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**BANKS' INVOLVEMENT IN HIGHLY
LEVERAGED TRANSACTIONS**

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Banks' involvement in highly leveraged transactions*

Introduction

Since the early 1980s there has been a surge in merger and acquisition activity and other corporate restructurings around the world. The bulk of this activity has taken place in the United States. In contrast to previous waves, such as that of the 1960s, much of the present one in the United States has been financed with debt, in many instances through so-called "highly leveraged transactions" (HLTs). The nature of these operations as well as their implications for the performance and vulnerability of the restructured corporations have been discussed extensively in the literature.¹ Far less attention has been devoted to the process from the viewpoint of banks, which have provided a substantial part of the finance for the transactions.

The objective of this paper is precisely to focus on the role played by banks in HLTs, to consider the extent and form of their involvement, the main forces behind it and its implications. As most of the transactions are arranged in the United States and information on the involvement of non-US banks is more fragmented, the analysis is largely based on the US experience.

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¹ A survey of these issues from an international perspective can be found in Borio (1990), which also contains a broad bibliography.

Section I describes the general characteristics of the HLT wave. Section II reviews the information available on the size and distribution of banks' exposure to HLTs and the various forms of bank involvement. Section III briefly considers the forces which may have led to heavy participation of banks in these transactions. Section IV focuses on the risks run by banks and on their risk management procedures. Section V looks at selected policy issues, focusing on prudential supervision and monetary policy. The Conclusion summarises the main points.

I.

HLTs: characteristics and trends

General characteristics

HLTs, perhaps the most controversial financial technique of the 1980s, are restructurings of corporations financed primarily with debt.² Until October 1989 there was no generally agreed benchmark to characterise an HLT beyond the understanding that the debt/equity ratio of the restructured corporation should significantly exceed historical standards. In that month, as part of efforts to tighten supervision, the three US national bank regulators adopted a common broad definition for the purpose of banks' reporting requirements. The definition covers all buy-outs, recapitalisations and acquisitions which either double the company's liabilities resulting in total liabilities/total assets ratios of over 50% or which result in total liabilities/total assets ratios in excess of 75%.³

The three types of HLTs – buy-outs, acquisitions and recapitalisations – are largely equivalent from the point of view of banks' involvement but differ somewhat in terms of their

² For a general description of HLTs, see in particular DeAngelo and DeAngelo (1987), Ram (1988), Doyle and Ammidon III (1989) and Rizzi (1989). A more complete list of references can be found in Borio (1990).

³ It also covers transactions designated as HLTs by a member of the bank loan syndicate (a "syndication agent"). The three national regulators are the Federal Reserve Board, the Federal Deposit Insurance Corporation (FDIC) and the Comptroller of the Currency. For the original common definition, see Comptroller of the Currency (OCC) (1989a) and, for a joint clarification, Comptroller of the Currency et al. (1990). The classification specified, inter alia, that at least 25% of the liabilities of the company should be associated with the transaction. The definition has been criticised by some banks on the grounds that it is too broad, as it also captures a number of companies in the communications sector, notably cable companies, which in the last few years have grown rapidly through acquisitions, but which are historically highly leveraged (Hanley et al. (1990)). Previous official definitions were somewhat narrower, focusing primarily on the 75% liabilities/assets test (Board of Governors of the Federal Reserve System (1989) and FDIC (1989)).

mechanics. In *leveraged buy-outs* (LBOs), the transaction which has received the most attention, a corporation is purchased by a group of investors who establish a new (“shell”) corporation with that sole purpose. If publicly quoted, the target company’s shares are then removed from the stock market, i.e. the company is taken private. In contrast to buy-outs, in *leveraged acquisitions* the acquirer is already an established corporation with other sources of revenue. In *leveraged recapitalisations* (or “recaps” for short) a corporation retires part of its outstanding shares, substituting debt for equity.⁴ Typically, recapitalisations are defensive measures against takeover threats.

The financing structure of HLTs varies considerably but two key characteristics are shared by all transactions (Tables 1 and 2). The first, and most obvious, is the small equity cushion of the restructured company. The second, partly the result of this small cushion, is the relatively complex structure of the debt (see Table 2 for an example). As the ratio of debt to assets (leverage) rises, so does the probability of default. Since investors differ widely in terms of their ability and/or willingness to bear risk, debt tranches are characterised by different degrees of priority as regards repayment and protection against losses in the event of default (“seniority”). Banks invest primarily in the more senior tranches but, depending partly on regulatory constraints, may also be involved in subordinated (“mezzanine”)⁵ debt and equity

⁴ In accounting terms recapitalisations are not viewed as acquisitions, since no change in ownership takes place. As a result, the difference between the amount paid for the equity (market value) and its book value is considered a net reduction from net worth rather than an addition to the computed value of assets. Thus, negative net worth for accounting purposes is quite common.

⁵ Mezzanine finance can take many different forms, varying considerably in terms of repayment priority and protection. Their common characteristic is that they fall between senior debt and equity in a distribution, sale or liquidation. In the United States a variety of non-investment-grade securities are the most common form; in European deals, given the relative underdevelopment of securities markets, bank debt with equity options attached is more widespread. See The Economist (1989b), Chew (1989), de Gersigny (1990) and Chu (1990).

Table 1
 Financing structure of highly leveraged transactions
 In percentages

Senior debt	40-85
Subordinated ("mezzanine") debt . . .	10-40
Equity	1-20

Source: Ram (1988).

Table 2
 LBO example: Owens-Illinois*

	Financing of transaction				Company's final capital structure	
	Tender offer		Merger date		billions of dollars	percent-age share
	billions of dollars	percent-age share	billions of dollars	percent-age share		
Senior bank debt	3.0	75	2.7	63	2.7	60
Subordinated debt . . .	0.8	20	1.4	31	1.4	30
Senior			0.8	17	0.8	16
Junior zero-coupon . .	0.6	15	0.6	14	0.6	13
KKR notes	0.2	5				
Excess cash			0.1	2		
Equity	0.2	5	0.2	4	0.2	4
Remaining pre-existing debt					0.3	7
Total	3.9	100	4.3	100	4.4	100

Note: Figures in this and subsequent tables may not add up because of rounding.

* The transaction involved the purchase of the existing equity and over half of the pre-existing debt given that existing indentures prevented merger. Bridge financing was supplied by KKR and Morgan Stanley in the form of KKR subordinated notes and junior zero-coupon debt. On the merger date bridge financing and part of the senior bank debt were refinanced with subordinated debt.

Source: Ram (1988).

financing. Non-investment-grade ("junk") bond securities, which have flourished in US capital markets, are the best-known example of a junior debt claim.

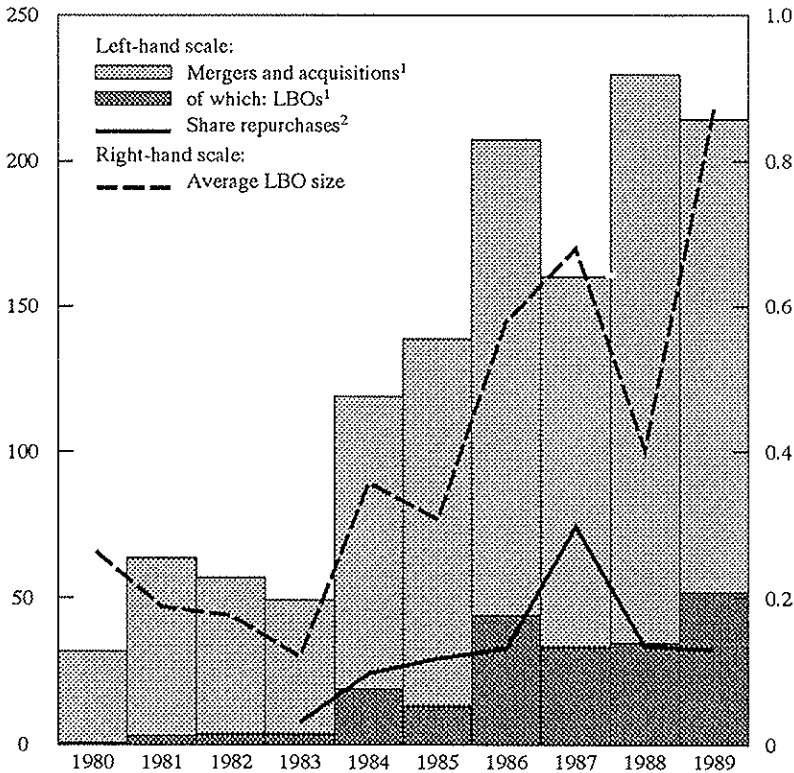
Growth and slowdown

HLTs grew rapidly throughout the 1980s in the wake of a major wave of merger and acquisition (M & A) activity (Graph 1). Excluding the smallest deals, between 1982 and 1989 the total volume of LBOs involving US corporations rose from around \$3 billion to over \$50 billion, and the average transaction size from roughly \$150 million to almost \$900 million. Figures on leveraged acquisitions and recapitalisations are not readily available but there are indications that the volume of these operations was also substantial. The dollar volume of all M & As, excluding LBOs, trebled over the same period to around \$160 billion. That of share repurchases, excluding M & A-related operations, averaged over \$30 billion between 1983 and 1989. Although there has also been a wave of M & As outside the United States, particularly in Europe, HLTs have not been widespread. The estimated value of such transactions in Europe in the record year of 1989 was of the order of \$17 billion, about \$12 billion of which was in the United Kingdom and only \$1.4 billion in France, the two countries where HLTs have been most popular. Their average size, at \$20 million, was also much smaller, with the largest completed transaction to date amounting to £2 billion (over \$3 billion).⁶ As discussed in more detail in Borio (1990), a host of institutional factors has hindered the development of HLTs outside the United States. This has not, however, prevented the active involvement of non-US banks in US transactions (see below).

At least in the United States new HLT activity came almost to a standstill in the second half of 1989 and early 1990 following the completion of the record \$25 billion LBO of RJR-Nabisco (Graph 2). While a slowdown might have been expected, to allow

⁶ Data provided by the Centre for Management Buyout Research, United Kingdom. The figures probably overlap partly with those for the United States. Many transactions involve purchases by, or divestitures of, US companies, which are included in the US data. For further details of buy-outs in Europe see, for instance, Heuzé (1990).

Graph 1
 US mergers and acquisitions and HLT activity
 In billions of dollars

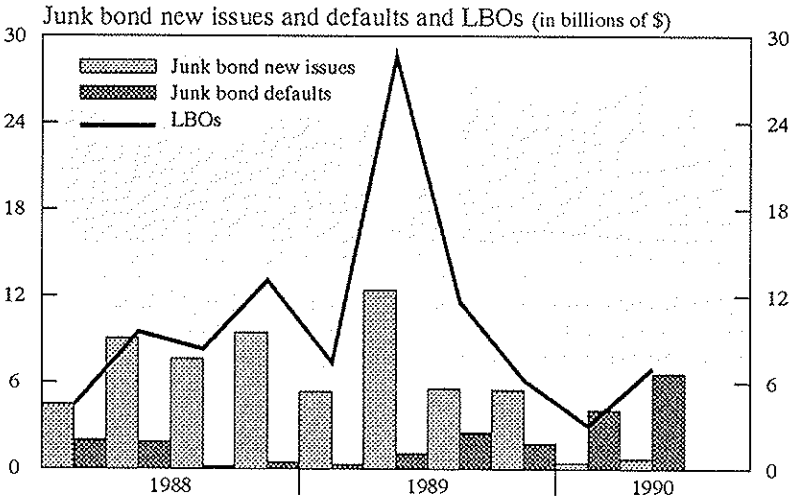
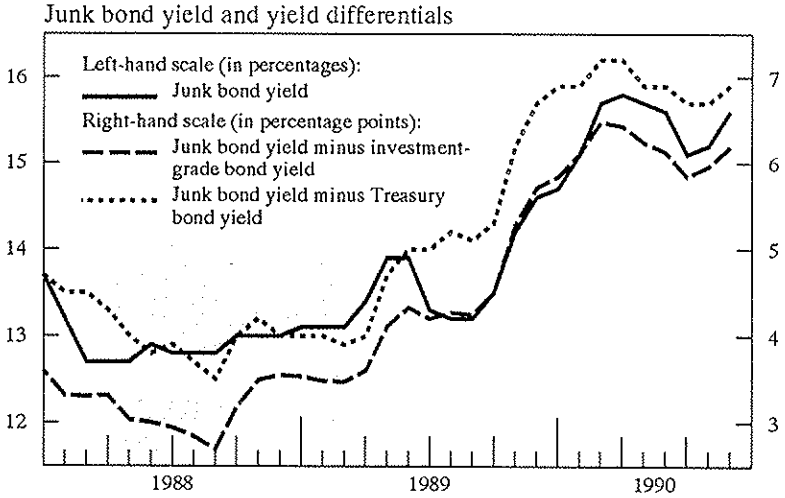


¹ Completed transactions of at least \$35 million in which at least one US company is involved. ² Excluding those connected with mergers and acquisitions.

Sources: Morgan Stanley & Co. Incorporated and Congressional Research Service.

the financial community time to digest the operation, the abrupt halt was more directly related to the emergence of a number of signs of stress in the market. In September 1989 a restructured retailer (Campeau) was faced with a major liquidity crisis; in October the failure to complete a key transaction (UAL)

Graph 2
Junk bonds and highly leveraged transactions



Note: The RJR-Nabisco transaction, arranged in 1988 but completed in 1989, amounted to \$25 billion and involved over \$8 billion of straight junk bond issues.

Sources: Morgan Stanley & Co. Incorporated and Investment Dealers Digest.

precipitated a collapse in takeover stocks and in the stock market in general; in January 1990 the debt of RJR-Nabisco was downgraded; and finally, in February the leading underwriter and trader in junk bonds, Drexel Burnham Lambert, filed for bankruptcy. Between at least mid-1989 and early 1990 the junk bond yield differential vis-à-vis investment-grade bonds rose steeply and the volume of new issues dried up as default volumes soared. In the press there were frequent reports of an increasing number of highly indebted companies facing difficulties in servicing their debts and being forced into renegotiations with their creditors, mostly outside the bankruptcy courts (Light et al. (1989)). Similar though less alarming reports were surfacing with regard to developments in the United Kingdom (The Economist (1989a) and Bennett (1990)). Against this background, there was mounting concern regarding the financial vulnerability of both corporations and lenders.

The forces behind the wave of HLTs have been the subject of considerable debate.⁷ The tax advantage of debt over equity built into the tax code may indeed have encouraged the process, but this advantage has always been present and it is unclear whether changes in the tax code can explain the timing of the surge in HLT activity.⁸ Industrial economists emphasise increasing competitive pressures, the consequent need to redeploy assets and industrial deregulation as factors behind the broader M&A wave (Ravencraft (1987)). By contrast, financial economists point to the market's possible undervaluation of corporations, especially conglomerates, and stress the ample availability of debt finance as a result of a number of financial innovations, most notably junk bonds (Jarrell (1987) and le Baron and Speidell (1987)). Without these high-risk debt securities offering little protection in

⁷ For an overview, see Borio (1990).

⁸ For differing views, see Warshawsky (1987), Miller (1988) and Modigliani (1988). For a specific view on tax savings as the primary motivation behind HLT activity, see Bull (1989).

the event of default and without investors prepared to accept this higher risk HLTs could hardly have developed.⁹ In addition, the very financial structure of HLTs is said to be particularly conducive to efficiency gains and hence increased profitability, since it can align the managers' interests with those of shareholders and limit the managers' discretion to pursue goals other than the maximisation of the firm's value (e.g. indiscriminate growth).¹⁰ The reduced dispersion of equity holdings resulting from the final narrow equity base can facilitate the monitoring of the company's management and of its performance.¹¹ More importantly, the stream of contractual payments on debt can put pressure on managers to sell assets which could be more valuable in alternative uses, to cut excessive costs and to come under the scrutiny of markets for their investment funds.¹² According to this view, HLTs are partly the result of the perception that a particular set of financial arrangements can help to generate value.

⁹ Between 1987 and 1989 some 40% of total junk bond issues may have been LBO-related.

¹⁰ Jensen (1986), (1987) and (1989) has been the most articulate advocate of this view.

¹¹ The presumption of gains is particularly strong where managers end up holding significant proportions of their wealth in the equity of the firm, which is especially true of buy-outs initiated by management (management buy-outs).

¹² Much of the temporarily higher debt burden of HLTs is expected to be repaid either through operating cashflow or asset sales, typically of whole operating units as going concerns. The available information indicates that the largest and also the smallest deals (less than \$25 million) tend to rely more heavily on revenue from asset sales. See Rizzi (1989).

II. Banks' HLT involvement

Exposures

Assessing the evolution and distribution of banks' exposure to HLTs is particularly difficult, not least because interest in banks' involvement is relatively recent. As a standard definition of HLTs was not adopted until October 1989, previous information relied largely on banks' own definitions, which varied considerably among institutions. As yet no data have been published on exposures at a system-wide level on a consistent basis. Moreover, banks have not been obliged to disclose their exposure to the public, although at least in the United States they have come under growing pressure to do so. Until recently, in fact, many did not even compile information on their HLT exposure as such.

At the same time, the HLT wave could clearly not have materialised without significant bank involvement. Recent estimates indicate that banks provided no less than around half of the total financing for US LBOs between end-1987 and mid-1989 (Hamdani (1990)).¹³ Similarly, partial evidence on longer-term trends suggests that merger-related and HLT lending have played a major and increasingly important role in banks' business in the second half of the 1980s (Table 3).¹⁴ At sixty large US-chartered banks, for instance, the share of merger-related loans outstanding (i.e. excluding unfunded loan commitments) in Commercial and Industrial (C & I) loans, while fluctuating, rose from 11% to around 15% between 1985 and 1989. The share of

¹³ Assuming a similar percentage for earlier transactions, between 1982 and 1989 original bank financing (gross flow) of US LBOs alone may have amounted to about \$100 billion.

¹⁴ Data derived from the Senior Loan Officer Opinion Survey on Bank Lending Practices (LPS) by the Board of Governors of the Federal Reserve System. This is the only source of evidence on longer-term trends.

Table 3
Evolution of merger-related and LBO loans at sixty large US banks¹

	1985	1986	1987	1988	1989
	as a percentage of commercial and industrial loans outstanding				
Merger-related ² . . .	10.0	15.1	15.7	11.5	15.3
Larger banks ³ . . .	11.1	17.0	17.3	12.3	15.8
Smaller banks ³ . . .	4.9	7.4	8.5	9.7	13.9
LBOs	7.0	13.2	9.1	6.9	8.9
Larger banks ³ . . .	8.1	15.6	9.9	7.4	8.4
Smaller banks ³ . . .	3.2	4.6	5.5	5.8	10.2
	as a percentage of merger-related loans outstanding				
LBOs	66.2	72.5	63.4	62.1	57.7
Larger banks ³ . . .	68.7	77.3	63.7	62.4	54.0
Smaller banks ³ . . .	57.7	57.0	62.0	61.5	68.2

¹ At the end of December 1989 the total assets of the banks in the sample amounted to \$938 billion, or one-third of the total assets of all US-chartered federally insured commercial banks.

² Excluding unused loan commitments. Merger-related loans include loans to finance LBOs, other mergers and acquisitions, and defensive and other restructuring such as equity or debt buy-backs. Definitions as decided by individual banks. Percentages are not fully comparable over time owing to minor changes in the sample.

³ The cut-off points are total assets of \$7.5 billion and \$10.0 billion respectively for the periods 1985-87 and 1988-89.

Source: Senior Loan Officer Opinion Survey on Bank Lending Practices, Board of Governors of the Federal Reserve System.

LBO loans¹⁵ in merger-related loans remained close to 60%. At the end of 1989 share buy-backs, which include recapitalisations, represented around 20%.

According to some estimates¹⁶ by the first quarter of 1989 total bank exposure to US HLT transactions may have been in the

¹⁵ LBO loans probably include both buy-outs and other leveraged acquisitions.

¹⁶ The estimate relates to amounts uncovered by the Shared National Credit Program (SNCP) as cited in the press (Rehm and Neustadt (1989)). This joint regulatory survey covers all loans in excess of \$20 million originated by a bank domiciled in the United States and shared by more than one bank. It is therefore probably the best guide as to the total volume of HLT lending since a bank in the United States normally organises the loan syndications (see below). The figures should be taken with great caution, however, given that at the time no consistent HLT definition was used and that no further details were provided. Only rough orders of magnitude are relevant.

region of \$170 billion, with perhaps around \$100 billion outstanding and the remainder in unfunded loan commitments.¹⁷ This amount should cover loans at US-chartered banks (both US-owned banks and subsidiaries of non-US banks),¹⁸ branches and agencies of non-US banks in the United States as well as their head offices in the country of origin.

There are some tentative indications that non-US banks may have in the region of 40% of the total bank exposure to HLTs. According to survey evidence by IBCA, a UK-based banking rating agency, in early to mid-1989 banks of four other industrialised countries had over \$60 billion in total HLT loan exposure (Table 4). Over half was held by Japanese banks, the remainder being shared almost equally between French, British and Canadian institutions.¹⁹ A large portion was probably booked at their branches and agencies or at their subsidiaries in the United States.

The sizable and growing involvement of non-US banks is confirmed by other pieces of evidence. It has been estimated that between end-1987 and mid-1989 non-US banks provided almost 40% of total LBO original bank financing (Hamdani (1990)). This figure excludes purchases of secondary loans, an area in which they have been increasingly active (see below). In the RJR-Nabisco operation Japanese banks alone are reported to have supplied \$6.1 billion, or nearly half the total original bank lending (International Financing Review (1989a)).²⁰ At the same time survey evidence shows that the peak exposures to both

¹⁷ This tentative breakdown is based on figures for the fifty largest US bank holding companies at the end of 1988. It allows for the fact that some major transactions (such as RJR-Nabisco) were completed in the second quarter of the year, which suggests an above average volume of undrawn commitments.

¹⁸ Although, strictly speaking, also branches and agencies of non-US banks in the United States are US-chartered, the term is used here in the narrower sense.

¹⁹ Available evidence points to relatively little involvement by German banks.

²⁰ On the active role of Japanese banks, see also *The Japan Economic Journal* (1989).

Table 4
Breakdown of bank lending to HLTs by nationality
of the lending institution, 1989*

	Loans outstanding	Unfunded loan commitments	Total	
	in billions of dollars			percentage share
Japan	20	15	35	52
France	9	1	10	18
United Kingdom	8	1	9	16
Canada	7	1	8	14
Total	44	18	62	100

* Estimated by IBCA Banking Analysis Ltd, UK. The information appears to cover primarily exposures around end-1988 and early 1989. The figures also include amounts held at the banks' branches and agencies as well as subsidiaries in the United States. Only rough orders of magnitude are relevant. At the end of 1989, the branches and agencies and the subsidiaries of non-US banks in the United States had some \$140 and over 40 billion in C & I loans respectively, accounting for about 20 and 7% of all C & I loans of commercial banks.

Source: Holden and Glasball (1989).

M & As and LBOs at sixty large US-chartered banks was reached as early as 1986, despite the upsurge in the completion of transactions in 1988 and 1989. This points to a greater role played since then by banks excluded from the sample, among which are non-US banks.

It is, however, US banks which have the greater share of HLT lending. The available evidence, while incomplete, indicates that the exposures are heavily concentrated among the larger institutions, whose HLT participation in relation to equity capital is typically considerably greater than that of non-US banks.

As shown in Table 5, at over 300 publicly traded US-owned banks HLT loans outstanding (i.e. excluding unfunded commitments) amounted to some \$80 billion at the end of June 1990. The top twenty and fifty institutions accounted for around 75 and over 95% of the total exposure respectively, reflecting to a

Table 5
 HLT loans outstanding at publicly traded US banks, June 1990¹

Bank groups (by asset size)	Banks reporting zero exposures ²		HLT loans outstanding					Banks' share of	
	number	percentage of group loans	in billions of dollars	as a percentage of			HLT loans	total loans	
				group equity	group loans	HLT- reporting banks' equity			HLT- reporting banks' loans
Top 20	0	0	60.5	84	7	84	76	56	
21-50	5	10	15.6	43	4	49	20	25	
51-100 ²	31	63	3.2	18	2	48	4	12	
101-306 ²	202	96	0.1	1	0	22	0	7	
Total	238	16	79.5	57	5	72	100	100	

¹ The sample covers data for 306 of 387 publicly traded BHCs and commercial banks in the United States (279 BHCs and 27 commercial banks). It therefore excludes branches and agencies of foreign banks as well as their fully-owned subsidiaries. The loans of the institutions in the sample amounted to some \$1.5 trillion. This is equivalent to about two-thirds of all the loans outstanding at insured US-chartered commercial banks (including subsidiaries of non-US banks), although the actual amount of commercial bank loans included should be somewhat lower as the figures also cover loans booked at the BHC level. The loans at the 81 publicly traded banks excluded from the survey (74 BHCs and 7 commercial banks) amounted to a further \$200 million. While most of these banks were small, four were in the 21-50 size bracket and an additional twenty in the 51-100, suggesting that they may have held some HLT loans.

² Although there may be a few banks reporting zero exposures incorrectly, the surveyors believe that the incidence of this factor is likely to be minor.

Source: SNL Securities.

Table 6
 HLT exposures at the fifty largest bank holding companies¹

	1988	1989			1990	
	Dec.	June	Sept.	Dec.	March	June
	in billions of dollars					
Loans (Senior Debt)	78	92	96	118	119	113
Outstanding	49	57	59	77	81	78 ²
Unfunded commitments	29	35	37	41	39	34
Other ³	5 ⁴	9	7	7	7	7
Total	83 ⁴	100	103	126	127	120
	as a percentage of shareholders' equity					
Loans	78	87	105	114	114	103
of which:						
Outstanding	29	54	65	74	77	72
Total	84 ⁴	95	113	121	121	110

¹ As from December 1989 the figures are based on the HLT definition issued by US federal bank regulators in October 1989. Other figures relate to banks' own definitions, which vary considerably but are typically narrower. As a result, the data are not fully comparable between banks or over time.

² The small discrepancy with the figures presented in Table 5 probably results in part from the inclusion of some four US-chartered foreign-owned BHCs which are not publicly traded.

³ Mezzanine financing (subordinated debt plus limited-life preferred stock) and equity investments (common and perpetual preferred stock, including unfunded commitments).

⁴ Excluding equity investments.

Source: Board of Governors of the Federal Reserve System.

considerable extent the greater incidence of these loans in their portfolios.

More complete information for the larger US banks indicates that at the end of June 1990 thirteen and fifty of the largest bank holding companies (BHCs) had some \$70 and over 110 billion respectively in total HLT loan exposure (loans outstanding plus unused commitments), representing around 125 and 100% of their equity capital (Tables 6 and 7). Many in the top group, and a

Table 7
 HLT exposures at thirteen of the largest bank holding companies¹

	1989		1990
	September	December	June
	in billions of dollars		
Loans (Senior Debt)	61	70	69
Outstanding	34	45	47
Unfunded commitments	27	25	22
Other ²	5	5	6
Total	66	74	75
	as a percentage of shareholders' equity		
Loans	123	135	126
of which: Outstanding	68	87	86
Total	134	144	137
Range	34-271	65-299	56-250
	number of banks		
Total exposure/equity ratios			
Over 100%	9	10	10
Over 150%	6	6	6
Over 200%	4	4	4
Over 250%	1	2	0

¹ Partly estimated. As from December 1989 the figures are based on the HLT definition issued by US federal bank regulators in October 1989. Other figures relate to banks' own definitions, which vary considerably but are typically narrower. As a result, the data are not fully comparable between banks or over time.

² Mezzanine finance and equity investment.

Sources: Keefe Bruyette and Woods Inc., Thomson Bankwatch Inc. and own estimates.

few of the remaining thirty-seven, had exposures well in excess of 100%. Exposures had risen significantly since the end of 1988, although the rise after September 1989 appears to be primarily related to the broadening and standardisation of the HLT definition in line with regulatory requirements. A slight fall had taken place since the end of 1989. By contrast, in the case of UK banks the exposure of the five largest lenders has been estimated at well below 100% of their equity in all cases. Only one of the six

largest Canadian banks may possibly have an exposure approaching 100% of its equity capital. Estimates suggest that the large French banks generally have total exposures below 100% of shareholders' equity, with perhaps three or four institutions around or above that threshold.²¹ Similarly, when a Japanese bank active in the HLT market publicly disclosed its exposure – when its shares were first listed on the New York Stock Exchange – the level was significantly lower than that of a typical large US bank. Recently, however, a relatively high exposure to HLTs was cited among the reasons for the downgrading of at least one Japanese bank (Sesit (1990)).

Forms and terms of involvement

HLT's allow banks to engage in a wide spectrum of activities covering both commercial and investment banking. Banks are involved at multiple levels: they may originate deals, arrange loan syndications, be active sellers or buyers of loans and take part in the financing not only of senior debt tranches but also of "mezzanine" layers and even equity. The role played by individual institutions will partly depend on their comparative advantage in the various facets of a transaction and on regulatory constraints.

A typical such regulatory constraint is that which severely limits the involvement of US banks in the non-investment-grade and equity layers of finance. Commercial banks are generally not allowed to hold non-investment-grade securities or equity and only somewhat less restrictive rules apply to BHCs and non-bank

²¹ The estimates are own calculations on the basis of published information regarding ratios of bank exposures to own funds, which are generally lower (Commission Bancaire (1990)). The Commission Bancaire is not allowed to disclose figures on individual banks.

affiliates, where these investments are booked.²² This stands in sharp contrast to the greater freedom of UK and French banks, for instance, which can be actively involved, either directly or through specialised subsidiaries (Euromoney (1989), Mabilie (1989) and Lanchner (1990)).

US banks have clearly exploited the margins left to them by regulation. At the end of 1989 mezzanine and equity investments amounted to over \$7 billion at the fifty largest BHCs, or around 7% of the banks' own equity capital, with peaks of over 10% at some of the most active institutions.²³ About 70% of these investments took the form of equity holdings, of which two-thirds in specific transactions and the remainder in LBO equity funds, the institutions which also sponsor and promote HLTs.²⁴ High expected returns have made such investments particularly attractive. On the equity portion, judging from past experience, banks in 1988 would typically have been expecting returns in the range of 25-75% (OCC (1989)). On junk bonds, when in 1989

²² Commercial banks can invest in non-banking businesses only through Small Business Investment Companies (SBICs). The amount of such investments should not exceed 5% of the investing banks' capital and surplus. BHCs, besides being allowed to invest through SBICs, are free to hold equity in any company, but individual stakes in non-bank organisations cannot exceed 5% of their outstanding voting shares. While the total amount of such investments is not subject to statutory limitations, the authorities are likely to prevent any holdings deemed large relative to the BHC's capital as representing an unsafe and unsound practice. Similarly, while there is no explicit regulatory limit to the amount of junk bonds in BHCs' portfolios, regulators can question investment policies if exposures appear imprudent. Some bankers believe that a 10% threshold could trigger regulatory intervention (Neustadt (1989)). For a succinct comparison of restrictions on banks' equity holdings in the Group of Seven countries, see Borio (1990).

²³ These figures are measured at market value and therefore reflect losses and gains on the investments. Thus, the value of investments in mezzanine financing dropped from around \$5 to 2 billion between end-1988 and end-1989, reflecting to a considerable extent the severe losses in the junk bond market.

²⁴ It has been estimated that BHCs own about one-fifth of the well-known equity funds, whose overall capitalisation was over \$12 billion in mid-June 1988 (OCC (1989b)).

Table 8
Characteristics of bank lending

	Maturity (years)	Interest rate		Collateral	
		Form	Margin	Existence	Form
Bridge loans	½-2	Floating	LIBOR + 200 b.p. LIBOR + 300 b.p.	Common	- Subsidiaries' stocks - Assets sold
Revolving credits	1-10	Floating	LIBOR + 200 b.p. LIBOR + 300 b.p.	Common	- Receivables - Inventory
Term loans	4-10	Floating	LIBOR + 200 b.p. LIBOR + 300 b.p.	Common	- Subsidiaries' stocks - Subsidiaries' guarantees - General lien on assets

Sources: Hanley et al. (1988), Ram (1988) and OCC (1989b).

these securities were trading at around 300-400 basis points (b.p.) over Treasuries, banks could effectively obtain spreads of at least 150 b.p. over a typical senior LBO loan.²⁵

The bulk of bank financing is in the form of (senior) loans, which at US BHCs typically account for over 90% of exposures (Tables 6 and 7). Loans are granted at floating rates and on terms which can appear particularly attractive when compared with traditional corporate business lending (Table 8). The contractual rate varies in relation to indicators of the financial riskiness of the operation²⁶ and has tended to range between LIBOR (London interbank offer rate) + 200 b.p. and LIBOR + 300 b.p. or Prime + 100 b.p. and Prime + 200 b.p.²⁷ In addition, depending on the

²⁵ Neustadt (1989) reports that when the fixed-interest payment stream on junk bonds was swapped with a floating rate payments stream, banks were able to obtain a rate of LIBOR + 400 b.p. compared with LIBOR + 250 b.p. for a typical LBO senior loan.

²⁶ Typical examples are the degree of leverage or the interest coverage ratio.

²⁷ There is no single pricing formula or benchmark and often companies can choose between different alternatives. The mark-up need not be fixed and may be related to the performance of the borrower, with clauses providing for higher margins in the event of delayed repayment or failure to meet cashflow projections and leverage tests.

Table 9
LBO example: RJR-Nabisco¹

	Tender			Merger/Final		
	in billions of dollars	percentage share	rate	in billions of dollars	percentage share	rate
Bank debt	13.6	54		13.75	54	
Tender facility	13.6	54	LIBOR + 300 b.p. or Prime + 200 b.p.			
Refinancing bridge				1.5	6	} Prime + 225-275 b.p. ² LIBOR + 250 b.p. or Prime + 150 b.p.
Asset sales bridge				6.0	23	
Term loan				5.25	21	
Working capital facility				1.0	0	
Other bridge financing	5.5	22				
Drexel	3.5	14				
Merrill Lynch	1.5	6				
KKR	0.5	2				
Mezzanine financing ³	4.5	18		4.5	18	
Common equity	1.5	6		1.5	6	
Junior subordinated refinancing				5.5	22	
Total	25.1	100		25.3	100	

¹ The initial bank tender facility was replaced at tender by longer-term bank financing divided into four tranches: a two-year refinancing bridge loan, an asset-sale loan (of which \$5 billion was to be repaid by KKR within one year), a working capital facility and term loans. Shorter-term bridge financing was also provided by investment banks and KKR to be subsequently replaced by junior subordinated securities.

² Prime + 225 b.p. (first year), Prime + 250 b.p. (next six months), Prime + 275 b.p. until loan matures after two years.

³ KKR payment-in-kind bonds and preferred stock.

Sources: Smith and Heylar (1988), Neustadt (1988) and IFR (1989b).

type of financing, banks charge a variety of fees amounting to between 1½ and 3% of the facilities.²⁸ Generally the loans are secured (OCC (1989b)), but precise statistics on the share of secured lending and on the forms of collateral are not available.

HLT loans fall into three main categories: bridge loans, revolving credits and term loans (see also Table 9). These differ in terms of function, maturity, the degree of flexibility enjoyed by the borrower and the security offered to the lender.

In contrast to revolving credits and term loans, which are traditional forms of lending, *bridge loans* are a financial innovation which has gone hand in hand with the latest merger wave. Their common denominator is that they represent temporary financing to be repaid out of the proceeds of sales of financial or real assets. These short to medium-term facilities are designed for three possible specific purposes. Firstly, they can bridge the financing gap during the tender offer phase, particularly as securities issues take time to arrange and it is always uncertain whether sufficient shares will be tendered to complete the transaction. Although they are normally supplied by investment banks, commercial banks have sometimes been involved in these loans. They are expected to be subsequently refinanced by the issue ("sale") of subordinated debt securities. Their maturity is typically less than one year. Secondly, bridge loans may bridge subordinated debt securities issues over longer horizons (up to two years). Thirdly, they may bridge sales of the company's assets, normally expected to take place within two years of the transaction. In 1989 at a sample of sixty large US banks almost 30% of funds repaying merger-related loans were thought to come from asset sales and an additional 10% from securities issues, primarily bonds. Collateral mostly takes the

²⁸ These include upfront, annual, commitment, unused commitment, documentary, closing, audit, advisory, collateral management and cancellation fees. See OCC (1989b) and, for further details on pricing, Hanley et al. (1990).

form of the target company's or its subsidiaries' stocks. In some cases, it may be represented by the specific asset to be sold.

*Revolving credits*²⁹ are mainly designed to meet the working capital needs of the restructured company. They give the borrower ample freedom with respect to the timing of drawings and repayments. They have a wide maturity range (between one and ten years) and are most often collateralised with inventory and/or receivables. Revolving working capital loans are also extended by commercial finance companies.

In contrast to revolving credits, *term loans* are repaid over a fixed period according to a pre-established schedule. Their original maturity typically ranges from four to ten years. Collateral often takes the form of subsidiaries' stocks and, in some cases, general claims ("liens") on the companies' assets.

The overall repayment schedule of loan exposure varies from deal to deal. However, schedules envisaging 50% repayment within five years are often quoted as representative. The average maturity of the exposures, therefore, is considerably longer than that of a typical C & I loan.

A large portion of HLT loans is initially granted under *commitment*, whereby the bank is legally bound to lend a certain amount on pre-specified terms some time in the future. The ratio of (off-balance-sheet) unused commitments to loans outstanding was as high as four-fifths at ten of the largest BHCs in September 1989, and around 60% at the top fifty. One important reason for their widespread use is that firm financial backing and flexible access to funds are crucial elements of successful bids.

A distinctive feature of HLT loans is that, largely because of their size, they are typically *syndicated* by a number of banks.³⁰ Each member of the syndicate takes a pro rata share of the loan

²⁹ In a revolving credit the bank agrees to make loans up to a maximum specified amount for a specified period. As the borrower repays the loan he is automatically entitled to borrow an equivalent amount under the terms of the loan agreement. Revolving credits, therefore, do not have a fixed repayment schedule.

³⁰ For a more detailed description of loan syndications, see Allen (1990).

commitment³¹ which in effect underwrites the transaction, with the share of the banks in charge of organising the syndicate ("agent" or "co-agent" banks) generally being significantly larger. Depending on the size and complexity of the transaction, a number of tiers of participation may exist according to the size of the banks' commitment, with fees increasing with size (Table 10). The OCC (1989b) survey of the sixteen largest US banks found that maximum initial commitments generally varied between \$200 million and 1 billion. By contrast, final holding targets were much lower, typically not exceeding \$50 million or 10% of the transaction, whichever was greater.

*Sales of HLT loans*³² have become increasingly common as a means of reducing the initial exposure and as an additional source of income (Table 11).³³ The selling bank retains part of the interest spread and upfront fees on the original loan, the amount

³¹ Each member also retains full voting rights with respect to the loan terms.

³² Loan sales fall into one of two categories: assignments and participations. In an assignment the originating bank assigns all its rights and obligations in respect of the portion sold to the purchaser and its relationship with the borrower is extinguished. In a (secondary) participation, by contrast, the originator continues servicing the loan and retains broad discretion over loan terms, usually transferring to the purchaser voting rights only over interest rates, maturities and principal. Participations are interbank contracts and may expose the banks to credit or funding risk arising from the failure of the counterparty. In addition, in contrast to assignments, they often cannot be resold without the consent of the selling bank. The bulk of loan sales are participations, though assignments have grown faster recently (Table 11). Loan sales are normally non-recourse, i.e. without any obligation on the seller to repurchase the loan. At the end of 1985, less than 3% of loan sales reported by sixty of the largest US banks were with recourse. However, a number of legal issues concerning ultimate liability still remain unclear (see below).

³³ Banks sometimes sell loans for a shorter maturity and lower interest rate than those of the original credit ("strip" loan sales). Since the purchasing bank is not required to reinvest, however, the regulators do not allow the selling banks to remove these loans from their books. While sales of individual loans have been sizable, to date the sale of securities backed by LBO loan pools ("asset-backed securities") has been negligible. By early 1990 only \$1.5 billion had been securitised, with one deal being arranged by a French bank. The heterogeneity of the underlying loans is one constraint. See Kotecha (1990) for an overview.

Table 10
Loan syndication characteristics: RJR-Nabisco

Number of agent banks	4
Number of tiers	2 (\$100-499 million; \$500 million and over)
Range of fees	
Manager	1.375% (\$100-199 million) - 2.250% (\$1,000 million and over)
Facility	0.125% (\$100-199 million) - 1.000% (\$1,000 million and over)

Source: Neustadt (1988).

Table 11
Characteristics of US banks' commercial and industrial loan sales¹
Amounts outstanding

	March 1987	June 1988	June 1989
	as a percentage of sales		
Merger-related	35	23	45
Original maturity > 1 year	56	50	63
Participations	91	82	57
By seller			
Money-centre banks ²	65	63	71
By purchaser			
Other domestic banks	35	34	34
of which: Large banks ³	28	27	31
Non-US banks ⁴	38	44	45
Other ⁵	27	23	20
<i>Memorandum item:</i>			
Total, in billions of dollars	38.7	53.1	72.2

¹ Excluding sales with recourse, i.e. with repurchase commitments attached. Data derived from the LPS covering sixty large US-chartered banks. Call report data indicate that these banks accounted for over 90% of all loans sold by commercial banks in the second quarter of 1989 (including loans other than commercial and industrial). The number of respondents was almost the same in the three years.

² Citibank, Bank of America, Chase Manhattan, Morgan Guaranty, Manufacturers Hanover, Chemical Bank, Bankers Trust, Security Pacific and First National Bank of Chicago.

³ Defined here as those banks with at least \$1 and 2 billion in total assets for 1987-88 and 1989 respectively.

⁴ Branches and agencies of foreign banks in the United States as well as their foreign offices. It excludes US subsidiaries of non-US banks.

⁵ Including mainly non-financial corporations, pension funds, mutual funds, bank trust departments, finance companies and insurance companies.

Source: Senior Loan Officer Opinion Survey on Bank Lending Practices, Board of Governors of the Federal Reserve System.

depending on its relative bargaining power vis-à-vis purchasing banks and general market conditions. For some money-centre banks, which are among the most active HLT loan originators, leveraged transactions have accounted for up to 70% of loan sale activity (OCC (1989b)). By mid-1989 close to half of outstanding C & I loans sold were merger-related. Non-US and regional banks are the main purchasers.

III. Banks' HLT involvement in perspective

While non-US banks have been active in syndicating and purchasing HLT loans, it is of course US banks which have been the driving force behind the growth of the business. The reasons for their heavy involvement can perhaps best be seen in the light of longer-term developments affecting the US banking industry, and especially its largest institutions, which have been the main originators of the transactions. Three such closely related developments are the erosion of their traditional corporate lending business, the rapid growth in fee-generating off-balance-sheet activity and commercial banks' inroads into investment banking.

The typical motivation cited by US bankers for their involvement in HLTs has been the erosion of their corporate lending business (OCC (1989b)). HLTs have offered them the opportunity to make up for the gradual loss of their traditional source of income and to retain or broaden valuable customer relationships. The primary cause of this erosion has been the increasing tendency for their best-quality customers to bypass banks and to obtain funds from capital markets directly, often with the assistance of investment banks. A second factor has been growing competition from non-US banks in their traditional market. Large banks have been those most exposed to these forces.

Table 12
Composition of US short-term business credit¹

	1973	1977	1981	1985	1988	1989
	in percentages					
Commercial banks	95	93	87	87	85	83
US	87	83	68	67	62	59
<i>of which: Large (Weekly Reporting)</i>	64	55	50	45	43 ²	41
<i>of which: New York City</i>	19	16	14	10	8	8
Non-US ³	8	10	19	19	24	24
Commercial paper	5	7	13	14	15	17
Total	100	100	100	100	100	100
<i>Memorandum item:</i>						
<i>Non-US banks' share of bank lending</i>	8	11	21	22	28	29

¹ Banks' commercial and industrial loans plus commercial paper of non-financial corporations. Based on amounts outstanding in December.

² Break in series.

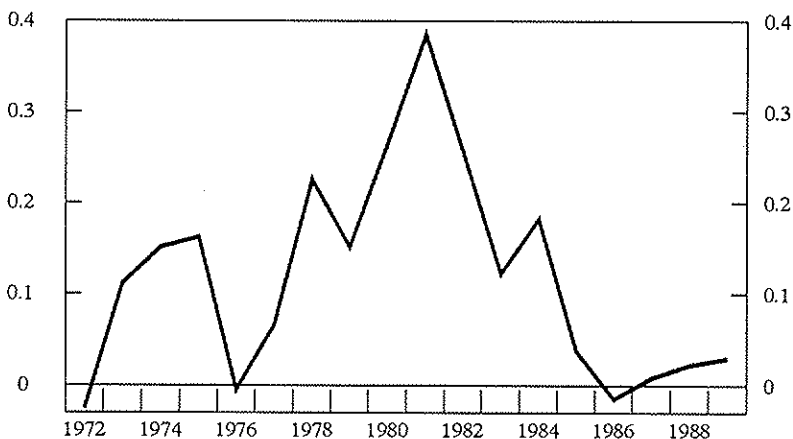
³ Branches, agencies and subsidiaries.

Sources: Estrella (1986), Federal Reserve Bulletin, and direct communication by the Federal Reserve Bank of New York.

It is not hard to find evidence of the erosion of the US banks' business. The share of securities in the credit market debt of all corporations surged in the 1980s after rising steadily in the 1970s. By 1989 it stood at almost 60%, no less than 7 percentage points up from 1979 and around 10 points up from 1973. At the shorter end of the maturity spectrum the inroads into traditional banking business have been even starker (Table 12). The share of corporations' commercial paper in short-term business credit more than trebled to 17% between 1973 and 1989. Over the same period the share of non-US banks (branches, agencies and subsidiaries) climbed from less than 10 to some 25%. It was the largest banks which suffered most, losing about one-third of their market share, which plummeted from around 60 to 40%. The market share of New York banks was cut by more than half.

Signs of this growing competition and of US banks' efforts to maintain their market share can also be found in borrowing and lending terms.

Graph 3
 Relative cost of funds of banks and corporations
 Certificates of deposit minus commercial paper rate, in percentage points*



* Certificates of deposit on the secondary market; the commercial paper rate is on an investment-yield basis.

Source: Board of Governors of the Federal Reserve System.

There are indications that the cost of funds for large banks, which finance themselves primarily in the wholesale markets, has exceeded the rate at which some corporations could obtain non-intermediated short-term funds (Graph 3). Even disregarding deposit insurance premiums and the reserve-requirement "tax",³⁴ the certificate of deposit (CD) rate has tended to be above the commercial paper rate. Several factors have contributed to this development: changing perceptions about the relative riskiness of banks and non-financial corporations in the light of the episodes of financial distress in the mid-1970s and early 1980s (Wolfson (1986)), advances in technology and availability of information which have eroded the comparative advantage of banks in the screening of their customers, and the growth of institutional

³⁴ See Estrella (1986) for such adjustments, which raise the spread against banks considerably.

investors, more capable of diversifying firm-specific risk and keen to invest in commercial paper (Davis (1986)).

The rise in the relative cost of funds for banks has been accompanied by a similar shift in their lending terms, an area where aggressive pricing by non-US banks has been particularly important (Brady (1985)). In the mid to late 1970s these banks added to the generalised pressure to move away from the prime rate towards typically lower market-related rates as benchmarks for pricing loans (such as CD rates or LIBOR).³⁵ As a result, by late 1983 the share of short-term C&I loans outstanding at market-related rates averaged over 50% at a sample of sixty large US banks, reaching 70% or more at several money-centre banks. Similarly, that of gross loan extensions granted below prime at forty-eight large banks was already around 90% by late 1982, up from only 10% in 1977.³⁶

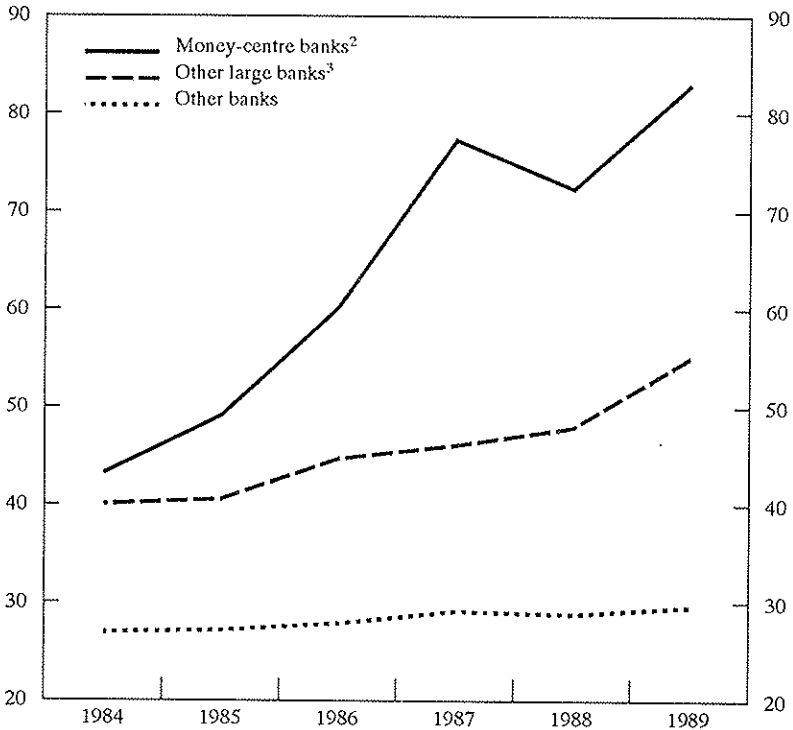
If spreads on HLT lending have appeared attractive in comparison, so has the high fee-income, off-balance-sheet component of the transactions. The search for this type of business has been one of the distinguishing features of the 1980s and has taken place primarily at the largest banks. Between 1984 and 1989 alone the ratio of non-interest to net-interest income surged from less than 45 to over 80% at the money-centre banks, with a considerable rise occurring at other large banks and little change at smaller ones (Graph 4). The greater reliance on non-interest income in the past decade reflects to a significant extent the growth in off-balance-sheet activities,³⁷ such as standby

³⁵ These formulae were common outside the United States but quite novel to that country.

³⁶ The data are derived from the Survey of Terms of Bank Lending, which covers loan extensions made during a reference week. By nature the statistics are dominated by very short-term loans (overnight and less than one month), but even excluding these the share was as high as 70% by late 1982. It declined thereafter, partly because the narrowing of spreads made such loans unprofitable (Wolfson and McLaughlin (1989)), and by end-1988 was down to around 40%.

³⁷ For a more detailed analysis, see Proctor (1986).

Graph 4
Interest and non-interest income of US-chartered commercial banks¹
Ratio of non-interest to interest income, as a percentage



¹ US-chartered insured commercial banks. The data do not cover branches and agencies of foreign banks in the United States, but include their subsidiaries. ² Nine money-centre banks (see Table 11). ³ Defined as banks other than the money-centre banks with at least \$5 billion in assets.

Source: Board of Governors of the Federal Reserve System.

letters of credit (SLCs), loan commitments and, especially, loan sales (Graph 5).³⁸

³⁸ SLCs grew particularly fast in the first half of the 1980s, loan sales in the second. Loan commitments expanded particularly quickly in the late 1970s.

Graph 5
Off-balance-sheet activities of US-chartered commercial banks¹
As a percentage of loans outstanding

Left-hand scale:

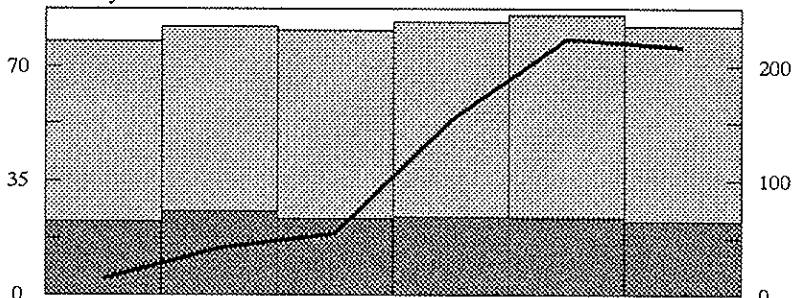
Unused loan commitments

Standby letters of credit²

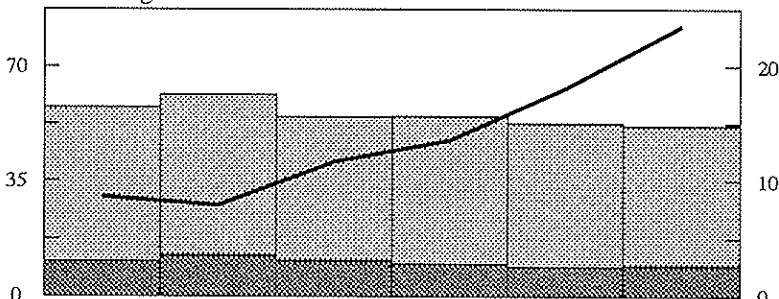
Right-hand scale:

Loan sales

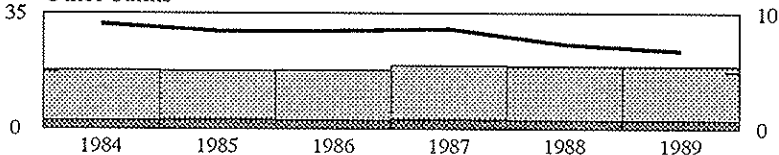
Money-centre banks



Other large banks



Other banks



¹ See Graph 4 for a definition of the categories of banks concerned. For unused loan commitments and standby letters of credit, amounts outstanding at year-end; for loan sales, volume of sales during the year. ² Banks' commitments to meet a borrower's contracted obligations to a third party if the borrower is unable to do so. At the end of 1980, SLCs at the top 15 banks and at all commercial banks amounted to almost 17 and 6% of loans outstanding respectively.

Source: Federal Deposit Insurance Corporation.

The different off-balance-sheet components are sufficiently dissimilar to suggest that no single factor lies at the root of their development.³⁹ At the same time, they do all share one feature: to varying degrees, they allow banks to separate (“unbundle”) the credit evaluation from the funding function. This feature has been particularly valuable in the 1980s, given the increase in the relative cost of funds for banks and US bank regulators’ efforts to raise the banks’ capital cushion by focusing on on-balance-sheet exposures.⁴⁰ Large multinational banks, among which are the money-centre banks, had both the ability and the greatest incentive to be involved in these activities. Being the most sophisticated, they had the know-how to exploit the new opportunities.⁴¹ As those most in need of raising their capital base⁴² (Graph 6) and most affected by the rise in the cost of funds, they also stood to gain most.⁴³

For these large banks the attraction of HLT involvement may arguably also stem from the possibility of making further inroads into investment banking business, partly overcoming the regulatory barriers restricting US banks’ ability to underwrite

³⁹ On off-balance-sheet activities in general, see Johnson and Murphy (1987), James (1988) and Avery and Berger (1988); on SLCs, see Koppenhaver (1987) and Hirtle (1987); on loan commitments, see Avery and Berger (1989) and references therein; on loan sales, see Beckett and Morris (1987) and Pavel and Phillis (1987). On the issuance of asset-backed securities, which has not as yet much affected the HLT market, see Pavel (1986).

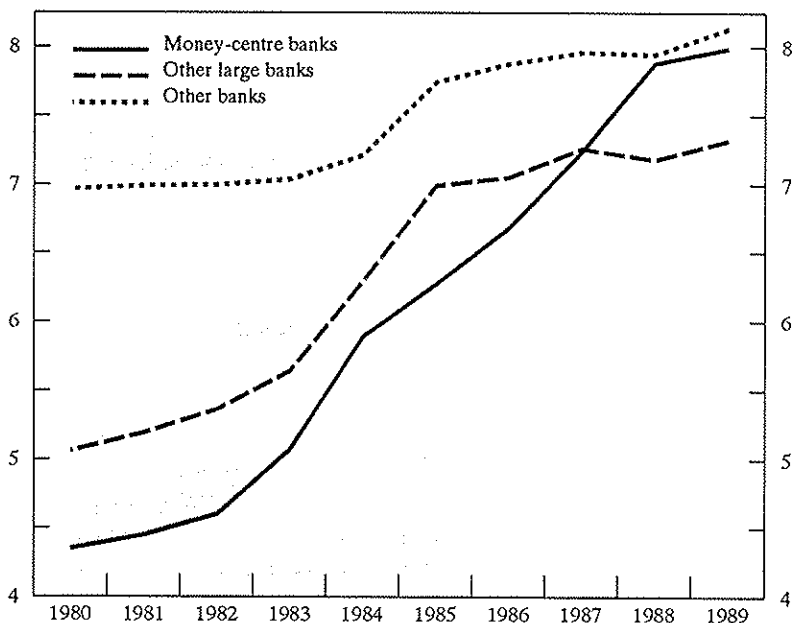
⁴⁰ In 1981 the US regulatory authorities introduced objective capital requirements with a view to raising banks’ capital (Keeley (1988)). The growth in off-balance-sheet exposures has led to the introduction of risk-weighted standards, which are now in the process of being phased in.

⁴¹ See Pavel and Phillis (1987) and Pavel (1988) for empirical evidence supporting this point with respect to loan sales.

⁴² At the end of 1981 in a sample of BHCs accounting for 40% of bank assets, 63% of capital deficient banks were multinationals (Keeley (1988)).

⁴³ Although this view has become part of the conventional wisdom (Simpson (1988)), hard statistical evidence supporting it has been more difficult to come by. See Pavel and Phillis (1987) and Pavel (1988) on loan sales and, indirectly, Keeley (1988) on SLCs.

Graph 6
 Regulatory capital of US-chartered commercial banks*
 As a percentage of assets



* See Graph 4 for a definition of the categories of banks concerned.

Source: Board of Governors of the Federal Reserve System.

corporate securities.⁴⁴ In particular, the process through which banks commit an amount much larger than their final desired exposure in the expectation of selling it to other institutions is not unlike the underwriting of companies' liabilities. As loans become increasingly tradable, the traditional distinction between loans and securities is blurred. Many observers argue that loan sales originated precisely because they offered large banks a

⁴⁴ See Litan (1987) for a broad historical perspective and Dale (1988) for an overview of more recent developments. Underwriting restrictions have been partially relaxed since 1987.

means of competing more effectively with the commercial paper market (Salem (1985), Bank Letter (1987) and Kizzia (1987)). The loan sales involved in HLTs, given their longer maturity, indicate that these banks are expanding further into securities firms' territory (Table 11). For the smaller and non-US banks purchasing the loans, the prospect of greater geographical diversification or further penetration into the US market achieved at lower costs in terms of information gathering and processing has undoubtedly been a particular attraction.

IV. Risks and risk management

Economic risks

If it is true that US banks have witnessed an erosion of their traditional corporate lending base and have been forced to look for more lucrative business opportunities, the riskiness of their portfolio is likely to have increased. As better-quality customers migrate to capital markets, the risk profile of the remaining customer base worsens. Similarly, the search for higher expected returns almost inevitably involves the acceptance of greater risk.

There is some evidence that this process may indeed have taken place. In sample surveys bankers often provide examples of the reduction in the ratings of those corporate clients which have remained on their books (Federal Reserve Bank of New York (1986)). This reduction is also evident in the gradual deterioration in the quality ratings of C & I loans sold. At the end of 1985 about two-thirds of the \$26 billion of loans sold had been extended to investment-grade borrowers; by mid-1989 only one-third of \$72 billion belonged to the same category.⁴⁵ In addition, econometric work suggests that the riskiness of banks' C & I portfolios

⁴⁵ LPS data. At nine money-centre banks the decline was even larger, from over 80% to just over one-third.

and of their activities in general may have risen (Estrella (1986) and Furlong (1988)).

It is difficult to say whether HLTs can be seen as a continuation of this trend. At the same time, even disregarding banks' mezzanine and equity investments, the significantly higher spreads on this form of lending at least point to a greater risk than that involved in traditional corporate business lending.

The presumption of greater riskiness of HLT lending ultimately rests on a simple consideration. As bank loans make up a larger share of a company's liabilities and the equity cushion declines, *ceteris paribus* the returns on the loans can be expected to become more variable, as the firm's ability to meet its bank debt obligations becomes more sensitive to its business performance. This is true whether the source of repayment is operating cashflow or asset sales. As has been suggested by financial economists, there may indeed be good reason to believe that the new financial arrangements can raise the income stream generated by the restructured company's assets (Section I). However, increased income need not provide a cushion for HLT lenders to the extent that it is anticipated by pre-existing company shareholders and reflected in the company's acquisition price.⁴⁶

One feature of the transactions which highlights the potential greater variability of the return to banks is the relatively low ratio of operating cashflow to interest payments ("interest coverage") of the restructured companies. This has been reflected in minimum coverage requirements in the loan agreements ranging between 1.5 and 1.0 (Table 13),⁴⁷ with deals arranged in the later

⁴⁶ On the other hand, banks *may* be able to gain at the expense of other HLT non-bank creditors who overvalue their claim, e.g. the junk bond investors who refinance bank loans.

⁴⁷ Normally, coverage requirements are close to the base-case cashflow estimate of the bank, which is typically more conservative than that provided by the company. Deals based primarily on asset sales (e.g. Safeway) tend to have lower coverage and higher leverage than those primarily based on operating cashflow ("earn-out" deals, e.g. Fruit of the Loom).

Table 13
Interest coverage and leverage in a sample of HLTs¹

	Type	Coverage requirement ²	Initial leverage ³
Fruit of the Loom	Recap.	1.50	85
Union Carbide	Recap.	1.30	90
Beatrice Companies	LBO	1.30	96
Stone Container Corporation	Lev. Acq.	1.25	83
Container Corporation of America	LBO	1.20	94
Lear Siegler	LBO	1.20	91
Safeway Stores	LBO	1.10	97
Owens Illinois	LBO	1.10	96
Borg Warner	LBO	1.00	95

¹ Original terms. Some of these loans have since been restructured.

² Interest coverage required by the bank loan agreement.

³ Ratio of debt to capitalisation, in percentages.

Source: Ram (1988).

stages of the HLT wave tending to cluster towards the lower limit. In traditional corporate lending practices coverage ratios are often dispensed with altogether, as the income cushion over interest payments is usually much larger. In terms of lending criteria, therefore, HLTs have implied a major shift away from balance-sheet considerations (e.g. leverage or net worth) to potential cashflow and latent asset-sale revenue as benchmarks for credit extension.⁴⁸

The greater sensitivity of banks' returns to the restructured firms' fortunes also exacerbates the underwriting risks incurred, interpreted broadly as the risks resulting from the absorption of temporary exposures intended to be reduced out of the proceeds of the sale of assets to third parties. Broadly speaking, these underwriting risks may be taken to relate to those deals which are

⁴⁸ The key assumption is that the going-concern and/or break-up value of the company greatly exceeds its book value. This may partly reflect accounting norms but it is also based on the view, mentioned above, that the existing shareholders have not been able to extract future gains through a higher acquisition price.

primarily predicated on asset sales, i.e. where operating units are to be sold against bank lending, and to bridge loans to be refinanced by securities issues. More strictly, they relate to the overcommitment of funds to be subsequently cut through loan sales. In either case, banks may be unable to reduce their exposure or suffer heavy losses in the process, especially as a result of rapidly changing market conditions.⁴⁹ In addition, in the case of loan sales there may be serious co-ordination problems when the transactions require renegotiation as a result of repayment difficulties.⁵⁰ Originating banks, for instance, may feel obliged to buy back loans on concessionary terms to maintain their reputation, thereby raising the exposure concentration of their portfolio.⁵¹

Beyond a sound diversification strategy and a conservative assessment of any given company's prospects, banks can limit the economic risk inherent in HLTs in at least four ways. Cashflow volatility may be reduced by an appropriate choice of target company. Given cashflow volatility, the interest rate risk may be shifted to parties other than the claimants on the company. The managers' discretion to dispose of cashflow may be restricted. Finally, within the group of debtors, repayment priority of bank claims may be secured over those of other debtors.

A careful *choice of target* can be useful in reducing underlying cashflow variability.⁵² Companies with significant monopoly power, with low exposure to rapid technological change and in sectors which are relatively less sensitive to the cycle are

⁴⁹ The drying up of the junk bond market or a reduced appetite for HLT loans are typical examples. For actual instances, see Lipin (1990a) and (1990b).

⁵⁰ This is true even if legal considerations are disregarded (see below).

⁵¹ For an elaboration of these issues, see Doyle et al. (1987). Lipin (1990c) describes recent instances of problems.

⁵² Typical methods of identifying HLT candidates involve three comparisons: (a) the market value of the firm with pre-tax cashflow (pre-tax net income plus depreciation), with most banks looking for six to eightfold coverage; (b) price-earnings multiples with those of similar companies in the same industry; (c) equity value with after-tax cashflow. Sensitivity analysis with different scenarios is common.

preferable. The ability to sell non-essential businesses without disrupting the entire operation of the company is also relevant. Some econometric evidence appears to indicate that LBO targets are predominantly in industries with a past record of relative cashflow stability (Waite and Fridson (1989)).⁵³

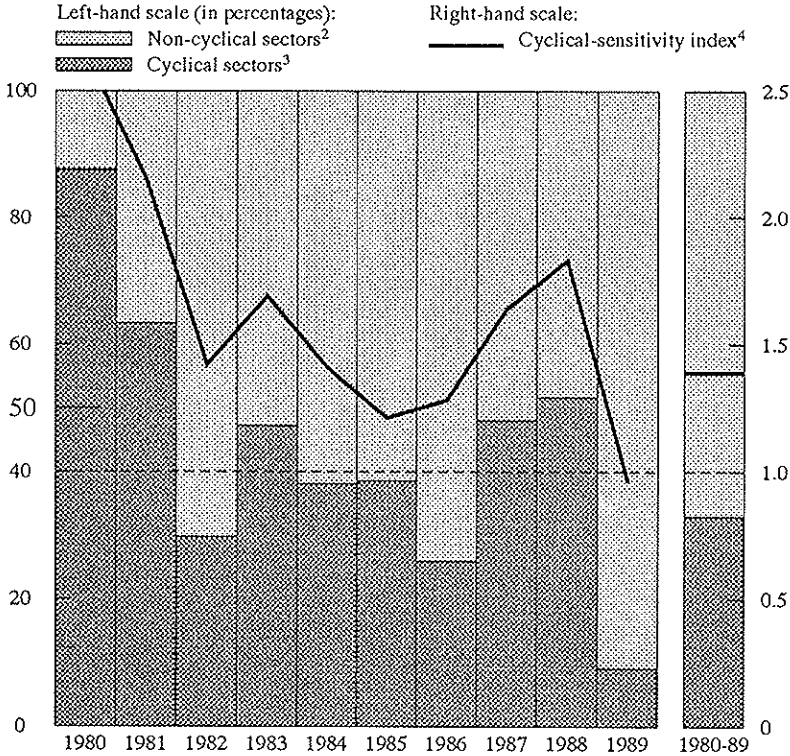
Of the various factors underlying cashflow variability, probably the most important is the cashflow's sensitivity to the cycle, since it reflects the exposure to macro, as opposed to micro and sector-specific, risk. While some 60% of LBOs have reportedly taken place in sectors of below-average cyclical sensitivity (Giordano (1989)), there have as yet been no studies attempting to measure the cyclical sensitivity of HLTs more precisely. Some preliminary econometric evidence reported in the Appendix in fact indicates that claims regarding the lack of cyclical sensitivity of HLTs should be treated with caution (Graph 7). At least at a rather broad level of aggregation, defining as cyclical those sectors whose output varies more than in proportion to fluctuations in GNP, the results confirm that LBOs have occurred predominantly in less cyclically sensitive sectors.⁵⁴ However, an overall index of cyclical sensitivity, obtained by weighting LBO sectoral dollar volumes by the corresponding cyclical-sensitivity coefficient, suggests that the HLT exposure as a whole may be cyclical.

The *interest rate risk* faced by the company's debtors as a group can be limited by requiring the firm to purchase "insurance", i.e. hedge part of its variable rate liabilities. It has been reported that bank agreements commonly call for the hedging of 50% of a company's floating rate exposure for the first two to three years following the transaction. A number of devices such as interest

⁵³ The industry's cashflow variability was measured by the standard deviation of the estimated annual cashflow trend growth over the period 1971-85.

⁵⁴ By contrast, employing a broadly similar methodology but at a finer level of aggregation, Seth (1990) finds that leverage has increased predominantly in cyclically sensitive sectors. For a different view, see Roach (1988).

Graph 7
Cyclical sensitivity of LBOs¹



¹ See the Appendix for details. ² Sectors whose cyclical-sensitivity coefficient is at least unity; these were durables, transportation and public utilities and construction. ³ Sectors whose cyclical-sensitivity coefficient is less than unity; these were non-durables, wholesale and retail trade, services, finance and mining. ⁴ Weighted average of sectoral dollar volumes, with the weights equal to the corresponding cyclical-sensitivity coefficient.

caps and swaps are used for this purpose. In 1989 at a sample of sixty large US banks some 60% of all LBO customers had taken steps along these lines, in at least half of the cases primarily as a precondition for obtaining the loan.

A series of covenants in the loan contracts *restrict the management's freedom* to deploy resources with a view to ensuring that available cashflow is used to service debt. Typical restrictions include minimum coverage requirements (which, *inter alia*, limit new capital spending), "recapture clauses", specifying that proceeds of asset sales be used to repay senior debt and possibly mandating prepayment if the company's performance exceeds expectations, a prohibition on paying common stock dividends in the early years⁵⁵ and restrictions on the issue of additional debt.

Repayment priority vis-à-vis the company's non-bank creditors can be pursued in a number of ways. The financing structure of the HLT may include a significant portion of securities with limited cash payments, e.g. zero-coupon securities or securities with cash-deferral features.^{56,57} Besides giving breathing-space to the company, these devices allow banks to have freer access to cashflows during the *intervening* period, although they may merely postpone difficulties in the event that cashflow and asset-sale projections fall short of expectations.⁵⁸ The difference between the ratio of earnings to total (i.e. accrued) interest and to actual *cash* interest payments can be substantial in the early years following the transaction (Table 14). In addition, the terms and covenants of the loan contracts may restrict the ability to repay non-bank debtors when the claim of the banks is

⁵⁵ Usually until senior debt is expected to have been repaid.

⁵⁶ Although both types of securities begin paying cash interest only after a number of years, securities with cash-deferral features (e.g. payment-in-kind (PIK) bonds) *accumulate* rights to cash payments in the early period while zero-coupon securities are issued at a discount.

⁵⁷ In a similar vein, ensuring that non-bank debt is at fixed rates may be seen as a way of transferring interest rate risk to other debt holders.

⁵⁸ The effect of the servicing of these securities on cashflows will start to be felt mainly from 1991, reflecting the bulge of deals in the second half of the 1980s. It has been estimated that the volume of zero-coupon and PIK securities that will begin to pay interest in 1991-92 and 1993-94 is around \$5 and over 8 billion respectively. See Lipin (1990d).

Table 14
Total and cash interest coverage ratios in a sample of HLTs¹

	Ratio of earnings to	
	total interest	cash interest
Safeway Stores	1.50	1.72
Beatrice Companies	1.25	1.60
Supermarkets General	1.24	1.67
RJR-Nabisco ²	1.19	1.68
Kroger	0.99	1.23
Fort Howard	0.95	1.29

¹ Ratios of operating cash flow, i.e. earnings before interest, taxes, depreciation and amortisation of intangibles (EBITDA), to total interest or cash interest payments in the first year following the transaction.

² Projected.

Source: Doyle et al. (1989).

endangered. There is a whole gradation of such devices,⁵⁹ with collateral establishing priority in the case of bankruptcy and liquidation (i.e. “security”).⁶⁰ As was seen above, much of HLT bank lending appears to be collateralised.⁶¹

Legal uncertainties

Largely owing to the novelty and complexity of the transactions, however, there are a number of legal uncertainties attaching to them which could potentially undermine banks’

⁵⁹ Typical examples include the absence of restricting covenants in subordinated debt (e.g. restricting asset sales by the company or non-default clauses to senior debt), restrictions on the ability of the company to pledge assets to other debtors (“negative pledges”) and clauses retarding the ability of other debtors to demand payments or trigger bankruptcy, thereby allowing banks to take the initiative in renegotiations.

⁶⁰ Being classified as a secured creditor is particularly important in the US legal context, where the usual bankruptcy proceeding (Chapter 11) is quite lenient to the corporation. Under Chapter 11 all non-secured claimants on the firm are expected to bargain and accept reductions in their claims so as to keep the firm in operation (White (1989)). See also Ross et al. (1988) and Monaghan and Ross (1989), who argue that subordinated debt may be undervalued by the market precisely because its retrieval value in bankruptcy proceedings may be underestimated.

⁶¹ The value of collateral, of course, varies. In general, as the percentage of assets to be collateralised increases, the value of the collateral is likely to decline at the margin.

efforts to manage risk. Not all of these uncertainties are specific to HLTs as such, but even then the presumption of the greater default risk of the transactions suggests that they are likely to be more important in their case. The relative importance of legal uncertainties is indeed one of the distinguishing features of HLT lending, with potential implications not so dissimilar from those surrounding the limited enforceability of preferential treatment of senior creditors in the context of lending to developing countries.

Under certain conditions US courts may not recognise the validity of banks' claims on collateral and may rank banks' claims on a par with those of junior creditors. One possible reason is that the senior lender may be found to exercise a significant measure of management control ("lender liability").⁶² Banks owning direct or indirect equity stakes in restructured companies may be particularly vulnerable ("equitable subordination"). Another possibility is that, broadly speaking, the courts may find that the leveraged transaction has not paid due regard to the interests of previous unsecured creditors by raising the company's debt beyond its ability to pay ("fraudulent conveyance laws"). The test employed by the law is such that it imposes a major burden on the debtor and the lending banks in defending these actions.⁶³

⁶² It has been suggested that non-US banks, less familiar with the US legal system, may be particularly exposed (Mannino (1990)).

⁶³ Actual *intent* to defraud creditors is not necessary. All that matters is that the company received "less than reasonably equivalent value" (LREV) in the transaction *and* that either the firm was insolvent on the date/as a result of the transaction or that it was about to engage in business with unreasonably little capital or that it had incurred debts beyond its ability to pay. LREV is not defined in the statutes and is decided case by case. Since in HLTs banks often receive as collateral assets of *subsidiaries* and/or *target* companies while lending to a *shell* corporation, it may be difficult to prove that the subsidiaries and/or target companies have received *any* value as a result of the transaction. Recapitalisations may be particularly at risk, since they often result in companies showing *negative* net worth on the basis of the generally accepted accounting principles (GAAP accounting). See Brandt (1988) and Michel and Shaked (1990).

An additional cloudy issue is ultimate legal liability in loan sales. As a result, the effective exposure of banks selling loans may be greater than is apparent from their books. Even if the loans are sold without repurchase commitments ("non-recourse"), the purchasing banks could claim successfully that the seller had not provided them with sufficient information to correctly assess the debtor's position or that it had failed to monitor the borrower and adherence to covenants closely. These risks are especially relevant for those agent banks originating the loans and then selling all or most of their exposure.

Although there are some steps which banks can take to limit legal risks, litigation concerns perhaps represent the area of greatest uncertainty surrounding HLTs (Normandin (1989)). While potentially far-reaching, these risks defy quantification and are as yet largely untested in the courts. Their true significance will start to emerge only when a sufficient number of cases set the precedent for adjudicating among competing claims.⁶⁴

V. Policy issues

Banks' involvement in HLTs touches on a broad set of policy issues, ranging from the implications of regulatory constraints (e.g. lines-of-business restrictions) for the risk-taking and efficiency of banks to those of tax arrangements for the financing structure of corporations' and hence banks' portfolios. In what follows attention will be focused on only two aspects of more

⁶⁴ That the risks are quite real is also supported by the preliminary finding of a neutral third-party court-appointed investigation into the \$1.3 billion Revco buy-out bankruptcy which occurred in 1988. The examination has recently concluded that the company was initially insolvent as a result of the buy-out in 1986 so that the transaction was susceptible of being considered a fraudulent conveyance. See Oram (1990).

immediate macro-economic and central bank interest: prudential supervision and monetary policy.⁶⁵

Prudential supervision

Much of the attention devoted to banks' involvement in HLTs has been prompted by concerns about its potential impact on the financial health of the institutions at both individual and system-wide level. These concerns, which were heightened by the disclosure of sizable exposures and by the serious shocks to the HLT market in late 1989 and early 1990, find some support in the observable trends in the quality of banks' HLT portfolios.

Until the end of 1988 the quality of HLT loans, while deteriorating, appeared to be superior to that of the rest of the banks' portfolios. Since then, however, the pace of the deterioration has gathered momentum. According to the LPS, by early 1989 40% of respondent banks reported higher charge-off rates on merger-related loans than on other C&I loans. None had done so in 1986, and only one-quarter in 1988. In targeted examinations by the OCC the proportion of loans classified as "criticised"⁶⁶ at the top eleven multinational banks almost doubled between end-1988 and mid-1989, climbing from 9 to 17% (Clarke (1989)). Between December 1989 and June 1990 the percentage of HLT loans not accruing interest ("non-performing") doubled from 2 to 4% at the fifty largest BHCs and surged from around 5 to 9% at the ten banks with the

⁶⁵ For an overview of congressional legislative initiatives regarding merger and debt policy, including changes to the tax code, see Shorter and Winch (1990), Gravelle (1989) and Jickling (1989).

⁶⁶ "Criticised" loans are subdivided into four groups. Group-one loans ("other assets especially mentioned") are not necessarily perceived as a potential credit loss but have some documentation weakness which hinders the correct assessment of their quality. Group-two loans ("substandard") present some clearly identified weakness. Past experience suggests that such loans will on average subsequently experience a 10 to 25% loss. The third group ("doubtful") has in the past experienced ex post an average loss of at least 50%. The fourth group ("loss") requires immediate charge-offs.

highest ratios of troubled HLT loans (Lipin (1990e)). In the autumn of 1989 the Comptroller highlighted several signs of potential weakness (Clarke (1989)). Credit terms had been deteriorating, as suggested by rising price/earnings ratios of the targeted companies and lengthening loan repayment schedules. As the junk bond market was faltering, banks could be put under pressure to take up larger shares of the overall financing to secure the success of the deals.⁶⁷ At some banks it was becoming increasingly difficult to reduce exposures through loan sales. Moreover, smaller banks, with less expertise in the transactions and less sophisticated credit screening procedures, were becoming more involved.⁶⁸

The quality of the outstanding exposure may deteriorate further. The renewed caution⁶⁹ of banks in the wake of the succession of shocks to the HLT market can only affect it slowly, as the new deals come to dominate a probably declining HLT portfolio. And if initially there were probably significant “excess” profits to be made in the HLT business, these are likely to have been dissipated by the “ageing” of the market and growing competition, as suggested by trends in prices, financing terms and returns. Given past growth volumes, the typical length of repayment periods and the tendency for losses on lending contracts to appear only some time after their inception,⁷⁰ the real tests still lie ahead.

⁶⁷ The UAL deal, which finally fell through, was about to be financed exclusively with bank loans. The banking syndicate was to put up \$7.2 billion in loans. The company’s total market value in January was only \$2.3 billion (Kaletsky (1989)).

⁶⁸ According to newspaper reports their participation in mezzanine financing was also increasing (Horowitz (1989)). In some cases this was the result of pressure by companies on banks to participate at all levels of the deal – another indication of greater competition and deteriorating terms.

⁶⁹ Especially since the failure of the UAL deal in October 1989. For the United States, see e.g. Weiner and Neustadt (1989), Horowitz et al. (1989) and Rehm (1989), for Japan, Wagstyl (1989) and for the United Kingdom, Lascelles (1989).

⁷⁰ This typical life-cycle pattern of losses can also be found in junk bonds (Asquith et al. (1989)).

Evaluating the likelihood of a serious crisis in banks' HLT exposures and the potential systemic consequences is particularly difficult. The novelty of the transactions means that there is no firm historical benchmark on which to base an assessment. While sharing the common characteristic of high leverage, HLTs still vary considerably in terms of their leverage levels, coverage ratios, financing structures and cyclical sensitivity. Exposures will probably decline, but legal uncertainties seriously complicate judgements about their distribution among banks and recovery values in the event of default and/or liquidation.⁷¹ The sizable use of loan sales has helped to spread the risk in the financial sector; but it has probably stored up significant difficulties for the time when the debt may require renegotiation and has been instrumental in dissipating the "excess" profits in the business by creating a wider demand for the transactions.

More broadly, part of the concern with HLTs stems from the existence of other sources of potential shocks in banks' portfolios: commercial real estate, which in the United States, and to a lesser extent in the United Kingdom, has already shown signs of weakness; the LDC exposure at some banks; and possibly consumer lending, given the historically high level of household indebtedness (BIS (1990)). This overall configuration suggests that banks' portfolios appear particularly sensitive to the risk of a cyclical downturn, especially if accompanied by high interest rates.⁷² Given exposure levels (Table 15) and output

⁷¹ It is, in any case, not easy to establish what would be "reasonable" recovery values for the loans in question (i.e. their market value after a default). So far, average recovery values of non-investment-grade bonds have been almost 40% (Altman (1989)). It could therefore be presumed that a secured bank loan would be valued significantly higher, say 80-90% (Hanley et al. (1990)). On the other hand, apart from legal considerations, the sample of failed junk bonds may not be representative: it is drawn from a favourable economic environment and, to the extent that it relates to HLTs, it comes from early operations.

⁷² All the components mentioned are clearly sensitive to an economic downturn, but in addition there are self-reinforcing linkages between them. A collapse in the real estate market, for instance, would bring down the collateral value of many HLTs.

Table 15
Loan portfolio of US-chartered commercial banks, end-1989¹

	In billions of dollars	As a percentage of total loans	As a percentage of equity
Commercial and industrial . . .	616	30	302
Real estate ²	759	37	373
Commercial and construction	373	18	183
Residential ³	386	19	190
Individuals	398	19	195
Other ⁴	291	14	143
Total	2,064	100	1,013
<i>Memorandum items:</i>			
<i>Highly leveraged transactions</i> ⁵	80-100	4-5	40-49
<i>Developing countries</i>	64	3	31

¹ Gross loans outstanding (i.e. excluding unfunded commitments) of domestic and foreign offices of US-chartered insured commercial banks. The data do not cover branches and agencies of foreign banks in the United States, but include their subsidiaries.

² The breakdown between sub-categories of real estate lending is approximate.

³ Including farm land.

⁴ Including, inter alia, loans to depository institutions and to foreign governments.

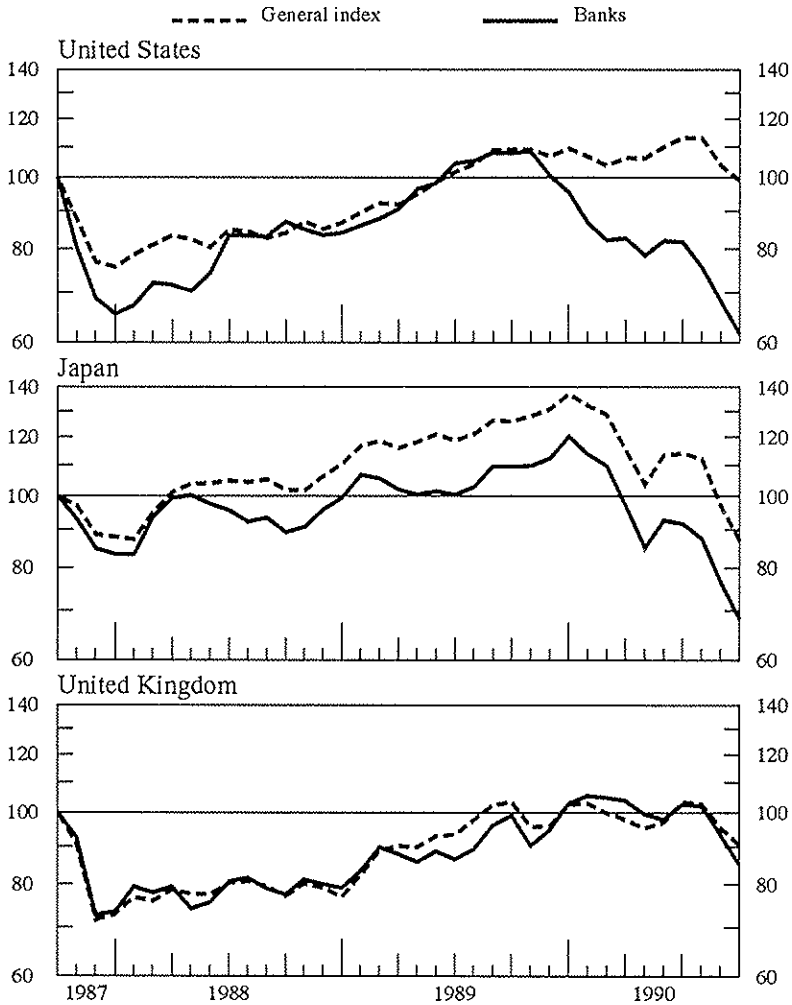
⁵ Approximate range based on data from various official and unofficial sources.

Sources: Board of Governors of the Federal Reserve System and own estimates.

trends, the US banking system has so far been the primary focus of attention, as clearly illustrated by the behaviour of banks' share prices (Graph 8).

These considerations suggest that bank HLT involvement warrants close consideration by supervisory authorities. Their response has varied across countries, largely as a function of the degree of involvement of national banks. The most determined efforts have been apparent in the United States, where national bank regulators have stepped up co-ordination and monitoring, issued minimum guidelines for banks' internal risk-management procedures and at times issued public warnings about excessive

Graph 8
 Recent performance of banks' share prices*
 Monthly averages, September 1987 = 100 (semi-logarithmic scale)



* For the United States, S & P 500 composite and S & P N.Y.C. banks respectively; for Japan, Tokyo composite (TOPIX) and Finance and insurance companies respectively; for the United Kingdom, FT-SE 100 shares and FT-SE 9 banks respectively.

risk-taking in the business.⁷³ In Japan some concern has been expressed about banks' involvement, particularly by smaller institutions purchasing loans (Waldmeir (1989)). In the United Kingdom the authorities have expressed little concern, but are monitoring developments closely (Leigh-Pemberton (1989)).

The greater vulnerability of banks also highlights the importance of recent broader initiatives in the field of prudential regulation. In particular, in all the aforementioned countries the progress made in strengthening the banks' capital base in line with the 1988 international agreement on new minimum standards should contribute to improving the banks' resistance to shocks.⁷⁴ In the United States careful consideration is also being given not only to the merits of tougher standards, but also to possible reforms of those arrangements which may temper incentives for prudent behaviour by banks (the "safety net" in general and deposit insurance in particular, Greenspan (1990a) and (1990b)).

Monetary policy

Banks' HLT involvement, as part of the broader picture of possible financial fragility, can considerably complicate the task of monetary policy.⁷⁵

Fragility in the banking sector can help generate or exacerbate an economic downturn. The problem can take different gradations, going from an incipient "credit crunch" originated by heightened perceptions of risk to generalised efforts to rebuild capital by contracting lending as a result of losses.⁷⁶ Since most

⁷³ See Thompson (1989), Board of Governors of the Federal Reserve System (1989), FDIC (1989), OCC (1988) and (1989a) and Clarke (1989). For an early response, see also Board of Governors of the Federal Reserve System (1984).

⁷⁴ See Committee on Banking Regulations and Supervisory Practices (1988).

⁷⁵ For an elaboration of these issues, see Bockelmann and Borio (1990).

⁷⁶ This applies to both actual losses and specific loan loss provisions, which would call for an increase in regulatory capital.

companies have limited access to alternative sources of finance, the contraction in bank credit can induce severe spending cutbacks, especially if the companies are already highly indebted and have little internal financing or financial slack available.⁷⁷

Worries of an incipient credit crunch were rife in the United States in early 1990. An increasing number of reports pointed to a tightening of credit standards and more difficult access to bank credit especially for small and medium-sized businesses (Wessel (1990) and Greenspan (1990c)). Furthermore, the reduced willingness to extend finance was also held partly responsible for the significant increase in bankruptcy filings (Winter and O'Boyle (1990)). Banks appeared to be reacting not only to a general slowdown in economic activity and a softening in company earnings but also to the distress of a number of restructured companies and the deterioration in their loan portfolios. In addition, heightened caution was a response to stepped-up supervision by federal bank regulators, notably critical inspections of banks' real estate lending by the Comptroller of the Currency. Indeed, fears of an overreaction by banks prompted the three national regulatory authorities to encourage banks to continue lending to "sound" clients (Riddell (1990)).

Retrenchment of the kind described, especially in response to reductions in banks' capital cushion, may be less amenable to correction through monetary policy. Injections of liquidity into the system are likely to be less effective when the constraint on credit expansion is not a lack of funds in general but of capital in particular, especially since raising external capital is problematic in conditions of financial distress and a recessionary environ-

⁷⁷ The importance of credit availability for real activity has long been recognised and has recently been the focus of much analytical work based on the notion of asymmetric information between lenders and borrowers. For a survey, see Gertler (1988). For an application of these ideas to the analysis of the Great Depression in the United States, see Bernanke (1983).

ment. The existence of alternative channels of finance and the possibility for banks to act simply as “credit evaluators” and brokers rather than holding assets in their portfolios can alleviate the problem. However, not only are there natural limits to this process, but these mechanisms are also bound to be severely impaired by the climate of uncertainty which would accompany banking distress and an economic downturn.

At the same time there is a risk that the *threat* of financial disruption may put the authorities under pressure to relax monetary policy excessively (BIS (1990) and Friedman (1990)). That would probably merely store up greater difficulties for the future. A lax monetary policy would encourage the continuation of the very behavioural patterns leading to the potential for a financial crisis (e.g. the build-up of debt and speculation). It would also endanger price stability in the medium term. As is suggested by past experience, not least that of the mid-1970s and early 1980s, financial distress often has its root-causes in inflation, either directly or indirectly: in unexpected and sharp changes in its level, in its impact on interest rates and in efforts to fight it.

Conclusion

The wave of debt-financed restructurings (HLTs) of corporations which has taken place since the early 1980s could not have occurred without substantial bank involvement. Banks may have provided some 50% of the total finance for the restructurings. While HLTs have primarily affected US corporations, participation by non-US banks has been important and has risen recently. Non-US banks accounted for around 40% of original LBO bank financing between end-1987 and mid-1989.

Estimates of exposures have been complicated by questions of definition and differing disclosure requirements and should therefore be interpreted with great caution. Indications suggest that in early 1989 aggregate bank exposure to US HLTs may have been in the region of \$170 billion, of which probably around 60% was at US banks. Japanese and, to a lesser extent, French, British and Canadian banks held sizable portions. If exposures are measured in relation to banks' equity, however, those of the largest US banks appear to be by far the highest, with ratios well over 100% in many cases. The drastic slowdown in HLT activity since late 1989 in the wake of a series of negative shocks to the market suggests that exposures may decline in the future.

The bulk of the HLT exposure is in the form of loans, either actually drawn or unused commitments. In addition, some US bank holding companies and non-US banks have provided significant amounts of mezzanine debt and equity finance. HLT loans are typically syndicated and represent a major portion of the loan sales market. The originators of the transactions and loan sellers are primarily the largest US banks. Non-US banks take an active part in the loan syndicates⁷⁸ and, together with the smaller US banks, are major buyers of the loans.

⁷⁸ Non-US banks also originate transactions in their own markets. This is especially true of banks in the United Kingdom and France. The volumes involved, however, are much smaller than those of US transactions.

The typical motivation cited by bankers for their HLT involvement, particularly those at the largest US banks originating the transactions, has been the search for alternative sources of revenue given the erosion of their traditional corporate lending base under the impetus of growing competition from both capital markets and other financial institutions, notably non-US banks. The operations have allowed these banks to preserve or broaden their customer base and may be seen as having permitted them to compete more effectively with securities firms in the provision of investment-banking-type services. Moreover, spreads and returns have been particularly attractive, while the major fee-income component and off-balance-sheet nature of the transactions has relieved the pressure on their capital base caused by declining profitability and regulatory policies.

An environment of increasing competition and an active search for business yielding higher expected returns also points to the acceptance of greater risk. There are some indications that the riskiness of banking activities may indeed have increased. The presumption that HLTs may be part of this process ultimately rests on the consideration that as banks take up a much larger share of a company's liabilities the returns on their investment become more variable. This is true not only of their mezzanine and equity investments, but also of their lending, since the firm's ability to meet its borrowing obligations becomes more sensitive to its general business performance. The higher spreads on lending in the operations may themselves be taken partly as a sign on these higher risks. Undervaluation of the company by existing shareholders, when reflected in the transaction price, is in principle important to reduce the variability of returns. It is doubtful, however, whether the later spate of transactions could reflect such undervaluation, given the strong competition in the market and the trends in prices and financing terms.

The potential greater variability of returns and lower margin for error in HLTs is essentially reflected in the low coverage of the

operations, i.e. the low ratio of operating cashflow to interest payments. It also adds to the underwriting-type risks which banks face when funding asset-sale deals, bridging subordinated debt issues or committing a substantially larger share of funds than their targeted final exposure in the transactions with the intention of reducing it through loan sales.

Beyond diversification and a conservative assessment of any given company's prospects, banks can manage the economic risk of HLTs in four ways: they can choose companies with relatively stable cashflows, they can insist that the company hedges part of its variable interest rate liabilities, they can restrict the freedom of management to take risks and freely use cashflow and they can pursue repayment priority ("seniority") for their claim over that of other debtors, both when the company is a going concern and in a liquidation. Various restrictive covenants and contract clauses and the use of collateral are designed for this purpose.

At the same time a number of legal risks attach to the transactions, stemming in part from their novelty and complexity. Under certain conditions the courts may not recognise the validity of the banks' claim on collateral ("equitable subordination" and "fraudulent conveyance") or may attribute to a bank originally selling a loan ultimate liability for the debt. Although potentially serious, these risks are as yet largely untested in the courts and defy quantification.

While at least until recently the quality of the HLT portfolio has been relatively good, the pace of its deterioration has given some cause for concern. Given the lack of historical precedent and the heterogeneity of the transactions, assessing the prospects of serious future difficulties and their potential systemic consequences is particularly difficult. Moreover, the legal uncertainties cloud judgements about the distribution of effective exposures among banks and recovery values in the event of default and liquidation. Nevertheless, together with other sources of possible shocks in banks' balance sheets, HLTs make banks particularly vulnerable to an economic downturn. Although this

sensitivity can be mitigated by the concentration of HLTs in relatively less cyclical sectors, the evidence is not such as to dispel concerns.

The response of the authorities in charge of bank prudential supervision has primarily consisted of stepping up monitoring and, in some cases, issuing cautionary warnings. The strongest response has been apparent in the United States, whose banks have been the most deeply involved. Moreover, recent progress made in strengthening banks' capital base in line with the new internationally agreed capital standards should contribute to raising their resistance to shocks. In the United States consideration is also being given to broader reforms of the regulatory structure aimed at reducing incentives for excessive risk-taking by institutions (e.g. deposit insurance).

Banks' HLT involvement, as part of a broader picture of financial fragility, can complicate the task of monetary policy. On the one hand, it can potentially help to generate or exacerbate an economic downturn and reduce the effectiveness of monetary policy to counter it. Banks' heightened perceptions of risk and/or the need to rebuild capital could lead to sharp contractions in lending activity, of a sort less responsive to injections of liquidity into the system. On the other hand, the threat of financial disruption may lead to pressure to relax the monetary stance excessively. As is suggested by past experience, such a policy would probably simply tend to store up greater financial distress for the future.

Appendix

The cyclical sensitivity of LBOs

In order to assess the cyclical sensitivity of LBOs a cyclical-sensitivity coefficient is calculated for each sector in which LBOs have taken place since 1980. The coefficient is obtained by running a regression of sectoral output on GNP. The variables are defined in terms of percentage changes. The data are annual. One lagged value for GNP growth is also included to allow for delayed responses. The equations are estimated over the period 1960-87. The sectors chosen correspond to those for which a breakdown of GNP at constant prices is available: manufacturing (durables and non-durables separately); mining; construction; transportation and public utilities; wholesale and retail trade; finance, insurance and real estate; and, finally, services. Table 1 presents the dollar shares of each sector in LBO activity and Table 2 summarises the econometric results.

Sectors for which the sum of the regression coefficients is at least equal to one are defined as "cyclical" for present purposes, and those for which it is less than one as "non-cyclical". On the basis of this definition, the cyclical sectors are durables, construction and transportation and public utilities, which implies that about two-thirds of LBOs have occurred in non-cyclical sectors (Graph 7 in the text).

The estimated coefficients were then used to compute an index of cyclical sensitivity for total LBO activity, by weighting dollar volumes in each sector by the corresponding coefficient. The resulting index is a measure of the percentage change in the overall output of LBO-restructured companies in response to a given percentage change in GNP on the assumption that the companies' cyclical sensitivity is the same as that of the sector to which they belong. The procedure indicates that even if LBOs have occurred predominantly in non-cyclical sectors, LBO exposure is, on balance, cyclical. The cyclicity of sectors such as

Table 1
Sectoral composition of LBOs*

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1980-89
	in percentage shares										
Non-durables . . .	0	23	49	22	26	39	29	20	18	60	34
Durables	88	63	30	39	28	15	20	38	47	5	25
Wholesale and retail trade	13	13	5	0	16	15	38	20	23	21	23
Transportation & public utilities . .	0	0	0	0	11	23	6	10	4	4	7
Services	0	0	0	8	8	0	4	10	6	8	6
Finance	0	0	16	6	8	7	3	2	1	2	3
Mining	0	0	0	17	3	0	0	0	1	0	1
Construction . . .	0	0	0	8	0	0	0	0	1	0	0
Total	100	100	100	100	100	100	100	100	100	100	100

* Percentage shares are based on dollar volumes. Figures may not add up because of rounding.

Source: Morgan Stanley & Co. Incorporated.

Table 2
Econometric results

	Cyclical coefficient ¹	Standard error	\bar{R}^2	D.W.	S.E.E.	Chow ² (3, 22)	F ³ (2, 22)
Non-durables . . .	0.87	(0.24)	0.61	2.09	2.32	1.05	0.63
Durables	2.88	(0.23)	0.90	1.19	2.22	2.64	1.60
Wholesale and retail trade	0.91	(0.15)	0.73	1.98	1.46	0.44	2.24
Transportation and public utilities . .	1.11	(0.15)	0.73	1.34	1.41	1.20	2.12
Services	0.63	(0.09)	0.67	2.01	0.91	1.65	0.44
Finance	0.54	(0.11)	0.50	1.54	1.02	2.66	0.95
Mining	0.91	(0.37)	0.13	1.49	3.60	1.36	0.45
Construction	1.73	(0.30)	0.63	1.23	2.95	1.63	0.05

¹ Sum of contemporaneous and lagged GNP coefficients.

² Test for the stability of all the regression coefficients, including the constant, between 1960-73 and 1974-87. Degrees of freedom in brackets.

³ Test for the stability of the cyclical coefficients only, allowing for changes in the constant term, between 1960-73 and 1974-87. Degrees of freedom in brackets.

durables more than offsets the non-cyclical of others. For a non-cyclical sector such as retail and wholesale trade, for instance, the estimated coefficient is not far below unity.

The estimated cyclical-sensitivity coefficients of the regressions appear to be generally statistically significant. All the regressions passed tests for structural stability computed over two sub-periods (1960-73 and 1974-87) at the 5% level of significance. This is true whether the tests were applied to the whole set of regression coefficients (Chow test) or specifically to the cyclical-sensitivity coefficients.* The finding that LBO exposure is on balance cyclical also appeared robust to alternative specifications of lag structures. At the same time, signs of serial correlation in some of the regressions call for caution in the interpretation of the results.

* This was tested by including additive and multiplicative dummies in the regressions and testing only for the constancy of the cyclical-sensitivity coefficients with an F-test.

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