up-to-date accounts or forecasts. It is up to the lead manager to perform 'due diligence' to ensure that all information released is accurate and not misleading, and other underwriters and investors do not double-check this themselves. Bond purchasers have no contact with the issuer unless renegotiation proves necessary. In the eurobond market they rely on issuers being well-known organisations with low credit risk and on the rating agencies to perform the credit appraisal and monitoring function.

There is no doubt that agencies have privileged access to information which is comparable with that of lending banks - perhaps more privileged in the case of some borrowers. However, this only applies if the company has asked for the rating and therefore cooperates with the agency, which otherwise has to rely on public information only. Bonds can be given a rating without the borrower's cooperation; in 1989 Moody's announced that it would rate all eurobonds issued by companies 'considered important by investors', whether or not the company desired a rating (IFR, 21/1/89). There is no way of telling whether a rating has been arrived at without cooperation and recently 'UK-based issuers have mounted a campaign to force agencies to make clear when their ratings are solicited or unsolicited' (Financial Times (FT), 6/12/93).

But usually the rating is solicited and in these cases agency analysts expect to be given internal financial, strategic and other information and to interview management. Standard & Poor's, for example, states that 'despite increasing disclosure and accounting standardization, necessary information is still not readily disclosed in many instances and financial practices can vary widely from country to country and from company to company. Meeting the issuer and getting unpublished data is generally the only way to arrive at an accurate rating' (Credit Ratings International, 1993, p. 10). The
analysts specialise by industry and each rating is assigned to one who keeps it under surveillance; there are meetings with management at least once a year. According to the FT (14/5/92), 'S&P is widely regarded as being more scientific in its approach to ratings, relying heavily on the results of intensive number-crunching, while Moody's is said to take a broader view of a company and its environment. In practice, though, both rely ultimately on the judgments of their analysts.' The purpose is the same as for credit analysis - to estimate the likelihood of default. This is primarily what is reflected in the rating, though it also takes account of the security and other protection offered by the terms of the bond in the event of default.

The event study method has been used to test whether rating agencies convey information to the capital markets. The argument is that, if they do signal inside information, then announcements of their rating changes will, on average, tend to be unexpected and, on average, result in positive or negative abnormal returns on borrowers' shares and bonds depending on whether the change is up or down. If the agencies merely react after news or a change in sentiment, there should be no response to rating changes as the market would expect them. It could be argued that a response to a rating change would be expected simply because the new rating would change future borrowing costs, but the rating would only have an impact on future borrowing costs if it conveyed information not already assimilated by the bond market. In fact, if ratings were not informative in some way, why should there be a demand for them by investors?

Some studies using monthly data find no evidence of a price response, but these tests are much less powerful than those using daily data (Holthausen & Leftwich, 1986; Hand, Holthausen & Leftwich, 1992). They examine the share and bond market response to rating announcements by Moody's and Standard & Poor's during 1977-82 and their main results are as follows.

1. Announcements of downgrades across credit rating class (eg 'A-')
to 'B+') are associated with negative average abnormal share returns on the announcement day plus the day after of -2.66% ($t$ statistic = -12.51) (1986 paper, p. 70). There is no significant response to downgrades within credit class (e.g. 'A' to 'A-') nor to upgrades.

2. Additions to Standard & Poor's Credit Watch are associated with barely significant negative abnormal returns if a downgrade is being considered but there is no response if an upgrade is indicated.

3. There is a similar pattern of response in the bond market. Bond abnormal returns are measured by the actual return on the bond less the return on a long term government bond. If the downgrade is of two or more grades, cross-sectional regression indicates that, ceteris paribus, the marginal effect of each additional grade on average results in a 1.87% decline in bond value (1992 paper, p. 749). A study by Wansley et al (1992) using institutional (unlisted) bond prices obtains similar results and also evidence that bond prices fall before rating reductions (p. 747).

4. There is more response to downgrades of bonds below investment grade ('BBB') than of bonds above it.

These studies provide reasonably good evidence that rating agencies do tend to signal changes in creditworthiness and convey non-public information rather than merely reacting to news or changes in sentiment. However, the studies do not attempt to explain why investors react to downgrades but not to upgrades. In summary, given the way rating agencies operate, we would expect them to have access to inside information and for this to be signalled via their ratings and changes to them. The very strong influence of ratings on bond yields and event study research on the response to changes in the ratings of US bonds tend to support these expectations.

4.4 SYNDICATED LOANS

Development and Features

Modern syndicated lending originated in the USA during the 1960s and first appeared in the eurodollar market towards the end of
the decade, after which it rapidly became an important activity. For example, 'Citicorp Investment Bank Limited was established in London in 1972 as an offshore vehicle to arrange syndicated loans in addition to merely participating in them. Among the first were domestic sterling credits for UK subsidiaries of the bank's US corporate clients' (Euromoney Special Supplement, 1990). During the 1960s British merchant banks also began providing large scale syndicated acceptance credit facilities to first class names. These facilities revolved and the credits were unsecured and unsupported by trade documents, so they were very similar to syndicated loans.

By 1974 the volume of all syndicated euroloans had exceeded that of eurobonds; the majority of commercial bank lending to less developed countries in the 1970s was via syndicated facilities. Bank of England data on volumes of syndicated loans and international bond issues for UK borrowers from 1971 to 1992 are shown in table 4.1a. The most striking point from the figures is the explosion of lending from both sources which occurred in the mid 1980s. Previously, gross lending from each source had been in the order of one to two billion dollars per annum. In the peak year of 1988, syndicated facilities totalling $35.6bn were arranged for UK borrowers and they issued $27.1bn of international bonds. There may have been a permanent shift towards funding from the international debt markets by large UK companies and financial institutions. Another point is that companies account for most of the total for syndicated facilities whereas financial institutions have usually accounted for over half of the amounts raised via international bond issues. It is difficult to compare funds actually borrowed because the figures are gross of repayments and because the loan amounts are for facilities, which are usually not fully drawn.
### Table 4.1a

**Bank of England Data on Syndicated Loans and International Bond Issues for UK Borrowers, 1972-92**

<table>
<thead>
<tr>
<th>Year</th>
<th>Syndicated Loans</th>
<th>US$m</th>
<th>International Bonds</th>
<th>US$m</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public sector</td>
<td></td>
<td>Financial Institutions</td>
<td></td>
</tr>
<tr>
<td>1971</td>
<td></td>
<td>na</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972</td>
<td>1,582</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1973</td>
<td>2,423</td>
<td>421</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1974</td>
<td>6,254</td>
<td>34</td>
<td></td>
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<tr>
<td>1975</td>
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<td></td>
<td></td>
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<tr>
<td>1976</td>
<td>1,387</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1977</td>
<td>1,983</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1978</td>
<td>4,096</td>
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<td></td>
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</tr>
<tr>
<td>1979</td>
<td>691</td>
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<td></td>
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<tr>
<td>1980</td>
<td>255</td>
<td>622</td>
<td></td>
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<tr>
<td>1981</td>
<td>105</td>
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<tr>
<td>1982</td>
<td>23</td>
<td>68</td>
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<tr>
<td>1983</td>
<td>14</td>
<td>1,628</td>
<td>1,642</td>
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<tr>
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<tr>
<td>1985</td>
<td>375</td>
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<td></td>
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<tr>
<td>1986</td>
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<td>29,532</td>
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<td>27</td>
<td>1,806</td>
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<tr>
<td>1990</td>
<td>363</td>
<td>13,960</td>
<td>14,323</td>
<td>4,978</td>
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<tr>
<td>1991</td>
<td>7,261</td>
<td>2,005</td>
<td>16,538</td>
<td>25,804</td>
</tr>
</tbody>
</table>

**Source**

Table 4.1b

IFR Data on Syndicated Loans and International Bond Issues for UK Borrowers, 1983-92

<table>
<thead>
<tr>
<th>Year</th>
<th>Syndicated Loans</th>
<th>US$m</th>
<th>International Bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Amount</td>
<td>Number</td>
</tr>
<tr>
<td>1983</td>
<td>22</td>
<td>1,729</td>
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<td>1984</td>
<td>45</td>
<td>4,767</td>
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<tr>
<td>1985</td>
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<td>102</td>
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<td>1987</td>
<td>208</td>
<td>44,032</td>
<td>135</td>
</tr>
<tr>
<td>1988</td>
<td>352</td>
<td>84,549</td>
<td>161</td>
</tr>
<tr>
<td>1989</td>
<td>270</td>
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<td>1990</td>
<td>277</td>
<td>59,329</td>
<td>146</td>
</tr>
<tr>
<td>1991</td>
<td>137</td>
<td>38,228</td>
<td>137</td>
</tr>
<tr>
<td>1992</td>
<td>153</td>
<td>35,008</td>
<td>110</td>
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</tbody>
</table>

Source

Tables sent to the author by International Financing Review. 1983 is the start of these series.

Notes to Table 4.1b

Amounts are gross of repayments and are translated into US dollars at the exchange rate prevailing at the time of the loan or issue, as for the Bank of England figures. Syndicated loans are included if there is at least one foreign bank in the syndicate.

Notes to Table 4.1a

Both loan and bond amounts are gross of repayments. Syndicated loans are included if the loan is in a foreign currency or at least half the banks in the syndicate are foreign. Sterling syndicated loans in which over half the banks in the syndicate are domestic are not recorded. All amounts are translated into US dollars at the exchange rate at the time of the loan or issue.
The equivalent figures as recorded by IFR for 1983-92 are shown in table 4.1b. The pattern is similar but the amounts differ substantially from the Bank's. In particular, the loan totals are much higher; for example, the figure for 1988 is $84.5bn. One explanation is that IFR includes all sterling syndicated loans where at least one bank in the syndicate is foreign, whereas the Bank requires at least half the banks in the syndicate to be foreign. Euroweek has higher loan amounts again; for example, their total for 1990 is $94.0bn (432 facilities) compared with $59.3bn (277 facilities) according to IFR and $30.1bn according to the Bank. Whatever the exact amounts, it is clear that syndicated lending had become a major source of funds for UK companies by the later 1980s and likely that the large increase in lending as a proportion of all sources which occurred at this time (table 3.3) was funded via syndicated loans.

Arranging a syndicated loan is similar in many ways to arranging a bond issue. Normally the loan will only be syndicated if the borrower wants a facility which is larger than any single bank is willing to provide at a reasonable price. A large borrower will probably have approached several banks with which it has done business, and possibly some new banks, to canvas opinion and establish likely costs and other terms. Some borrowers regard a syndicated facility as advantageous because it spreads business around existing relationship banks and is a way of establishing relations with new banks.

At this stage several banks are competing for the mandate to lead the syndicate. They will try to extract as much information as possible about the performance and plans of the borrower and the purpose of the facility, but will not wish to cause irritation. Each will carry out a credit analysis and make a provisional offer if they want the business. The company will choose one or occasionally two banks to be lead managers on the basis of the likely costs indicated by each bank, how well the company knows and trusts them and how professional it considers them to be. The lowest cost offer will not necessarily be the one accepted, especially if the bank is
small in London or has led few syndicated loans. Most companies want their facility arranged as quickly as possible, with no adverse publicity and without having to improve the terms or hawk the proposal around too many banks to fill the syndicate. So a well-known bank with reliable contacts in other banks and a track record of leading successful syndications will be well placed to win new mandates. The lead manager is expected to take the largest share of the amount but not necessarily to guarantee that the total sought will be forthcoming. In the author's experience most syndications are on a 'best efforts' basis.

The next stage is for the lead manager to approach other banks which it thinks might be interested in lending to the borrower. Some of these approaches may have been requested by the borrower so that relationship banks do not feel snubbed. An information package will be sent with details of the proposal and the borrower and there is often a hierarchy of requested amounts with slightly better fees and/or margin for larger sums. If recipients seek further information, it is customary to contact the lead bank rather than the borrower. Replies are usually requested within two or three weeks but sometimes less if there is urgency. The ideal is for the facility to be slightly oversubscribed. Undersubscription means approaching more banks and extending the syndication process or, more drastically, improving the terms or settling for a smaller facility. Large oversubscription is not uncommon and borrowers often take the opportunity to increase the amount, but it might suggest that the cost is higher than necessary. Banks are not committed until they sign the facility, which is usually done at the lead bank's offices within a month of syndication closing.

Five years is the most common maturity for syndicated facilities; more than seven years is rare, as in bilateral lending. They are usually unsecured but covenants are normal, especially 'no security elsewhere' and 'cross-default' clauses. Subsequent amendments require the agreement of all banks which can lead to difficult negotiations, especially if the borrower is in financial distress. For example, a covenant may have been breached and one of
the syndicate wants to be repaid, so is refusing to agree to waive the breach of covenant. The borrower is unable to make any repayments. The other syndicate members could agree to increase their loans so that the dissenting bank can be repaid, but this would be giving the dissenter preferential treatment. Compromise somewhere is required.

An important distinguishing feature of loans is that they are not marketable, but this is beginning to break down in the case of syndicated loans. A secondary market in LDC debt arose in 1987-88 and is now well established, with prices quoted as a percentage of nominal value; these can be found in IFR, for example. Some banks also 'sell down' their participations in other loans. There are various procedures by which this can be done, most of which do not involve converting the loan into a tradable debt instrument (Walmsley, 1991, pp. 189-190; Donaldson, 1989, pp. 122-129). Anecdotal evidence suggests that selling loans is not yet a common practice in the UK outside the LDC debt sector, although loans of some companies in difficulties are also traded at less than face value and a specialist broker, Klesch & Co, 'broadcasts the price of more than 60 corporate loans via Telerate, the electronic financial information service' (FT, 18/8/92). Assignment or novation of a loan requires either changing the contract with the consent of the borrower or writing a contract initially which gives banks the right to assign their participations to other banks. If the contract is changed, the bank's relations with the borrower will be undermined or cease; if the loan can be assigned from the outset, relations are unlikely to be close. All the evidence suggests that even large corporate borrowers value their banking relationships and having commitments from banks, and they prefer to know which banks they will be dealing with. Also changing contracts is not straightforward and involves additional legal and other expenses.

It is possible to transfer the lending risk without the borrower being aware; arrangements of this type are known as sub-participations. Again they entail extra costs and as they have not been fully tried and tested in the courts, the original bank can not
be sure that all the risk has been transferred in any eventuality, for example if financial distress forces renegotiations. Another problem is that the sub-participating bank does not have the benefit of relations with the borrower and if the original bank passes on any private information it is breaching confidence. There has been discussion of loans being rated to alleviate this problem, though it would add a further expense and many borrowers would not welcome an unsolicited rating on debt not raised on a securities market. Furthermore, having a bank loan rated implies a breakdown of the main function of banks in commercial lending, which is analysing credit risk; as one banker nicely put it, 'as far as proper banks are concerned, who cares what S&P or Moody’s think?' (IFR, 16/3/91).

In 1992 NatWest became the first UK bank formally to 'securitise' corporate loans, that is, to sell sub-participations to a special purpose vehicle which issues securities, in this case US commercial paper, secured on the sub-participations (FT, 20/7/92). The bank maintains a relationship with the borrower and continues to administer the loan. The motive is to remove these loans from the bank's balance sheet, freeing capital for new lending. This is achieved by the special purpose vehicle not being a consolidated subsidiary, and the process is the same as that used to securitise mortgages and, in the USA, many other retail banking assets. It may be that in time corporate loans will become more marketable if banks and borrowers gain confidence in the procedures and documentation, but to the extent that the value of bank lending does arise from the bank-borrower relationship, it is doubtful whether trading loans will become a standard practice.

Developments in the UK Syndicated Loan Market during the Sample Period, 1988–91

By 1988 the UK market had reached a peak of activity and pricing was extremely low. The stock market crash of October 1987 did not halt economic growth but this was widely feared and the government sought to counteract any adverse effects by cutting the base rate. Japanese banks were continuing to seek greater market
share. The property market, and property lending, were booming. The terms of a facility arranged for British Aerospace in April 1989 are indicative of those available to large UK companies in 1988 and 1989. The amount sought was $300m for five years at a margin of 10 basis points (bp) over LIBOR (12.5bp if more than half drawn) plus a facility fee of 5bp pa on the full amount and a one-off participation fee of 5bp. The amount was increased to $825m following oversubscription. According to IFR, the cheapest syndicated loan ever was a $900m MOF arranged in 1987 for Compagnie de Saint-Gobain at LIBOR (IFR 28/4/90).

In addition to the many contemporary reports that pricing generally was unsustainably low in the late 1980s, several articles written in 1990 and 1991 opined to the effect that 'deals were mis-priced in that returns did not accurately reflect the differences in credit quality between borrowers' (Euromoney, August 1990, p. 33). So the view, at least in the financial press and amongst many bankers, was that most companies had been obtaining funds below their economic cost with underpricing greatest for smaller/riskier ones.

On 31 October 1988, the Bank of England announced it was implementing the Basle rules on bank capital adequacy, to take effect immediately (Bank of England, 1988). This focused bankers' concern about the low return on capital on large scale lending business. How much would a bank have earned on a $25m (lead manager) participation in the BAe facility just mentioned? Under the rules, it would have had to allocate capital representing at least 8% of drawn amounts and at least 4% of undrawn but committed amounts. If the $25m was undrawn, it would have earned $12,500 pa ($25m * 0.05% pa) from the facility fee on minimum capital of $1m, a return of 1.25% pa. If the loan was fully drawn, it would have earned LIBOR plus 12.5bp directly on minimum capital of $2m plus net interest of $28,750 pa ($23m * 0.125% pa) plus the $12,500 facility fee, assuming the bank funds itself at LIBOR. So the return on capital depends on LIBOR; if it were 10% pa, for example, the total return would be 12.18% pa. These returns are gross of the bank's non-interest costs attributable to this participation, which would certainly have been much higher than
the one-off $12,500 participation fee. 'Most banks reckon they need a margin of between 1.2% and 1.4% to break even on lending to large corporates' *(FT, 2/3/92).*

It is a good question why banks en masse were willing for several years to do business at such low returns. The author’s view from having worked in corporate banking during 1985-89 is that it depended on being only a part of a commercial bank’s business, but at the same time being seen as an indispensable part. The traditional core business of a commercial bank is corporate lending, and few were comfortable at being left out of this market. There is little doubt that by the mid-1980s many more large UK companies were 'shopping around' for the cheapest funds and financial products than had been the case ten years earlier. They no longer automatically used their 'relationship bank(s)' for all their requirements but used different banks for different transactions, and the enormous number of banks in London provided much choice.

The syndicated loans market is the highest profile part of corporate banking. It provides the biggest facilities to the biggest borrowers in the quickest time and these are well publicised. Banks felt (and feel) that they had to be seen to be active in this area, particularly as arrangers. But arrangers have to join other banks’ syndicates if they want the favour returned. Withdrawing from syndicated lending would not leave a bank in a better position, since private bilateral loans to large borrowers need to be competitive with the syndicated alternative. The real option was withdrawing from lending to large companies altogether. There were several objections to this in addition to the perceived loss of prestige. Having withdrawn it might be difficult to get back in if returns improved. Although relationships perhaps counted for less, they still existed and would be difficult to sustain if the bank refused to lend on competitive terms. The benefit of the effort already put in by the bank would be lost. It was (and is) the large companies which were using the new and profitable derivative products such as swaps which banks had developed, and they believed they were less likely to win this and other business if they did not have lending
relationships. 'Jam tomorrow' arguments were in practice very important in banks' persuading themselves to join syndicates. The natural urge of a business is to grow and this can be stronger than the urge to maximise profits.

It has been suggested many times in the financial press that before the capital adequacy rules were introduced, bankers were less concerned about return on capital. While one might agree that their introduction was a major factor behind the eventual increase in pricing, bankers were certainly aware all along of how unprofitable large scale lending was. But they also thought that this was something that their bank ought to be doing, at least so long as they were able to make profits from other activities. Had most banks done little but lend to large borrowers, returns could hardly have been so low for so long.

It was during the second half of 1990 that increases in margins and fees became discernable across the market. This followed defaults or rescheduling by a number of large borrowers which were highly geared as a result of management buy-outs, starting with UAL in the USA in 1989 and continuing in 1990 with Lowndes Queensway, Magnet and MFI in the UK. The Japanese stock market was down by a third compared with late 1989 and this was affecting the capital of Japanese banks, which includes unrealised gains on shares owned by the banks. Nominal UK interest rates were high - the average three month interest rate during 1990 was 14.8% pa - although real rates of approximately 5% pa were no higher than they had been since 1983. However, there were signs of the forthcoming recession, especially in the property market. The Iraqi invasion of Kuwait in August 1990 was also said to have affected loan pricing.

Much of the increase seems to have occurred over quite a short period, in September and October 1990. This can be inferred by comparing the pricing of facilities for the newly-created regional electricity companies with pricing for the two generating companies. Syndication of the regional company facilities was launched during the week ending 25 August. They carried margins of 15-20bp and
commitment fees on unused amounts of 6-9bp. IFR noted that they were all underwritten first; 'gone are the days (if in fact they ever existed) of sending out 200 invitation telexes and sitting back and waiting for the deal to do itself' (25/8/90). Nevertheless, all were successfully syndicated at the original pricing, unlike the facility for the National Grid Company, launched at the same time with slightly finer pricing, which had to be repriced upwards slightly to make it equivalent to what the regional companies were paying. Prior to repricing, the Japanese banks in the underwriting group 'were described as being hysterical at the way the deal was going' (IFR 22/9/90).

Syndication of the facilities for the generating companies was launched during the week ending 27 October with a margin 37.5bp and commitment fee of 18.75bp, double the pricing for the regional companies. Yet term and purpose (general requirements) were the same and the generators were regarded as superior credits. IFR commented that 'it is just bad luck... that the market has changed so dramatically' (27/10/90). When BAE raised a $115m five year syndicated loan in May 1991 the margin was 42.5bp and participation fee 15bp (no other fees), 'a textbook example of just how far pricing has moved over the last 18 months' (IFR 25/5/91), while according to Euroweek, 'many banks feel that the loan is extremely tightly priced in today's environment' (24/5/91), though it did go on to be oversubscribed.

Although pricing was rising, syndication was becoming harder; many were taking longer, fewer were oversubscribed, some had to be repriced upwards during syndication, which was almost unheard-of before 1990, and, as noted, underwriting prior to syndication was becoming more common. The volume of UK syndicated loans was well down in 1991 (table 4.1), partly because the economy was clearly in recession by then and so companies were borrowing less overall (table 3.3), but also because many large companies were reported to be 'returning to relationship banking'. It is hard to say the extent to which bank-corporate relationships had ceased to matter and to which this was reversed. In the event study sample, five syndicated
facilities were refinanced with bilateral loans which require direct negotiation with each bank and therefore a closer relationship than with a syndicate member. It is probable that many more such refinancings were unreported.

Several reasons have been advanced for this change. Companies were said to be (re-)cultivating relationships with banks in the hope of greater support, if necessary, during the recession. It was reported in November 1990 that bilaterals had become cheaper than syndicated loans (IFR 17/11/90). This was no longer the case by August 1991 (IFR 24/8/91). Borrowers were reported as being concerned about the growing difficulties of syndication. There was also concern about negotiating with existing syndicates. 'Companies such as News Corporation, Brent Walker and Laura Ashley found, to their cost, that the reluctance of just one or two banks to agree to a restructuring of debt can jeopardise the company’s future' (FT, 5/8/91). The practice of ‘selling down’ participations to banks not in the original syndicate meant that borrowers were uncertain as to whom they would be dealing with in a renegotiation. It was suggested that borrowers are in a better bargaining position one-to-one than with a whole syndicate (FT, 27/2/92).

The syndicated loan market remained comparatively quiet at the end of the sample period. The continued growth of bank lending to large companies up to then had confounded those who had predicted that securities markets would rapidly replace banks as the main source of funds for such borrowers. But it is argued that the 1987 stock market crash and the growth of the Japanese banks in London were one-off factors which promoted bank lending, ‘whilst the spread of securitisation habits to Europe and the pressure on banks to unload assets from their balance sheets to meet the new capital adequacy requirements suggest that securitisation may be a long-run trend’ (Buckle & Thompson, 1992, p. 205).
This section presents empirical evidence on how large organisations choose between the two dominant forms of debt finance in recent years. The first part describes an attempt to compare their (direct financial) costs. The comparison can not be considered accurate, but the eurobond market does not generally appear to offer a cheaper source of finance than the bank loan alternative, except for the few borrowers rated 'AAA' or 'AA'. The second part analyses the results of a questionnaire sent to treasurers asking them how they made the choice. The main findings are that they do not regard the two as close substitutes; the most important difference is that bonds can provide longer term funds. Cost is not the only consideration, or even the most important.

The Costs of Syndicated Loans Compared with Eurobond Issues

Comparing the costs is not as straightforward as it might at first seem, even if loan margin and fees are reported. The first problem is that interest on syndicated loans is charged at a margin over three or six month LIBOR - a floating rate - whereas eurobonds pay a fixed rate of interest. Therefore which proves cheaper over any given period, say five years, depends on how the actual levels of short term rates during the five years compare with the fixed rate payable on the eurobond determined at the start of the period. Fortunately it is possible to avoid this difficulty by assuming that eurobond borrowers transform their interest obligations from a fixed to a floating rate basis by entering into an interest rate swap at the time of issue, as in fact they often do. We can then compare like with like; the syndicated loan and bond-plus-swap alternative will both have a floating cost.

The way in which the interest rate swap operates is shown in figure 4.1. The borrower issues £100m (face value) of eurobonds and, for the life of the bonds, pays a fixed rate on them of, say, 10% pa. At the same time, the borrower enters into a swap of interest flows whereby it receives, for the lifetime of the bonds, fixed amounts of
10% pa times £100m, and pays six month LIBOR times £100m. The amount of this half-yearly payment will depend on what LIBOR was six months earlier. The fixed rate payments received under the swap cancel out the payments to be made on the bonds, so the net result is that the (interest) cost of the £100m is six month LIBOR. No capital is exchanged under the swap and the redemption of the bonds on the due date is unaffected.

Diagram 4.1
Bond Plus Swap

In this example, the fixed rate receivable under the swap is the same as the rate payable on the bonds, but while bond and swap rates are linked, they will generally not be identical for a particular borrower. By 'swap rate' is meant the fixed rate receivable in exchange for paying LIBOR. If the fixed rate in the above swap had been 10.5% pa, then the resulting cost of funds would have been LIBOR less 0.5%. Data on swap rates to individual borrowers are not available, but IFR reports interbank swap rates which are similar to those offered to large companies. 'AAA' names could probably obtain slightly better rates; those rated or regarded as 'A' or below would be offered somewhat worse.
The terms were examined of all eurobond issues and syndicated loans for UK borrowers between 1988 and 1991. The list and terms of eurobond issues was supplied by IFR. It would have been ideal to have found names borrowing in both markets at the same time, to enable direct comparison of costs, but, perhaps not surprisingly, there are no such examples. However, it is still possible to get a feel for pricing in the two markets by noting the terms of large numbers of bond issues and loans. To illustrate, table 4.2 shows the margin on a small but representative sample of eurobond issues, assuming the interest is swapped to a floating rate at the interbank swap rate reported in IFR for the week containing the launch date. To facilitate comparison, all the issues chosen are in sterling and have a maturity of no more than ten years.

It can be seen that, from 1988 until towards the end of 1990, double and triple 'A' rated names could borrow at around half a per cent below LIBOR, while those with a slightly lower rating such as Trusthouse Forte and unrated but nevertheless large and familiar companies such as Taylor Woodrow could borrow at close to LIBOR. Towards the end of 1990, pricing increased appreciably, as we have seen that it did for loans (section 4.4). Margins rose by roughly half a percent, so that 'AAAs' were borrowing at around LIBOR and 'As' at 0.5% above.

How does this compare with syndicated loans? Table 4.3 provides a sample of loans to well-known companies, again all in sterling. None of them has a margin below LIBOR; in fact all of the several hundred syndicated loans reported for UK borrowers during 1988-91 charged some margin above LIBOR, and ten basis points was about the minimum. It appears that the increase in rates towards the end of 1990 was somewhat less in the syndicated loan market than for bond-plus-swaps, so that for large companies below around 'AA' credit standing there was not much to choose between the two alternatives in terms of margin after 1990.
### Table 4.2

**Floating Rate Cost of Funds via Eurobond Issue Plus**

**Interest Rate Swap for a Sample of UK Borrowers, 1988-91**

<table>
<thead>
<tr>
<th>Date of issue</th>
<th>Borrower</th>
<th>Amount (£m)</th>
<th>Term (yrs)</th>
<th>Rating</th>
<th>Margin above or below LIBOR (bp)</th>
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<td>Marks &amp; Spencer</td>
<td>150</td>
<td>5</td>
<td>AAA</td>
<td>-63</td>
</tr>
<tr>
<td>6/09/88</td>
<td>Taylor Woodrow</td>
<td>75</td>
<td>5</td>
<td>None</td>
<td>+12</td>
</tr>
<tr>
<td>27/01/89</td>
<td>Trusthouse Forte</td>
<td>100</td>
<td>7</td>
<td>A+</td>
<td>-6</td>
</tr>
<tr>
<td>11/07/89</td>
<td>Legal &amp; General</td>
<td>75</td>
<td>3</td>
<td>AA</td>
<td>-44</td>
</tr>
<tr>
<td>21/11/90</td>
<td>British Gas</td>
<td>125</td>
<td>3</td>
<td>AAA</td>
<td>-30</td>
</tr>
<tr>
<td>4/12/90</td>
<td>Guinness</td>
<td>150</td>
<td>5</td>
<td>AA-</td>
<td>+28</td>
</tr>
<tr>
<td>11/03/91</td>
<td>British Gas</td>
<td>350</td>
<td>10</td>
<td>AAA</td>
<td>+4</td>
</tr>
<tr>
<td>29/05/91</td>
<td>Severn Trent Water</td>
<td>150</td>
<td>8</td>
<td>None</td>
<td>+45</td>
</tr>
<tr>
<td>26/09/91</td>
<td>Allied Lyons</td>
<td>150</td>
<td>7</td>
<td>A</td>
<td>+39</td>
</tr>
<tr>
<td>5/11/91</td>
<td>Redland</td>
<td>125</td>
<td>10</td>
<td>A+</td>
<td>+55</td>
</tr>
</tbody>
</table>

Source of bond details and swap rates: IFR
Table 4.3
Floating Rate Cost of Funds via Syndicated Loans
for a Sample of UK Borrowers, 1988-91

<table>
<thead>
<tr>
<th>Date Signed</th>
<th>Borrower</th>
<th>Amount (£m)</th>
<th>Term (yrs)</th>
<th>Margin above LIBOR (bp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>29/04/88</td>
<td>Wellcome</td>
<td>300</td>
<td>7</td>
<td>+12.5</td>
</tr>
<tr>
<td>2/11/88</td>
<td>Guinness</td>
<td>1,000</td>
<td>5</td>
<td>+10.0</td>
</tr>
<tr>
<td>4/11/88</td>
<td>Taylor Woodrow</td>
<td>150</td>
<td>6</td>
<td>+12.5</td>
</tr>
<tr>
<td>21/08/89</td>
<td>Hanson</td>
<td>3,000</td>
<td>3</td>
<td>+15.0</td>
</tr>
<tr>
<td>12/10/89</td>
<td>Thames Water</td>
<td>1,600</td>
<td>6</td>
<td>+22.0</td>
</tr>
<tr>
<td>19/02/90</td>
<td>Courtaulds Textiles</td>
<td>150</td>
<td>5</td>
<td>+15.0</td>
</tr>
<tr>
<td>15/10/90</td>
<td>Southern Electricity</td>
<td>350</td>
<td>5</td>
<td>+15.0</td>
</tr>
<tr>
<td>6/12/90</td>
<td>Power Gen</td>
<td>1,000</td>
<td>5</td>
<td>+37.5</td>
</tr>
<tr>
<td>6/08/91</td>
<td>BET</td>
<td>100</td>
<td>5</td>
<td>+45.0</td>
</tr>
<tr>
<td>28/11/91</td>
<td>Hanson</td>
<td>3,000</td>
<td>4</td>
<td>+15.0 yr 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+37.5 yrs 2-4</td>
</tr>
</tbody>
</table>

Sources: IFR and Euroweek
So far we have ignored fees and expenses. As mentioned, for a eurobond issue the selling commission plus other fees are nominally around 1.5% of the amount borrowed, paid up-front. In practice they are often less than that. There may also be a fee for the swap. What these costs represent on an annualised basis depends on the maturity of the bonds; for a five year issue, fees of 1.5% would be 30bp pa - rather more, if the time value of money is taken into account, which itself depends on prevailing interest rates. For a syndicated loan, the fees payable often depend partly on how much it is used. For example, commitment fees are calculated as a percentage of committed but undrawn amounts. So it is usually impossible to be precise about the annualised cost of syndicated loans. But assuming 50% usage, the fees on the loans in table 4.3 range from 2bp pa for Guinness and Wellcome to 14bp pa for BET, as a proportion of the total facility amount. There was some tendency for syndicated loan fees as well as margins to increase around the end of 1990. These fee rates should be doubled as a proportion of funds actually borrowed, to make them comparable with the fees on a bond issue.

In terms of annualised fees, then, syndicated facilities were probably somewhat cheaper than bond issues during the sample period, especially for shorter maturities. If fees are measured per pound borrowed, then the cost of a syndicated facility is very sensitive to how fully it is drawn down; one that was little used would appear expensive. But then part of what is being paid for is the convenience of knowing that the facility is there if needed.

To sum up, it is not possible to make precise comparisons between the costs of bonds-plus-swaps and syndicated loans: only would-be borrowers themselves are in a position to do this. Nevertheless, when fees are taken into account, there does not appear to be a generalised cost advantage to one form of borrowing over the other, except for the few 'AAA' and 'AA' names which would normally find the bond market cheaper.
The Choice from the Company's Perspective

To find out how companies actually choose between banks and bonds, 85 questionnaires were sent in July 1992 to the treasurers of companies which had issued eurobonds since the start of 1987, so the sample is drawn entirely from known users of bond markets. The topic is obviously of interest to corporate treasurers as 38 responses were received, many of them very full. The questionnaire was simple, consisting of five questions inviting open comment rather than requiring yes/no or scaled answers. The intention was to learn about the bank versus bond decision in respondents' own words without suggesting particular factors, with the exception of one question specifically on price. The questions were:

1. In what circumstances would you borrow from banks?
2. In what circumstances would you issue bonds?
3. Would you consider using interest rate or currency swaps? If so, when and why?
4. Would you always opt for what appears to be the cheapest financing package? If not, what other factors might affect your decision?
5. What do you view as the main differences between borrowing from banks and borrowing from the bond market?

At the end, respondents were invited to add any further comments.

The results are summarised in table 4.4. The respondents comprise 21 non-financial companies ('corporates'), eight building societies, five other financial institutions and four utilities. The main point emerging from the first two questions is that banks are used by this sample primarily for short term requirements such as working capital and bridging loans; bonds are used for longer term finance. It is also clear that for many companies bond issues are less convenient than loans; 37% say that banks are more flexible and 37% that bank borrowing is easier and/or cheaper to arrange than a bond issue. Related plus points for bank facilities include the advantage of having a standby source of funds (32% mention this), control over draw-downs and repayments, confidentiality, simplicity, and the potential to raise large amounts for acquisitions. Loans are
also used for other types of special purpose financing, linked to a particular project or for off-balance sheet borrowing. On the other hand, 13% say that financial covenants are more onerous on bank loans. Maintaining a variety of funding sources is important for some respondents, especially the building societies. All companies in the sample use swaps; 37% say explicitly that fixed rate funds are swapped into floating.

On price (question 4), 42% say that bonds are always or usually cheaper compared with only 3% (one respondent) saying banks are cheaper, as might be expected from a sample of companies which had all issued bonds. But 68% say that price is not the main factor in the decision, and part E of table 4.4 lists the most common non-price factors mentioned in response to this question. Most respondents seem to regard relationship with a bank as a positive feature, although two resent banks using it to try to cross-sell other products. The negative points for bond issues include the greater administrative burden and costs at the outset, the publicity and the increasing expectation that a rating be obtained. However, a few respondents say or imply that they welcome the higher profile of bond issues. Many appear to find the bond market a somewhat fickle source of finance; 37% note somewhere in their replies that the timing of issues is highly sensitive to perceived market receptiveness, with 21% citing their wish for the issue to be well received as a non-price factor. Finally, the two most commonly mentioned main differences (question 5) are maturity (40%) and relationship with banks but not bondholders (32%).

It is worth presenting a representative sample of respondents' comments.

'The issuing of bonds is very much dependent on market circumstances and is a completely different "animal" to bank loans' (Northern Rock Building Society).

'There is a vast difference between what is available to major corporations and the rest of the corporations' (Prudential Corporation).
Table 4.4
Banks Compared with Bonds: Summary of Questionnaire Results

The questionnaire was sent to treasurers of companies which had issued bonds during 1987-92. The results show percentage of responses (38) which fit each heading.

<table>
<thead>
<tr>
<th>A</th>
<th>Reasons for using banking facilities:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>For short term borrowings (less than 1 year)</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>For medium term borrowings (1-5 years)</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Banks provide flexible finance</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>Loans are easier/cheaper to arrange than bond issues</td>
<td>37</td>
</tr>
<tr>
<td></td>
<td>For standby facilities</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>To diversify funding sources</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>For project finance/special structures (eg off balance sheet)</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>To fund acquisitions</td>
<td>13</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B</th>
<th>Reasons for issuing bonds:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>For longer term borrowing (min 3 years)</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>To diversify funding sources/widen investor base</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>Financial covenants less onerous than on bank loans</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>To keep bank facilities free</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>To issue convertibles</td>
<td>11</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>C</th>
<th>Price:</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Banks usually cheaper</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Bonds usually cheaper</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td>Difference not clear-cut</td>
<td>55</td>
</tr>
<tr>
<td>D</td>
<td>Importance of price in choosing borrowing arrangements:</td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Only factor</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Main factor</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Non-price factors as important</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>Non-price factors more important</td>
<td>23</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>E</th>
<th>Most commonly mentioned non-price factors:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Relationship with banks</td>
</tr>
<tr>
<td></td>
<td>Financial covenants and other conditions</td>
</tr>
<tr>
<td></td>
<td>Diversification of funding sources</td>
</tr>
<tr>
<td></td>
<td>Term/repayment schedule</td>
</tr>
<tr>
<td></td>
<td>Wish for bond issue to be well received</td>
</tr>
<tr>
<td></td>
<td>Tax considerations</td>
</tr>
<tr>
<td></td>
<td>Credit standing of bank lender</td>
</tr>
<tr>
<td></td>
<td>Security of committed facility</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>F</th>
<th>Main differences between bank loans and bonds</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maturity</td>
</tr>
<tr>
<td></td>
<td>Relationship</td>
</tr>
</tbody>
</table>

'For those borrowers who can access the international capital markets issuing securities tends to be considerably cheaper than bank finance' (British Gas).

'Banks: quick, relatively easy, no credit rating required, financial covenants, low admin cost. Bonds: slow process, relatively difficult, credit rating required more and more, no covenants, high admin cost, maintains bank line availability for acquisitions' (Tate & Lyle).

'Relationship - may accept small price disadvantage for longer term benefits' (Guinness).

'Bonds - long term "permanent" funding. Banks - shorter term and flexible or for project finance' (British Land).

'Banks seldom lend for over 5 years and virtually never do for over 7 years. This means the bond market is the only source of long term debt. My own company does not have a bond rating which probably precludes it from undertaking a short dated issue. This area is dominated by overseas investors who demand a rating. However long dated bonds are usually taken up by UK institutional investors who understand our business, have their own credit analysts and so do not require a bond rating. Therefore I seldom, if ever, get the chance of a straight comparison between the two markets' (Slough Estates).

'If it all goes wrong and the company hits hard times, banks are easier to contact and negotiate with than bondholders' (Slough Estates).

'Bank deals are relationship oriented. Bond deals provide more security but less flexibility' (Forte).

The 42% of companies for which bonds have a clear-cut price advantage tend, not surprisingly, to be the largest and most highly rated, a result supported by Davis & Mayer (1991, p. 20). For the rest, it could be suggested that the key advantage the bond market has is not so much price but willingness to provide committed finance beyond the five year, or at most seven year, term available from banks. In effect, bank and bond finance only overlaps in the three to seven year maturity range at most. Commercial paper and medium
term notes offer alternatives to bank facilities for shorter term requirements, but only 8% of the sample mention using them (though they were not asked explicitly about them).

Both the data analysis and questionnaire results suggest that there is little to choose in terms of price (including all costs) between bond and bank finance over the three to seven year maturity range, except for top credits, for which the bond market is cheaper. But many factors other than price affect the choice of borrowing arrangement, and the biggest non-price difference is that bond finance is available for longer.

Davis & Mayer (1991) reach some similar conclusions via analysis of syndicated loans and eurobond issues on the Bank of England's International Capital Markets database; in particular, they maintain, as we do, that 'bond finance and bank lending are not perfect substitutes even at the upper end of the market' (p. 31). They find that larger and less risky companies tend to use the bond market, but also that the larger the amount borrowed, the more likely it is to be through a syndicated loan (a weakness of their paper is that they take no account of the fact that loan facilities are often not fully drawn). They argue that, while the evidence that only the largest companies with the best reputations can issue eurobonds is consistent with the monitoring explanation for bank lending, the fact that such companies continue to borrow from banks is not, because they would be expected to borrow entirely through bonds once they had acquired sufficient reputation that bank monitoring was superfluous. They also note that there is a low degree of commitment in the euromarkets both from bond investors and banks; maturity is inversely related to risk, banks become less willing to lend in recessions, companies often change lead banks. However, in committed loan facilities 'there is a greater degree of commitment on the part of the lead bank than is observed in the bond markets' (p. 30). They argue that the evidence is most consistent with the 'control hypothesis': the riskier the debt, the more likely it is to be a bank loan and the more control the contract will give to the lender, for example via shorter maturities and stricter covenants.
Davis & Mayer's conclusion is that 'bank finance is still important for large firms because their riskier financings tend to be syndicated credits' (p. 31), and there does seem to be some truth in this. There are certainly many syndicated loans for companies not quite large enough to issue bonds and a fair number of giant loans for top names, usually to finance acquisitions (there are 46 syndicated loans of £500m or more in our loan list for the period 1988-91, out of a total of 659). But there are also many examples of companies large enough to issue bonds - some of which actually do - which purchase relatively modest syndicated facilities in the £50m-£300m range, the same size as most bond issues. Davis & Mayer's explanation is inadequate for these cases. The risk of a five year committed facility is less than that of a ten year eurobond of the same size for the same borrower, so the riskier financings are often bond issues rather than loans. Our evidence suggests that the lending relationship enables banks to provide a better service, in ways detailed above, and that this is the main reason why investment grade organisations continue to borrow from banks. The reason for giant borrowings being syndicated loans is probably not so much that bond investors would regard them as too risky but that the loan could be arranged more quickly.

In one respect the eurobond market is more sensitive to differences in creditworthiness than banks. Ratings make more of a difference to bond yields than to loan costs, which explains why top names can obtain funds at or below LIBOR. But the very small number of companies which actually issue eurobonds suggests that at the bottom end of the market - companies which would be rated around 'BBB' - the costs of an issue jump. In effect, there is credit rationing. It is too much trouble for such companies to attempt an issue and many bond market investors simply do not want to be bothered with even slightly doubtful credits (see the quotation from Slough Estates above). At first sight this is puzzling. Smaller companies may be more risky to lend to, but in a well diversified portfolio much of the total risk of each investment is eliminated. To the extent that the remaining systematic risk is higher than for a
portfolio of highly rated bonds, a higher yield would be expected, not an absence of lending. A modern answer to the puzzle would be that banks can control the risk better because of the lending relationship which (1) gives them inside information, (2) enables both sides to show commitment and (3) makes restructuring easier should it prove necessary. We would question (1) and add (4) that, for safe as well as risky borrowers, the relationship enables banks to provide a service which markets can not provide, though perhaps committed MTN facilities come close.

There remains the practical question of what level of risk it is efficient for the eurobond market to accept. Has the market reached its limit in being available to perhaps 200 organisations in the UK? Could there be a 'junk bond' market in London? The minimum issue size of £50m is a constraint for eurobonds but we have not considered its justification and, in any case, many more companies could issue in large enough amounts than actually do. There may be less information about smaller companies but bond investors have, or could obtain, as much as the equity market, which serves over 2,000 more companies than the eurobond market. Perhaps there are some companies which could in fact issue eurobonds but have found it cheaper as well as easier to borrow from banks. Believers in securitisation would argue that this will change as banks have not been making an economic return on their large scale lending, partly because they fear they would lose other more profitable business if they withdraw from this market. Bond market investors want a full return as they do not provide other services. If banks stop subsidising corporate lending, the eurobond market will be more competitive. But the impression one has is that eurobond investors are simply not interested in credit risk as yet.1

4.6 OTHER EVIDENCE ON THE ROLE OF BANK LENDING

Some of the research on the performance of financial systems in funding business provides evidence on the value of bank lending.

1. Footnote 1 is on p. 150.
Regarding larger companies, there are at present a number of well known and related concerns. Are there features of the financial system which induce underinvestment in long term projects (the short termism debate)? Should investing institutions and/or banks be more involved in the management of companies they finance? How well served by the system is the corporate sector in the UK compared with in other countries? This is often considered in terms of comparison of the market-orientated systems of the USA and UK with the bank-dominated systems of Germany and Japan.

In a series of papers Mayer assembles international data on the funding of companies and considers which theories are most consistent with the national differences observed. Mayer (1988) estimates the net sources of finance of the stock of non-financial assets of the corporate sector in the UK, USA, Germany, France and Japan in 1985. Unfortunately, in some cases the proportions sum to totals very different from 100%, for example 123% for the USA, and no explanation is offered for this. But in the USA, UK and Germany retentions accounted for a higher proportion than in France and Japan, where the net sources were roughly two-thirds retentions and one-third bank loans.

Mayer & Alexander (1990) and Mayer (1991) offer a more thorough comparison of Germany and the UK in 1988. They find that sources of finance for the corporate sector are surprisingly similar on both a gross and net basis; ie banks were not providing a larger share of finance in Germany. For the largest 75 companies in each country, on

1. A recent comment in the FT’s Lex column is apposite. ’Among the many and varied financial instruments that the City can offer UK companies there is one glaring omission: corporate bonds. Only the biggest UK companies can issue bonds in the UK and they very rarely try. Instead many turn to the US, where they can tap the publicly-traded markets or go directly to a few institutions with a private placement. The latter is an increasingly popular option for medium-sized British companies which are looking for cheap, long-term, fixed-rate capital. In the US, small growing businesses can also use the bond markets but it is not an option for their counterparts in the UK’ (30/8/94). No doubt this helps explain the increasing share of borrowing arranged abroad in companies’ sources of funds evident in table 3.3 (under ’other overseas investment’).
a gross basis retentions were a higher proportion in Germany, while loans of over one year (including bonds) and trade credit were a higher proportion in the UK during 1982-88. On a net basis retentions supplied well over 100% in both countries (so some items were negative, for example new equity because share purchases by companies for cash exceeded amounts raised from new issues). For smaller quoted electrical engineering companies in the UK, retentions were again over 100% of net sources but new share capital was also a significant source, accounting for 20.6% gross and 29.8% net; debt of over one year supplied 4.3% gross, 8.7% net and short term debt -4.3% gross (ie there was net repayment) and -38.6% net. For a sample of medium sized German electrical engineering companies, retentions supplied 103% on a net basis, new equity 1.9% and bank loans (mainly over one year) 12.0%.

Mayer makes the following comments on this evidence.
1. Differences in taxation do not explain national differences in corporate financing.
2. Though banks in Germany are closer to their corporate clients than in the UK, they do not provide a larger proportion of finance in Germany (although they do in France and Japan). Mayer regards the German data as evidence against the view that superior information enables banks to provide finance on better terms than markets.
3. The evidence supports the view that close bank-corporate relations are part of the way in which control is maintained by management and a few major investors. Equity stakes controlled by banks, cross-shareholdings and classes of shares with different voting rights all protect companies from hostile takeover bids. High dividend payout ratios are not necessary to keep investors happy. In the event of financial distress, the main bank(s) continues to support the company and organises any restructuring with relatively few management changes compared with a takeover or other restructuring in the UK or USA. This environment may well be more conducive to long term investment. It is not that bank lending is superior to share capital as a form of long term finance, or even that banks in Germany or Japan can lend at a much lower cost than banks in the UK. Rather, bank-dominated systems have survived
because the families and other groups which control many companies value the commitment and protection which the system offers. In the process it may or may not facilitate investment; Mayer would argue that it does, but this is controversial and difficult to test.

There have been few attempts to provide direct evidence on the question of whether having close relations with banks facilitates investment and improves a company's performance. Hoshi et al (1990) describe the organisation of industrial groups in Japan (keiretsu) and the role of the main bank within them. Companies not part of a group may still have close ties with a particular bank. They argue that the costs of financial distress can be large because a company known to be in trouble may have difficulty operating; suppliers may be unwilling to extend credit, customers may be put off, lenders may demand repayment, key staff may leave. They offer evidence that being part of a group or having close ties with a bank reduces the costs of financial distress by making it easier to renegotiate a company's liabilities, providing financial and other support and helping to maintain confidence in the company. Companies in a group or with a main bank invest more on average and achieve higher sales growth than do other companies after the onset of distress. The authors concede that an alternative interpretation of these results is that groups and banks do not like to see companies fail with which they are associated, and shoulder the costs of distress rather than reduce them, but they believe that the costs are in fact reduced.

Davis (1992, ch. 2) reaches the same conclusion from studying the relationship between business failure rates (failures as a proportion of active companies) and a measure of gearing (corporate debt divided by gross national product) during 1966-90 in the UK, USA, Canada, Japan, Germany and France. Unfortunately he does not discuss the sources or scope of his data; failure rates will be completely dominated by the experience of very small businesses if these are included. However, he finds that 'a higher level of debt tends to coincide with a higher failure rate, except for Japan, where the relationship was strongly negative, and Germany, where the coefficient was positive but insignificant' (p. 65). He views this
as evidence that relationship banking protects companies from the 'consequences of gearing', vis bankruptcy and financial distress (p. 73).

Other evidence that the efficiency of intermediation affects the costs and availability of industrial finance, and therefore industrial performance, is presented in Bernanke's (1983) study of the 1930-33 depression in the USA. Very much in the spirit of modern theories of bank lending, he argues that the most important service banks perform is to screen good from bad borrowers which are too small to have access to securities markets. Banks seek to minimise the 'cost of credit intermediation' (CCI), which includes monitoring and expected losses on loans, through 'developing expertise at evaluating potential borrowers; establishing long term relations with customers; and offering loan conditions that encourage potential borrowers to self-select in a favorable way', especially via taking security (p. 263). The problem is that there is no direct measure of CCI. But if banks face runs, or the threat of runs, on their deposits and unusually large numbers of borrowers default, then their supply of funds is reduced, they strive to hold a higher proportion of liquid assets, they lend to the safest borrowers only and some banks fail. The CCI increases because a smaller supply of funds is available to the most efficient intermediaries (banks), the banks are much more careful and expect more bad debts. The large falls in bank lending and large increases in loan rates are consistent with this but do not establish that impaired bank functioning contributed to the severity of the depression: they may merely be symptoms. More persuasive is the evidence from contemporary researchers that many creditworthy companies were unable to borrow, especially small businesses (and individuals) dependent upon banks.

To try further to show more of a causal connection between bank functioning and industrial performance, Bernanke takes a model in which monthly growth rates in industrial production are regressed against production growth rates of the previous two months together with growth rates of money supply (M1) or prices. All growth rates are 'unexpected' in the sense of being net of rates predicted by
another model. He finds that unexpected falls in prices or money supply are associated with unexpected falls in output, as have other researchers. But a larger proportion of the changes in output is explained when variables are added which are meant to proxy for bank functioning. These variables are changes in the deposits of failing banks and in the liabilities of failing businesses. However, if the argument is that the impact of bank and business failures on bank lending caused lower production, one would expect the proxies to be significant explanatory variables with a time lag, which, with one exception, they are not. In fact Bernanke is cautious about ascribing causation, concluding ambiguously that his evidence 'supports the view that nonmonetary aspects of the financial crisis were at least a part of the propagatory mechanism of the Great Depression' (p. 272).

4.6 SUMMARY

There are important differences between borrowing from banks and via issuing bonds.

1. Only the largest companies have access to the eurobond market, probably fewer than 200 in the UK, though several hundred more could issue domestic debentures. The main reason is that eurobond investors are unwilling to accept the credit risk of smaller borrowers.

2. For borrowers rated at least 'AA', the eurobond market offers a cost advantage over syndicated loans. For borrowers of lower credit standing, but still able to issue eurobonds, bonds and loans appear to have similar costs on average.

3. Banks appear to offer a superior service compared with the bond market. Companies value the commitment implicit in relationships with banks, which is explicit in committed revolving facilities, and they also value the speed and discretion of bank lending. Some would prefer to borrow longer term than banks are willing to lend. MTN lines are a
relatively flexible and convenient means of issuing bonds and may replace syndicated loans to some extent, especially if these have been underpriced in relation to their risk.

Banks certainly do both screen and monitor borrowers, as assumed by theories of lending, but it is doubtful whether they obtain much inside information about large borrowers in the UK. They may even obtain less than rating agencies, in which case banks do not have an information advantage relative to bond market investors. Research from the USA indicates that rating downgrades cause share and bond prices to fall, though there is little response to upgrades. This is consistent with rating agencies obtaining inside information.

It is difficult to measure the extent to which the bank lending process lowers the costs of intermediation and improves company performance, though there are now many theories about how this might happen. There is some evidence that close bank relations reduce the costs of financial distress. On the continent and in Japan, banks have closer ties with their corporate customers than in the UK and USA, and help enable the controlling interests to stay in control. The relative merits of the 'Anglo-Saxon' and continental systems are a matter of debate. Practice in the UK continues to be for banks not to be involved in the management or ownership of companies they lend to, except in cases of trouble where liabilities have to be renegotiated. Government and Bank of England policy has consistently supported this approach.
Chapter 5

TESTS OF THE INFORMATION HYPOTHESIS

Considering its importance to theories of bank lending, the information hypothesis has not been extensively tested. Most of the evidence comes from event studies; before reviewing them, we consider the quality of event study evidence, an issue neglected by previous studies.

5.1 HOW GOOD IS EVENT STUDY EVIDENCE?

An event study measures average abnormal returns at the time of a certain type of event, in our case loan announcements. Such evidence does not itself explain why the event causes or does not cause abnormal returns and so is an indirect test of the information hypothesis. A direct test would be to compare what the bank(s) lending to a company know about it with what its bondholders and shareholders know, but in practice it is not possible to make such a comparison. Banks will simply not provide the requisite information and it would be very difficult to establish how much analysts and investors collectively knew. Also an important part of knowing a company is knowing its management, and this sort of knowledge is impossible to measure precisely. Such direct evidence as there is on the information hypothesis has been reviewed in section 4.1. Another possibility would be to ask a sample of analysts and fund managers whether they pay any attention to news of bank loans and, if so, why. This type of enquiry is rare in the finance literature. The big advantages of an event study are that the response of the whole market is measured, not just a small sample of participants, and the measure is numerical, facilitating analysis. Nevertheless, the researcher is left having to infer why news of a certain type causes, on average, the response that it does.

Existing research finds that loan announcements do cause abnormal returns (in the USA) and interprets this as evidence that stock market investors believe that banks have information not available to them. We can legitimately call this inside information:
though given to banks, it is not thereby publicly available. But how certain is this interpretation?

Consider the most common type of announcement, that of a new loan. If the bank has inside information during the initial credit appraisal and is willing to make a new loan, then it might seem as though a positive stock market response would be expected, because the inside information is favourable enough for the bank to risk lending, or at least it has discovered nothing untoward enough to prevent it lending. But on reflection, no response might be predicted in the case of a large, sound and well-known company even if the bank is given inside information. With such a company, it may not be news to the market, in the sense of being unexpected, that a bank is willing to lend to it. Investors would only be surprised to learn if a bank had refused to lend. The less investors know about a company, the more information might a bank's decisions be expected to convey. We return to this idea later by considering how responses differ by company size, since less information is produced about smaller than larger companies.

The problem is that a loan announcement would appear to be a rather crude way of conveying any inside information that a bank might have. It might have seen management accounts or new property valuations or investment proposals, but of course these will not be transmitted to investors. Instead they will hear that a new loan has been agreed, probably for 'general corporate purposes'. If this causes no abnormal buying of shares, this does not prove that the bank has no inside information. Even simple and major pieces of information may not be communicated by or inferable from loan announcements. For example, suppose that a bank is told in advance of the market that a potential borrower has made 30% less profit in its latest half year than analysts are predicting. If known, this information would probably cause the share price to fall. But it may not affect the terms of a new loan being negotiated, and if it does, those affected may not be disclosed. Even if a disclosed term is affected - say the margin is increased or the amount reduced - an outsider could not tell this merely from knowing the margin or amount finally agreed, though there may be a negative signal if the terms
look unfavourable compared with those recently agreed for similar companies. If the bank decides not to lend and the negotiations have been kept secret, no information at all reaches the market.

However, no previous study has investigated responses to syndicated loans and to the progress of loans and revisions to them during and after syndication. These latter cases increase the range of announcements which can be tested and they are potentially informative since, in effect, they enable reactions and changes during the negotiation process to be observed. If banks are given inside information, the collective decision may be considered as a more reliable signal than the decision of one lender. If a proposed facility is exceptionally well or badly received in syndication, we might expect more response than merely to a new loan or renewal, neither of which, arguably, would be unexpected. The lead bank will aim to price the facility to obtain modest oversubscription: more than this suggests that banks view the borrower unexpectedly favourably. This should be a surprise to the stock market, although large oversubscription could at the same time indicate that the borrower is overpaying. Large undersubscription or cancellation should be unambiguously bad news. If banks obtain inside information in deciding whether to join syndicates, either reaction should signal it effectively as either would be unexpected.

A second problem is that there is a danger of confusing transmission of information about the borrower, via the loan announcement, with news of the decision itself. Whether this decision is made partly on the basis of inside information is a separate question. The decision itself may be good or bad for the company and therefore a news item for the market. This point weakens an event study as a test of the information hypothesis. The following passage is an example of how the two types of news can be run together:

When a borrower applies for a loan, the bank evaluates the borrower, and the bank's decision signals the prospective borrower's creditworthiness to other capital-market participants. Benston and Smith (1976), Diamond (1984) and Campbell and Kracaw (1980), among others, develop this idea more fully. If it is assumed that a firm will enter into a new bank loan agreement only if it
currently has no bank financing in place or if the terms of the new credit agreement are more favourable than its current agreement, this line of reasoning predicts a positive stock-price response when new bank loans are announced (Lummer & McConnell, 1989, p. 101).

The first sentence summarises the prediction of the information hypothesis: the announcement transmits good news about the borrower's creditworthiness. The third sentence says that, as companies presumably only borrow when it is in their interests to do so, agreement by the bank is good news. But this is not the same line of reasoning, though it results in the same prediction. The point is that the two predictions can be made independently of each other.

A third potential ambiguity, that the announcement of a new loan implies an increase in gearing, is probably not a problem. Though a gearing change is a separate aspect from the bank's decision itself or the signalling of inside information, reviews of the capital structure literature such as Smith (1986), Copeland & Weston (1988) and Harris & Raviv (1991) do not indicate that there is a response to changes in gearing as such, at least not on average. Kim et al (1992) calculate gearing changes inferred from announcements of share and bond issues with no stated purpose or for general purposes only. While they find no response on average, this is because individual responses are significantly positive or negative and cancel out rather than because individual responses tend to be insignificant. They suggest that each response reveals whether the market views the change in gearing as moving the company towards or away from its optimal gearing level. This implies that companies do not know what the market thinks is their optimal gearing level. There may of course be other explanations for individual abnormal returns.

Some research shows that there are, on average, significant positive abnormal returns on announcements of events which increase gearing, such as offers to issue bonds in exchange for shares (eg, Masulis, 1980), and significant negative abnormal returns on announcements of events which decrease gearing, such as share issues (eg, Mikkelson & Partch, 1986). But the reviews mentioned interpret these findings as evidence for signalling hypotheses which explain
the response to securities issues, exchange offers and other corporate financing decisions in terms of what they reveal about managers' views of the prospects of their companies. If management believe their company's shares to be overvalued, they will issue new shares; if the shares are thought to be undervalued, they will offer to buy them back. Hence share issues are a negative signal and exchange offers positive. On this view, it is not the change in gearing that is driving the response but what investors infer about companies' prospects from managers' decisions.

In addition, a number of studies have found insignificant responses which are mostly negative to announcements of bond issues (Dann & Mikkelson, 1984; Eckbo, 1986; Mikkelson & Partch, 1986; James, 1987). They provide further evidence that increases in gearing per se are not, on average, viewed positively by the market. As news of a bond issue is perhaps the closest type of event to news of a new loan, we would expect a similar response if an increase in gearing were the only information being conveyed. This evidence also goes some way to resolving the second ambiguity, that agreement to lend may be good news in itself, independently of any further information effect. The vast majority of bond offerings announced are completed, as are the vast majority of syndicated loans, so the probability of the funds being forthcoming is similar in both cases. As there is no significant response to arrangement of a bond issue, we might expect the same for arrangement of a loan, unless there is some other difference. In fact, as explained in chapter 4, there are respects in which bonds and loans differ other than in terms of the information possessed by banks compared with bondholders; for example, bonds have longer maturities. Nevertheless, the lack of response to bond issues still provides the nearest yardstick against which to compare the response to bank loans.

To summarise these preliminary remarks, the response to each type of announcement needs careful interpretation. While a response is certainly consistent with the information hypothesis, it constitutes unambiguous evidence in favour only if there is no reason why banks' decisions should affect share values except by virtue of being information signals. This seems unwarranted. On the other
hand, absence of response does not 'disprove' the information hypothesis if the announcement is not unexpected.

5.2 LOAN ANNOUNCEMENT EVENT STUDIES

All the existing research on the information hypothesis is from the USA. There are four event studies of the same type as the one presented in chapter 7. Details of their samples, treatment of contaminating news and market model estimation periods are given in table 5.1 and their results are summarised in table 5.2.

The first study to include a test of the stock market reaction to bank loan announcements is Mikkelson & Partch (1986), though most of the paper concerns security issues. Stock market reaction to announcements of issues of the various types of security had already been extensively researched, at least in the USA. The average reaction is either negative for ordinary shares or not significantly different from zero; the evidence and possible explanations for it are summarised by Smith (1986). In contrast, Mikkelson & Partch report a significant positive average abnormal return (AAR) for announcements of credit agreements but AARs not significantly different from zero for announcements of term loans, private placements of bonds and publicly issued straight bonds. The difference between what they classify as a credit agreement and as a term loan appears to be that the former is a revolving facility, ie repeated drawdowns and repayments can be made, whereas a term loan is drawn and then repaid only once. Private placements are a type of bond issue rather than a type of bank loan, but they are classified by Mikkelson & Partch with credit agreements and term loans as private borrowing arrangements, as opposed to public offerings. They offer no explanation for the positive response to credit agreements.

James (1987) is the first study to focus on bank loans, and provides much more detailed evidence. He also finds a significant positive AAR on announcement of loan agreements, defined to include new credit agreements, term loans and extensions of credit agreements, and a negative but insignificant AAR on announcements of private placements and straight bond issues. Further analysis
reveals no significant differences in response to bank loans classified by purpose. The average maturity of bank loans is about five years compared with 15 years for privately placed bonds and 17 years for straight bonds. James tests whether this explains the difference in response by dividing the two bond samples into those with maturities of less than ten years and those with more than ten years and also by regression, but finds no significant relation between share price response and maturity, though the response to the 25 shorter term straight bond issues is positive with a Z statistic of 1.625 (p. 232). He views the lack of relation as evidence against theories such as Myers & Majluf (1984), Fama (1985) and Flannery (1986) which predict a more positive response to announcements of new shorter term than longer term debt.

For bond issues, there is a significant negative response to those to be used to repay bank loans, but no other differences by purpose. This result is not explained explicitly, but the suggestion is that, as it is not the difference in maturity which seems to matter, it is the difference in borrowing arrangement. Perhaps companies no longer willing to subject themselves to regular scrutiny by banks issue bonds instead.

Some other results from James are of interest. A higher proportion of companies issuing straight bonds have highly rated debt than do companies borrowing via bank loans and private placements, and the average size of companies in the latter two samples is 'about 25%' of the average size of straight bond issuers (p. 223). This is confirmation that smaller, riskier companies borrow from banks rather than the bond market. But the result that, for announcements of all three types of debt, the response is more positive the higher the credit rating, seems rather puzzling. Finally, James finds no relation between size of borrower and market response within the private placement and straight bond samples. His conclusion is that the positive response to loan announcements can not be fully explained by differences in maturity, borrower default risk, borrower size or purpose of borrowing, so that banks must 'provide some special service not available from other lenders' (p. 234). One concern with his results is that his sample sizes are on the small side; 80 loans, 37 private placements and 90 straight bonds.
Table 5.1
Details of the Four Previous Event Studies on the Response to Bank Loan Announcements: Samples, Treatment of Contaminated Announcements and Market Model Estimation Periods

Mikkelson & Partch (1986)
Sample: random selection of 360 of the industrial companies on the CRSP (Centre for Research in Securities Prices) daily returns file listed on the New York and American Stock Exchanges in 1972. For these companies, all financing events in the Wall Street Journal (WSJ) or Investment Dealer’s Digest during 1972-82.
Number (of loan announcements): 216 (full); 164 (uncontaminated).
Contamination: observations deleted if 'other news' reported in WSJ, or if more than one financing event is announced, on event days -1 or 0. Focus is on full sample results, but uncontaminated are little different.
Market model estimation period: days +21 to +160.

James (1987)
Sample: random selection of 300 non-financial companies on the CRSP daily returns files in 1983. For these companies, all reports in WSJ of loan agreements, straight bond issues and private placements during 1974-83.
Number (of loan announcements): 80 (uncontaminated).
Contamination: observations deleted if 'other financing, dividend or earnings announcements' appear in WSJ on days -1 or 0. Uncontaminated results only are reported.
Estimation period: days -120 to -21 and +21 to +120.

Lummer & McConnell (1989)
Sample: all loan agreements in WSJ during 1976-86 so long as borrower is on CRSP daily returns file.
Number: 1,145 (full); 728 (uncontaminated).
Contamination: observations deleted if 'other major corporate announcements' appear in WSJ on days -1, 0 or +1 (288 deletions) or if 'we cannot determine whether the WSJ article corresponds to the original announcement date of the credit agreement' (8 deletions) or if the CRSP file does not contain enough data (121 deletions).
Estimation period: days -170 to -21.

Slovin, Johnson & Glascock (1992)
Sample: all loan agreements in WSJ for industrial companies during 1980-86 so long as borrower is on CRSP daily returns file. Includes NASDAQ (smaller) companies for first time.
Number: 721 (full); 273 (uncontaminated).
Contamination: observations deleted if other 'major corporate announcements' appear in WSJ on days -1, 0 or +1. Focus is on uncontaminated results; not possible to compare with full sample results.
Estimation period: days -170 to -21. 'We also used alternative estimation intervals, including a post-event period, and obtained almost identical results' (p. 1061).
Table 5.2

Main Results from the Four Previous Event Studies on the Response to Bank Loan Announcements

Uncontaminated results only are reported. Average abnormal return (AAR) is over day -1 and day 0.

<table>
<thead>
<tr>
<th>Type of arrangement</th>
<th>AAR (%)</th>
<th>Z value</th>
<th>Sample size</th>
<th>Proportion positive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mikkelson &amp; Partch</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Credit agreement</td>
<td>0.86</td>
<td>2.09*</td>
<td>124</td>
<td>0.54</td>
</tr>
<tr>
<td>Term loan</td>
<td>0.38</td>
<td>-0.29</td>
<td>40</td>
<td>0.55</td>
</tr>
<tr>
<td>Private placement</td>
<td>-0.36</td>
<td>-0.57</td>
<td>57</td>
<td>0.39</td>
</tr>
<tr>
<td>Straight bonds</td>
<td>0.06</td>
<td>0.57</td>
<td>111</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>James</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan agreement</td>
<td>1.93</td>
<td>3.96**</td>
<td>80</td>
<td>0.66a</td>
</tr>
<tr>
<td>Private placement</td>
<td>-0.91</td>
<td>-1.87</td>
<td>37</td>
<td>0.44</td>
</tr>
<tr>
<td>Straight bonds</td>
<td>-0.11</td>
<td>-0.40</td>
<td>90</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lummer &amp; McConnell</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All loan agreements</td>
<td>0.61</td>
<td>2.69**</td>
<td>728</td>
<td>0.49</td>
</tr>
<tr>
<td>New loan agreements</td>
<td>-0.01</td>
<td>-0.47</td>
<td>371</td>
<td>0.44</td>
</tr>
<tr>
<td>Favourable revisions</td>
<td>0.87</td>
<td>3.76**</td>
<td>259</td>
<td>0.56b</td>
</tr>
<tr>
<td>Mixed revisions</td>
<td>3.98</td>
<td>4.20**</td>
<td>76</td>
<td>0.51</td>
</tr>
<tr>
<td>Mixed revisions:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No prior negative news</td>
<td>2.35</td>
<td>1.51</td>
<td>26</td>
<td>0.54</td>
</tr>
<tr>
<td>Prior negative news</td>
<td>4.82</td>
<td>4.08**</td>
<td>50</td>
<td>0.50</td>
</tr>
<tr>
<td>Unfavourable revisions</td>
<td>-3.86</td>
<td>-3.28**</td>
<td>22</td>
<td>0.32</td>
</tr>
<tr>
<td>Unfavourable revisions:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initiated by borrower</td>
<td>0.16</td>
<td>0.27</td>
<td>10</td>
<td>0.50</td>
</tr>
<tr>
<td>Initiated by bank</td>
<td>-7.22</td>
<td>-4.68**</td>
<td>12</td>
<td>0.17c</td>
</tr>
</tbody>
</table>
Table 5.2 cont.

AAR is over day 0 and day +1.

<table>
<thead>
<tr>
<th>Type of arrangement</th>
<th>AAR (%)</th>
<th>Z value</th>
<th>Sample size</th>
<th>Proportion positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>All loan agreements</td>
<td>1.30</td>
<td>5.08**</td>
<td>273</td>
<td>0.55</td>
</tr>
<tr>
<td>For small firms</td>
<td>1.92</td>
<td>5.35**</td>
<td>156</td>
<td>0.56</td>
</tr>
<tr>
<td>For large firms</td>
<td>0.48</td>
<td>1.58</td>
<td>117</td>
<td>0.52</td>
</tr>
</tbody>
</table>

Small firms:

- **Initiations**: 1.50, 3.13** (95, 0.55)
- **Renewals**: 2.58, 4.65** (61, 0.59)

Large firms:

- **Initiations**: 0.37, 0.97 (54, 0.50)
- **Renewals**: 0.57, 1.26 (63, 0.54)

* Significantly different from zero at 0.05 level.
** Significantly different from zero at 0.01 level.

a. Wilcoxon signed ranks statistic is significant at the 0.05 level.
b. Proportion of positive announcement period abnormal returns is significantly different from the proportion of positive residuals during the market model estimation period at the 0.01 level.
c. As for b but at the 0.05 level.
The story continues with Lummer & McConnell (1989), who concentrate on loan announcements. Their major finding is that the positive response is due entirely to the response to favourable revisions, of which there are 259 in their sample of 728. There is no response to new loans. 'Observations are placed in the favourably-revised category if the WSJ article indicates that the maturity of the agreement is lengthened, the interest rate is reduced, the dollar value of the loan is increased, or the protective covenants are made less restrictive' (p. 108). Renewals are counted as favourable revisions as the maturity is lengthened. Loans are unfavourably revised if the opposite of one or more of these changes is announced or if they are cancelled. There are only 22 unfavourable revisions, with no response to the ten revised by the borrower but a significantly negative response to the twelve revised by the bank.

Lummer & McConnell also identify 76 mixed revisions, which receive a more significantly positive response than favourable revisions. In 50 of these cases, 'the WSJ previously had published an article indicating that the borrower was in jeopardy of violating one or more of the terms of the agreement' (p. 110), and the response to this sub-sample is more positive than to the 26 for which no prior negative information about the loan had been reported. The authors argue that when the loan is known to be in trouble, the mixed revision is good news because the bank is willing to let the loan and company continue.

Like James, Lummer & McConnell also test whether a variety of other factors might explain the results. They investigate whether responses differ according to: the amount of the loan as a proportion of the market value of the company; loan maturity; whether secured; and whether the facility is a revolving credit or term loan. They find little evidence that these factors explain differences in response. A final point of interest is that they believe that many negative revisions, especially expiry or termination of contracts, are not reported.

Lummer & McConnell's main inference is that banks acquire
inside information during a lending relationship, not at the initial credit appraisal stage. 'When a bank enters into a new credit agreement, it does so with no consequential information advantage over other outside claimholders and, on average, announcements of new loan agreements reveal no information, even if the new loan is on more favourable terms than the firm's old loan. Over time, the bank becomes privy to information not available to outside claimholders...' (p. 113).

The fourth paper in the series is by Slovin, Johnson & Glascock (1992). Their main contribution is that the response to both new and renewed loans is significantly positive for small companies but not for large ones. They classify a company as small if its market value is 'less than the median market value of equity of all listed CRSP [Centre for Research in Securities Prices] firms in the relevant year and large if greater than CRSP median value' (p. 1063). Their sample of 273 includes 73 NASDAQ (smaller) companies for the first time, and, contrary to Lummer & McConnell's evidence, they find a significant positive response to announcements of new loans for the whole sample, presumably reflecting the impact of the NASDAQ companies. The response to renewals is more positive. Regression analysis reveals a negative relation between AAR and company size only within the small company sample, so it is the smallest companies in particular which are driving these results. They argue that their evidence supports the view that 'if large capitalisation firms are well monitored and have substantial reputation, banks have no comparative advantage in the external financing process relative to securities markets' (pp. 1059-1060).

Slovin et al also test whether the AAR is related to poor share price performance prior to the announcement. If cumulative abnormal return during event days -30 to -11 is significantly negative at the 10% level, a dummy variable is given a value of one in a regression of announcement period AAR against company size. For the small but not the large firm sample, this dummy variable has a positive and significant coefficient, indicating that the bank's decision is more positive news for small firms which are doing badly than for others. Finally, Slovin et al again find that none of the other factors
listed by James and Lummer & McConnell - purpose, maturity, type, whether secured and amount relative to market capitalisation - explain differences in response.

The reader may recall that James does not find that AAR is related to borrower size. However, this is for announcements of private placements and straight bonds rather than bank loans and companies in the former two samples are four times larger on average than bank borrowers, so his results are not necessarily inconsistent with Slovin et al's.

In fact, these studies leave us with a fairly clear picture overall. For smaller quoted companies at least, there are small but significant AARs of 1.50% on announcement of new loans and of 2.58% on announcement of renewals (Slovin et al, p. 1064). There are also significant positive AARs on announcement of mixed revisions, especially if there has been prior news that the loan is trouble, and significant negative AARs on announcement of negative revisions by the bank (Lummer & McConnell). Other factors such as loan maturity or purpose explain little of the market's response. AARs on announcement of private placements and straight bond issues are not significantly different from zero (Mikkelson & Partch, James), though if bonds are used to repay bank debt, the response is significantly negative (James).

It appears that the market reacts most to loan revisions, favourable, mixed or unfavourable, for small (quoted) companies. This is certainly consistent with the information hypothesis for lending to such companies. If the market were reacting to the bank's decision per se, rather than what can be inferred about the borrower, we might expect more response to new loans and renewals (and bond issues) for larger companies. The information hypothesis is not supported for loans to large companies.

One possible reason for a positive response to new loans and renewals is that banks are known to be subsidising their corporate lending, in which case such announcements may viewed as bad news for the lending banks. There is one US study, Waheed & Mathur (1993) of
the effect of loan announcements on lending banks' share prices, using data for domestic loans during 1980-89 and foreign loans during 1968-89. This finds no effect for domestic loans but a significantly negative response to announcements of foreign loans, which the authors suggest indicates that the risks and costs associated with foreign loans outweigh any diversification and synergistic benefits from them. Since domestic loans are not bad news for banks, this is evidence against their being subsidised and, therefore, in favour of the event study results supporting the information hypothesis, because an alternative explanation for them is undermined. The negative response to foreign loans is consistent with the suggestion in chapter 4 that international lending has been underpriced.

5.3 OTHER EVIDENCE ON THE INFORMATION HYPOTHESIS

In this section a number of other studies are briefly reviewed which test the information hypothesis in different ways. Fama (1985) notes that other financial institutions than banks, such as insurance companies, make commercial loans, but, unlike banks, they do not have to keep a proportion of their funds raised on the money market via certificate of deposit (CD) issues on deposit at low interest rates with the Federal Reserve. But insurance company CDs pay the same rates as bank CDs. Therefore insurance companies, in effect, have a lower cost of funds, so why can they not undercut the banks in lending to companies? Fama argues that banks have a comparative advantage in obtaining information about borrowers, especially if they handle their deposit and overdraft business, and that the inability of non-banks to compete more effectively in the corporate loan market despite having a lower cost of funds is evidence in favour of the information hypothesis.

James & Weir (1990) start with the argument that, if banks are acknowledged to have inside information about borrowers, if a company borrows from banks, this 'can reduce information costs for all a firm's claimants by providing a credible signal about the firm's creditworthiness'. Furthermore, 'the costs of informing potential investors about a firm's prospects are likely to be highest when a firm makes its first public offering of securities' (p. 150). They
therefore predict that, if the information hypothesis is true, firms making initial public offerings (IPOs) with an existing borrowing relationship should experience lower underpricing of their shares than firms without one, because investors should be less uncertain of their value.

They measure underpricing by the initial return on the offer, defined as 'the difference between the offer price and the price at the end of the offer month, divided by the offer price' (p. 160). The mean initial return for firms with borrowing relations is 9%, median 2%; the mean initial return for firms without borrowing relations is 31%, median 13%. But the lender need not be a bank for the presence of a borrowing relation to reduce underpricing: 'we cannot reject the hypothesis that the effects of long term debt and bank loans are the same... Our evidence does not support the hypothesis that bank loans play a unique role in reducing information costs for IPOs' (p. 163). The authors do not comment further on this finding and no detail is offered on the types of non-bank debt present, except that there are no publicly issued securities. However, 73% of the 455 firms with borrowing relations had both bank and non-bank debt, so the number with non-bank debt only is probably quite small. The evidence comes from a multiple regression in which two dummy variables for the presence of bank and non-bank debt are used; since they both have a value of one in 73% of cases, if one variable is related to initial return, the other is likely to appear to be too due to multicollinearity. Slovin & Young (1990) carry out a similar test of the impact of bank borrowing only on underpricing, and obtain similar results, suggesting that bank loans at least do reduce information costs for IPOs.

Finally, Calem & Rizzo (1992) is a rare study which does not use data on quoted companies, but considers the role of banks in lending to hospitals in the USA. They argue that if banks have inside information about hospitals then, among riskier ones with limited or no access to public bond markets, the better credit risks should have a higher share of bank loans in their total borrowing than the others, because 'those... that believe a closer inspection would improve their credit standing will seek bank financing. In
turn, banks will tend to choose less risky borrowers' (p. 1126). Evidence is given that hospitals which are public or non-accredited (by the Joint Commission on the Association of Health Care Organizations) are the riskiest types, and average return on assets (ROA) during 1982-85 is used as a proxy for credit risk. Various other factors which might affect ROA are controlled for in a multivariate regression.

The authors find that for the whole sample there is no relation between ROA and the share of bank borrowing, but that ROA is significantly related to this share for public and non-accredited hospitals. They see this as evidence that 'heavier reliance on bank loans suggests the presence of hidden factors that enhance hospital performance' (p. 1139). An obvious doubt about this is that ROA itself is not hidden: banks may be more willing to lend to hospitals with good ROA. Risky hospitals with poor ROA may be forced to borrow elsewhere without banks necessarily having inside information. However, Calem & Rizzo argue that the fact that some riskier hospitals can borrow from banks but not issue bonds itself indicates that banks have superior information, and they offer the following direct evidence:

The role of information specialists is most apparent in the case of construction financing by banks. Generally, this takes the form of bridge financing while construction is underway, with repayment provided by a bond issue or mortgage when the project is completed. The bank 'supervises the construction, monitors budget/cost relationships, and certifies completion' [Endres, 1982]. Thus, the bank bears the risk and responsibility for monitoring during the construction phase. Bond or mortgage finance takes over once many of the uncertainties are resolved. It thus appears that the commercial bank has greater access to information than the holder of a bond or mortgage (pp. 1128-29).

5.4 SUMMARY

Event studies are an indirect test of the information hypothesis but their evidence measures the response of the whole market and is easy to analyse. US event study results are consistent with the information hypothesis for smaller but not larger quoted companies and no other explanation has been offered for them. The
lack of response for larger companies is consistent with the doubts expressed in section 4.1 about the availability of inside information to banks from the largest borrowers. The other US evidence summarised in this chapter tends to support the information hypothesis but does not relate to large quoted borrowers.
This chapter reviews event study methods and motivates the choice of method for the study reported in chapter 7. It evolved because the diversity of methods used in existing studies made it difficult to choose one without a degree of arbitrariness unless a careful investigation was undertaken.

6.1. INTRODUCTION

There exists a huge body of research in financial economics which seeks to measure unexpected or abnormal returns of shares. The return on a share is correlated to some extent with the return on the stock market it is part of, and in the long term at least, riskier shares should earn higher returns if investors are risk averse. So a share's expected return over a period is the return on the market over that period, often with an adjustment for the share's risk. Its actual return will be affected by other factors but attempts to model returns using factors beyond market return and risk have not caught on in empirical work. The abnormal return for a period is simply the actual less the expected return.

Much of the research involving abnormal returns consists of tests of the efficient markets hypothesis that share prices reflect all available information, so there is no way greater (or less than) normal returns could be earned except by chance. Many studies have sought to estimate abnormal returns accruing from a set of investment decisions, for example following a systematic investment rule or the advice of investment analysts. Perhaps even more common are 'event studies' which estimate abnormal returns at and around the time of some event relating to the shares concerned, for example the announcement of a rights issue or a takeover bid. All of this research requires an estimate of expected or normal returns for shares or portfolios over some period of interest, the test or event period, which in many studies is of the same length for each share but over different calendar dates. In the case of a test of an investment rule (eg buy shares with a low price/earnings ratio), the
test period starts when the rule is implemented; in an event study it is the date of the event and the surrounding period. The term 'event study methodology' has come to refer generally to procedures for estimating abnormal returns and testing their significance, though the application of these procedures is not limited to true event studies.

Studies are far from homogeneous in their use of such procedures, which one might find surprising given how often they occur. The reason is partly that there are some factors which should affect choice of method, for example whether abnormal returns are cross-correlated, and these factors will be pointed out. But more of the variety can probably be attributed to a process of experimentation with different models and methods in different contexts, and of researchers becoming familiar with a widening range of possibilities. Indeed, there is a bewildering array of factors to consider in designing an abnormal returns study and appraising its results (Beaver, 1982, gives a 'partial list of selected research design issues' containing 42 items). Also empirical evidence on the effectiveness of alternative methods only became available during the 1980s. The choice of method sometimes receives little or no discussion, perhaps because the underlying idea is so familiar, and in some cases because 'when the stock-price response to an event is large and concentrated in a few days, the way one estimates daily expected returns (normal returns) in calculating abnormal returns has little effect on inferences' (Fama, 1991, p. 1601). But the evidence is clear that the choice can affect the results in some circumstances.

The issues considered are grouped under two headings, choice of model and choice of significance test. On choice of model, the evidence suggests that the market model will perform as well as, if not better than, any alternative in most circumstances. On choice of significance test, the evidence favours a t-test or a rank test on average abnormal returns where the individual abnormal return for each share has been standardised by dividing it by the time series standard error of the regression used to estimate the market model coefficients. This test is preferable unless abnormal returns
exhibit significant cross-correlation over time or increase in variance during the test period, in which case tests which allow for these circumstances will perform better. In simulations in which levels of abnormal return are known, performance is measured by both the rejection rate of the null hypothesis of no abnormal return when it is true (type 1 error) and the acceptance rate of the null when it is false (type 2 error). If type 1 errors are greater than would be expected given the significance level, the method is unreliable; if type 1 errors are acceptable, power is measured by the sensitivity of the method to the presence of abnormal returns.

6.2. MODELS OF EXPECTED RETURNS

Perhaps the simplest model is to assume that, over any period \( t \), a share \( i \) will earn the market rate of return, \( R_{mt} \). Then the abnormal return, \( AR_{it} \), is the actual return, \( R_{it} \), less \( R_{mt} \). Call this the index model. It is used, for example, by Lakonishok & Vermaelen (1990) to measure abnormal returns from selling shares to companies which offer to repurchase them via tender offers.

Another simple model is to assume that the share earns the same return as it does on average during an estimation period before or around the test period. Then

\[
AR_{it} = R_{it} - \bar{R}_i
\]

(6.1)

where \( \bar{R}_i \) is the average return of the share during the estimation period. Call this the average return model. Masulis's (1980) investigation into the share price response to announcements of changes in gearing uses this model and the average daily return is calculated from returns for 60 days before and 60 after the event period.

The commonest approach is to estimate the relationship between a share's returns and returns on the market by ordinary least squares (OLS) regression and use this relationship to estimate expected returns, given returns on the market. This is the market model, a one factor OLS regression equation.
\[ R_{it} = \alpha_i + \beta_i R_{mt} + e_{it}, \]  

(6.2)

where \( \alpha_i \) and \( \beta_i \) are regression coefficients and \( e_{it} \) is the error term. Having calculated estimates of \( \alpha_i \) and \( \beta_i \) with data from an estimation period, the expected return is given by inserting the estimated values of \( \alpha_i \) and \( \beta_i \) together with the actual return on the market. So

\[ AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}). \]  

(6.3)

Market model abnormal returns are prediction errors if the test period is distinct from the estimation period, but in many studies the test period is a subset of the estimation period, in which case the abnormal returns are given by the relevant subset of regression error terms, often referred to as residuals.

This model was used in Fama et al.'s (1969) examination of abnormal returns around the announcement of stock splits, in which a company increases the number of its shares in issue without raising new capital. This is the earliest and most influential event study. It uses monthly data and the estimation period for each share's market model coefficients is all months for 1926-1960 for which data is available, excluding the 15 months preceding each stock split and, for splits followed by dividend increases, the 15 months afterwards. The test or event period is the month of the stock split announcement together with the 29 months before and after, for which average cumulative abnormal returns are calculated.

Unlike the three models presented so far, which are not derived from theory except in an informal sense, the capital asset pricing model (CAPM) is a true theoretical model, resulting from reasoning from a set of assumptions. The model is

\[ \text{E}(R_{it}) = R_{ft} + \beta_i [\text{E}(R_{mt}) - R_{ft}], \]  

(6.4)

where \( \text{E}(R_{it}) \) is the expected or normal return on share \( i \) for time \( t \), \( R_{ft} \) is some measure of 'the risk-free rate of interest', \( \text{E}(R_{mt}) \) is
some measure of the expected return on the appropriate stock market and $\beta_i$ is the covariance of $R_{it}$ with $R_{mt}$ over some estimation period ($\text{cov}(R_{it}, R_{mt})$) divided by the variance of $R_{mt}$ over that period ($s^2(R_{mt})$). The theory is that ex ante, expected values of $R_{mt}$ and $\beta_i$ determine $E(R_{it})$, but ex post values are usually substituted as proxies. Beta is the model's measure of the risk of the share, and investors are assumed to require and expect a higher return for more risk. The abnormal return on share $i$ for time $t$ is estimated by subtracting the actual return, $R_{it}$, from the expected return $E(R_{it})$. The market model is a simple regression model, but it can be viewed as a version of the CAPM by interpreting $\alpha_i$ in equation (6.3) as an estimate of $R_{it}(1 - \beta_i)$. The formula for $\beta_i$, $\text{cov}(R_{it}, R_{mt})/s^2(R_{mt})$, is exactly the same as that required by the CAPM.

Studies of the performance of managed funds commonly use the CAPM as a benchmark, as does Dimson & Marsh's (1984) study of the accuracy of analysts' forecasts of share returns. In the latter, betas are estimated by equation (6.2) using monthly returns over five years before the start of the test period, the length of which varies with each forecast (usually one year). Analysts were asked to forecast abnormal returns and these forecasts are then compared with actual abnormal returns as measured by $R_{it} - E(R_{it})$, where $E(R_{it})$ is given by equation (6.4).  

1. The reason why Dimson & Marsh reject the market model is interesting, though not relevant to most other studies. 'For stocks which performed well (poorly) during the estimation period, $\alpha_j$ will be projected to be positive (negative); and since favourable (unfavourable) performance does not persist in weak-form efficient markets..., the $e_{jt}$ can be predicted to be negative (positive). The market model would thus provide a quite inappropriate benchmark, since analysts who simply predict trend reversals will always appear to have positive forecasting skills' (p. 1264). Jensen (1969) and Brown & Warner (1985) do indeed find small negative first order autocorrelation of market model residuals of $-0.063$ (annual data) and $-0.071$ (daily data). In a comprehensive test of efficient markets hypothesis anomalies using monthly data, Jacobs and Levy (1988) found that 'residual reversal' was statistically very significant and 'by far the most powerful effect' (p. 30).
A variant of the CAPM which was developed by Fama & MacBeth (1973) starts with shares of different betas and then, for each month, regresses the share returns for that month against the betas. This has become known as the Fama-MacBeth model. Expected returns on share for a given time are

\[ E(R_{it}) = \alpha_{1t} + \alpha_{2t} \beta_{it} \]

(6.5)

where \( \alpha_{1t} \) and \( \alpha_{2t} \) are cross-sectional regression coefficients for time \( t \) of returns against beta and \( \beta_{it} \) is the actual beta of share \( i \) at time \( t \). In this model, \( \alpha_{1} \) is interpreted as the return on a zero-beta portfolio, which theoretically should equal the risk-free rate but was not found to.

In the control portfolio model, returns of a test portfolio are compared with those of a control portfolio designed to have the same risk, measured by beta. Abnormal returns are measured by subtracting control portfolio returns from those of the test portfolio during the test period. For example, Reinganum (1981) constructs portfolios, all designed to have a beta of one, either from shares reporting unexpectedly high earnings per share (EPS) or from shares with unexpectedly low EPS, and calculates the difference in subsequent returns between high and low EPS portfolios.

It is well known that ex post betas do not explain much of the difference between actual returns on shares or portfolios. For example, "Fama and French (1992) find that the relation between \( \beta \) and average returns on... stocks for 1963-1990 is feeble, even when \( \beta \) is the only explanatory variable" (Fama, 1991, p. 1592). This has motivated the continuing search for alternatives such as multifactor models and consumption \( \beta \) (the slope in the regression of a share's returns on growth rates of per capita consumption), and some of these alternatives may have more explanatory power. However, none have gained acceptance in empirical work, which if anything has become increasingly standardised on use of the market model. The trouble seems to be that no other model has been found for which there is both a theoretical case and consistent supporting evidence.
For example, there is substantial evidence for a long term 'small companies effect' - after adjusting for risk, share returns of smaller companies are higher than of larger ones, so it is argued that expected returns should reflect this too. But this is not merely unsupported by any theory: it is an efficient markets 'anomaly'. Identification of the size effect is credited to Banz (1981) and papers which discuss its impact include Dimson & Marsh (1986) and Chopra, Lakonishok & Ritter (1992). In a summary of a paper on the stock market response to announcements of dividend cuts, Marsh writes 'abnormal returns are defined simply as actual returns (capital gains plus dividends) less the returns on a control group of companies of similar size' (Financial Times, 12/8/92). This remains an unusual definition. For a review of anomalies and models of expected returns, see Fama (1991).

6.3. SIMULATION EXPERIMENTS

In this section, we outline the construction of studies which use simulated data to test different methods, and which will be referred to in the following sections. The most well-known studies are probably those by Brown & Warner (1980, 1985); several others have appeared since they were published. In both, they construct 250 sample portfolios each of 50 shares randomly selected with replacement. The 1980 study uses monthly data. For each share a hypothetical event month is randomly selected from months between June 1944 and March 1968 and the same level of positive abnormal monthly return (eg 1%) is artificially added to the actual return of each share in that month. Market model coefficients are estimated using 79 monthly observations of the share's returns from the CRSP and of returns on the CRSP equally weighted index from month -89 to month -11, with the event month being 0. The 1985 study is similar but uses daily CRSP returns. Hypothetical events could occur between 2 July 1962 and 31 December 1979. With the event day as 0, the estimation period is day -244 to -6 (239 observations, if available) and there is an event period from -5 to +5.

Both studies test the performance of the average return, index and market models for estimating expected returns with, for each
model, several adjustments and significance tests. We refer to each model-adjustment-test permutation as a method. The control portfolio and Fama-MacBeth models are also tested in the monthly returns study (1980). Performance is tested under a variety of circumstances: with smaller sizes of sample portfolio than 50 shares; different tests of significance; event day uncertainty; all shares in a portfolio having the same event date (‘clustering’) instead of different ones; a value weighted instead of an equally weighted index; adjustments for non-synchronous or thin trading and for autocorrelation of errors.

Dyckman, Philbrick & Stephan (1984) carried out similar experiments independently of Brown & Warner, using CRSP daily data and 250 sample portfolios to test the first three models under a similar array of circumstances. The most notable difference is that their estimation period is divided and includes observations after the test period (for days +60 to +120) as well as before (-120 to -60). Also model coefficients are estimated using returns over consecutive three or five day periods as well as daily returns.

Another major study, by Collins & Dent (1984), is different in approach. Instead of starting with real returns and adding abnormal performance, weekly returns of hypothetical shares in portfolios of ten are artificially generated as follows. Consider the right hand side of equation (6.2), $\alpha_i + \beta_i R_{mt} + e_{it}$. First, artificial values are inserted: $\alpha_i = 0.001$ for each share; $\beta_i$ ranges from 0.6 to 1.5 in increments of 0.1. Then $R_{mt}$ is drawn from actual weekly closing values of the New York Stock Exchange (NYSE) index (a value weighted index) from July 1975 to August 1977. $e_{it}$ is randomly generated within parameters for variance and covariance which are preset. This cocktail produces hypothetical observations of $R_{it}$ which are then used to calculate new least squares estimates of $\alpha_i$, $\beta_i$ and the variance of the error, $s_i^2$.

Collins & Dent's aim is not to test the performance of different estimation models but to test four procedures for calculating test statistics for average abnormal returns, all using the market model. 100 simulations are carried out and in each case the estimation period is the first 100 'observations' and the test
period the next five. As well as introducing abnormal returns in the test period, Collins & Dent introduce various levels of error term cross-correlation and higher levels of error variance in the event period than in the estimation period.

6.4. CHOICE OF MODEL

Comparison of models

Table 6.1 summarises the results of tests by various researchers of detection of abnormal returns using the market model compared with others models of share returns. In Brown & Warner's experiments, results for the index model and market model are similar, while the average return model performs badly when event dates are the same, but otherwise comparably. The overall conclusion from their monthly returns paper is that 'beyond a simple, one-factor market model, there is no evidence that more complicated methodologies convey any benefit' (p. 249), and this is confirmed for daily returns in their 1985 paper. It is also confirmed by Dyckman et al who report that 'the market model performs significantly better (at the 5% level)' than either the index or average return models, but that 'the difference does not appear to be important since the rejection percentages are quite close in all cases' (p. 15). Their results are not affected by estimating coefficients from returns over three or five day periods rather than single days.

Krueger & Johnson (1991) use the F-ratio instead of the t-statistic to test the significance of abnormal returns arising from three efficient market anomalies using the index and beta-adjusted models, the latter being the market model without the $\alpha$ term, ie $AR_{it} = R_{it} - \beta_i R_{mt}$. The results from the two are similar but by no means identical. However, it is impossible to say which model is performing 'better' in this context, since the true extent of abnormal returns is unknown. This comment is applicable to comparisons of methods in any actual event study, as opposed to a simulation.
Table 6.1
Summary of Tests of Market Model against Other Models of Share Returns

Market model: \( AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \)

Compared with:

Index model: \( AR_{it} = R_{it} - R_{mt} \)
Results similar; market model slightly more powerful.

Average return: \( AR_{it} = R_{it} - \bar{R}_i \)
Market model more powerful when shares have same event dates. Biased results during bull and bear markets.

CAPM: \( AR_{it} = R_{it} - (R_{ft} + \beta_i[R_{mt} - R_{ft}]) \)
Results different.

Fama-MacBeth model: \( AR_{it} = R_{it} - (\alpha_{it} + \alpha_{2t}\beta_{it}) \)
where \( \alpha_{it} \) and \( \alpha_{2t} \) are coefficients of a regression of returns against betas for time \( t \). Results different (Brenner); results similar (Brick et al).

Control portfolio: \( AR_{pt} = R_{pt} - R_{ct} \)
where \( R_{ct} \) is the return on control portfolio \( c \), designed to have the same beta as \( p \). Market model more powerful in some circumstances.

See text for sources of these results.
Brenner (1979) tests five models including the market, index and capital asset pricing models. He conducts a stock split study similar to that of Fama et al (1969) and compares the results of the five models each using the same data. For the second year after the split only, there are 'relatively small' but statistically significant differences between cumulative monthly abnormal returns as measured by the market and index models compared with the other three. No explanation is offered for this, but Brenner speculates that in some studies, 'the differences [between models] may be large enough to make definite conclusions about market efficiency dependent upon the ... model that is used' (p. 927).

This possibility is realised in Brick, Statman & Weaver's (1989) study of abnormal returns available from following the trades of insiders from June 1976 to July 1979. They use five estimation models; the Fama-MacBeth, market, index and average return models and the CAPM in the form of Jensen's (1968) performance index. The data used are CRSP monthly share and value weighted index returns. The models tend to produce abnormal returns of the same sign but these are not statistically significant for the CAPM and average return model whereas they are for the other three. For example, cumulative abnormal returns over eleven months starting the month after insiders sold shares are -1.87% using the CAPM (t-statistic not given but not significant) but -6.30% with a t-statistic of -10.99 using the market model. Seyhun (1986), however, finds that the absolute values of abnormal returns following insider trading are greater using the CAPM than the market model.

2. Jensen (1968) measures the performance of 115 managed funds. The following regression model is estimated for each fund $j$ using as many years $t$ of annual data as are available for each fund from 1945 to 1964:

$$ R_{jt} - R_{ft} = \alpha_j + \beta_j(R_{mt} - R_{ft}) + e_{jt}. $$

Abnormal performance is measured by $\alpha_j$ and is tested for significance by the t test; $\alpha_j$ is Jensen's performance index.
Though Brenner and Brick et al suggest that choice of model matters more than do Brown & Warner and Dyckman et al, where they test the same models these studies are largely consistent. All four find that the market and index models give similar results. This is not surprising since the index model is a special case of the market model with \( \alpha = 0 \) and \( \beta = 1 \), and most portfolios not selected with reference to a factor associated with risk will have a beta fairly close to one.

As regards the average return model, this is not tested by Brenner while Brick et al note that their results (insignificant abnormal returns) are consistent with those of Brown & Warner because of this estimator's poor performance in detecting abnormal returns when events share the same date. The superiority of the market over the average return model in this context is because market model errors of shares in each sample portfolio are much less cross-correlated than are discrepancies from the mean, so the variance of market model portfolio residuals is lower than the variance of portfolio returns. Klein & Rosenfeld (1987) use simulation to show that the average return model, but not index or market model, produces upwardly biased abnormal returns during a bull market and downwardly biased abnormal returns during a bear market, so this is a further reason for caution regarding the average return model.

Both Brenner and Brick et al report statistically significant differences between results using the market model and the CAPM, which is not tested by Brown & Warner or Dyckman et al. This is the main reason for the difference of opinion regarding importance of choice of model. Results of the studies also diverge for the Fama-MacBeth model. Brown & Warner (1980) report little difference between results using this and the market model under a variety of conditions, and this is consistent with Brick et al. However, Brenner reports a small but statistically significant difference between the market and Fama-MacBeth models and little difference between the latter and the CAPM, which is inconsistent with Brick et al. (The explanation may be that Brenner uses a different version of the Fama-MacBeth model.)
The important point from Brenner and Brick et al is the apparent difference in results for the two most widely used models, the market model and the CAPM. Ball & Brown (1968) used both models in their seminal test for monthly abnormal returns around announcements of unexpected changes in profit, but report that they produced results 'essentially the same' (p. 164). It is perhaps a pity that Brown & Warner or Dyckman et al did not include the CAPM in their experiments. Its use as a benchmark has been deemed inappropriate in some circumstances. Dimson & Marsh (1986) and Seyhun (1986) note that market model abnormal returns are much less prone to bias due to the size effect (because a share with high returns has a high regression constant). Chopra et al (1992) show how the finding of 'numerous empirical studies' that the return per unit of beta risk is less than $R_m - R_f$ required by the CAPM can distort results when portfolios under study have very different betas.

Finally we consider the control portfolio model. This is tested by Brown & Warner (1980) by constructing portfolios with an estimated beta of one and comparing their returns with returns on the market. Results from this method are similar to those from the market model using an equally weighted index, but exhibit over-rejection of the null hypothesis when a value weighted index is used. Performance is also poor when shares are clustered by risk, both for high and low beta portfolios. (All the models perform better with low than with high betas because error variances are lower with low betas. This at least partly explains the finding of earlier research that abnormal returns are negatively related to risk.)

The main conclusions up to this point are that the different models produce similar but not identical results and that the market model is the most reliable in the sense that, across each of the range of circumstances tested, it is always at least as powerful as the best alternative. This is consistent with Beaver's (1981) comparison of the econometric properties of several models. The average return model, though simple, should be avoided when event dates are shared or when events are in bull or bear markets.
**Choice of Market Index**

There is some evidence in Brown & Warner's studies that choice of market index affects the performance of the market model. It generally performs slightly better with the equally weighted than with the value weighted index, and the difference is significant when event dates are shared because of lower cross-correlation of residuals with the equally weighted index (see section 6.5). However, Krueger & Johnson (1991), testing efficient market anomalies, obtain similar results using the CRSP equally weighted index and the NYSE composite index (value weighted); there are differences, but they believe that 'anomaly research findings are generally robust to market surrogate selection' (p. 579).

Thompson (1988) uses simulation with daily data to compare the standard market model with a version in which the appropriate industry index is substituted for the market index and with a two-factor version in which the industry index is included with the market index. The results are sufficiently similar for Thompson to state that 'it doesn't seem to matter which model is used' (p. 80), though he does not examine the case in which event dates coincide. He also reports that it makes little difference whether simple or continuously compounded returns are used (as do Ball & Brown, 1968, and Brown & Warner, 1985), and whether returns associated with extraneous events (to the one in question) are deleted.

**Estimation and Event Periods**

In practice, estimation periods range from 100 to 300 days for daily studies and from 24 to 60 months for monthly studies (Peterson, 1989, p. 38). Lengthening the estimation period involves a trade-off between greater precision of estimation of $\alpha_i$ and $\beta_i$ and these coefficients becoming more 'out of date'. In some studies the estimation period comes on both sides of or after the event period if the pre-event period is unusual in some way (eg Mikkelson & Partch, 1986; see footnote 3) or if pre-event and post-event model coefficients are expected to differ, for example with a change in gearing (eg Masulis, 1980). Corrado & Zivney (1992) compare, by
simulation, results from three test statistics using pre-event estimation periods of 239, 89 and 39 days. These are the t-test given in equation (6.8) below and a sign and rank test (pp. 199-201). They were 'virtually unaffected' by an estimation period of 89 instead of 239 days, and a 39 day period produced 'only a slight deterioration of performance' (p. 477), so 100 days or more seems safe.

Identification of the correct event date is, of course, crucial in event studies. Choice of surrounding event period will depend very much on what is being studied. Two day event windows are common if the event date can be determined with precision, supplemented by cumulative abnormal returns for longer periods before and after. Not surprisingly, the shorter the event period, the easier it is to identify any abnormal return present (Dyckman et al, 1984; Glascock et al, 1991). If there is uncertainty as to the event date, Dyckman et al find that accumulating abnormal returns is preferable to choosing one of the days at random as the event date.

There is the further problem of what to do about 'contaminating' events within event periods, ie news distinct from the event in question which may affect the share price. Unrelated news should have a zero effect on average over a large sample, as Thompson (1988) finds. But some events may be systematically linked with others, for example news of an acquisition together with a share or bond issue or new loan. The usual treatment is to report results for both full (contaminated) and uncontaminated samples. But stock markets have many sources of information, while checks for contaminating news are usually restricted to a search of the Wall Street Journal or Financial Times index, so decontamination may be partial. (See Wright & Groff, 1986, and Thompson, Olsen & Dietrich, 1987, for investigations of the information dissemination process in the USA.)

6.5 CHOICE OF ESTIMATION PROCEDURE AND SIGNIFICANCE TEST

A wide variety of approaches can be and have been taken to measuring the significance of estimated abnormal returns. We shall
present some of these and indicate which lead to improvements in performance and in what circumstances. In this section abnormal returns are assumed to be estimated using the market model.

Initial Comparison of Methods

Most studies are concerned with the effect of some event or investment rule on many shares, so it is usually the case that average abnormal returns (errors) for one or more portfolios of N shares are calculated and tested for significance by the t-test. The question is how the test statistic is arrived at. One approach is to standardise each share’s abnormal return by its estimation period standard error of regression, $s_i$, resulting in a standardised error, $SE$:

$$SE_{it} = \frac{e_{it}}{s_i}$$  (6.6)

where

$$s_i = \sqrt{\frac{T}{(1/T-2)} \sum \left(\frac{e_{it}^2}{T}\right)}$$  (6.7)

and $T$ is the number of observations (days, months etc) in the estimation period. Standardised errors are comparable in terms of significance; each has an expected mean of zero and standard deviation of (very close to) one. The more volatile a share, the larger an abnormal return has to be to reach a given level of significance. The average standardised error for time $t$ ($ASE_t$) has, applying the Central Limit Theorem, a standard deviation of $s(SE)/\sqrt{N}$, where $s(SE)$ is the standard deviation of the $SEs$. But as this equals one, the test statistic is simply

$$ASE_t = 0 = \sqrt{N(ASE_t)}$$, or

$$(1/N) \sum_{i=1}^{N} SE_{it}/(1/\sqrt{N}) = \sum_{i=1}^{N} SE_{it}/\sqrt{N},$$

Call this the share time series method. It has been widely tested by simulations, including Brown & Warner (1980 and 1985), Dyckman et al

Second, sample or portfolio errors, the average of the constituent shares' errors for each time $t$, could be treated as observations in their own right to calculate a time series standard deviation, $s(\bar{e})$. On this view,

$$s(\bar{e}) = \sqrt{\frac{1}{T-1} \sum_{t=1}^{T} (\bar{e}_t - \mu)^2}, \quad (6.9)$$

where $\mu$ is the mean of the portfolio residuals over estimation period $T$ and

$$\bar{e}_t = \frac{1}{N} \sum_{i=1}^{N} e_{it}. \quad (6.10)$$

Since $\bar{e}_t$, the portfolio error, is treated as an observation rather than a mean of a sample, it is simply divided by the standard deviation to produce the test statistic $\bar{e}_t / s(\bar{e})$. Call this the portfolio time series method. It is the main test in Brown & Warner (1985) and, for example, Jaffe's (1974) and Seyhun's (1986) studies on returns to trades by insiders use similar methods.

Third, observations at times other than $t$ could be ignored, in which case the shares' errors at time $t$ are treated as a sample without further ado, of which $\bar{e}_t$ is the mean and $s_t$ is the cross-sectional standard deviation, so

$$s_t = \sqrt{\frac{1}{N-1} \sum_{i=1}^{N} (e_{it} - \bar{e}_t)^2}, \quad (6.11)$$

and the test statistic is

$$\frac{\bar{e}_t}{s_t / \sqrt{N}}.$$

Call this the cross-sectional method. It is used, for example, in Imhoff & Lobo's (1984) test of the impact of revisions in analysts' forecasts on share returns and is one of the tests examined by Collins & Dent.
For event periods of more than one return interval, say one day, average cumulative errors ($ACE_D$) are formed:

\[ ACE_D = \sum_{t_1}^{t_2} AE_t \]

where $AE_t$ is the average error for event day $t$ and $D$ is the number of event days between and including $t_1$ and $t_2$. The test statistic for $ACE_D$ is the sum of the daily test statistics for $t_1$ to $t_2$, whichever method is used to calculate them, divided by $\sqrt{D}$.

It may be asked in what circumstances each of these methods should be used. It is a fact that the variance of market model errors varies considerably from share to share, which is a good reason to use the share time series method and the evidence indicates that it provides a powerful significance test in most circumstances.

The portfolio time series method does not adjust for different error variances; each share’s abnormal return is given the same weight in determining the portfolio’s abnormal return. But it does allow for share returns and errors not being independently distributed because they are cross-correlated. This causes the standard deviation of average errors to be higher than if individual errors were independently distributed. Thus a test which assumes independence of individual errors will overestimate the significance of average errors by underestimating their standard deviation. The greater the cross-correlation of returns of shares in the portfolio, the higher the standard deviation of portfolio errors, so this method is preferable when cross-correlation exists. The cross-sectional method does not adjust either for share returns having different variances or being cross-correlated but does allow for the variance of returns being greater in the test period than in the estimation period.

Cross-correlation is possible when shares have the same event and estimation periods and likely when they are in the same industry. When errors are estimated over the same chronological period and shares are from the same industry, defined as a three digit Standard Industrial Classification (SIC) category, Collins & Dent report an
average correlation coefficient of 0.18. They use weekly CRSP returns over a 100 week period from July 1975 to June 1977 and 'a value weighted portfolio'. The coefficient rises dramatically if portfolio rather than share errors are considered, to 0.49 between portfolios of five shares from the same industry and 0.66 between portfolios of ten. For portfolios of 50 randomly selected shares with the same estimation period, the correlation coefficient is 0.85. A significance test which does not account for cross-correlation at any of these levels would be virtually useless. For example, Collins & Dent estimate that 'with a sample size of 40 firms exhibiting cross-correlation of 0.2 ... over repeated trials one would expect the true null of $H_0: \mu = 0$ to be rejected roughly 29% of the time, even though the nominal significance level is 0.05' (p. 54).

However, in Brown & Warner's tests the performance of the share time series method is little different whether randomly selected shares in each portfolio of 50 have same the event dates not. This method does not allow for cross-correlation but it is 'negligible for randomly selected securities' using an equally weighted index (Brown & Warner, 1980, p. 235). This is not so using a value weighted index, in which case 'simulations of clustering... result in rejection rates under the null of about 15%' at the 0.05 level of significance (p. 235). The reason for this is that the sample portfolios, with randomly selected shares, are dominated by the returns of smaller company shares whereas a value weighted index reflects the returns on large companies. When small and large company returns differ, event dates are shared and a value weighted index is used, cross-correlation of errors can occur. Dyckman et al report a small (10%) reduction in power of the time series method with clustering and note that this is inconsistent with Brown & Warner. But, surprisingly, they do not state whether they use a value or equally weighted index, so it is not possible to compare this result with Brown & Warner's.

Table 6.2 shows a comparison of the share and portfolio time series methods using results from both Brown & Warner's studies (with the equally weighted index). The share time series method is more powerful for daily data and of similar power for monthly. Though it assumes no cross-correlation, it weights the abnormal return of each
share separately by its standard error whereas the portfolio time series method adjusts to cross-correlation but gives equal weight to each abnormal return. Apparently the weighting of abnormal returns yields better results even when event dates share calendar dates, for portfolios of shares from different industries. It can also be seen from table 6.2 that, for a given level of abnormal return introduced on day 0 and month 0, the rejection frequencies using daily data are three - four times greater than those using monthly data.

The daily returns study found that the cross-sectional method is also less powerful than the share time series method unless error variance increases (specifically, is doubled) during the event period, in which case the share time series method rejects the null too often when it is true. This result is supported by Collins & Dent and Boehmer, Musumeci & Poulsen (1991); the latter find that error variance increases of only one-and-a-half times can still cause serious over-rejection of the null with the share time series method.

**Prediction Error Adjustment**

Equation (6.6) is a crude method of standardisation. It is more correct to treat event period errors explicitly as prediction errors, so long as the event period does not form part of the estimation period. Each share's prediction error is standardised to produce a standardised prediction error (SPE) as follows:

\[
SPE_{it} = \frac{e_{it}}{S_{it}'}
\]

(6.13)

where

\[
S_{it} = s_{i}' \sqrt{1 + \frac{1 + (R_{mt} - \bar{R}_{m})^2}{T_{i} \sum (R_{mt} - \bar{R}_{m})^2}}
\]

(6.14)

Here \( \tau \) is used to distinguish an observation in the estimation period, \( \bar{R}_{m} \) is the mean market return in the estimation period and \( T_{i} \) is the number of observations in the estimation period for share \( i \) (they may differ from share to share). The standardisation used in the share time series method is a simpler version of this.
Table 6.2
Summary of Brown and Warner's Results on Market Model Identification of Significant Abnormal Returns

Proportions of 250 portfolios, each of 50 shares, exhibiting significant abnormal returns at the 5% level (one tailed test).

<table>
<thead>
<tr>
<th>Abnormal return on day or month 0</th>
<th>0%</th>
<th>0.5%</th>
<th>1.0%</th>
<th>2.0%</th>
</tr>
</thead>
</table>

A. Share time series method:
test statistic = $\sqrt{N(ASE_t)}$

(i) Calendar dates differ
- Daily data rejection rate | 6.4% | 53.2% | 97.6% |
- Monthly data rejection rate | 4.4% | 22.8% |

(ii) Event dates share calendar dates
- Daily data rejection rate | 8.0% | 61.2% | 96.0% |
- Monthly rejection rate | 4.0% | 23.2% |

B. Portfolio time series method:
test statistic = $\bar{e}_t / s(\bar{e})$

(i) Calendar dates differ
- Daily data rejection rate of null hypothesis (no abnormal return) | 4.4% | 27.2% | 80.4% | 99.6% |
- Monthly rejection rate not given

(ii) Event dates share calendar dates
- Daily data rejection rate | 8.0% | 39.2% | 84.4% |
- Monthly rejection rate | 5.6% | 24.8% |
Equation (6.14) is derived from expressions for the two sources of inaccuracy in market model predictions. First, the true regression line for the relationship between returns on the share and returns on the market is unknown and only estimated from the estimation period data. Second, actual returns may vary from expected returns given the true regression line. This source of error can be due to any of the reasons why changes in the independent variable, $R_{mt}'$, do not 'explain' changes in the dependent variable, $R_{it}$. The formal derivation can be found, for example, in Kmenta (1971, ch. 7).

Under the formula for $S_{it}'$, the market model will be less accurate, and $S_{it}$ larger,

1. the larger the standard error of the regression, $S_i$;
2. the shorter the estimation period, i.e., the smaller is $T_i$;
3. the smaller the dispersion of the explanatory variable, $R_{mt}'$, during the estimation period;
4. the larger the difference between the observed $R_{mt}$ and its estimation period mean.

Intuitively, it is clear why (1) and (2) should apply. (3) applies because the less the explanatory variable varies in the sample, the smaller the range over which any relationship can be estimated. (4) means that predictions from the model are more reliable the closer is the observed $R_{mt}$ to its mean, $\bar{R}_m'$, from the estimation period, because it is around the mean that there is most evidence for the relationship. Hence, the further away from the mean, the less reliable the prediction and the larger an error for it to be significant.

As with the share time series method, SPEs are comparable in terms of significance of deviation from zero and the test statistic is $\sqrt{N}(ASPE_t)$. The difference is that $S_{it}$ is a more accurate estimator of the standard deviation of $PE_{it}$ than is $S_i$. Mikkelson & Partch (1986) use this methodology to examine the response to announcements of security issues.³ Call it the prediction error method. Though it is now widely used, simulation evidence shows that the impact of the additional terms to $S_i$ in equation (6.14) have a

To cope better with event-induced increases in error variance, Boehmer et al (1991) propose what they call a **standardised cross-sectional** method. First **SPEs** are calculated, as above (presumably **SEs** would do as well), then the average event day **SPE**, \( ASPE_t \), is divided by its cross-sectional standard deviation, \( s(SPE_t)/\sqrt{N} \), where \( s(SPE_t) \) is the standard deviation of the **SPEs**, which will be greater than its expected value of one if error variance is higher in the event period than in the estimation period. This cures the problem of rejecting the null too often when it is true, with little loss of sensitivity to the presence of abnormal returns, giving better results than the cross-sectional method.

**Generalised Least Squares Estimation**

The most complete statistical procedure is to use generalised least squares (GLS), in which each share's prediction error is standardised by dividing it by a factor which reflects both the variance of its market model residual and the covariance of that residual with the residuals of other shares. Following Collins & Dent (1984), we can start with a similar expression for standardisation to equation (6.14). Let this be \( C_{it} \).

---

3. The first use of the prediction error method in finance research is credited to Patell (1976). Mikkelson & Partch's estimation period of 140 trading days begins 21 trading days after the announcement date 'because many types of security offerings follow a period of statistically significant abnormal returns' (p. 40). Data from this period may therefore produce biased estimates of \( \alpha \) and \( \beta \). For each share they calculate daily prediction errors over an event period that begins 60 trading days before the announcement and ends 20 trading days after issuance or cancellation. Each prediction error is standardised by dividing it by the expression in equation (6.14) to produce an **SPE**. The test statistic for each event day \( t \) is \( \sqrt{N}(ASPE_t) \), as in equation (6.8).
\[ C_{it} = \frac{S_{it}/s_i}{\sqrt{\left(1 + \frac{1}{T_i} \Sigma (R_{mt} - R_m)^2\right)}} \] (6.15)

Instead of \( C_{it} \) being multiplied by \( s_i \), it is multiplied by \( \Sigma C_{it} s_{ij} \) where

\[ s_{ij} = \left(\frac{1}{T-2}\right) \Sigma e_{i\tau} e_{j\tau} \] (6.16)

the estimated covariance between residuals of shares \( i \) and \( j \) (variance when \( i = j \)) during period \( T \). A variance-covariance matrix is estimated which has the following elements:

\[

c_{it}^2 c_{it} s_{ij} \quad c_{jt}^2 c_{jt} s_{ij} \quad \ldots \quad c_{Ni}^2 c_{Ni} s_{ij} \\
c_{it} c_{jt} s_{ij}^2 \quad c_{jt} c_{jt} s_{ij}^2 \quad \ldots \quad c_{Ni} c_{Ni} s_{ij}^2 \\
\vdots \quad \vdots \quad \ddots \quad \vdots \\
c_{it} c_{Ni} s_{iN} \quad c_{jt} c_{Ni} s_{iN} \quad \ldots \quad c_{Ni} c_{Ni} s_{iN}^2 
\]

The GLS procedure for estimating the average standardised prediction error for time \( t \) (\( ASPE_t \)) involves weighting each error by the sum of the inverse of its variance plus \( N-1 \) covariances and dividing the sum of these weighted errors by the sum of their weights. So \( ASPE_t \) is a weighted average in which the higher is the variance of a share's residuals plus their covariances with the residuals of other shares, the less weight in the average its prediction error has. In the time series and prediction error methods, each share's prediction error is divided by \( s_i \) and \( S_{it} \) respectively, both estimates of its standard deviation. In the GLS method, each share's prediction error is divided by its variance plus \( N-1 \) covariance terms, which therefore dominate when covariance is non-negligible. So the more cross-correlation there is, the larger (unweighted) prediction errors have to be for \( ASPE_t \) to be significant.

Collins & Dent also adjust for any change in the variances of errors generally between estimation period and test period by multiplying the GLS estimate of the variance of \( ASPE_t \) by a factor \( f_t^2 \) which is the cross-sectional variance of errors for time \( t \) divided by the GLS variance of estimation period residuals. A value of one
for $f_t^2$ indicates no difference in variance; a value greater than one indicates higher test period variance. Call the last two paragraphs the GLS method.4

We have now considered six methods of testing the significance of abnormal returns and are in a position to summarise, in table 6.3, how each is affected by the variances of errors differing from share to share, cross-correlation of errors and shift in variances between estimation and event periods. Only the performance of the GLS method can be expected to be sustained in the presence of any or all these characteristics; the other four cope with one or two each. But estimation of the variance-covariance matrix in the GLS method requires that there be more observations for each share than there are shares in the sample. This can be a problem in some studies, and if n explanatory variables are used rather than the one in the market model, observations for each share numbering at least n times the number of shares are required. Furthermore, to obtain accurate estimates which are not biased downwards, many times more than these minima are required (see Bernard, 1987). The author is not aware of a study which uses this method.

4. Thompson (1985) argues that the natural way of measuring event period abnormal returns for a sample of shares from the perspective of 'classical econometric theory' is to estimate the set of equations of the following type using joint generalised least squares:

$$R_{it} = a_i^* + \beta_i R_{mt} + \gamma_i^* s_{it} + e_{it}^*,$$

where $s_{it}$ is a dummy variable which equals 1 if time $t$ is an event day or month for share $i$, and 0 otherwise; $\gamma_i$ is the estimated abnormal return for each event day/month. This is a set of seemingly unrelated regressions, one for each share in the sample. Thompson comments that 'parameter estimation security by security is equivalent to OLS estimation of the entire system. In comparison to GLS with $\Sigma$ [the variance-covariance matrix] known, OLS is less efficient. But when $\Sigma$ is estimated, the improvement of estimated GLS is less obvious and depends on the tradeoff between estimation errors and the true departure from the OLS assumption' (p. 161). In fact Malatesta (1986), using simulation, finds GLS to be no more powerful than the share time series method or OLS estimation of $\gamma_i$, for samples of randomly selected shares and event dates.
Table 6.3

Significance Testing Methods in Relation to Characteristics of Market Model Errors

The table shows which characteristic each method can accommodate. 'No' means that performance may be diminished should it obtain. Either the null hypothesis is rejected too often for a given significance level (type 1 error) or the test is less powerful than the best alternative (type 2 error).

<table>
<thead>
<tr>
<th>Method</th>
<th>Variances of errors differ</th>
<th>Errors are cross-correlated</th>
<th>Shift in variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share time series</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(type 1)</td>
<td>(type 1)</td>
</tr>
<tr>
<td>Portfolio times series</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>(type 2)</td>
<td></td>
<td>(type 1)</td>
</tr>
<tr>
<td>Cross-sectional</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(type 2)</td>
<td>(type 1)</td>
<td></td>
</tr>
<tr>
<td>Prediction error</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>(type 1)</td>
<td>(type 1)</td>
<td>(type 1)</td>
</tr>
<tr>
<td>Standardised cross-sectional</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>(type 1)</td>
<td>(type 1)</td>
<td></td>
</tr>
<tr>
<td>GLS</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Collins & Dent's results confirm what would be expected a priori from the design of each method, as shown in table 6.3.

1. In the absence of cross-correlation and with equal and constant error variances between estimation and test periods, all the tests perform similarly.

2. With cross-correlation of 0.2 or more only the GLS and portfolio time series methods, which account for it, are satisfactory. The prediction error and cross-sectional methods underestimate the variance of average prediction errors, causing the null hypothesis to be rejected too often.

3. With an increase in the variance of errors between estimation and test periods, only the GLS method does not reject the null too often, and the cross-sectional method if there is no cross-correlation.

4. With unequal error variances from share to share and no cross-correlation, the GLS and prediction error methods are of equal power and superior to the cross-sectional and portfolio time series methods. With cross-correlation as well, only the GLS and portfolio time series methods do not reject the null too often, and the latter is less powerful.

It should be remembered that the focus of this study is on the impact of cross-correlation. Brown & Warner's evidence is that if shares are randomly chosen across industries, the impact is very small even when event dates are shared. Collins & Dent do not test the share time series or standardised cross-sectional methods and Brown & Warner do not test the GLS method.

Non-Parametric Tests

All the methods we have considered so far apply the t-test to some measure of abnormal return. Brown & Warner (1980 and 1985) report that the sign and Wilcoxon tests are not as well specified as the t-test, but many event studies use such non-parametric tests, or at least note the proportion of positive errors, in addition to whatever parametric testing procedure is used. Recently researchers have proposed refined non-parametric tests and provided evidence that they perform better than t-tests.
The conventional sign and Wilcoxon tests assume that market model errors in the absence of abnormal returns are distributed symmetrically around a mean of zero, so that they also have a median of zero. In fact market model errors are skewed slightly to the right, so the median is less than zero, meaning that the non-parametric test statistics will tend to be negative even when the mean error is zero. This causes under-rejection of the null hypothesis (Brown & Warner, 1980 and 1985; Berry, Gallinger & Henderson, 1990). Corrado & Zivney (1992) present a version of the sign test in which the sign allocated to an abnormal return is determined by its difference from the share's time series median abnormal return, rather than from zero. Simulations suggest that this revised sign test is correctly specified and of similar power to the t-test using the share time series method.

However, it is Corrado's (1989) rank test which may prove to be a significant advance in event study methodology since simulation evidence so far shows it to be more powerful than any alternative. The test is simple and does not assume that abnormal returns are distributed symmetrically around the mean. Estimation and event period errors are ranked for each share and the average rank of all errors is subtracted from the rank of the event day error. So positive abnormal return on the event day tends to be reflected in a higher than average rank for that day's error, producing a positive average difference across all shares for that day. The test statistic is formed by dividing this average difference by the standard deviation of average differences over the estimation and event periods.

Let the average difference for day \( t \) be \( AD_t \).

\[
AD_t = \frac{1}{N} \sum_{i=1}^{N} (K_{it} - [(T+1)/2]),
\]

(6.17)

where \( K_{it} \) is the rank of the market model error for share \( i \) on day \( t \);

\( N \) is the number of shares in the sample;

\( T \) is the number of days in the estimation and event periods.

The test statistic is
\[ \frac{AD_t}{s(AD)} \]

where

\[ s(AD) = \sqrt{\left( \frac{1}{T} \sum_{t=1}^{T} AD_t \right)^2} \]  

(6.18)

If some of the shares have missing returns, this can be allowed for by dividing \( K_{it} \) by one plus the number of non-missing returns for share \( i \); the average rank for each share's errors is then one half instead of \((T+1)/2\). Corrado (1989), Corrado & Zivney (1992) and Maynes & Rumsey (1993) find by simulation under a variety of circumstances that the rank test is more powerful than the (adjusted) sign test and the \( t \)-test using the share or portfolio time series methods, though the improvements are typically marginal (a few percentage points).\(^5\) Corrado argues that the superior specification of the rank test is a consequence of non-normality in the distribution of daily share returns and market model errors. It will be interesting to see if further research confirms the superiority of the rank test and if it starts to be used in real event studies.

6.6 RELATED ISSUES

**Beta Estimates: Thin Trading**

Researchers have been concerned about the effect on estimates of beta of thin trading - shares trading infrequently during the day

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\(^5\) For the case of an event period increase in variance, Corrado & Zivney (1992) compare the share time series method, Boehmer et al's standardised cross-sectional method and the rank test with and without a cross-sectional variance adjustment. The rank test with a cross-sectional variance adjustment is derived as follows. For the estimation period, market model errors for each share are standardised, as in equation (6.6), by their time series standard error, giving a series of \( SE_{it}^s \). For the event day, the \( SE_{it} \) is divided by the cross-sectional standard deviation of \( SE_{it} \) for that day, \( s(SE_{it})/\sqrt{N} \). The ranks used in the rank test are then derived from the estimation period series \( SE_{it}^s \) together with \( SE_{it}/(s(SE_{it})/\sqrt{N}) \) for the event day. Corrado & Zivney find that 'when an event date variance increase is likely, correct specification of the \( t \)-test requires that a cross-sectional variance adjustment be implemented. For the rank test, in contrast, a variance adjustment appears to be unimportant in tests for positive abnormal performance, but necessary in tests for negative abnormal performance' (p. 477).
or not at all on some days, so that share and market return intervals are non-synchronous. Brown & Warner (1980 and 1985) test both the Scholes & Williams (1977) and Dimson (1979) adjustments, but they 'convey no clear-cut benefit in an event study' (1985, p. 18), even for a sample of American Stock Exchange (AMEX) (smaller company) shares. This result is supported by Dyckman et al (1984) and Thompson (1988). However, Brown & Warner (1985) report that it is around twice as difficult to identify abnormal returns of AMEX shares because residual standard deviations are higher.

McInish & Wood (1986) directly test the effect on beta estimates of five adjustments for thin trading by constructing portfolios with the same return, and therefore the same expected beta, but with shares grouped according to trading frequency, from least to most. Six months of daily data for NYSE shares are used to calculate mean OLS and adjusted betas of the shares in the portfolios. The OLS mean betas range from 0.744 for the most thinly traded to 1.494 for the most frequently, a difference of 0.75. The most effective adjustment, Dimson's, reduces this difference to 0.54.

**Beta Stability**

Event period betas may differ from estimation period betas and various adjustments have been proposed. For example, Kalay & Loewenstein (1985) present evidence that betas and the variance of share prices are both higher on the day of a dividend announcement and the day following than on other days. They argue that, as dividend announcements are predictable events, the higher event period betas should be used in estimating abnormal returns.

It is known that betas tend to regress towards their mean of one. Making adjustments for regression towards their mean reduces the dispersion of betas and can significantly alter results compared with non-adjustment. For example, Krueger & Johnson (1991), using 60 months' data to estimate historic betas and a simple adjustment for their regression tendency, state that their 'results indicate that anomaly studies are sensitive to the characterisation of beta' (p. 578). The error in estimating betas due to this phenomenon can be
minimised by using a split estimation period before and after the event period and is also smaller the more shares in the portfolio and the longer the return interval (Foster, Hansen and Vickrey, 1988).

Brown, Lockwood & Lummer (1985) present a statistic for testing for a significant change in market model error variances and coefficients between estimation period and event period. They note that the proportion of a sample of shares exhibiting a significant change depends positively on the length of event period chosen, and develop a switching regression technique to select optimal event periods on a share-by-share basis. This technique assumes that the estimation and event periods constitute two different 'regression regimes' and selects each share's event period to maximise the likelihood of observations being allocated to the appropriate regime. Examining abnormal returns over many months around a sample of 373 stock splits, in the manner of Fama et al (1969), they conclude that optimal event periods 'are dispersed to the extent that the imposition of a universal interval would indeed be inappropriate' (pp. 325-6). Whether it is worth applying this technique clearly depends on how long an event period is deemed necessary and how much the variance of errors increases around the event; stock splits may be an extreme case. (Fama et al note that the cross-sectional mean deviation of errors is much higher than usual around the month of the split and is 'well over twice as large as the corresponding average residuals'.)

**Bid-Ask Spread**

Prices used to calculate share returns are closing transactions prices which may be at market makers' bid or ask quotations or somewhere in the middle (see Lease, Masulis & Page, 1991, p. 1530). On a sample of shares, the average closing prices should be approximately the average of the midpoints between the bid-ask spreads. However, some events may cause a predominance of closing prices at the bid or ask which will affect event returns but does not represent a genuine price response. For example, Lease et al document a negative average return on offering dates of seasoned share issues in the USA, as do others. They argue that this is a
result of temporary order flow disruptions because 'for a short period of time both a primary market and a secondary market are open concurrently. As a result, many purchase orders that normally would be routed to the secondary market are channelled to the primary market where offer price discounts and exemption from brokerage fees prevail. In contrast, sell orders continue to be directed exclusively to the secondary market...'(p. 1524). They suggest using midpoint bid-ask prices and a day longer event window to remove the effect of this temporary disruption.

A different type of problem arises from many closing prices being at the bid or the ask and hence not the 'true' price. This causes noise in the series of prices which biases single period returns upwards (see Blume & Stambaugh, 1983), though not if they are continuously compounded. The bid-ask spread, and so the upward bias, are larger relative to price for low-priced shares, and this can significantly affect the results of certain abnormal return studies. For example, Conrad & Kaul (1993) present evidence that much of the abnormal returns from DeBondt & Thaler's (1985) strategy of buying shares which have performed badly ('losers') and selling those which have performed well ('winners') is due to estimating three year returns by adding 36 single period monthly returns, because the 'losers' have lower prices than the 'winners', so that the three year return incorporates 36 upward biases of losers relative to winners. Using a holding period return produces different and more accurate results.

6.7 CHOICE OF METHOD FOR THIS STUDY

In the light of the above research, it was decided to use the share time series method with daily data for the study reported in chapter 7. The reasons are as follows.

1. Event studies are much more sensitive to the presence of abnormal returns using daily rather than weekly or monthly return intervals.

2. The market model is now the standard way of estimating expected returns and is the most reliable in the sense that, across each of a range of circumstances tested, it is always at least as powerful as the next best alternative.
3. The significance test used is one of the two most powerful available unless errors are cross-correlated or increase in variance during the event period. Cross-correlation is certain not to occur in this study as events have different calendar dates and the sample spans the whole spectrum of industries. No event period increase in variance was observed (see section 7.4) so Boehmer et al’s standardised cross-sectional method is unnecessary.

4. There is no evidence that the more complicated prediction error method is more powerful.

5. Although simulations have found Corrado’s rank test to be marginally more powerful, it is more cumbersome to compute.

A value weighted index is used because no equally weighted index exists for the UK. The estimation period is 60 days before plus 60 after the event period. The share prices used are, according the data suppliers, mid points between the bid-ask spread. No adjustment for thin trading is attempted. Contaminated observations are removed.

Significance Test

The significance test is as shown in equations (6.6) to (6.8) but it is presented here separately for the avoidance of doubt. The abnormal return for share i on event day t is given by

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{Mt}).$$

The exact calculation of $R_{it}$ and $R_{Mt}$ is described in section 7.2. The standardised abnormal return ($SAR_{it}$) is

$$SAR_{it} = \frac{AR_{it}}{s_i},$$

where $s_i = \sqrt{\frac{T}{T-2} \sum_{\tau=1}^{T} [e_{i\tau}]^2}$,

where $T$ = number of days in estimation period

$e_{i\tau}$ = error term of market model regression on day $\tau$ of estimation period.
The test statistic for the sample abnormal return on day $t$ is

$$\sqrt{N} (\text{Average } \text{SAR}_t) \quad \text{or} \quad \sum_{i=1}^{N} \frac{\text{SAR}_{it}}{\sqrt{V_N}},$$

where $N$ is the number of shares in the sample on day $t$. As the population variance of the $\text{SAR}_{it}$s is unknown, significance is determined by reference to the $t$ distribution with $N-1$ degrees of freedom. The $t$ statistic for cumulative abnormal returns over two or more days is

$$\sum_{i=1}^{N} \sum_{t=t_1}^{t_2} \frac{\text{SAR}_{it}}{\sqrt{V_N D}},$$

where $D$ is the number of days between $t_1$ and $t_2$.

### 6.8 SUMMARY

Event study methods are worth reviewing because of their many variations and their very wide application in empirical research. They continue to be refined, and testing via simulation experiments has become a minor industry since 1980. It may be helpful in conclusion to offer recommendations on the main choices facing the researcher who wishes to carry out an event study.

6. The expected value of the average SAR on event day $t$ is, of course, zero and the expected variance of $\text{SAR}_{it}$ is one, as a result of the standardisation. But the actual variance of the whole population of SARs for all shares on event day $t$ is unknown. When the variance of the population from which a sample is drawn is unknown, significance is judged by reference to the $t$ rather than the normal distribution and the test statistic is a $t$ rather than a $z$ value. This is the case in the simulation studies which test the share time series method, vis Brown & Warner (1980 and 1985), Dyckman et al (1984), Corrado (1989), Corrado & Zivney (1992) and Maynes & Rumsey (1993).

But the four existing loan announcement event studies use the prediction error method and their test statistics are $z$ values, as in the source paper for this method (Patell, 1976). It is not clear why the extra prediction error adjustments mean that prediction error test statistics are $z$ values, except that in theory the adjustments make the significance test more accurate and so lower test statistic values are required for significance. The difference between $t$ and $z$ can be appreciable for smaller samples. The 5% significance level for $z$ is 1.96 (two tailed test); for $t$ it is, for example, 2.23, 2.09 or 2.01 for 10, 20 or 50 degrees of freedom respectively.
Choice of model

The market model is now much the most commonly used model of expected returns in event studies and is the best supported by the evidence. The CAPM is also used in tests of investment rules and fund performance, which are not strictly event studies. As the CAPM and market model can produce different results, both should be used in such tests.

Points to note:
The shorter the interval over which each return observation is measured (daily, weekly etc), the easier it is to identify abnormal returns. So the event date should be identified as precisely as possible and daily data used if possible. Estimation periods of 100 days or more are sufficient for accurate estimation of $\alpha$ and $\beta$, though 200-300 days is more common.

Thin trading does cause bias in beta estimates but adjustments for thin trading make little difference to event study results. Other adjustments to betas have been proposed, but not generally adopted.

Shares with contaminating news in the event period, distinct from news of the event itself, are normally removed from samples.

Researchers should be aware of the possible impact on results of the size effect and other 'efficient markets anomalies', and also of the bid-ask spread.

Choice of Significance Test

This depends on the characteristics of market model errors. We can consider three scenarios.

1. Market model errors are not cross-correlated and there is little or no event period increase in error variance. Our sample fits this description. Use the share time series method with a $t$-test, or use Corrado’s rank test. There is no evidence that more complicated prediction error or GLS estimation increases the power of tests, though the prediction error method is quite widely used.

2. Errors are not cross-correlated but there is an appreciable increase in event period variance (one-and-a-half times or more).
Use the cross-sectional method or, better, Boehmer et al's standardised cross-sectional method or the rank test. The unadjusted share time series method will be mis-specified (because it finds abnormal returns too often where none exist).

3. Errors are cross-correlated. This will not occur unless events share the same calendar date and samples are from the same industry. Use the portfolio time series method.

Finally it is worth reiterating that event studies using daily data are very sensitive to the presence of abnormal returns. The simulations show that an event day abnormal return of 1% is almost certain to be significant using the share times series method and a sample of 50 or more. It can safely be said that if there is any reaction to an event at all, an event study will pick it up.
Chapter 7

THE STOCK MARKET RESPONSE TO SYNDICATED LOAN ANNOUNCEMENTS

This chapter describes a new event study test of the information hypothesis using UK data. The results are analysed and compared with US event study results.

To the author's knowledge, this is the first event study of bank loan announcements using UK data and is also the first UK study of any sort to make use of daily data throughout. Limmack (1991), for example, investigating abnormal returns around takeover announcements, uses daily returns during the event period but monthly returns to estimate market model coefficients. There is no equivalent in the UK of the CRSP daily return files; the London Share Price Database at London Business School contains monthly returns only. Building up the databases of both loan announcements and daily returns was a major part of the project.

7.1 THE LIST OF ANNOUNCEMENTS

Sources and Uncertainties

In any event study, establishing when news of an event reaches the market is crucial. The US studies report few complications. The only source used is the WSJ and the only problem mentioned in determining announcement dates is by Lummer & McConnell (1989) who write that 'eight observations are removed because we cannot determine whether the WSJ article corresponds to the original announcement date of the credit agreement' (p. 102). Since they do not record checking other sources, this implies that the WSJ is presumed to report the announcement the day after it is made unless something in the article suggests otherwise. The US researchers do, however, delete contaminated announcements from the sample, though they only check the WSJ for contaminating news. As Thompson, Olsen & Dietrich (1987) and Wright & Groff (1986) demonstrate, the WSJ is not a comprehensive source of news, especially nonfinancial news, and the latter note that 'items not appearing in the WSJ Index are as likely to occasion significant price reactions as items which do appear in
the Index' (p. 91).

In the UK, the great majority of bank lending facilities are not reported anywhere and are therefore private. Banks are not prepared to provide access even to historic lending files. Company reports state aggregate amounts of debt outstanding, interest paid and value of assets secured, but give no details of specific loan agreements. However, information is available on the UK syndicated loan market and is typically reported at a similar level of detail to reports of US loans in the WSJ. The fullest announcements include: amount; maturity or repayment schedule; interest margin and fees; arranging bank, agent bank and participating banks; status of loan (mandated, in syndication, signed, etc); purpose; and comments on the progress of syndication and any revisions. Many are for quoted companies, so that the share price response can be examined; they tend to be large; and, as explained in chapter 5, the syndication process provides an unusual opportunity to examine responses to news whilst, in effect, negotiation is in progress. The event study therefore concentrates on announcements concerning syndicated loans.

There are four published sources which report syndicated loans, of which the two most comprehensive are IFR and Euroweek. These are competing weekly magazines, both published in London. IFR first appeared in spring 1974 when it 'contained four pages, reporting almost exclusively on the eurobond market' (IFR, 10/9/88). By the late 1980s it had grown to 100 pages or more (with few adverts) which, according to a 1988 advertising leaflet, provide 'a complete record of all transactions in the global security markets, covering primary syndicated loans...' etc. It is 'published every Friday evening at the close of the markets [and] couriered personally to subscribers to arrive the following Monday morning' and it is read by 'an estimated 70,000 bankers, debt managers and company treasurers' in 67 countries. In 1990 the UK subscription rate was £1,685 pa. The date on each issue is a Saturday.

Euroweek is published by Euromoney Publications and started in spring 1987. Its field is very similar to IFR's but it has fewer articles, perhaps because it would overlap with the monthly Euromoney
and its supplements if it did. It appears on Fridays a day earlier than IFR. In 1990 the UK subscription rate was £1,075 pa.

A third source is the FT, which has selective reporting of syndicated loans and 'cannot aim, simply for reasons of space, to indicate details of every single eurocredit' (Greenhorn, ed, 1986, p. 40). During the sample period there was a separate syndicated loans column on Mondays but many loans are mentioned in the context of a report about something else such as an acquisition. As the FT is published daily, its reports of loans sometimes precede those in Euroweek and IFR.

Finally there is an on-line service called Screen Insider which is updated daily. Access is via certain pages on Reuters. It has been reporting loans since the start of 1990 and before then carried bond information only. Most new reports appear towards the end of the week. A weekly newsletter, International Insider, is also published for distribution on Mondays (but is not taken by the National Library of Scotland).

Staff on these sources usually obtain their information verbally from contacts in banks active in the syndicated loan market. Staff on IFR, Euroweek and Screen Insider also say they check other published sources, but as there are major differences in the content of IFR and Euroweek regarding UK syndicated loans, this checking can not be systematic. Announcements are taken from these two magazines and the FT. Screen Insider does not store or record its daily output. A Screen Insider report may, from early 1990, occasionally predate IFR, Euroweek or the FT. To the extent this happens then any abnormal returns will tend to be spread out before the announcement date recorded, reducing the sample average abnormal return across all announcement dates. But they will still be picked up as the full event period is 20 days before and after the announcement. If there is a response to lending decisions, the tests will show how timely are the Euroweek, IFR and FT reports.

In fact the existence of at least four published sources is not the sole reason why it is difficult to say when news regarding
syndicated loans reaches stock market investors. The main alternative source is companies themselves, via direct communications to shareholders and the Stock Exchange, or informally via talking to analysts and fund managers. Sometimes it is clear from a report that the publication is not the first with the news - it is merely reporting an announcement earlier in the week. Usually it is not at all clear how much investors have known about a loan before it is first reported. They may well have been aware of loans connected with acquisitions or restructuring or major projects. Nevertheless, there are still decisions by banks to be made. Knowing that X plc plans to do Y and will need to borrow £Nm in the process is different from knowing that X's banks have agreed to lend it £Nm to do Y, and on what terms.

Announcements are not always cut-and-dried. The first report may be described as a rumour, with no details about the loan. More information is usually forthcoming in subsequent weeks. Occasionally the sources are inconsistent with each other or with themselves on different dates - ie initial information turns out to be wrong. An example is the increase of a MOF for Allied-Lyons in 1988. The first reference to this is in Euroweek:

Euroweek Friday 9/9/88

ALLIED-LYONS $1BN MOF VIA BARING BROTHERS
Allied-Lyons is now in the market for a $1bn facility through Baring Brothers. The lead manager is in the process of approaching existing lenders of a $755m loan originally signed in June 1986 to increase their participation to cover the incremental amount. The pricing, at 15bp over Libor with a facility fee of 1/16%, remains unchanged, as does the maturity, set at October 1993. However, those banks which increase their commitments will receive a flat fee of 5bp (p. 3).

The IFR report is:

IFR Saturday 10/9/88

ALLIED LYONS INCREASE
Baring Brothers confirmed that it is making confidential approaches to all the banks in the existing multiple option facility which it put in place for Allied Lyons in June 1986 with a view to increasing the facility. The original one-year facility was for £500m. It was renegotiated and INCREASED to £755m in November last year and may now be upped a second time. It is understood
that the terms are to remain the same (p. 2917).

IFR has the currency wrong and is vague about the new amount, term and pricing. Euroweek gives more details on terms the following week and on 21/10/88 lists participating banks and reports that it was to be signed on 27 October, which is confirmed a week later. IFR has one other report only:

IFR Saturday 8/10/88

ALLIED LYONS MOF UPPED TO $1BN
Baring Brothers has completed syndication of an extension to an existing multiple option facility for Allied Lyons plc, first set up in June 1986 for US$500m (not £500m as was incorrectly reported in Issue 741). The deal was oversubscribed and the facility has now been INCREASED to $1bn. The three new banks which have joined have had their allocations cut back... [list of banks]. Signing is expected at the end of this week (p. 3256).

There are still discrepancies. According to IFR the deal was oversubscribed and signed by 15 October; Euroweek does not mention oversubscription and records a signing date of 27 October. Also the two lists of participating banks are not identical. The increase in the facility was not reported at all in the FT.

Though inconsistencies in information are somewhat disconcerting, the fact that the sources are able to pick up market rumours and facilities in their early stages is advantageous for this research. Such information is bound to be imprecise. The expectation is that, as with other news relevant to share prices, if there is a response it will happen as soon as the news is 'made public'. The earlier in the lending procedure a report occurs, the more likely it is to be publicising the loan or to be close in time to its becoming known by another route. The WSJ does not seem to report loans until they are formally announced; presumably other US sources do not report them earlier.

A final cause of uncertainty about announcements stems from the nature of the syndication process. Sometimes facilities are fully underwritten prior to general syndication, in which case the company has already obtained a commitment to lend, though the response to the facility during syndication can still convey information about banks'
views of the borrower and facility. Sometimes syndication is on a "best efforts" basis, in which case the company does not have a commitment until the loan agreement is signed. Sometimes a certain amount is pre-committed and more is sought through syndication. First reports often come when the loan is about to go, or has gone, into syndication, but they do not usually specify whether it is already underwritten.

**Determination of Announcement Dates**

All announcements for UK quoted companies were recorded between 1 January 1988 to 31 December 1991. This period was chosen for several reasons. First, a pilot study (Armitage, 1991) collected 88 announcements from the four months from 1 August 1990 to 30 November 1990 and from this it seemed probable that a four year period would yield several hundred. In the event, the initial list contains 659 announcements, though because some of the borrowers proved not to be quoted or insufficient share return data was available, 574 announcements were finally analysed. Second, the syndicated loan market, and the reporting of it, were well established by 1988. Third, as the list was compiled in mid-1992, 1991 was the last full year at the time, so it is as up-to-date as possible. Finally, information was easier to obtain for more recent years; in particular, *Euroweek* only started in 1987 and the National Library of Scotland only has *IFR* from 1 January 1988.

The pages containing reports on syndicated loans to UK companies were photocopied from each copy of *IFR* and *Euroweek* during the sample period. This was easier for *IFR*, which contains them all in one section. For *Euroweek*, one has to check all the news pages at the front together with the term sheets at the back. For some reason many loans appear in the news but not the term sheets and vice versa, as well as many appearing in both. The period November - December 1987 was also checked so that any reports after the start date of 1 January 1988 which related to loans already announced could be excluded.
Every report was marked with one of the following: tick - announcement for the list; cross - announcement excluded; repeat - report concerns a loan previously announced in the same magazine and included in the list and is not deemed to constitute a new announcement. Appendix 3 constitutes the announcement list which records the name of the borrower, the date of the publication, whether in Euroweek or IFR, amount, status, term and purpose.

Announcements are excluded if:-

1. The borrower is unquoted at the time of the report. Checking this was much facilitated by the alphabetical list of quoted companies in the London Business School Risk Measurement Service. Loans to subsidiaries are recorded as loans to the group. A few are described as non-recourse, which means that the parent or group is not liable if the subsidiary defaults, or as off-balance sheet, in which case the borrower's accounts are not consolidated but 'parental' liability may well still obtain, for example via a guarantee. Both non-recourse and off-balance sheet facilities are included;

2. The borrower is a joint venture company;

3. The report does not contain a minimum of the name of the borrower and amount of the facility. A name on its own is not firm enough news. In fact there are very few such reports;

4. The first report is more than two weeks after the signing date. It is likely to be old news by then. Reports which do not specify signing dates, simply saying that a facility has been arranged or is complete, are included;

5. The loan is very small in relation to the size of the borrower, eg £5m for BAT. There is a slight degree of arbitrariness here, but if in doubt the announcement is included;

6. The borrower is a bank or investment trust. Banks would not divulge private information to competitors and investment trusts are not trading companies. However, loans to other financial institutions such as insurance companies and mortgage providers are included, as in Lummer & McConnell, though these are a small minority of the total.
About half of all the syndicated loans reported are excluded, but there is no reason to suspect that the reasons for exclusion might cause any bias, except that there is more likely to be a response to the remaining announcements. Reports which are described as unconfirmed or rumoured or otherwise uncertain are included so long as a minimum of the amount and borrower's name are mentioned. In the vast majority of cases the rumour is subsequently confirmed.

Once the list of announcements from IFR and Euroweek had been compiled, each one was checked in the FT Index to see if it is mentioned there and to record contaminating news. Any other news in the FT during days -5 to +2 is treated as contaminating the announcement. This is a larger period for potential contamination than in the US studies, but the announcement dates are less certain to be timely and we investigate longer event windows.

Inspection of the loan announcements list (appendix 3) shows that in many cases only two or one of the sources report the announcement at all and that there is often a difference of a week or more between reports in different sources. The coverage of each source can be compared by adding up the number of announcements for which it is the first (or only) one with the news. The results are:

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFR</td>
<td>299</td>
</tr>
<tr>
<td>Euroweek</td>
<td>256</td>
</tr>
<tr>
<td>FT</td>
<td>115.1</td>
</tr>
</tbody>
</table>

1. Tied dates are counted under each source. Four IFRs and 14 Euroweeks during 1988-91 are missing from the collection used (at the National Library of Scotland). The FT has an advantage over the two magazines because it is published daily and Euroweek has an advantage over IFR because Euroweek is published on Fridays and IFR on Saturdays. The FT was not checked for all announcements relating syndicated loans, only those appearing in one of the other sources, so there may have been some announcements which the FT alone carried. About a third of the FT's announcements are not reports but adverts of completed facilities placed by lead banks, known as tombstones. In a handful of cases these constitute the first announcement.
A loan is included in the announcement list for each magazine only once, when it is first reported, unless it deviates from the normal pattern of syndication. This means that confirmation of rumours, further details of fees and other terms and signing dates are all not included as announcements. The argument for this is that the crucial information - that the company is obtaining a loan - has already been announced, and one would not expect a response to subsequent details unless they were unexpected in some way. As mentioned above, many loans are not committed until they are signed, so there is an argument for treating the signing date as the key announcement date unless the loan is known to have been underwritten. There are two problems with this. One is that, as with bond and share issues, banks do not undertake syndications unless they are reasonably confident of success. The arranging bank(s) will already have gathered what information it can from the borrower and carried out a credit analysis. It will have to sell the loan with this information and will believe it can do so. The financial risk is less if it has not underwritten the loan but its standing with the borrower and general reputation in the banking market will suffer if syndication fails. So announcement of a mandate to syndicate or of a syndication in process is a sign that at least one bank is prepared to lend to the borrower and believes that the facility is 'bankable'. Since the arranger will generally be given access by the borrower to at least as much information as other banks, its initial decision to syndicate is important.

The other problem with treating the signing date as the announcement date is that it will have become obvious at or before the close of syndication, well before signing, how the loan has fared in syndication and on what terms it will be made. It is very rare for banks to withdraw from a syndicate after agreeing to join; the only case noted during the sample period arose from a dispute over documentation. Problems emerge during syndication, not after it.

Categories of Announcement

Each of the 574 announcements which could be analysed is assigned to one the following categories; the numbers in each,
including contaminated announcements, are given in brackets.

New Facilities:

**General** (185). No purpose is given or the purpose is described as 'general corporate purposes' or something similar or to support a commercial paper programme.

**Refinances** (95). These are new facilities, with separate documentation, rather than renewals of continuing contracts, of which there are very few reports except for increases which are a separate category. Refinances may or may not involve a new bank syndicate; this information is simply not recorded. Some are said in the sources to be on better terms than the facilities they replace; these cases are included with other refinances unless the amount is increased. The few cases of refinances with less favourable terms are treated as mixed announcements.

Lummer & McConnell appear not to consider the impact of general changes in loan pricing over their ten year sample period (1976-86). They classify all interest margin increases as unfavourable revisions and all decreases as favourable revisions. We do not follow this practice; margins increased across the board in the second half of 1990, so loans renewed with a higher margin after this date do not necessarily reflect negatively on the borrower and are not counted as mixed unless the increase is said to be unexpectedly high.

**To fund acquisitions** (60). This is quite a common purpose for syndicated loans, though 36 proved to be contaminated, mainly by news of the takeover.

**To fund management buy-outs (MBOs) or buy-ins (MBIs)** (23). An MBO occurs when part of a group is bought from the parent by its managers, an MBI when the purchasing team is not the incumbent management of the unit. Also included are cases where the loan is to help buy back shares from public shareholders in the course of the company being delisted from the Stock Exchange. Three of the total are MBIs and three are delistings; 15 are contaminated. The borrower
is recorded as the parent selling the unit, rather than the unquoted buy-out or buy-in vehicle which is actually the borrower (except in the case of delistings). The argument for including these cases is that the parent benefits from the sale and, since the purchasing vehicles are usually very highly geared, the transaction is particularly dependent on the willingness of banks to lend. They will therefore be in a strong bargaining position in terms of obtaining information and will want to be very satisfied with the creditworthiness of the units being purchased. However, managers must be fairly sure that the necessary finance will be forthcoming before launching buy-outs, so there may be little response to the news of syndication unless it goes wrong.

Revisions and News during Syndication:

*Increased facilities* (36). The amount of an existing facility is increased. These are not refinances.

*Positive news* (127). If a syndication goes very well or badly, this is news and therefore appears on the list as soon as it is reported, but not again if repeated subsequently. Examples of good news during syndication are oversubscription, increase in amount or term and reduction in pricing. Reports of oversubscription are not included unless they suggest it was unexpectedly large, on the grounds that meeting the target or a little oversubscription are both normal. Large oversubscription may suggest that the borrower is overpaying but it is unexpected and is always reported as positive for the borrower. Usually the amount of oversubscription is not specified, but from cases when it is, it appears that a comment such as 'heavily' or 'substantially' oversubscribed implies at least 50% oversubscription, and these cases are recorded. Any increase in amount of more than 20% is included. If a large oversubscription is announced prior to an increase in amount then both are included separately. An increase is not always agreed following oversubscription. The great majority of positive announcements are during or after syndication, but a few concern existing facilities such as banks taking no action following breach of covenants or a breakthrough in negotiations on restructuring.
**Negative news** (32). Any bad news announcement is put in this category, whether regarding a new facility during syndication or an existing facility. Examples of bad news are reduction in amount or term, increase in pricing, requirement of tougher covenants, poor progress in syndication and cancellation.

**Mixed news** (16). Most of these cases concern existing facilities, for example breach of a covenant being waived but a higher margin required.

Because the results across the categories will be summed, no announcement appears in more than one to prevent double-counting. There are two main types of ambiguous announcement; if a loan has more than one purpose and if the first report is of news during syndication. For example, the facility may be part refinance and part for an acquisition. Often an indication is given as to which purpose accounts for the larger part of the loan, in which case categorisation is straightforward. If no such indication is given, the purpose mentioned first in the report determines into which category the announcement is put. An example of the second type of ambiguity is a general purpose loan for which the (same) report states that syndication was heavily oversubscribed. This would be classified as a positive news announcement rather than a new loan.

Table 7.1 shows the 574 announcements in the final event study sample broken down by category and year. The main trends during the sample period are that acquisition-related loans and increases became less frequent while refinances and negative news became more common. The general fall in activity is also obvious. The later refinances include many for MOFs arranged in the mid 1980s with five year terms, some of which were replaced by bilateral facilities.

Along with the decisions on categorisation, the loan announcement list records the amount, term, and status of the facility when announced (rumoured, in syndication, etc). Type of facility and the margin and fees are not recorded. These aspects are discussed further in appendix 3.
Table 7.1

Syndicated Loan Announcements by Category and Year

First is the number in each category in the event study sample, constrained to be one category per announcement; in brackets is the percentage that number represents of the total for the year or, in the last column, of the whole sample.

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</thead>
<tbody>
<tr>
<td><strong>New facilities:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General corporate purposes</td>
<td>76 (38%)</td>
<td>57 (35%)</td>
<td>29 (24%)</td>
<td>23 (25%)</td>
<td>185 (32%)</td>
</tr>
<tr>
<td>Refinance</td>
<td>16 (8%)</td>
<td>25 (15%)</td>
<td>28 (24%)</td>
<td>26 (28%)</td>
<td>95 (17%)</td>
</tr>
<tr>
<td>To fund acquisition</td>
<td>16 (8%)</td>
<td>24 (15%)</td>
<td>17 (14%)</td>
<td>3 (3%)</td>
<td>60 (10%)</td>
</tr>
<tr>
<td>MBO or MBI</td>
<td>6 (3%)</td>
<td>8 (5%)</td>
<td>6 (5%)</td>
<td>3 (3%)</td>
<td>23 (4%)</td>
</tr>
<tr>
<td><strong>Revisions and news during syndication:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increase to existing facility</td>
<td>19 (10%)</td>
<td>13 (8%)</td>
<td>3 (3%)</td>
<td>1 (1%)</td>
<td>36 (6%)</td>
</tr>
<tr>
<td>Positive news</td>
<td>62 (31%)</td>
<td>27 (16%)</td>
<td>20 (17%)</td>
<td>18 (20%)</td>
<td>127 (22%)</td>
</tr>
<tr>
<td>Negative news</td>
<td>2 (1%)</td>
<td>9 (6%)</td>
<td>12 (10%)</td>
<td>9 (10%)</td>
<td>32 (6%)</td>
</tr>
<tr>
<td>Mixed news</td>
<td>2 (1%)</td>
<td>1 (0%)</td>
<td>4 (3%)</td>
<td>9 (10%)</td>
<td>16 (3%)</td>
</tr>
<tr>
<td><strong>Total for year</strong></td>
<td>199 (35%)</td>
<td>164 (28%)</td>
<td>119 (21%)</td>
<td>92 (16%)</td>
<td>574 (100%)</td>
</tr>
</tbody>
</table>

( % of whole sample from that year)
7.2 CALCULATING DAILY RETURNS

Daily share price, dividend and FT All-Share Index data are extracted from the MicroVIEW database maintained and sold by Extel Financial Ltd. MicroVIEW covers UK quoted companies and contains brief non-financial information (e.g., head office address, name of chairman, main activities), summarised accounts for the last five years, news items for up to fifteen months and share price, dividend and index data from 1 January 1985. Its sister database, MicroEXSTAT, contains five years of detailed annual accounting information for UK quoted companies and many European ones. Both are updated weekly from a disk sent by Extel Financial. Unfortunately companies which cease to be quoted for whatever reason are dropped from the database, although Extel say they will produce one dating from 1980 and including all companies which have been quoted at any time since then.

The daily share prices are supplied to Extel by the London Stock Exchange and are closing mid-point prices between market-makers' bid and ask quotes. Past share prices and dividends are adjusted for rights and scrip issues. For example, if there is a one-for-one scrip issue, all prices and dividends prior to the date of the issue are multiplied by 0.5.

Calculating daily returns from this data has to be done as a separate process. MicroVIEW does supply daily returns but the method of calculation apparently used is inappropriate (it is not explained in any reference manual and no one the author spoke to at Extel knew how their daily returns are calculated). The main problem is how to incorporate dividends. No published papers found offer any guidance, though Fisher & Lorie (1964) explain how dividends are incorporated in CRSP monthly returns.

Conceptually, a daily return on a share is the return from buying a share on one (trading) day and selling it on the next. If the share does not go ex-dividend, the return is simply

---

2. Footnote 2 is on p. 223.
\[
\frac{\text{Price}_t - \text{Price}_{t-1}}{\text{Price}_{t-1}} \quad \text{or} \quad \ln\left(\frac{\text{Price}_t}{\text{Price}_{t-1}}\right).
\]

In common with most recent event studies, the continuously compounded version is used. The advantage of this is that natural logs can be added whereas percentages can not, which is helpful in estimating abnormal returns over periods of several days. For small returns there is little difference between the simple and continuously compounded values. For example, \((105-100)/100 = 5\%\) and \(\ln(105/100) = 4.88\%\).

Now let us say a share is bought the day before it goes ex-dividend and sold on the ex-div day. The return is

\[\text{Price} \times (1 + \text{div/ex-div price}) - 1.\]
\[
\frac{\text{Price at start of period}}{\text{Price}_{t-1}}
\]

Example:

<table>
<thead>
<tr>
<th>Day</th>
<th>Price</th>
<th>Daily Return (SEA)</th>
<th>Daily Return (Extel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100</td>
<td>-0.105</td>
<td>-0.1</td>
</tr>
<tr>
<td>2</td>
<td>90</td>
<td>0.105</td>
<td>0.1</td>
</tr>
<tr>
<td>3 xd</td>
<td>80</td>
<td>-0.470</td>
<td>-0.375</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
<td>0.336</td>
<td>-0.125</td>
</tr>
</tbody>
</table>

Net div per share = 20 (ignoring SEA's tax adjustment explained in section 7.3).

It can be seen that the two approaches can produce quite different results. In fact Extel's returns are holding period rather than daily returns. Their programme was written by Jeremy Smithers who has worked at London Business School and Extel believe that their method is the 'industry norm'. But the event study requires daily rather than holding period returns.
\[
\ln \left( \frac{\text{Price}_{t} + \text{Div}}{\text{Price}_{t-1}} \right).
\]

This approach is the same as that described in Sharpe & Alexander (1990, p. 449) and used by the CRSP, except that they calculate simple returns (see letter, appendix 1). But there are two complications. First, the dividend is not paid on the ex-div day but several weeks later. However, share prices do tend to fall on ex-div days and when considering daily returns an adjustment is called for since otherwise returns are biased downwards on ex-div days and therefore overall. The obvious times for dividends to be added are either on the ex-div day or when they are paid. Note that the buyer on the ex-div day pays the market price without adjustment.

The second complication is whether to add in dividends gross or net of advance corporation tax (ACT). This is addressed in section 7.3 below.

For estimating daily market returns, we take from MicroVIEW daily values of the FT-Actuaries All-Share Index and add for each day the total market dividend yield for the whole of the relevant year, adjusted for tax and divided by the number of trading days per year:

\[
\ln \left( \frac{\text{Index}_{t} + (\text{Adjusted div yield/no of trading days pa})}{\text{Index}_{t-1}} \right).
\]

The FT records a cumulative ex-div adjustment for the All-Share Index which shows the amount lost by shares in the Index going ex-div from the start of the year to date, so the final issue of each year shows the cumulative impact during the whole year. On 31 December 1991,

---

3. Although the latter seems more accurate, it introduces a positive extra on the day when the dividend is paid to counterbalance the negative effect on the ex-div day. Each dividend would therefore cause abnormal returns on two days. With a sufficiently large sample, the effect of this would presumably wash out, but it seems simpler to add in the dividend on the ex-div day, thus removing both distortions.
for example, the Index stood at 1,187.7 and the cumulative ex-div adjustment for 1991 was 43.48. Share prices are assumed to have fallen by the full amount of the dividend entitlement lost, net of ACT (Greenhorn, ed, 1986, p. 13). We adjust the ex-div adjustment to be consistent with our estimation of daily share returns (section 7.3). The All-Share Index is value weighted and is the broadest based UK index, covering (during 1988-91) approximately the largest 650 shares representing 80% of the total value of UK shares (Rutterford, 1993, p. 309). There is no equally weighted index for the UK.

A final issue is transactions costs, which we ignore. CRSP daily returns must ignore them too. Clearly inclusion of buying and selling costs every day would depress daily returns very significantly. As the tests are of market response to possible new information rather than of potential market inefficiency, transactions costs are not added in.

7.3 TAXATION OF RETURNS ON SHARES

Returns should be estimated after tax, especially as dividends are taxed differently from capital gains and are therefore of different after-tax value, depending on the investor's tax position. Elton & Gruber (1970) provide evidence that in the USA in the late 1960s, the falls in price on ex-div days as a proportion of dividends per share are positively related to dividend yield and payout ratio. The more a company provides returns via dividend payments, the larger the proportion of dividends per share which the ex-div day price falls represent. They interpret this as evidence that investors holding high yielding shares tend to pay less income tax. Though subsequent research has questioned these findings, the evidence of Crossland et al (1991) supports the existence of a clientele effect in the UK. Thoroughgoing estimates of after-tax returns on shares should therefore attempt to estimate the tax position of the average shareholder for each company, and subtract tax from capital gains and dividends accordingly.

The effort involved in doing this is likely to be well beyond
any benefit gained from more accurate measurement of abnormal returns, and to the author's knowledge there are no event studies which use returns adjusted for tax on a share-by-share basis. However, this study attempts to estimate the deductions for tax which should be made to capital gains and dividends generally to reflect the tax position of the 'average' UK shareholder. This requires knowing the tax arrangements for each category of investor and what proportion of UK shares they own. The taxation of financial institutions is a complex matter of which Professor JS MacLeod, an expert on the subject, kindly provided a summary, reproduced as appendix 2. A breakdown of share ownership in late 1988 is given in Samuels, Wilkes & Brayshaw (1990, p. 5), whose source is UBS Phillips & Drew.

Individuals (proportion of shares owned = 18%): pay capital gains tax (CGT) on gains exceeding £5,000 in one year. Dividends are received net. An extra charge is payable by higher rate taxpayers; those exempt from income tax can reclaim ACT already paid.

Pension funds (32%): those independently managed are exempt from all UK tax. For those managed by life assurance companies, returns attributable to policyholders are exempt but corporation tax is payable on profits diverted to shareholders so that 'in practice, it is often found that some tax is payable' (Prof MacLeod's letter, appendix 2).

Insurance company funds (25%): for life companies, returns net of management expenses are taxed at 25%. Corporation tax is payable on profits attributable to shareholders of proprietary life companies. General insurance companies pay normal corporation tax on profits.

Unit trusts (6%): are exempt from CGT. Dividends less management expenses are taxed at 25%.

Investment trusts (4%): are exempt from CGT. Dividends less management expenses are taxed at ACT rate (25% during '988-91).

Other UK companies (5%): pay corporation tax on capital gains and ACT on dividends (ie they are received net and no further tax is payable).

Charities and government (2% & 3%): are exempt from all UK tax.

Overseas shareholders (5%): are normally exempt from CGT. Some ACT is reclaimable under 'most modern double taxation treaties'.

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The weighted average tax paid depends to a large extent on the amount of tax actually paid by insurance companies of both types on their share returns. Details of the investment income, dealing commission paid, management expenses and taxation for individual companies and the industry as a whole can be found in Carter & Diacon (1991-92 edition) up to 1989 and for 1990 and 1991 the same information is obtained from the accounts of several large insurance companies. The results are shown in table 7.2. Commissions and expenses are around half of investment income (though this varies widely between companies), suggesting that around half of ACT is reclaimed by insurance companies. But in fact the rate of taxation on investment income is much lower than implied by this, being consistently around 5%. As the tax figures used include any tax on capital gains but investment income does not include capital gains, the tax rate on dividends and interest may be lower still. Since the sole purpose of this exercise is to get a feel for how much tax insurance companies actually pay on their investment returns, this quick investigation seems sufficient.

Table 7.3 summarises the taxation of share returns by category of investor. We are now able to estimate the tax position of the 'average' UK investor.
Weighted average taxation of capital gains = 2-4%.
Assumes that capital gains of 'other UK companies' are taxed at 35% and of insurance companies at 1%. The higher figure assumes that 25% tax is paid on half of individuals' capital gains, the lower that a very small proportion are subject to tax.
Weighted average taxation of dividends = 8%.
Assumes that dividends for individuals and 'other UK companies' are taxed at 25%, for unit and investment trusts at 12.5% and for insurance companies at 4%.
### Table 7.2

Expenses and Taxation as a Percentage of Investment Income for Insurance Companies, 1986-91

<table>
<thead>
<tr>
<th>Year</th>
<th>Management expenses &amp; dealing commission</th>
<th>Taxation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>45</td>
<td>7</td>
</tr>
<tr>
<td>1987</td>
<td>49</td>
<td>6</td>
</tr>
<tr>
<td>1988</td>
<td>53</td>
<td>5</td>
</tr>
<tr>
<td>1989</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>1990</td>
<td>48</td>
<td>5</td>
</tr>
<tr>
<td>1991</td>
<td>49</td>
<td>5</td>
</tr>
</tbody>
</table>

**Notes**


Data for 1990-91 are from the accounts of Prudential Corporation, Legal & General, Commercial Union, Sun Alliance Group and Lloyds Abbey Life. For the life companies - Prudential and Legal & General - the total tax figure is used. For the composites - Commercial Union, Sun Alliance and Lloyds Abbey Life - a separate section in the accounts details returns and expenses relating to all investments and the tax figure is taken from this.

Investment income does not include capital gains.
Table 7.3

Percentage Owned of UK Stock Market and Taxation of Share Returns by Category of Investor, Late 1980s

<table>
<thead>
<tr>
<th>Investor</th>
<th>% owned of UK stock market</th>
<th>Tax rate on capital gains</th>
<th>Tax rate on dividends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals</td>
<td>18%</td>
<td>Zero &lt;£5,000</td>
<td>25%&lt;sup&gt;1&lt;/sup&gt;; some more, some less</td>
</tr>
<tr>
<td>Pension funds</td>
<td>32%</td>
<td>Zero</td>
<td>Zero</td>
</tr>
<tr>
<td>Insurance companies</td>
<td>25%</td>
<td>&lt;5%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>&lt;5%&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Unit trusts</td>
<td>6%</td>
<td>Zero</td>
<td>10-15%&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Investment trusts</td>
<td>4%</td>
<td>Zero</td>
<td>10-15%&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Other UK companies</td>
<td>5%</td>
<td>35%&lt;sup&gt;4&lt;/sup&gt;</td>
<td>25%&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Charities &amp; government</td>
<td>5%</td>
<td>Zero</td>
<td>Zero</td>
</tr>
<tr>
<td>Overseas</td>
<td>5%</td>
<td>Zero</td>
<td>Very low</td>
</tr>
</tbody>
</table>

Notes

Sources: first column, Samuels, Wilkes & Brayshaw (1990, p. 5); second and third columns, letter from Prof JS MacLeod (appendix 3).

1. Advance corporation tax rate was 25% throughout sample period.

2. See table 7.2.

3. On the assumption that commissions and expenses are around half of investment income and therefore half of advance corporation tax is reclaimable.

Adjusting for taxation of capital gains would involve an extra calculation for every daily observation. In view of the very small difference this would make, no adjustment has been made, so capital gains are treated as being received gross. Extel provides net dividend per share figures and these are grossed up by multiplying them by 1.23 (≈ 0.92/0.75), so dividends are treated as being received net of tax of 8%, not 25%, to reflect taxation of dividends for the 'average' shareholder. Likewise, the daily net ex-div adjustment for the All-Share Index is grossed up by 1.23.

7.4. EVENT STUDY IMPLEMENTATION

The statistical procedure used is the share time series method, as explained in chapter 6. The event period is 41 days running from 20 days before the announcement date to 20 days after, with the announcement date being event day 0. The US research only tests the period -1 to 0 or 0 to +1 but our sample may have less clear-cut announcement dates and information appears at various stages of the syndication process. Information could have leaked out before being reported in one of the sources. If so, and there is a response, this would appear in pre-announcement date cumulative abnormal returns. It is also conceivable that there is a gradual response during syndication, as it becomes more (or less) certain that a facility will be put in place, rather than on any particular date. If so, this would appear in post-announcement date abnormal returns.

The estimation period is 60 days before the start of the event period and 60 days after it ends, ie days -80 to -21 plus days +21 to +80. This ensures that market model coefficients are calculated using data as close to the event period as possible. Many recent event studies use a split 'before and after' estimation period for this reason, including James (1987). Data from the event period itself are excluded so that estimation of the coefficients is not affected by any abnormal returns in that period, and so that the market model can be used to give true predicted returns for an out-of-sample period. The number of observations used to estimate market model coefficients varies from study to study; 120 is at the lower end but is large enough for accurate estimation (Corrado &
The computing procedures were complicated and what follows is a summary of the stages involved.

1. Download from MicroVIEW lists of daily share prices onto files on floppy disk, with about twelve announcements in the same category per file. Operating with larger files proved to be too slow and cumbersome. A file containing daily values of the All-Share Index from 1 June 1987 to 1 June 1992 was also made.

2. Create new files on spreadsheet in which dates, daily share prices and index values are shown in three columns for 80 trading days before and 80 days after each announcement. This was done by means of a programme specially written for the purpose. The programme ensured that the correct prices and index values were provided for each announcement date.

3. Add adjusted dividends to prices on ex-div dates and to daily index values, as explained in section 7.2. Company net dividends per share and ex-div dates had to be obtained visually as it was not possible to download dividend data from MicroVIEW.

4. Calculate abnormal returns (ARs) and standardised abnormal returns (SARs) for days -20 to +20 for each announcement. Figure 7.1 shows the spreadsheet plan.

5. For each category of announcement, calculate average AR (AAR), t statistic, number in the sample and number of positive returns for each event day and longer event windows. Do the same for various combinations of categories.

No AR appears in more than one event period. In cases where event periods surrounding announcements for the same company overlap, they are divided in the middle and the two periods are each shorter than 41 days. For example, if there are 21 days between announcements, the event period for the first would be days -20 to +10 and for the second it would be -11 to +20. This procedure is
necessary to avoid the same AR appearing in two event periods and hence to avoid double counting in calculating the AAR for event windows.

There were various checks for errors including double-checking of all announcement dates and of SARs with an absolute value of more than 1.96 (5% significance level) within two days of the announcement date and of outlying SARs of more than 10 outside this event window. Outliers are discussed further in appendix 4.

Test of whether Error Variances Increase during the Event Period

Brown & Warner (1985) and Boehmer et al (1991) note that in many event studies the cross-sectional variance of returns and abnormal returns is greater during the event period than during the estimation period. This reduces the reliability of the share time series method; for example, Brown & Warner find that artificially doubling the event day variance of returns causes a true null hypothesis of zero abnormal return to be rejected in 12.8% of samples at the 5% level. So it is worth checking whether ARs are more volatile around the time of loan announcements.

To do this, ARs (market model residuals) were generated for the first ten days of the estimation period (days -60 to -51) for 58 announcements from the general, refinance, increase and negative categories, and the standard deviation of these estimation period residuals calculated for each day. These can then be compared with the standard deviations of the ARs for days in the event period. There is little sign of an increase in variance; the averages of the standard deviations of ARs in the estimation and event periods are virtually identical (2.2% for both). The standard deviation on the announcement day itself is relatively high (3.3%) but the figures for days -1 and +1 are below average (1.7% and 2.1% respectively). It therefore appears safe to use the share time series method without adjustment for event-induced increase in return variance.
### Figure 7.4

**Plan of SuperCalc File for Calculating Abnormal Returns: Entry for One Company**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Share prices</th>
<th>Share divs</th>
<th>Index values</th>
<th>Index divs</th>
<th>Share returns</th>
<th>Index returns</th>
<th>Predicted share return</th>
<th>Abnormal return</th>
<th>Standardised abnormal return</th>
</tr>
</thead>
<tbody>
<tr>
<td>-80</td>
<td></td>
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<td>-20</td>
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<td>0</td>
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<td></td>
<td></td>
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<tr>
<td>+20</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>+80</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Share return (5) = \( R_{it} = \ln((P_{it} + \text{Div}_{it})/P_{it-1}) \), from (1) & (2).

Index return (6) = \( R_{mt} = \ln((I_{t} + \text{Div}_{t} \text{for index})/I_{t-1}) \), from (3) & (4).

Predicted share return (7) = \( \alpha_i + \beta_i(R_{mt}) \), from (6) & results of regression of (5) on (6).

Abnormal return (8) = \( AR_{it} = R_{it} - (\alpha_i + \beta_i(R_{mt})) = (5) - (7) \).

Standardised abnormal return = \( SAR_{it} = AR_{it} / \text{standard error of market model regression} \), from (8) & regression results.

**Note:** Event days are shown under 'Dates' for convenience; actual files have calendar dates.
7.5. RESULTS

Analysis by Category

Appendix 4 contains the full results for 54 different samples. For each one, the AAR and t statistic are shown for each of the 41 event days. Also shown are cumulative AARs (CAARs) with their t statistics and the percentages of positive CAARs for the following event periods: days -1 to 0; -2 to +2; -10 to -1; -20 to -1; 0 to +9; 0 to +20; -20 to +20 (the full period). The discussion concentrates on the uncontaminated sample results unless otherwise indicated.

The results for the shortest event window, days -1 to 0, are summarised in table 7.5. These are parallel to the US results. The CAARs are negative but insignificant for all categories combined and for all excluding negative announcements and those relating to MBOs and MBIs (arguably a special case as the borrower is the purchasing vehicle rather than the quoted parent). This is different from the US findings of a significantly positive response overall to loan announcements.

The second panel of table 7.5 shows the results for each category. The uncontaminated CAARs for all categories of new facility except for MBOs and MBIs are negative and all are insignificant; the significantly positive response to MBO/I loans in the full sample reflects contamination by news of the MBO/I. The lack of response to refines is unexpected given the evidence of Slovin et al of the significantly positive response to renewals, which are similar to refines especially if the syndicate remains the same, and to loans used to repay debt, which are true refines. (James did not separate loan renewals from initiatives and Lummer & McConnell included renewals and refineses under 'favourable revisions'). But there are positive CAARs for increased facilities and positive news; the CAAR for increases is almost significant at the 5% level and 61.3% of the individual cumulative ARs (CARs) are positive. There are insignificant negative CAARs for negative and mixed news. The latter two results again differ from Lummer & McConnell's, who find a very significant negative response to negative revisions and positive response to mixed revisions.
Table 7.5

The Stock Market Response to UK Syndicated Loan Announcements:
Cumulative AARs for Event Days -1 to 0

Numbers in each sample appear in brackets.

<table>
<thead>
<tr>
<th>Categories</th>
<th>CAAR (%)</th>
<th>T Stat</th>
<th>% Pos</th>
<th>CAAR (%)</th>
<th>T Stat</th>
<th>% Pos</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Combined Categories</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>-0.34</td>
<td>-0.39</td>
<td>48.4</td>
<td>-0.11</td>
<td>-0.35</td>
<td>51.2</td>
</tr>
<tr>
<td></td>
<td>(574)</td>
<td></td>
<td></td>
<td>(430)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All excl negs &amp; MBOs &amp; MBIs</td>
<td>-0.39</td>
<td>-0.84</td>
<td>48.2</td>
<td>-0.08</td>
<td>-0.26</td>
<td>50.9</td>
</tr>
<tr>
<td></td>
<td>(519)</td>
<td></td>
<td></td>
<td>(395)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Individual Categories</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New facilities:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>-0.75</td>
<td>-1.37</td>
<td>45.4</td>
<td>-0.40</td>
<td>-1.55</td>
<td>45.2</td>
</tr>
<tr>
<td></td>
<td>(185)</td>
<td></td>
<td></td>
<td>(155)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refinances</td>
<td>-0.14</td>
<td>-0.99</td>
<td>46.3</td>
<td>-0.02</td>
<td>-0.17</td>
<td>50.7</td>
</tr>
<tr>
<td></td>
<td>(95)</td>
<td></td>
<td></td>
<td>(73)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For acquisitions</td>
<td>0.09</td>
<td>0.46</td>
<td>46.7</td>
<td>-0.07</td>
<td>-0.58</td>
<td>55.6</td>
</tr>
<tr>
<td></td>
<td>(60)</td>
<td></td>
<td></td>
<td>(24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>For MBOs &amp; MBIs</td>
<td>1.17</td>
<td>2.84**</td>
<td>52.3</td>
<td>0.22</td>
<td>0.72</td>
<td>62.5</td>
</tr>
<tr>
<td></td>
<td>(23)</td>
<td></td>
<td></td>
<td>(8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revisions and news during syndication:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increases</td>
<td>0.54</td>
<td>1.99</td>
<td>58.3</td>
<td>0.73</td>
<td>2.03</td>
<td>61.3</td>
</tr>
<tr>
<td></td>
<td>(36)</td>
<td></td>
<td></td>
<td>(31)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive news</td>
<td>-0.12</td>
<td>0.15†</td>
<td>51.2</td>
<td>0.53</td>
<td>0.92</td>
<td>53.0</td>
</tr>
<tr>
<td></td>
<td>(127)</td>
<td></td>
<td></td>
<td>(100)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative news</td>
<td>-0.59</td>
<td>-0.69</td>
<td>50.0</td>
<td>-0.64</td>
<td>-0.78</td>
<td>51.9</td>
</tr>
<tr>
<td></td>
<td>(32)</td>
<td></td>
<td></td>
<td>(27)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed news</td>
<td>-3.84</td>
<td>-1.97</td>
<td>50.0</td>
<td>-3.35</td>
<td>-0.61</td>
<td>58.3</td>
</tr>
<tr>
<td></td>
<td>(16)</td>
<td></td>
<td></td>
<td>(12)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** Significant at the 1% level (two tailed test).
1. See note 1 at the front of appendix 4 for how CAAR and t statistic can differ in sign.
Table 7.6
The Stock Market Response to UK Syndicated Loan Announcements:
Cumulative AARs for Event Days -2 to +2

Numbers in each sample appear in brackets.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Full Sample</th>
<th>Uncontaminated Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAAR (%)</td>
<td>T Stat</td>
</tr>
<tr>
<td>Combined Categories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>-0.08</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All excl negs &amp; MBOs &amp; MBIs</td>
<td>-0.22</td>
<td>0.02</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Individual Categories</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New facilities:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>-0.32</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Refinances</td>
<td>0.00</td>
<td>-1.62</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For acquisitions</td>
<td>0.02</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For MBOs &amp; MBIs</td>
<td>1.14</td>
<td>1.82</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revisions and news during syndication:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increases</td>
<td>0.36</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive news</td>
<td>-0.12</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative news</td>
<td>1.24</td>
<td>1.11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed news</td>
<td>-3.19</td>
<td>-1.81</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the 5% level (two tailed test).
The results so far suggest there is little market reaction in the UK to announcements relating to syndicated loans, except possibly to increases to existing facilities. But this may be because the reaction is not concentrated on the announcement dates identified. Table 7.6 shows the results for a five day event window, -2 to +2. The CAARs for the combined categories are now positive, but still insignificant. The refinance CAAR becomes more negative and significant at the 5% level; 56.2% of the CARs are negative. The increases CAAR is smaller and becomes insignificant but the positive news CAAR is larger and significant at the 5% level. The negative news CAAR switches from negative to positive. So while some of the results are sensitive to the event period chosen, most CAARs remain insignificantly different from zero.

The main features of the results for longer event periods are now presented; the reader is referred to appendix 4 for full details. For both combined category samples the CAARs are slightly more positive after the announcement date than before and the contaminated CAARs are significantly positive for days 0 to +9 and 0 to +20. Pre and post announcement date CAARs for uncontaminated samples for days -10 to -1 and 0 to +9 are shown in table 7.7. There is little difference between the two periods for the new facilities nor for increases but the three categories largely composed of news during syndication exhibit more positive CAARs after announcements than before. This is particularly marked for both negative and positive news; for the latter the days 0 to +9 CAAR is significant at the 1% level (but the 0 to +20 figure is not significant). It appears that the response to positive news is spread over several days. The only other significant result is the positive CAAR for days -10 to -1 for announcements of loans for acquisitions. None of the full event period (days -20 to +20) CAARs is significant.

Results for various combinations of category are reported in appendix 4 but add little to what has already been said. The most significant results are from the combination of the positive news and increase samples (table 7.8), with significant positive CAARs for days -2 to +2 and 0 to +9.
### Table 7.7

**The Stock Market Response to UK Syndicated Loan Announcements:**

Uncontaminated CAARs for Event Days -9 to -1 and 0 to +9

Numbers in each sample appear in brackets.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Event Period -10 to -1</th>
<th>Event Period 0 to +9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAAR (%) T Stat % Pos</td>
<td>CAAR (%) T Stat % Pos</td>
</tr>
<tr>
<td><strong>Combined Categories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>0.22 0.26 49.3 (430)</td>
<td>0.60 1.69 52.6 (430)</td>
</tr>
<tr>
<td>All excl negs &amp; MBOs &amp; MBIs</td>
<td>0.16 0.15 48.4 (395)</td>
<td>0.28 1.26 51.9 (395)</td>
</tr>
<tr>
<td><strong>Individual Categories</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New facilities:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General</td>
<td>0.25 0.05 45.8 (155)</td>
<td>-0.03 0.19 51.0 (155)</td>
</tr>
<tr>
<td>Refinances</td>
<td>-0.75 -1.29 50.7 (73)</td>
<td>-1.08 -1.81 46.6 (73)</td>
</tr>
<tr>
<td>For acquisitions</td>
<td>1.38 2.23* 44.4 (24)</td>
<td>1.02 1.31 44.4 (24)</td>
</tr>
<tr>
<td>For MBOs &amp; MBIs</td>
<td>1.48 0.81 87.5 (8)</td>
<td>1.66 1.11 75.0 (8)</td>
</tr>
<tr>
<td>Revisions and news during syndication:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increases</td>
<td>0.20 0.36 51.6 (31)</td>
<td>0.56 0.49 54.8 (31)</td>
</tr>
<tr>
<td>Positive news</td>
<td>0.68 0.53 51.0 (100)</td>
<td>1.32 2.72** 57.0 (100)</td>
</tr>
<tr>
<td>Negative news</td>
<td>0.71 -0.06 51.9 (27)</td>
<td>5.35 1.33 55.6 (27)</td>
</tr>
<tr>
<td>Mixed news</td>
<td>0.17 -0.36 33.3 (12)</td>
<td>1.41 0.45 50.0 (12)</td>
</tr>
</tbody>
</table>

* Significant at the 5% level (two tailed test).

** Significant at the 1% level (two tailed test).
Table 7.8
The Response to Positive News and Increased Facilities:
Uncontaminated CAARs for Various Event Periods

<table>
<thead>
<tr>
<th>Event Period</th>
<th>CAAR (%)</th>
<th>T Stat</th>
<th>% Positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1 to 0</td>
<td>0.58</td>
<td>1.79</td>
<td>55.0</td>
</tr>
<tr>
<td>-2 to +2</td>
<td>0.83</td>
<td>2.27*</td>
<td>54.2</td>
</tr>
<tr>
<td>-10 to -1</td>
<td>0.41</td>
<td>0.52</td>
<td>51.2</td>
</tr>
<tr>
<td>-20 to -1</td>
<td>-0.62</td>
<td>-0.81</td>
<td>48.9</td>
</tr>
<tr>
<td>0 to +9</td>
<td>1.13</td>
<td>2.60*</td>
<td>56.5</td>
</tr>
<tr>
<td>0 to +20</td>
<td>1.09</td>
<td>1.61</td>
<td>52.7</td>
</tr>
<tr>
<td>-20 to +20</td>
<td>0.47</td>
<td>0.59</td>
<td>45.0</td>
</tr>
</tbody>
</table>

N = 131.
* Significant at the 5% level (two tailed test).
Taking all the event periods together, the following findings emerge.

1. There is no significant response to announcements of new facilities in the narrow event windows, days -1 to 0 and -2 to +2, except for refinances. This is consistent with Lummer & McConnell but not with Slovin et al, who report a significantly positive response to new facilities.

2. There are small negative CAARs for refinances. For days -2 to +2 the CAAR of -0.42% is significant at the 5% level. This differs from Slovin et al’s results on renewals and refinances.

3. There is a CAAR of 1.38% (significant at the 5% level) for loans for acquisitions for days -10 to -1.

4. There is a small positive response (0.73%) to increases to existing facilities, focused on days -1 and 0. This is consistent with Lummer & McConnell and Slovin et al, who would include these as favourable revisions or renewals respectively. Perhaps it is the increases within these categories which are responsible for the US results for them.

5. There is a small positive response to announcements of positive news, but this is spread over several days after the announcement. The CAAR for days -1 to 0 is 0.53% (not significant); for days 0 to +9 it is 1.3% (significant at the 1% level).

6. There is no significant response to negative and mixed news, although CAARs are more positive after the announcement than before. To the extent that these results can be compared with the US evidence, which does not examine news during syndication, both are inconsistent with it.

Analysis by Size of Borrower

In view of the results of Slovin et al, it is worthwhile to investigate whether stock market responses are related to the size of the borrower. For each of the four sample years, companies on the announcements list are ranked by market capitalisation as at 30 June and divided into four groups with equal numbers in each, size one containing the largest companies and size four the smallest. Table 7.9 shows the ranges and medians within size groups for each year.
As can be seen, the sample includes companies of all sizes.

The results by size for the four categories analysed are shown in table 7.10. There is some evidence that announcements of both general purpose loans and refinances for smaller companies are viewed as bad news. The size four general CAAR is significantly negative for days -1 to 0, with only 32% of responses positive and the size three refinance CAAR is significantly negative for days -2 to +2 with 35% of responses positive and 37% for size four. Increases to existing facilities are good news for small companies. The size four increase CAAR is unusually large and significant for both periods (3.47% for -1 to 0, 3.95% for -2 to +2) and all seven in the sample are positive for days -1 to 0. The response to positive news does not appear to be much related to size of borrower, though 73% of the size four responses are positive for both periods. The relation between size group and numbers of positive announcements is noticeable; the larger the company, the more likely is positive news, probably because it is easier to syndicate loans to large companies.

Table 7.11 shows results for combined categories. There are no significant results for size samples of all four categories combined but, as expected, the size four CAARs for increases and positive news combined are positive and significant at the 1% level. Examination of longer event periods adds little to these findings. The positive response for several days after announcements of positive news does not appear to be related to size of borrower. For all four size groups in the positive category, the CAAR for days 0 to +9 exceeds that for days -10 to -1; the only significant CAAR is size two for days 0 to +9. Size four positives have a significant CAAR for -20 to -1, but not for -10 to -1.

We may now summarise what emerges from the size analysis. First, there is weak evidence of a negative response to new facilities and refinances for smaller companies (sizes three and four). Slovin et al find, for smaller companies, positive responses to new loans and, more so, to renewals. Second, the overall results for the increases are driven by the results for the smallest companies (size four). This is consistent with the suggestion of
Table 7.9

Descriptive Data of Size Groups

Borrowers are ranked by market capitalisation as at 30 June of the year of the announcement. The largest 25% are classed as size 1, the smallest 25% as size 4. The table shows the market capitalisation of the largest and smallest company within each size group and, beneath, the median market capitalisation for each group.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5,528 - 1,335</td>
<td>10,265 - 971</td>
<td>11,545 - 1,171</td>
<td>17,887 - 1,407</td>
</tr>
<tr>
<td>Median</td>
<td>2,118</td>
<td>2,333</td>
<td>2,303</td>
<td>2,550</td>
</tr>
<tr>
<td>2.</td>
<td>1,324 - 499</td>
<td>942 - 324</td>
<td>1,151 - 497</td>
<td>1,338 - 392</td>
</tr>
<tr>
<td>Median</td>
<td>759</td>
<td>545</td>
<td>927</td>
<td>730</td>
</tr>
<tr>
<td>3.</td>
<td>481 - 191</td>
<td>305 - 120</td>
<td>485 - 141</td>
<td>384 - 103</td>
</tr>
<tr>
<td>Median</td>
<td>296</td>
<td>192</td>
<td>340</td>
<td>242</td>
</tr>
<tr>
<td>4.</td>
<td>184 - 10</td>
<td>119 - 19</td>
<td>134 - 6</td>
<td>102 - 11</td>
</tr>
<tr>
<td>Median</td>
<td>101</td>
<td>70</td>
<td>51</td>
<td>75</td>
</tr>
</tbody>
</table>
### Table 7.10

**Analysis of Market Response to UK Syndicated Loan Announcements by Category and Borrower Size:**

Uncontaminated CAARs for Event Days -1 to 0 and -2 to +2

Numbers in each sample appear in brackets after the size group.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Event Period -1 to 0</th>
<th>Event Period -2 to +2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAAR (%)</td>
<td>T Stat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>General Purpose Loans</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 1 (27)</td>
<td>0.10</td>
<td>0.55</td>
</tr>
<tr>
<td>Size 2 (37)</td>
<td>-0.19</td>
<td>-0.85</td>
</tr>
<tr>
<td>Size 3 (47)</td>
<td>-0.19</td>
<td>-0.44</td>
</tr>
<tr>
<td>Size 4 (44)</td>
<td>-1.12</td>
<td>-2.11*</td>
</tr>
<tr>
<td><strong>Refinances</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 1 (19)</td>
<td>0.98</td>
<td>1.41</td>
</tr>
<tr>
<td>Size 2 (18)</td>
<td>-0.52</td>
<td>-0.70</td>
</tr>
<tr>
<td>Size 3 (17)</td>
<td>-0.46</td>
<td>-1.44</td>
</tr>
<tr>
<td>Size 4 (19)</td>
<td>-0.28</td>
<td>-0.03</td>
</tr>
<tr>
<td><strong>Increased Facilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 1 (7)</td>
<td>0.30</td>
<td>0.83</td>
</tr>
<tr>
<td>Size 2 (7)</td>
<td>-1.01</td>
<td>-1.40</td>
</tr>
<tr>
<td>Size 3 (10)</td>
<td>0.33</td>
<td>0.47</td>
</tr>
<tr>
<td>Size 4 (7)</td>
<td>3.47</td>
<td>4.28**</td>
</tr>
<tr>
<td><strong>Positive News</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 1 (36)</td>
<td>0.34</td>
<td>0.26</td>
</tr>
<tr>
<td>Size 2 (30)</td>
<td>1.08</td>
<td>0.95</td>
</tr>
<tr>
<td>Size 3 (19)</td>
<td>-0.06</td>
<td>0.06</td>
</tr>
<tr>
<td>Size 4 (15)</td>
<td>0.67</td>
<td>0.56</td>
</tr>
</tbody>
</table>

* Significant at the 5% level (two tailed test).
** Significant at the 1% level (two tailed test).
Table 7.11

Analysis of Market Response to UK Syndicated Loan Announcements by Combined Categories and Borrower Size:
Uncontaminated CAARs for Event Days -1 to 0 and -2 to +2

Numbers in each sample appear in brackets after the size group.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Event Period -1 to 0</th>
<th>Event Period -2 to +2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAAR (%) T Stat Pos</td>
<td>CAAR (%) T Stat Pos</td>
</tr>
<tr>
<td>General Announcements, Refinances, Increases and Positive News</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 1 (89)</td>
<td>0.40 1.36 53.9</td>
<td>0.27 0.84 46.1</td>
</tr>
<tr>
<td>Size 2 (92)</td>
<td>0.10 -0.69 53.3</td>
<td>0.23 -0.59 53.3</td>
</tr>
<tr>
<td>Size 3 (93)</td>
<td>-0.16 -0.75 47.3</td>
<td>-0.05 -0.06 53.8</td>
</tr>
<tr>
<td>Size 4 (85)</td>
<td>-0.23 -0.07 47.1</td>
<td>-0.04 0.62 44.7</td>
</tr>
<tr>
<td>Increases and Positive News Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 1 (43)</td>
<td>0.33 0.58 48.8</td>
<td>0.49 1.19 49.8</td>
</tr>
<tr>
<td>Size 2 (37)</td>
<td>0.68 0.25 54.1</td>
<td>0.83 0.40 51.4</td>
</tr>
<tr>
<td>Size 3 (29)</td>
<td>0.07 0.33 48.3</td>
<td>0.00 0.20 58.6</td>
</tr>
<tr>
<td>Size 4 (22)</td>
<td>1.56 2.88** 81.8</td>
<td>2.47 3.12** 72.7</td>
</tr>
</tbody>
</table>

** Significant at the 1% level (two tailed test).
Slovin et al that loan announcements for smaller companies convey more information than for larger ones because the market knows less about the former – and/or because banks can extract more information from smaller borrowers. For none of the categories are there any significant results for larger companies (sizes one and two).

**Examination of Individual Announcements**

In an effort to see directly what sort of announcements cause a significant response, all individual daily standardised abnormal returns (SARs) with an absolute value of two or more are noted if they occur during event days -2 to +2. Since SARs are ARs divided by their standard errors, each can be viewed as a t statistic for the significance of the AR. So selecting those with an absolute value of two or more is to select responses significant at just less than the five per cent level (two tailed test). These are the announcements with most effect on the overall results. Announcements contaminated within plus or minus two days are excluded. Including only significant uncontaminated SARs (SSARs) in a narrow event period maximises the chance that the selected SSARs are caused by announcements. But they may still be caused by news not reported in the FT or by news which affects companies in a certain industry, which will probably not be named individually in the report, so that contamination of this type will not be picked up. SSARs may also be caused by large buy or sell orders, especially for shares of smaller companies. Such orders need not be in response to a particular news item.

Table 7.12 shows uncontaminated event period SSARs by category of announcement (except loans for MBOs), announcement dates by source, status of the facility and other comments which seem pertinent. For general announcements the evidence confirms the event study results: SSARs do occur but there about as many negative as positive and they are scattered fairly evenly amongst the event days. The suspicion must be that some of these are not related to the announcement. Two-thirds of the refinance SSARs are negative. There are only two uncontaminated SSARs for loans for acquisitions, both positive. The results for the increases category are primarily
driven by those for four of the seven size four companies, vis Close Brothers, Catties Holdings, Regalian Properties and Ward Holdings. The other increases SSARs are negative.

The positive news category contains the most consistent evidence; again SSARs are scattered around the event period. 17 of the 21 announcements are of increases to the amount after successful syndication and 13 of these 17 are positive, for companies of all sizes. Of the 100 uncontaminated positive announcements, 60 are of increases following syndication, so the 13 with an SSAR of the expected sign represent 22% of the total; only 2.5% would be expected by chance. Of the four other positive news announcements with SSARs, three are positive. The announcements for Eurotunnel and WPP are decisions to lend (large amounts) more despite breach of covenants; that for Yorkshire Electricity is an oversubscription. Only two of the six negative announcements have negative SSARs, confirming the event study result. Both the mixed announcements are of loans with much higher margins than their predecessors; one has a negative SSAR, the other a negative and a positive.

Some other individual results are worthy of comment. There are two cases of a significant positive response to news of very large facilities even though these are for large companies, vis $3,200m for BAT Industries (30/1/88, loans for acquisitions) and $3,000m for Maxwell (15/9/89, refinances). There is a clear-cut SSAR of 10.4 in response to news that banks were willing to fund Anglesey Mining (8/10/91, general purpose loans) which is included though it falls on day -3. But this is definitely the cause of the SSAR; Anglesey Mining is a tiny company and there was no other news around this time. In two cases (only), loan announcements mention a share price reaction. One is for Kelt Energy (19/6/91, mixed), in which banks are reported as being partly repaid and taking more security and the FT notes that the share price fell in response (SSAR of -2.0 for day 0). The other is the abandoned refinancing of Greycoat, a property company (26/10/91, negative news), which IFR commented caused the shares to fall (SSAR of -2.4 for day -2).
Significant Uncontaminated Standardised Abnormal Returns (SSARs) During Event Days -2 to +2

Announcements are included if at least one SAR during days -2 to +2 is significant, defined as less than -2.0 or more than +2.0. Size group appears in brackets after company name. The earliest announcement date is in bold; a 'T' in brackets after an FT date indicates a tombstone rather than report.

<table>
<thead>
<tr>
<th>Company</th>
<th>Date in:</th>
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<tbody>
<tr>
<td></td>
<td>Euroweek Fri</td>
<td>IFR Sat</td>
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<tr>
<td>Control Securities (3)</td>
<td>22/7</td>
<td>16/7/88</td>
<td>3.0</td>
</tr>
<tr>
<td>Howden Group (3)</td>
<td>15/7</td>
<td>30/4/88</td>
<td>3.0</td>
</tr>
<tr>
<td>National Home Loans (4)</td>
<td>6/5</td>
<td>27/2</td>
<td>3/5</td>
</tr>
<tr>
<td>Scapa (3)</td>
<td>5/2/88</td>
<td>3/12/88</td>
<td>22/11 (T)</td>
</tr>
<tr>
<td>Scottish &amp; Newcastle (1)</td>
<td>15/1</td>
<td>9/1/88</td>
<td>11/1</td>
</tr>
<tr>
<td>Sketchley (3)</td>
<td>12/8</td>
<td>6/8/88</td>
<td></td>
</tr>
<tr>
<td>Stylo (4)</td>
<td>25/3</td>
<td>19/3/88</td>
<td></td>
</tr>
<tr>
<td>Thorn EMI (1)</td>
<td>15/4</td>
<td>9/4/88</td>
<td></td>
</tr>
<tr>
<td>Unigate (2)</td>
<td>20/10/89</td>
<td>21/10</td>
<td>25/10 (T)</td>
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<tr>
<td>Westbury (4)</td>
<td>13/1/89</td>
<td>14/1</td>
<td></td>
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<td>Albert Fisher (2)</td>
<td>20/1/89</td>
<td>22/4/89</td>
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<td>British Aerospace (1)</td>
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<td>28/4</td>
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<td>British Land (1)</td>
<td>20/1/89</td>
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<td>Empire Stores (4)</td>
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<td>14/7/89</td>
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<td>Lilley (3)</td>
<td>23/6</td>
<td>17/6/89</td>
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<td>Polly Peck (2)</td>
<td>6/10/89</td>
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<td>Queen's Moat Houses (2)</td>
<td>3/3/89</td>
<td>4/3</td>
<td></td>
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<td>Raine Industries (3)</td>
<td>22/7</td>
<td>14/7/89</td>
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<td>Company</td>
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</tr>
<tr>
<td>Ratners (2)</td>
<td>10/11/89</td>
<td>2.3 -3.4 -2.2 -3.3</td>
<td>Arranged</td>
</tr>
<tr>
<td>UK Land (4)</td>
<td>3/12</td>
<td>4/11/89 21/11 (T)</td>
<td>Signed 31/10</td>
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<tr>
<td>Ass'd British Ports (2)</td>
<td>27/4/90</td>
<td>28/4 -4.1 3.0 -2.2</td>
<td>In synd</td>
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<td>Legal &amp; General (1)</td>
<td>30/3</td>
<td>24/3/90 19/5/90 (T)</td>
<td>Signed 14/3</td>
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<tr>
<td>London &amp; Manchester (3)</td>
<td>29/6</td>
<td>21/6 (T)</td>
<td>Rumoured</td>
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<tr>
<td>Pepe Group (4)</td>
<td>5/10/90</td>
<td>6/10 2.3 2.3 3.8 3.3</td>
<td>In synd</td>
</tr>
<tr>
<td>Ultramar (1)</td>
<td>5/10/90</td>
<td></td>
<td>In synd</td>
</tr>
<tr>
<td>Wace Group (3)</td>
<td>19/10</td>
<td>22/9/90 13/11 (T) 2.8</td>
<td>In synd</td>
</tr>
<tr>
<td>Anglesey Mining (4)</td>
<td>12/10</td>
<td>8/10/91 10.4 (day -3)</td>
<td>'Step closer' to funding</td>
</tr>
<tr>
<td>Aran Energy (4)</td>
<td>9/11/91</td>
<td>-2.2 -2.6 4.0</td>
<td>In synd</td>
</tr>
<tr>
<td>Fisons (1)</td>
<td>21/12/91</td>
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<td>-5.4 Arranged</td>
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<td>London &amp; Manchester (3)</td>
<td>24/5/91</td>
<td>25/5 -2.0</td>
<td>In synd</td>
</tr>
<tr>
<td>Maxwell Comm Corp (2)</td>
<td>13/7/91</td>
<td></td>
<td>Mandated</td>
</tr>
<tr>
<td>Southwest Water (2)</td>
<td>4/5/91</td>
<td>2.2 -2.0</td>
<td>Arranged</td>
</tr>
<tr>
<td>Powel Duffryn (3)</td>
<td>19/12/91</td>
<td>2.3</td>
<td>Rumoured</td>
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<tr>
<td>Smith &amp; Nephew (2)</td>
<td>8/2</td>
<td>2/2/91 27/3 (T) -2.0 -2.5</td>
<td>In synd</td>
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<tr>
<td>Southwest Water (3)</td>
<td>9/3/91</td>
<td>2.0</td>
<td>Arranged</td>
</tr>
<tr>
<td>Stanhope Properties (4)</td>
<td>24/5</td>
<td>30/3/91 -2.5</td>
<td>Arranged</td>
</tr>
<tr>
<td>Westland (3)</td>
<td>25/1</td>
<td>19/1/91 2.1</td>
<td>In synd</td>
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### Refinances

<table>
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<tr>
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<th>Status/comment</th>
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<tr>
<td>Control Securities (3)</td>
<td>12/2</td>
<td>9/1/88 2.5</td>
<td>Underwritten</td>
</tr>
<tr>
<td>Wilson Bowden (3)</td>
<td>2/12/88</td>
<td>3/12 -3.8 -2.1</td>
<td>In synd. Amount up</td>
</tr>
<tr>
<td>Next (2)</td>
<td>17/2</td>
<td>21/1/89 23/1 -2.1</td>
<td>Mandated</td>
</tr>
<tr>
<td>Burtonwood Brewery (4)</td>
<td>31/3/89</td>
<td>29/7 2.1</td>
<td>In synd. £3,000m</td>
</tr>
<tr>
<td>Maxwell Comm Corp (1)</td>
<td>15/9/89</td>
<td>16/9 15/9/89 2.2 2.1</td>
<td></td>
</tr>
<tr>
<td>Company</td>
<td>Date in:</td>
<td>SSARs for event days:</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>-2 -1 0 +1 +2</td>
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<td><strong>Refinances Cont.</strong></td>
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<td>Glynwed International (2)</td>
<td>27/10</td>
<td>7/10/89 16/10</td>
<td>Arranged</td>
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<td>Siebe (1)</td>
<td>7/4</td>
<td>8/4 6/4/89 (T) 2.4</td>
<td>Signed 23/3. Amount *2</td>
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<tr>
<td>Greycoat (3)</td>
<td>20/4</td>
<td>7/4/90 9/4 (T) 2.4</td>
<td>Arranged. Cheaper</td>
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<td>Ocean Group (2)</td>
<td>27/7</td>
<td>14/7/90 17/9</td>
<td>In synd</td>
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<td>Granada (2)</td>
<td>14/9/90</td>
<td>15/9 -3.3</td>
<td>In synd</td>
</tr>
<tr>
<td>Bass (1)</td>
<td>15/9/90</td>
<td>-2.3</td>
<td>£750m on better terms</td>
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<td>Scottish Met Prop (4)</td>
<td>21/9/90</td>
<td>24/11 23/11</td>
<td>In synd</td>
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<td>Ratners (2)</td>
<td>5/10/90</td>
<td>6/10 -2.5 -2.5 -8.8 -5.2</td>
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<td>CE Heath (3)</td>
<td>26/10/90</td>
<td>1/12 -2.3</td>
<td>In synd</td>
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<tr>
<td>Maxwell Comm Corp (1)</td>
<td>23/11</td>
<td>17/11/90 -3.5</td>
<td>In synd</td>
</tr>
<tr>
<td>David S Smith (2)</td>
<td>8/11/91</td>
<td>9/11 -2.2</td>
<td>Mandated</td>
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<td>Tiphook (2)</td>
<td>17/5</td>
<td>13/4/91 -2.1</td>
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<td><strong>Loans for Acquisitions</strong></td>
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<td>BAT Industries (1)</td>
<td>5/2</td>
<td>30/1/88 1/2</td>
<td>Synd closed. $3,200m</td>
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<td>Tate &amp; Lyle (2)</td>
<td>28/4/89</td>
<td>29/4 2.0</td>
<td>In synd</td>
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<tr>
<td><strong>Increased Facilities</strong></td>
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<td>2.7</td>
<td></td>
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<tr>
<td>Close Brothers (4)</td>
<td>30/9</td>
<td>1/10 23/9/88 2.7</td>
<td>Arranged</td>
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<td>Wm Morrison (3)</td>
<td>30/9</td>
<td>24/9/88 3/10 (T) -2.9</td>
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<td>Cattles Holdings (4)</td>
<td>28/1/89</td>
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<td>Enterprise Oil (1)</td>
<td>24/11/89</td>
<td>25/11 27/11</td>
<td>In synd. Pricing lower</td>
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<td>Regalian Properties (4)</td>
<td>6/10</td>
<td>30/9/89 2/10 2.1</td>
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<td>Ward Holdings (4)</td>
<td>24/2/89</td>
<td>25/2 4.5</td>
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<tr>
<td>BBA Group (2)</td>
<td>12/1/90</td>
<td>-2.2</td>
<td>In synd</td>
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<tr>
<td>S &amp; W Berisford (2)</td>
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<td>-2 -1 0 +1 +2</td>
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<tr>
<td>T Cowie (4)</td>
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<td>10/88 15/8 2.1</td>
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<td>Hammerson (2)</td>
<td>19/2 13/2/88</td>
<td>15/2 2.3</td>
<td>Increased after synd</td>
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<td>J Laing (4)</td>
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<td>7/3 2.1</td>
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<td>24/6 18/6/88</td>
<td>20/6 -2.1</td>
<td>Increased after synd</td>
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<td>Sears (1)</td>
<td>29/7 30/7 27/7/88</td>
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<td>Increased after synd</td>
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<td>Automated Security (2)</td>
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<td>Bowthorpe Holdings (2)</td>
<td>9/6/89 24/6 2.3</td>
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<td>Erskine House (4)</td>
<td>10/3/89 11/3</td>
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<td>Oversubscribed, inc. likely</td>
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<td>Granada (1)</td>
<td>14/7/89 15/7</td>
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<td>Signed 13/6. Inc. after synd. 1st report</td>
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<td>MEPC (1)</td>
<td>16/6/89 17/6 21/7 (T)</td>
<td>2.4</td>
<td>Increased after synd</td>
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<td>BICC (1)</td>
<td>14/4/90</td>
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<td>Pos 'shift in attitude'</td>
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<td>Eurotunnel (1)</td>
<td>25/8/90</td>
<td>2.1</td>
<td>Increased after synd</td>
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<td>Smith &amp; Nephew (1)</td>
<td>1/3/91 27/3 (T)</td>
<td>4.4</td>
<td>Increased after synd $1bn after covenant breach</td>
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<td>TI Group (1)</td>
<td>6/12/91</td>
<td>2.3</td>
<td>Increased after synd</td>
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<td>WPP (1)</td>
<td>6/12/91 6/4/91</td>
<td>5/4/91 2.0</td>
<td>Oversubscribed in 6 days</td>
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<td>Yorkshire Electricity (2)</td>
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<td></td>
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<td>Negative News</td>
<td>IFR</td>
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<td>British Land (2)</td>
<td>28/9/90</td>
<td>2.9</td>
<td>2.2 'Rumoured to be going slowly'</td>
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<td>28/9/90</td>
<td>6/10 -3.0</td>
<td>Difficult synd</td>
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<td>&quot;</td>
<td>12/10/90</td>
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<td>Inc in pricing probable</td>
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<tr>
<td>Evered Bardon (3)</td>
<td>12/7/91</td>
<td>20/7 2.3 2.3 4.0</td>
<td>Poor response in synd</td>
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<td>Great Portland Estates (2)</td>
<td>22/2/91</td>
<td>26/10/91 2.7</td>
<td>Signed 7/2. Reduced Refinancing abandoned</td>
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<tr>
<td>Greycoat (3)</td>
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<td>Mixed News</td>
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<td></td>
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<td>Burton Group (1)</td>
<td>21/9/90</td>
<td>22/9/90 -3.5</td>
<td>Margin 37.5bp; 10 in '87</td>
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<td>Mecca Leisure (3)</td>
<td>28/4/90</td>
<td>8/5 -2.5 2.1</td>
<td>Margin 75bp cf 12.5 before</td>
</tr>
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<td>Kelt Energy (4)</td>
<td>22/6</td>
<td>19/6/91 -2.0</td>
<td>Part repayment, more security</td>
</tr>
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</table>
If the responses to increases and positive news at least are assumed to be genuine, then *IFR* and *Euroweek* appear to be timely sources of announcements, whether or not they are where the market actually gets the news from. If a source were consistently informative, we would expect SSARs to be concentrated on announcement days for that source and possibly the day after, but no such pattern can be discerned for any of the sources. Note that four of the increased and positive news SSARs (for Ward Holdings, T. Cowie, MEPC and BICC) occur after the signing date. These SSARs are all positive, as expected, and if they are indeed responses to the announcements then this suggests that some loans are secret until after they are signed.

The main new finding from examination of individual SSARs is that 22% of the increases in amounts following syndication have a positive SSAR; only 7% have a negative SSAR. Two-thirds of the refinance SSARs are negative. Responses are not concentrated on the announcement day or day before, nor on announcements in one source in particular.

### 7.6 SUMMARY

The evidence presented on the stock market response to loan announcements in the UK adds to and, in some respects, differs from the existing US evidence. The main points of agreement are:

1. There is no significant response to announcements of new loans to larger companies. The lack of response to new loans for the full sample is consistent with Lummer & McConnell but not with Slovin et al.
2. There is a significant positive response to increased facilities for small, size four, companies. These would come under favourable revisions or renewals in the US research.

The new findings are:

1. There is a positive response to positive news, which occurs primarily during and after syndication. Responses are not focused on the announcement day but are spread during the period -2 to +9. Significant responses are largely restricted
to news of increases in amount following successful syndication. Such responses occur for all size of borrower.

2. There is a positive response to announcements of loans for acquisitions for days -10 to -1 but not at the time of the announcement or afterwards. Perhaps the market is relatively well informed when an acquisition is in progress and values banks' willingness to lend. There is no response to uncontaminated announcements of loans for MBO/Is.

Points of difference are:

1. There is a negative response to refinances for smaller companies (sizes three and four). This is unexpected given Slovin et al's significantly positive results for refinances and renewals. No obvious explanation suggests itself, other than that the US renewals results are driven by increases, which we categorise separately.

2. There is no significant response to negative or mixed news, although differences in how such news is defined may account for the difference between the US and UK results for these categories.

3. The response to general purpose loans for size four companies is significantly negative rather than positive.

4. Dissemination of information concerning loans appears to be more diffuse in the UK than the USA. There is no equivalent source to the Wall Street Journal with responses clustered within one day of announcements in that source.

5. Overall there is much less response to news concerning syndicated loans in the UK than to news of loans in the USA, especially for smaller companies. Point four above may partly explain this, and why responses to positive news are spread over event days -2 to +9. Reasons for the differences in the results are discussed further in the conclusions.

The bulk of the UK evidence presented in this chapter can not be considered as supporting the information hypothesis. The results for positive news suggest that information can be signalled during the syndication process, and there are a few other cases such as Anglesey Mining and increases for size four companies in which
abnormal returns appear to be caused by a loan announcement and have the expected sign. But the general lack of response, especially to negative and mixed news, and the small negative response to refinances and new loans for smaller companies are not consistent with the information hypothesis.

The results suggest that banks are not usually regarded as 'information specialists' in the UK, at least in their dealings with quoted companies. This is broadly consistent with the US results for large quoted companies but not for small ones. Perhaps bank lending relationships in the US with smaller quoted companies are closer and longer term than the relationship arising from arranging a syndicated loan in the UK, so that US banks obtain more information. Perhaps the UK market is better informed about smaller companies, or alternatively is inefficient in its use of a valuable source of information. As noted in section 7.1, a lack of response does not 'disprove' the information hypothesis, but it does suggest that in the UK banks are not usually perceived as having inside information about quoted borrowers which affects their valuation. Together with the limited direct evidence on (lack of) information provision by large companies to banks, these results cast doubt on explanations for the continued presence of banks in large scale corporate lending which rest on information advantages. In particular, none of the event study and other evidence indicates that banks obtain inside information about very large companies, yet many of them continue to borrow via syndicated and bilateral loans.
Chapter 8

CONCLUSIONS

The theoretical rationale for debt depends on borrowers having more information about themselves than lenders. In the modern view, debt is an efficient contract because it reduces agency and moral hazard costs, in addition to any tax advantage. It is information asymmetry which gives rise to these in the first place and if a lender has inside information this enables the average cost of its loans to be lower and the cost of each loan to reflect the risk of the borrower more accurately.

At least three stages for receipt of information have been identified. First, better information while the loan is being considered improves the accuracy of the screening process and enables fairer contracts to be written. This alleviates the problem of overcharging high quality borrowers and undercharging low quality borrowers. Second, more effective monitoring once the loan has been made increases the opportunity for lenders to respond to changes in the borrower's circumstances. Again, the result should be funding on terms which reflect the risk more accurately. Also both screening and monitoring reduce the scope for borrowers to act in ways detrimental to lenders' interests. They will reduce the agency cost of debt if the cost of information gathering is less than the expected cost to lenders from the exploitation by the borrower which could otherwise occur. Third, extra information received in the event of default, or more generally if the borrower is in difficulties, facilitates negotiation and enables more accurate decisions to be made on whether or not the borrower should be liquidated.

The event study evidence on which we have concentrated relates primarily to banks' role as information specialists at the screening and ongoing monitoring stages. In the USA there is more evidence that they obtain inside information in the course of a lending relationship rather than at the outset, ie via monitoring rather than screening. However, this only applies to smaller quoted companies. The evidence for the UK presented in chapter 7 is weaker and more
ambivalent. There is a lack of response to new loans, mixed and negative announcements and a small negative response to refinances. These results apply to smaller as well as larger quoted companies and all are inconsistent with the information hypothesis. Results consistent with it are the positive responses to increased facilities after syndication for companies of all sizes, to increases in existing facilities for the smallest companies and to loans for acquisitions.

These results, together with such direct evidence as is available on the information flow from large companies to banks, suggest that banks do not, as a rule, obtain inside information about large organisations in the UK or USA at the screening or monitoring stages. Rating agencies may have access to at least as much information. For companies too small to be quoted - the vast majority - banks can normally obtain inside information, but then these companies have no alternative to bank finance. We are left with two puzzles.

1. Organisations large enough to issue bonds continue to borrow on a large scale from banks. If banks do not have an information advantage compared with the bond market, why are they an efficient source of funds?

2. Why do the event study results for smaller quoted companies differ between the UK and USA?

**Why Do Large Companies Borrow from Banks?**

If the information hypothesis is not true for large companies, the lending relationship may still give banks an advantage if both sides value the commitment the relationship makes possible. It may also be easier for a borrower in financial distress to negotiate with a bank than with bondholders. If so, this reduces the costs of negotiation in all cases and the costs of distress are reduced if the bank chooses to support the borrower. Furthermore, there is little evidence on the information hypothesis at the bad debt stage of the lending process. If it is easier for a borrower in difficulties to
deal with a bank it may well also be easier to provide extra information to the bank than to holders of its bonds and shares, which is all that Diamond's original delegated monitoring model assumes.

The (non-event study) evidence tends to support the suggestions that banks and borrowers value a committed lending relationship and that bank support reduces the costs of financial distress. The questionnaire results in section 4.6 indicate that corporate treasurers find it easier to borrow from banks than to issue bonds. Bank lending incorporates a better service because it is quicker, more flexible and discreet, and generally less onerous. On the other hand bonds offer longer term finance. They appear to be cheaper only for the largest borrowers; the eurobond market offers a clear-cut cost advantage over syndicated loans to the few borrowers rated double or triple 'A' and is used by surprisingly few corporate issuers: 90 from the UK during 1988-91. Issuing eurobonds is simply not feasible if there is any serious concern about credit risk. The domestic bond market is open to more companies but is more expensive.

The major obstacle to the progress of securitisation is probably not so much the hassle and cost of the issuing process, which can both be reduced, as the unwillingness of bond investors to carry more than minimal credit risk. Yet it seems that they are as well informed as banks. They may remain uncomfortable because they just do not wish to be involved with companies in difficulties: that is not their business.

Our conclusions on the value of bank lending to large companies are as follows.

1. Obtaining inside information is not a big part of the story. It may be given in special cases (project finance) or if the company wants to borrow more and/or is in difficulties.

2. The lending relationship is important, however, because it enables banks to provide a better service than the bond market and both sides to show commitment. But a committed medium term
note facility is a close substitute.

3. Banks should be in the best position to deal with companies in difficulties. They already have a relationship. Compared with bondholders there will be relatively few banks lending to a borrower, each with correspondingly more at stake and more incentive to achieve the outcome which maximises their repayment; it remains harder to sell a bank loan than a bond. It is relatively easy for a bank to keep a company going by lending more and a bank willing to do this will be in a strong bargaining position. All this makes negotiation easier and helps explain why, in practice, banks see it as part of their business to deal with bad and doubtful debts and have the staff to do this whereas institutional investors do not. Because they are able to work with companies in difficulties, it is likely that banks are able to obtain inside information when negotiations are necessary. It is the capacity to negotiate with such borrowers which will be the hardest bank function for securities markets to emulate and which is, therefore, the most unique aspect of the bank lending process to large companies.

Why Do the UK and US Results Differ for Smaller Quoted Companies?

There is no entirely convincing answer to this. On the face of it there are no differences between the stock markets or banking procedures in the UK and USA which would explain the different results, but there are a number possible explanations.

1. The US studies count increased facilities under renewals. This partly explains the difference between the results for UK refinances and US renewals but not the other differences, especially the overall lack of response to announcements in the UK.

2. There is a less clear-cut announcement date in the UK. We have tried to allow for this by examining longer event periods. There is evidence from announcements of positive news and loans for acquisitions that there are responses in the UK which are not concentrated on the announcement date. To the extent this occurs it
reduces the significance of the results since the longer the event period, the larger cumulative average abnormal returns need to be to attain significance. This again may be a partial explanation. It does not explain why some results have a sign opposite to that expected.

3. The UK sample consists of syndicated loans and the US samples of bilateral loans. There is no evidence that companies provide less information to banks when seeking a syndicated loan and if banks are given inside information this should be signalled by the progress of the syndication. But because lending activity is more secret in the UK, there are no cases of renewals of loans to companies known to be in trouble, which is a pity because these announcements produced the largest response in the USA.

4. Debt is more tax efficient in the USA and the market is responding to implied increases in gearing. This does not explain the lack of response to bond issues nor why there is more response to renewals than to new loans in the USA.

5. The US stock markets are less well informed about smaller companies than the UK market, and therefore pay more attention to banks' decisions. To investigate this properly would be a major task which has not been attempted. But on the basis of general reading and conversations with people from both countries who have worked in investment, there is no reason to think that investors in the USA are less well informed - if anything the reverse is true. For example, quoted companies are required to produce reports quarterly in the USA and half yearly in the UK.

6. US banks do indeed have more inside information than UK banks. This is the most intriguing suggestion and again calls for further investigation. We have seen that the tradition of arm's length lending is very deeply rooted in the UK and that there has been no pressure for it to change from government, business or banks. How similar is practice in the USA? Anecdotal evidence from conversations with commercial bankers who have worked in New York suggests that the bank-corporate relationship is very similar and
that banks do not generally obtain inside information about companies large enough to be quoted. Such companies are at least as inclined to 'shop around' as they are in the UK and certainly do not concentrate all their cash management, deposit or borrowing business with one bank. If so, it is the US event study results which are more puzzling than ours (this is the reaction of bankers and investment analysts whom the author has spoken to).

One difference between the two countries is the enforced separation in the USA between commercial and investment banking following the Glass-Stcagal Act of 1933, though this is now breaking down. A result of this separation may be that companies are more open with lending banks in the USA than in the UK, where many banks have stockbroking and fund management operations. The supposed existence of 'Chinese walls' notwithstanding, UK companies may believe that what they tell lending officers is passed on within the group and, less plausibly, beyond. Some investors could also hear about loans by this route before they are announced, though there is very little evidence of pre-announcement response.

7. The most recent US study uses data from 1980-86. The breakdown of 'relationship banking' since then means that a study using more recent data would find less response to loan announcements in the USA. Clearly this possibility can only be tested by a further study.

8. US investors believe that banks have more information than they actually have OR UK investors are ignoring informative announcements. Both these suggestions imply, if not irrationality, then at least inefficiency on the part of investors and are therefore the last resort. But an explanation might run as follows. Everyone reads the Wall Street Journal and corporate loans are reported there as separate news items. They are one of the many information sources which investors follow and have been for a long time. UK investors do not attend to loan announcements because, rightly or wrongly, they are not generally reported as separate news items in the sources that they follow (including the FT but not IFR or Euroweek). Bilateral loans are not reported at all.
It is frustrating not to be able to offer a neat resolution to the puzzle. The author is more inclined to believe that the difference in the reporting of loans is responsible for the difference in results than that US banks obtain more information, and that the answer is a combination of reasons (1), (2), (3), (8) and possibly (7). In any case, the results are similar for larger quoted companies. In the light of all the evidence, our thesis is that the information hypothesis can not be assumed to be true for such companies but that they will continue to borrow from banks so long as bank facilities are more convenient than bond issues and bond investors lack the capacity to negotiate with borrowers in difficulties.
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**Sources of Event Study Data**


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