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# **Myths of the West**

## **Lessons from Developed Countries for Development Finance**

Colin Mayer

**Banks finance firms, and firms finance projects. The main contribution of banks to economic development is the promotion of corporations, not the financing of projects.**

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World Bank missions between 1948 and 1968 identified inadequate long-term credit as a primary deficiency of developing countries' financial systems. Existing institutions provided mostly short-term financing and were often foreign owned.

Bank missions recommended establishing development finance companies (DFCs) to provide long-term financing for worthwhile (primarily industrial) projects.

The DFCs' performance has been disappointing. Few are self-supporting; a third are in serious difficulty; and by 1983 half of the banks had arrears on a quarter of their loans. By the early 1980s, the Bank's wisdom in establishing DFCs was being questioned.

Mayer makes several observations about corporate finance in developed countries. Retentions are the dominant source of finance while banks are the dominant source of external finance. In no developed country do companies raise a substantial amount of finance from securities markets. Securities markets provide an efficient means for transferring ownership claims in established corporations. Mayer attributes these phenomena to the monitoring and control function of banks, which depends on their managerial ability and on the costs of bankruptcy and creditor coordination.

This paper, a background paper for the 1989 World Development Report, is a product of the Office of the Vice President, Development Economics. Copies are available free from the World Bank, 1818 H Street NW, Washington DC 20433. Please contact the World Development Report office, room S13-060, extension 31393 (36 pages with tables).

From the recent experience of a group of developed countries, Mayer concludes that:

- An efficient banking system is central to the promotion of economic growth.
- The performance of financial markets is not necessarily furthered by artificially lengthening the maturity of bank lending.
- Economic growth is not promoted through the financing of projects. Economists think in terms of projects; bankers rarely do. Banks finance companies, not projects. Project financing can be used to stimulate economic growth only in a few areas. On the whole, economic development depends on the promotion of corporate organizations.
- Corporate organization, not project activity, is what distinguishes developed from developing countries. Economic growth relies on the structure and quality of financial institutions.
- An external agency may have technical skills and financial resources, but its knowledge about individuals and management teams may be limited. Financial assistance is only part of what is needed to create an appropriate institutional structure. Screening, monitoring, and rewarding individuals may often be more pertinent.

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**Myths of the West: Lessons from Developed Countries  
for Development Finance**

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## Section 1 Introduction

Early missions dispatched by the World Bank over the period 1948 to 1968 identified inadequate long-term credit as a primary deficiency of developing countries' financial systems. The response was the recommendation that development finance companies (DFCs) should be established with the primary aim of providing long-term finance for worthwhile (primarily industrial) projects. Since existing institutions were mainly concerned with short term finance and often foreign owned, it was generally felt necessary to establish new institutions. They were originally conceived to be privately owned, operating under a sanction and concessional finance from government. However, when the World Bank opened a loan window to governmental DFCs in 1968 a number of companies came under state control and today a large majority are state owned.

The DFCs performance has been disappointing. Very few are self-supporting. About one-third are in serious financial difficulties. By 1983, almost half had more than 25 percent of their loans affected by arrears and one quarter had more than 50 percent of their loans in arrears.

Disillusionment with the performance of DFCs was one reason for a pronounced shift in policy away from the promotion of financial institutions. A changing intellectual climate was another. Following the writings of Joseph Schumpeter, several books appeared in the 1950's and 1960's promoting the use of financial institutions to stimulate economic growth. Alexander Gerschenkron and Rondo Cameron were the two best known proponents of this view. Frequent reference was made by these and other authors to universal banks as the powerhouse of the German economy and contrasts were drawn between, for example, commercially orientated banks in Scotland and mercantile banks in England in the eighteenth and nineteenth centuries (see Cameron (1967)).

However, in 1973 two highly influential books were published by Ronald McKinnon and Edward Shaw that attacked the financial interventionist approach. McKinnon and Shaw's main subject of criticism was financial repression - the use of prices and controls to limit the development of financial markets. Financial repression permitted governments to exert more effective control on the allocation of resources within an economy and to finance public sector deficits at low cost. According to McKinnon and Shaw, serious distortions resulted that undermined economic growth. For example, ceilings on interest rates provide an unwarranted stimulus to current consumption at the expense of savings, encourage the pursuit of low return investments and lead to an inefficient substitution of capital for labour. Savings (and therefore investment) were as a consequence depressed.

By the early 1980's serious questions were being raised about the wisdom of World Bank policies (see, for example, World Bank (1980) and Gordon (1983)). As a consequence several international comparisons of financial systems were commissioned that had as their objective the development of broader based lending programmes. These studies usually emphasized the importance of such macroeconomic considerations as price stability, abolition of interest rate ceilings and credit restrictions. Rather little attention was given to the detailed operation of financial institutions.

Policies of financial liberalization in Latin America were not a success. Argentina, Brazil, Colombia and Mexico amongst others instituted and then rapidly abandoned liberalization programmes in the face of soaring real interest rates and damaging international capital movements. Several Asian countries that resisted pressures to liberalize their financial systems fared better than South American countries that pursued liberalization with alacrity.

Questions were also raised at an intellectual level about the validity of the McKinnon-Shaw model. Credit rationing models of

Jaffee and Russell (1976) and in particular Stiglitz and Weiss (1981, 1983, 1986) received much attention in policy circles. In the presence of capital market imperfections, elimination of interest rate ceilings is now no longer thought to be necessarily beneficial (Cho (1986)). Maxwell Fry (1988), for example, in his comprehensive overview of financial development, concludes a chapter on institutions by saying that "recent theoretical work on microeconomic aspects of financial intermediation identifies an instance of market failure arising from asymmetric information between borrowers and lenders. Hence, there may be a case for government intervention". However, no substitute framework has yet emerged. There is continuing distrust of policies that rely on public institutions or government intervention. Both Fry and Cho advocate the development of financial markets under appropriate macroeconomic policies as an important ingredient of successful development policy. Cho argues that "substantial development of an equity market is a necessary condition for complete markets".

The purpose of this article is to consider what lessons can be learnt from financial systems in developed countries for developing countries. This is obviously a well-trodden path. However, there are two reasons for believing that a reexamination may be valuable at this juncture. The first is that research is currently in progress that is employing new techniques for evaluating financial performance. These techniques permit more reliable comparisons of financing patterns in different countries to be made. The second is that there have been significant developments in the theory of corporate finance which are beginning to provide a framework for evaluating financial arrangements.

Section 2 begins by describing the international comparisons. Even when attention is restricted to aggregate data sources, a number of clear patterns emerge. The first is that there are several features of corporate financing common to all countries in this study. In contrast to impressions created by many

previous analyses, the similarities are more pronounced than the variations. The regularity of these results suggests some fundamental underlying causes. This is supported by the constancy of these patterns across time and industries. Secondly, to the extent that there are international variations, these are more pronounced between some countries than others. The financial systems of different countries can apparently be classified into a small number of groups.

The empirical analysis establishes ten stylized facts about corporate financing that warrant explanation. However, until recently, there were few theories to which one could turn for guidance. Traditional corporate finance theories had little to say about differences between financial instruments and institutions, let alone financial systems. Over the past decade more realism has been introduced into the assumptions of corporate finance models and their relevance to practical issues has increased. However, it would be unrealistic to maintain that they offer the prospect of being able to address the issues raised in this paper.

There is one exception and that is a class of theories that emphasize the relevance of control to descriptions of financial arrangements. The reason for interest in these theories is that they suggest some fundamental influences on corporate finance that appear consistent with observed behaviour. Section 3 presents a simple model of control from which a number of predictions about corporate finance can be derived. These predictions are then matched against the empirical observations from section 2. Explanations from control theories are offered for the stylized observations. This is not, of course, a demonstration of the validity of control theories but merely an attempt to provide prima facie evidence of their relevance and to suggest that they offer a useful framework within which comparative financial systems studies can be organized.

Drawing policy implications from the observations in this paper is hazardous. The observations relate to a limited time period (1970 to 1985) and highly developed financial systems. It is difficult to know how they translate to different economic, political and social environments. For example, while control theories suggest that there are serious deficiencies associated with securities markets as sources of finance for industry, the creation of efficient banking systems may present even greater difficulties in many countries. The relative ranking of banks and securities markets as sources of finance suggested by this paper may therefore be reversed at different times or in different countries. All that this paper can do is to draw inferences from the recent experience of a group of developed countries.

The first implication comes from the observation that over the period 1970 to 1985 securities markets made little contribution to industrial financing in any of the developed countries of this study. Where external financing has been provided it has primarily come from banks. Banking systems therefore appear central to the promotion of economic growth and the role of securities markets in funding investment is more opaque.

One of the insights provided by control theories is the linking of finance and corporate management. Financial instruments limit but do not extinguish external involvement in corporate activities. Investor involvement will be greater where corporate management is less able. As corporate organizations expand, their degree of independence increases to a point at which investor involvement is limited to periodic evaluations of competing bids for corporate control. Only at that stage do security markets provide an efficient means by which ownership claims can be transferred.

Secondly, the willingness of investors to provide finance may be conditional on their exerting a high degree of control over corporate activities. This will be particularly true of investments of uncertain value where investor involvement can



stem losses. Where withdrawal of funds is the best response to financial failure, the chosen form of control will be the ability to withdraw finance at short notice. The absence of long-term lending is not therefore necessarily symptomatic of a capital market failure but may be an inherent characteristic of optimal relations between investor and borrower. Institutions that attempt to restrict their control by offering long-term finance may merely be courting financial failure.

Thirdly, and in some ways most significantly the promotion of economic growth is not achieved through the successful financing of projects. Economists think in terms of projects; bankers rarely do. For the most part, banks finance companies not projects. Control theory provides a clear resolution of these conflicting views. According to control models, external finance is limited by the value of assets under investor control. Where the value of tangible value of assets is high then this limitation is not restrictive. Project finance in developed countries is primarily associated with precisely this class of investments. However, where the realization value of assets is small, finance that is tied to projects will be very inhibitive. Instead, the provision of adequate funding will be dependent on intangible valuations associated with corporate organization. The financing of projects can therefore only be used to stimulate economic growth in a limited number of areas. Economic development more generally requires the promotion of corporate organizations.

To summarize the policy implications of this analysis are as follows:

(i) An efficient banking system is central to the promotion of economic growth,

(ii) The performance of financial markets is not necessarily furthered by the artificial lengthening of the maturity of bank lending,

**(iii) Bank lending should be directed towards the development of corporate organizations not the financing of projects.**

## Section 2 The financing of industry in developed countries

There are two sources of information available for studies of aggregate corporate financing patterns in different countries. The first is national flow-of-funds statements. These are records of flows between different sectors of an economy and between domestic and overseas residents. The relevant statement for this exercise is flows to and from non-financial enterprises. The second source is company accounts. These are constructed on an individual firm basis but are often aggregated or extrapolated to industry or economy levels.

Both sources have their merits and deficiencies. In theory, flow-of-funds statistics provide a comprehensive coverage of transactions between sectors. Company accounts are only available for a sample, often quite small, of a country's total corporate sector. However, the data that are employed in company accounts are usually more reliable than flow-of-funds. As Appendix 1 describes, flow-of-funds are constructed from a variety of different sources that are rarely consistent. As a consequence, statistical adjustments are required to reconcile entries.

As described in Mayer (1987 and 1988) and Appendix 2 to this paper, the methodology employed in the Centre for Economic Policy Research Study of the Financing of Industry differs in several respects from that used by previous researchers. Greater emphasis is placed on flows of finance instead of stocks. Figures are recorded on a net (of accumulation of equivalent financial assets) as well as a gross funding basis. Financing proportions are aggregated over different time periods using a weighted as well as a simple average of individual years' proportions. The Appendix argues that these procedures achieve a greater degree of international comparability than has been available hitherto.

Tables 1,2 and 3 report weighted and unweighted average financing proportions for the five countries of the

TABLE 1 UNWEIGHTED AVERAGE NET FINANCING NON-FINANCIAL ENTERPRISES 1970 - 1985 (1) (PER CENT)

	CANADA(2)	FINLAND(3)	FRANCE	GERMANY(4)	ITALY(5)	JAPAN(6)	UNITED(7) KINGDOM	UNITED(8) STATES
RETENTIONS	76.4	64.4	61.4	70.9	51.9	57.9	102.4	85.9
CAPITAL TRANSFERS	0.0	0.2	2.0	8.6	7.7	0.0	4.1	0.0
SHORT-TERM SECURITIES	- 0.8	3.7	- 0.1	- 0.1	- 1.3	NA	1.7	0.4
LOANS	15.2	28.1	37.3	12.1	27.7	50.4	7.6	24.4
TRADE CREDIT	- 4.4	- 1.4	- 0.6	- 2.1	0.0	-11.2	- 1.1	- 1.4
BONDS	8.5	2.8	1.6	- 1.0	1.6	2.1	- 1.1	11.6
SHARES	2.5	- 0.1	6.3	0.6	8.2	4.6	- 3.3	1 .1
OTHER	1.3	7.4	- 1.4	10.9	1.0	- 3.8	3.2	-16.9
STATISTICAL ADJUSTMENT	1.2	- 5.0	- 6.4	0.0	3.2	NA	-13.4	- 5.1
TOTAL	99.9	100.1	100.1	99.9	100.0	100.0	100.1	100.0

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SOURCE: OECD FINANCIAL STATISTICS

**TABLE 2 WEIGHTED AVERAGE NET FINANCING OF NON-FINANCIAL ENTERPRISES 1970-1985<sup>(1) (9)</sup> (PER CENT)**

	<b>CANADA<sup>(2)</sup></b>	<b>FINLAND<sup>(3)</sup></b>	<b>FRANCE</b>	<b>GERMANY<sup>(4)</sup></b>	<b>ITALY<sup>(5)</sup></b>	<b>JAPAN<sup>(6)</sup></b>	<b>UNITED<sup>(7)</sup> KINGDOM</b>	<b>UNITED<sup>(8)</sup> STATES</b>
RETENTIONS	78.1	64.2	NA	72.6	NA	NA	107.2	89.2
CAPITAL TRANSFERS	0.0	0.2	NA	9.4	NA	NA	2.7	0.0
SHORT-TERM SECURITIES	- 1.2	4.1	NA	- 0.1	NA	NA	2.8	1.0
LOANS	15.9	27.8	NA	12.0	NA	NA	2.2	25.4
TRADE CREDIT	- 3.7	- 1.8	NA	- 2.5	NA	NA	- 1.7	- 1.4
BONDS	7.2	3.2	NA	- 1.9	NA	NA	- 2.3	11.7
SHARES	2.2	- 1.4	NA	0.6	NA	NA	- 3.6	- 2.8
OTHER	1.0	6.5	NA	9.9	NA	NA	3.5	-17.2
STATISTICAL ADJUSTMENT	0.5	- 3.0	NA	0.0	NA	NA	-10.8	- 5.9
TOTAL	100.0	99.8		100.0			100.0	100.1

9-8

SOURCE: OECD FINANCIAL STATISTICS

TABLE 3 UNWEIGHTED AVERAGE GROSS FINANCING OF NON-FINANCIAL ENTERPRISES, 1970-1985<sup>(1)</sup> (PER CENT)

	CANADA <sup>(2)</sup>	FINLAND <sup>(3)</sup>	FRANCE	GERMANY <sup>(4)</sup>	ITALY <sup>(5)</sup>	JAPAN <sup>(6)</sup>	UNITED <sup>(7)</sup> KINGDOM	UNITED <sup>(8)</sup> STATES
RETENTIONS	54.2	42.1	44.1	55.2	38.5	33.7	72.0	66.9
CAPITAL TRANSFERS	0.0	0.1	1.4	6.7	5.7	0.0	2.9	0.0
SHORT-TERM SECURITIES	1.4	2.5	0.0	0.0	0.1	NA	2.3	1.4
LOANS	12.8	27.2	41.5	21.1	38.6	40.7	21.4	23.1
TRADE CREDIT	8.6	17.2	4.7	2.2	0.0	18.3	2.8	8.4
BONDS	6.1	1.8	2.3	0.7	2.4	3.1	0.8	9.7
SHARES	11.9	5.6	10.6	2.1	10.8	3.5	4.9	0.8
OTHER	4.1	6.9	0.0	11.9	1.6	0.7	2.2	-6.1
STATISTICAL ADJUSTMENT	0.8	-3.5	-4.7	0.0	2.3	NA	-9.4	-4.1
TOTAL	99.9	99.9	99.9	99.9	99.9	100.0	99.9	100.1

SOURCE: OECD FINANCIAL STATISTICS

NOTES TO TABLES 1, 2 AND 3

1. Definitions of items are described in Appendix 2. Net financing is shown as a proportion of capital expenditures and stockbuilding. Gross financing is a proportion of total sources.
2. For Canada, mortgages are included in loans, foreign investments are included in other and capital transfers are included in retentions.
3. Data on Finland refer to the period 1969 to 1984. Errors in the OECD statistics have required that the statistical adjustment be altered as follows: 1971, DM 2 billion and 1973, +DM 89 billion.
4. There is no statistical adjustment in German accounts. Funds placed with insurance companies and building and loans associations are included in loans.
5. The Italian statistical adjustment was reduced by L2,070 billion in 1974 to make accounts balance. Trade credit is not recorded as a separate item in Italian flow-of-funds.
6. Japanese flow-of-funds do not report retentions. The ratio of external to internal financing of Japanese enterprises has been obtained by applying proportions recorded in aggregate company accounts for the period 1972-84, as shown in Tables 4 and 5. The Japanese figures therefore have to be treated with particular caution. Short-term securities are included in bonds.
7. United Kingdom statistics refer to private enterprises only; were public enterprise to be included then entries would read as follows:

	RETENTIONS	CAPITAL TRANSFERS	SHORT-TERM SECURITIES	LOANS	TRADE CREDIT	BONDS	SHARES	OTHER	STATISTICAL ADJUSTMENT
UNWEIGHTED NET (TABLE 1)	91.9	5.7	1.3	11.7	-0.7	-0.9	-2.5	2.1	-8.5
WEIGHTED NET (TABLE 2)	97.5	4.2	2.1	5.9	-1.1	-1.7	-2.6	2.4	-6.5
UNWEIGHTED GROSS (TABLE 3)	67.9	4.2	1.9	22.4	3.6	0.6	3.9	1.9	-6.4

8. The following modifications were made to the U.S. statistical adjustment to make accounts balance: (Million dollars)

1970	1971	1973	1975	1976	1979	1981	1982	1983	1984
-1	-3	+3	+1	-2	+2	-1	+1	-2	-1

Capital transfers are included under retentions in U.S. accounts. Acquisitions of central government short-term securities are not shown separately from bonds and have been subtracted from issues of bonds in Table 2.

9. The weights used in Table 2 (The product of revaluation and depreciation factors) are as follows:

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
<b>CANADA</b>	0.20	0.39	0.55	0.69	0.74	0.78	0.84	0.88	0.91	0.89	0.89	0.89	0.89	0.93	0.97	1.00
<b>FINLAND</b>	0.29	0.52	0.70	0.85	0.90	0.86	0.87	0.91	0.91	0.98	1.01	0.94	0.97	0.97	0.99	1.00
<b>GERMANY</b>	0.11	0.22	0.32	0.40	0.46	0.53	0.59	0.76	0.71	0.75	0.78	0.81	0.87	0.92	0.96	1.00
<b>UNITED KINGDOM</b>	0.32	0.58	0.79	0.89	0.90	0.91	0.93	0.95	0.95	0.90	0.87	0.89	0.93	0.97	0.99	1.00
<b>UNITED STATES</b>	0.17	0.33	0.47	0.59	0.62	0.67	0.73	0.77	0.78	0.80	0.79	0.78	0.81	0.89	0.94	1.00



international study (France, Germany, Japan, the U.K. and U.S.) and for Canada, Finland and Italy using flow-of-funds statistics. Table 1 reports unweighted averages of net financing as a proportion of capital expenditures and stockbuilding. Table 2 shows weighted averages of net financing using straight line depreciation over 16 years from 1970 to 1985. Table 3 records unweighted averages of gross financing as a proportion of total sources of finance.<sup>1</sup> The weighted and unweighted averages are similar.

Observation 1 Retentions are the dominant source of finance in all countries.

The U.K. has the highest proportion of retentions (107 percent excluding public enterprises, 97 percent including public enterprises on a weighted net financing basis). Italy has the lowest but, even here, over half of investment in physical assets and stocks is funded from retentions.

This is not just a consequence of the procedure of netting uses of finance from sources. Even on a gross basis U.K. corporations obtain just over 70 per cent of their total sources from retentions and U.S. corporations just under 70 per cent.

Observation 2 There are some marked variations in self-financing ratios across countries. In the U.K. and U.S.A., more than three-quarters of investment is funded from retentions. In Finland, France, Japan and Italy, appreciably

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<sup>1</sup> There is a strong similarity between the financing proportions recorded for the U.S. in Table 3 and those reported in Goldsmith (1965) for earlier periods. Goldsmith reports the following for the period 1946 to 1958:

Retentions	Loans	Bonds	Equities
58.2	25.7	9.6	6.4

more is raised externally. Canada and Germany lie somewhere between the two groups.

Observation 3 In no country do companies raise a substantial amount of finance from securities markets.

Summing together short-term securities, bonds and shares reveals that the largest amount raised in securities markets is 19 per cent in Canada on a gross basis (i.e. as a proportion of total sources) and 13 per cent on a net basis in the U.S.A. In Germany and the U.K., net amounts raised from these three sources were negative and gross amounts were only 3 per cent in Germany and 8 per cent in the U.K. Only in Canada and the U.S.A. do bond markets raise a significant proportion of external finance for industry.

Observation 4 Banks are the dominant source of external finance in all countries.

Observation 5 Bank finance is particularly pronounced in France, Italy and Japan. It represents a surprisingly small proportion of German corporate financing.

Bank finance accounts for approximately 40 per cent of gross sources in France, Italy and Japan. In Germany, the U.K. and the U.S.A. it only contributes around 20 per cent of total sources. Netting off deposits this falls to 8 per cent in the U.K. Rather strikingly then there is no support from these figures for the commonly held view that German banks contribute a substantial amount to the financing of their industry (see Carrington and Edwards (1979)).

Comparing the gross and net financing tables demonstrates some of the problems associated with interpreting gross funding figures. In some countries, trade credit appears to be an important source of finance, in particular in Finland (see Table 3). But much of this is intra-corporate sector and does not contribute to total net financing. Table 1 correctly

records that overall non-financial enterprises are suppliers of credit to other sectors, in particular consumers.

Comparing Tables 1 and 3 reveals that U.K. enterprises have been particularly heavy purchasers of financial assets. This has been primarily in the form of deposits but purchases of shares have also been large. Acquisitions of financial assets in the U.S.A. mainly take the form of intra-sector flows of trade credit and purchases of domestic shares and overseas assets.

The quality of some flow-of-funds data is questionable. Statistical adjustments reveal inconsistencies between series and the coverage of some items, in particular trade credit, is known to be inadequate. U.K. data are particularly deficient in this respect. Table 1 recorded the fact that the statistical adjustment averaged 13 per cent of gross investment over the period 1970 to 1985 - approximately twice that of any other country.

Tables 4 and 5 repeat the financing proportion exercise using company accounting data where they are available. There is a strong similarity in the financing patterns that emerge from the two sources of data. However, there are a few differences. Bank loans are more significant in Finland but much less significant in the U.K. than suggested by the flow-of-funds data. Bonds are even more significant in the U.S.A. as a source of finance for industry than flow-of-funds data indicate.

Average financing ratios therefore look similar for the two sources of data. However, nothing has been said to date about the extent to which these proportions have changed over time or the correlation between different forms of finance. Flow-of-funds data are too short (16 observations per country for the series standardized by the OECD) to provide accurate guidance on either of these questions. In contrast, company accounting information has been collected for nearly 40 years in the U.K.

**TABLE 4 UNWEIGHTED AVERAGE NET FINANCING OF NON-FINANCIAL CORPORATIONS (PER CENT)**

PERIOD	FINLAND 1975-84	FRANCE 1976-84	JAPAN 1972-84	UNITED STATES 1970-85
RETENTIONS	66.4	66.9	57.9	87.9
CAPITAL TRANSFERS	1.8	1.2	NA	0.0
SHORT-TERM SECURITIES	3.1	36.1	NA	0.0
LOANS	34.7		46.2	10.8
TRADE CREDIT	-7.2	2.5	-8.6	-2.5
BONDS	1.1			15.8
		-6.7	0.2	
SHARES	-2.4			-1.3
OTHER	4.8	0.0	2.4	-3.9
STATISTICAL ADJUSTMENT	-2.4	0.0	1.9	-6.9
<b>TOTAL</b>	<b>99.9</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

SOURCE: COMPANY ACCOUNTS AS REPORTED IN  
OECD FINANCIAL STATISTICS

**TABLE 5 UNWEIGHTED AVERAGE GROSS FINANCING OF NON-FINANCIAL CORPORATIONS (PER CENT)**

PERIOD	FINLAND 1975-84	FRANCE 1976-84	JAPAN 1972-84	UNITED STATES 1970-85
RETENTIONS	41.3	36.1	33.7	64.6
CAPITAL TRANSFERS	1.0	0.6	NA	0.0
SHORT-TERM SECURITIES	2.2	31.3	NA	1.5
LOANS	34.5		36.4	12.5
TRADE CREDIT	13.0	25.4	15.0	10.4
BONDS	0.6	6.6	2.1	12.5
SHARES	4.3		4.9	4.0
OTHER	4.6	0.0	7.8	-0.2
STATISTICAL ADJUSTMENT	-1.6	0.0	0.0	-5.2
TOTAL	99.1	100.1	99.9	99.8

Graphs 1 and 2 are based on aggregate company accounting information. In interpreting the graphs it should be borne in mind that there was a significant change in sampling procedures in 1977.<sup>2</sup> The graphs suggest the following observations:

Observation 6: UK investment has been consistently financed from retentions (91 percent on average). Bank finance has contributed close to zero (3 per cent on average) on a net basis.<sup>3</sup>

Observation 7: There is a strong inverse relation between the proportion of expenditure financed from retentions and bank credit.

Confirmation for observation 7 comes from an examination of correlations between different forms of finance. Table 6 records the correlation between retentions and other sources of finance. Retentions are strongly inversely correlated with trade credit and bank credit on both a gross and net basis. The fact that this is true of gross as well as net bank credit indicates that short-term financing requirements are satisfied by raising bank loans as well as reducing cash balances.

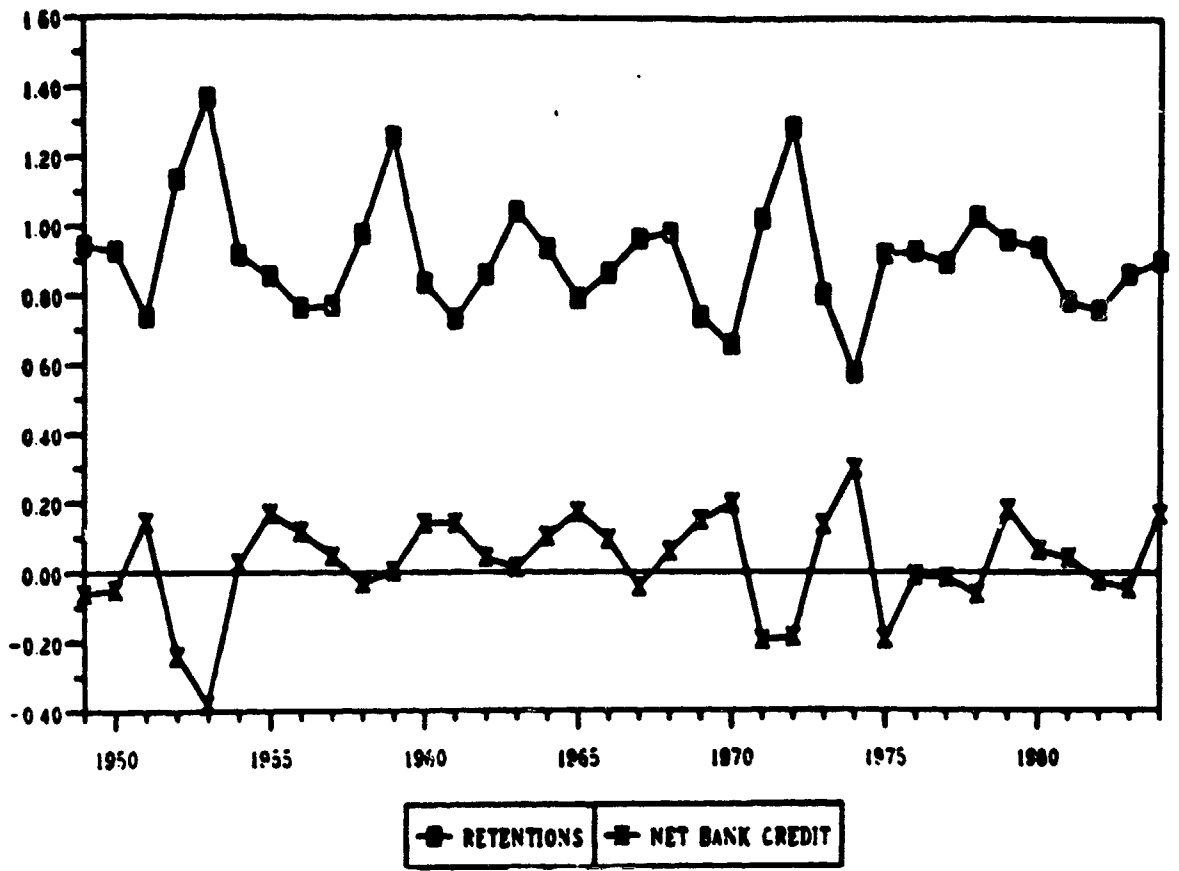
Despite only having a short time series available for other countries, Table 7 reveals a remarkable consistency in this pattern of correlations. Loans and trade credit are inversely related to retentions in all countries. On a net basis (Table 8), the strong inverse relation with loans remains. However, with trade credit the correlation is considerably weakened and in many cases eliminated. This may be just a reflection of the poor quality of trade credit data in flow-of-funds statistics or an indication of the intra-corporate sector nature of the

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<sup>2</sup> See Appendix 1 for details.

<sup>3</sup> It is only slightly in excess of this on a gross basis - 6 per cent on average.

**GRAPH 1 RETENTIONS AND NET BANK CREDIT IN THE UK  
(PROPORTIONS OF PHYSICAL INVESTMENT)**



GRAPH 2

# NET ISSUE OF SECURITIES IN THE UK (PROPORTION OF PHYSICAL INVESTMENT)

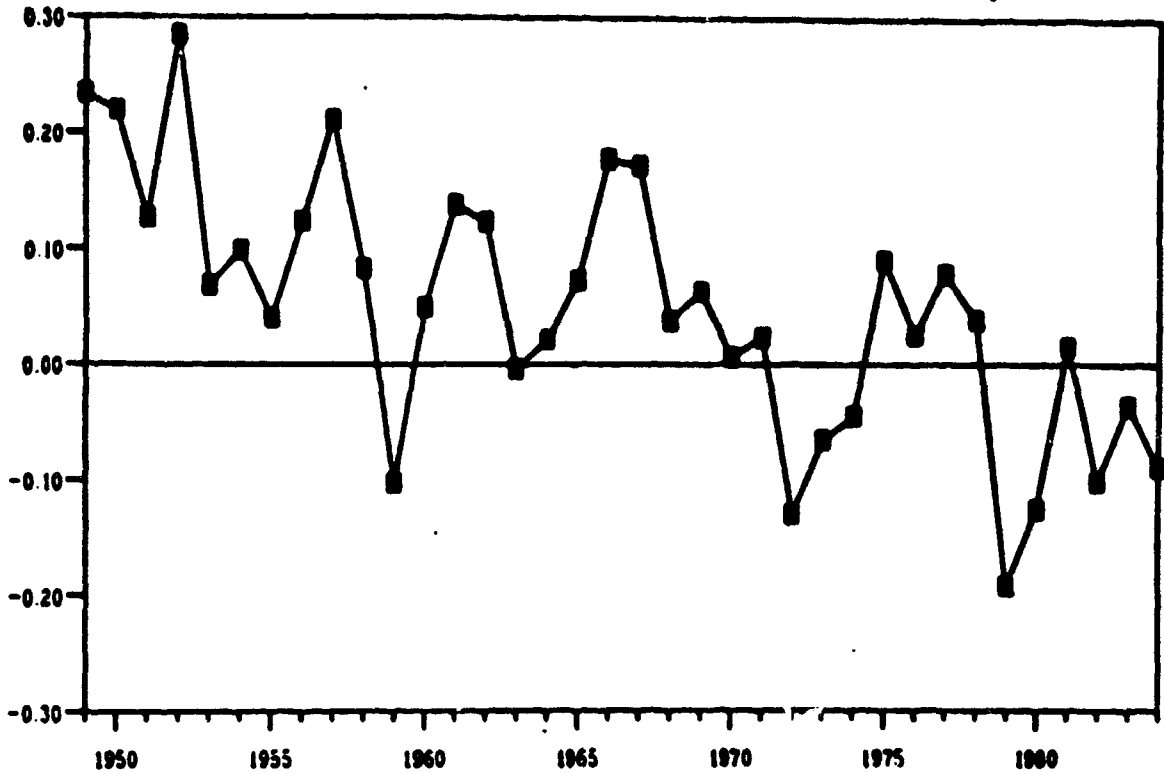




TABLE 6 CORRELATION MATRIX FOR U.K. QUOTED COMPANIES. 1949 - 1977

	RETENTIONS	GROSS SOURCE				NET SOURCE		
		TRADE CREDIT	BANK CREDIT	LONG-TERM DEBT	NEW EQUITY ISSUES	TRADE CREDIT	BANK CREDIT	SECURITIES ISSUED
INVESTMENT	.23	-.17	.13	-.11	-.08	.66	.15	-.41
RETENTIONS	1.00	-.73	-.73	-.07	.03	-.51	-.83	-.23

SOURCE: GOUDIE AND MEEKS

NOTE: (I) Gross and net sources are defined as a percentage of total gross and net sources respectively. Investment and retentions are defined as a percentage of total gross sources for the first five columns and retentions is defined as a percentage of total net sources (i.e. physical investment) for the last three columns. The absolute value of investment is used in the last three columns.

**TABLE 7                    CORRELATIONS BETWEEN PROPORTIONS OF RETENTIONS AND PROPORTIONS OF OTHER FORMS OF GROSS FINANCE**

<b>PROPORTION OF</b>	<b>CANADA</b>	<b>FINLAND</b>	<b>FRANCE</b>	<b>GERMANY</b>	<b>ITALY</b>	<b>JAPAN</b>	<b>UNITED KINGDOM</b>	<b>UNITED STATES</b>
SHORT-TERM SECURITIES	.05	-.58	.00	.02	.34	NA	-.11	-.31
LOANS	-.78	-.43	-.37	-.59	-.74	NA	-.73	-.45
TRADE CREDIT	-.40	-.33	-.37	-.36	NA	NA	-.69	-.84
BONDS	.16	-.14	.43	-.55	-.32	NA	-.34	.42
SHARES	-.01	.26	-.25	.05	-.12	NA	.45	-.20

**TABLE 8**      **CORRELATIONS BETWEEN PROPORTIONS OF RETENTION AND PROPORTIONS OF OTHER FORMS OF FINANCE**

<b>PROPORTION OF</b>	<b>CANADA</b>	<b>FINLAND</b>	<b>FRANCE</b>	<b>GERMANY</b>	<b>ITALY</b>	<b>JAPAN</b>	<b>UNITED KINGDOM</b>	<b>UNITED STATES</b>
<b>SHORT-TERM SECURITIES</b>	- 0.54	- 0.67	- 0.40	- 0.01	- 0.52	NA	- 0.25	- 0.40
<b>LOANS</b>	- 0.78	- 0.47	- 0.45	- 0.57	- 0.88	NA	- 0.70	- 0.67
<b>TRADE CREDIT</b>	0.03	- 0.40	- 0.41	- 0.07	NA	NA	0.02	0.01
<b>BONDS</b>	- 0.30	0.12	0.13	- 0.76	- 0.03	NA	- 0.36	0.02
<b>SHARES</b>	0.72	- 0.17	- 0.47	0.32	0.05	NA	- 0.10	- 0.09

transaction, not fully revealed by the partial coverage of company accounts.

**Observation 8:** Securities markets have declined in significance as sources of finance for British industry. Trade credit increased in importance at the end of the 1960's and early 1970's.<sup>4</sup>

Quite surprisingly, there is no evidence of financial innovation and deregulation being associated with a growth in the contribution of market sources of finance.<sup>5</sup>

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<sup>4</sup> Comparisons of financing proportions in Footnote 1 with Table 3 suggests that a similar decline has occurred in the US over the second World War period. Taggart (1986) demonstrates that the decline has been a long-run one. He reports the following financing proportions for US non-financial corporations since the turn of the century:

Period	(per cent)			
	Retentions	Short-term Liabilities	Bonds & Mortgages	Equities
1901-12	55	8	23	14
1923-29	55	4	22	19
1949-53	64	16	14	6
1979-83	63	26	9	2

<sup>5</sup> That observation is not dependent on netting uses from sources. Issues of long-term liabilities and shares averaged as follows:

	1950-59	1960-69	1970-79	1980-84
Long-term liabilities	7.5	10.8	5.6	-0.7
Shares	11.1	14.9	8.5	8.0

However, it should be borne in mind that pre- and post-1977 data are not directly comparable.

Cross-sectional evidence suggests that high retention proportions in the UK are not merely a consequence of low industrial growth. Two relatively high growth industrial sectors, chemicals and allied firms, and electrical engineering recorded financing proportions that were equal to or in excess of those in other industries (Table 9).

However, there are marked differences in financing proportions of different size of firms within industries. Since 1977, the Department of Trade & Industry has categorized firms by two size groups: large, and medium and small companies. <sup>6</sup> Table 10 records the following<sup>7</sup>:

**Observation 9:** Small and medium sized firms are considerably more reliant on external finance than large firms. A smaller proportion of small than large company finance comes from securities markets.

Confirmation for the greater role of banks in small company financing comes from an examination of stock as well as flow proportions in Table 11.

However, it should be borne in mind that pre- and post-1977 data are not directly comparable.

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<sup>6</sup> For the period shown in Table 10 large firms are defined as those with capital employed of more than £4.16 million.

<sup>7</sup> Goldsmith (1958) records a similar distinction between small and large firms in the U.S. in an earlier period. Gross financing proportions for the period 1946 to 1952 were:

	Retentions	Bank Loans and Trade Credit	Bonds and Mortgages	Equities	Other
	(per cent)				
300 large Corporations	59.1	7.2	14.1	8.1	11.3
All other Corporations	53.0	22.7	12.6	5.0	6.8

**TABLE 9 FINANCING PROPORTIONS IN TWO INDUSTRIES IN THE U.K.**

	GROSS PROPORTIONS			NET PROPORTIONS		
	TOTAL SAMPLE	CHEMICALS AND ALLIED INDUSTRIES	ELECTRICAL ENGINEERING	TOTAL SAMPLE	CHEMICALS AND ALLIED INDUSTRIES	ELECTRICAL ENGINEERING
RETENTIONS	59.1	62.7	59.2	91.0	89.7	117.3
TRADE CREDIT	17.5	12.7	17.1	1.5	- 2.2	- 11.9
BANK CREDIT	5.6	3.2	1.6	2.7	- 2.2	- 20.4
LONG-TERM LIABILITIES	6.8	13.3	6.7	4.8	14.7	15.0
ISSUES OF SHARES	10.9	8.0	15.4			
<b>TOTAL</b>	<b>99.9</b>	<b>99.9</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

SOURCE: GOUDIE AND MEEKS, BUSINESS MONITORS (M3)

NOTES: (I) All averages are unweighted.

(II) The total sample refers to the period 1949 to 1984.

Chemicals and allied and electrical engineering industries relate to the period 1949 to 1982.

TABLE 10

**FINANCING PROPORTIONS OF LARGE AND MEDIUM AND SMALL SIZED COMPANIES IN THE U.K. :  
AVERAGE 1977 TO 1982**

	RETENTIONS	BANKS, SHORT-TERM LOANS AND TRADE CREDITORS	ISSUES OF SHARES AND LONG-TERM DEBT	OTHER SOURCES
<u>ALL COMPANIES</u>				
LARGE	70.9	23.2	5.7	0.2
MEDIUM AND SMALL	52.6	45.7	1.3	0.3
<u>CHEMICAL COMPANIES</u>				
LARGE	70.5	20.2	7.6	1.6
MEDIUM AND SMALL	50.3	50.5	3.8	- 4.7
<u>ELECTRICAL COMPANIES</u>				
LARGE	79.4	19.4	3.1	- 1.9
MEDIUM AND SMALL	60.4	37.4	2.4	0.1

SOURCE: BUSINESS MONITORS (M3)

**TABLE 11    PROPORTION OF STOCK OF BANK AND SHORT-TERM LOANS TO  
TOTAL SHORT- AND LONG-TERM DEBT: AVERAGE 1977 TO 1982**

<u>ALL COMPANIES</u>	66
LARGE COMPANIES	63
MEDIUM AND SMALL COMPANIES	87
<u>CHEMICAL COMPANIES</u>	47
LARGE CHEMICALS	46
MEDIUM AND SMALL CHEMICALS	93
<u>ELECTRICAL COMPANIES</u>	73
LARGE ELECTRICALS	66
MEDIUM AND SMALL ELECTRICALS	94

**SOURCE: BUSINESS MONITORS (M3)**

**NOTE:    BANK LOANS RELATE TO BOTH SHORT- AND LONG-TERM LOANS.  
THE TABLE IS NOT THEREFORE INFORMATIVE ABOUT MATURITY OF DEBTS.**



Observation 10: Bank (and short-term) finance account for approximately two-thirds of UK companies total debt but more than five-sixth of small companies total debt.

These ten stylized facts warrant explanation.

### Section 3 A control theory of corporate finance

Until recently there would have been little theoretical basis on which to attempt an explanation of these observations. In the presence of complete markets and in the absence of taxation and bankruptcy costs, finance is irrelevant to corporate valuations. In the presence of taxation, costs of capital can differ appreciably across different forms of finance. However, taxation has not been successful at explaining financing patterns either across or within countries (see Mayer (1987) and (1988)). Furthermore, many of the ten observations relate to statements about intermediation not financial instruments—a subject on which theory is almost silent.

There have, however, been some developments in corporate finance theory which hold out the possibility that a framework for explaining financing patterns may emerge. The most relevant of these are theories that relate corporate finance to corporate control. They have been described informally in Mayer (1987 and 1988). More rigorous theoretical models have been presented in Aghion and Bolton (1988) and Mayer (1989). The purpose of the presentation here is to suggest the relevance of these models to the observations described above and, in the next section, the design of financial systems for economic development.

The starting point of these models is to relax the assumption of complete markets and contracts. In the presence of complete contracts, it is possible to specify reward and penalties in such a way as to achieve Pareto optimal outcomes in all states. Divergences of interests between different agents can be eliminated through appropriate contract specification. It is where incompleteness is unavoidable or only achievable at prohibitive cost that moral hazard or adverse selection problems arise.

Consider the most straightforward case. Suppose that there are two agents, only one of whom (agent 1) is endowed with

financial wealth. Agent 1 can be regarded as the bank. If agent 1 has to take control of the asset he can generate a return of  $\underline{v}^1$ .  $\underline{v}^1$  is the liquidation or reorganization value of the asset. Agent 2 requires a return of at least  $\underline{v}^2$  to be willing to run the capital asset (the opportunity cost of his human capital).<sup>8</sup> If  $i_v^j$  is the value of the asset under the control of individual  $i$  to individual  $j$  then  $1v^{\cdot} = \underline{v}^1$ ,  $2v^1 = \underline{v}^1$  and  $2v^2 = 2v^{\cdot} - \underline{v}^1$  where  $i_v^{\cdot} = i_v^j$ . Therefore Agent 2 should be in control provided that  $2v^{\cdot} - \underline{v}^2 > \underline{v}^1$ .

There are then two ways in which one can proceed to establish a relation between finance and control. The first, which is the line taken by Aghion and Bolton, is to assume that financial performance is informative about the desirability of alternative allocation of control. If the only aspect of performance that is observable is cash flow then a contract that is conditional on ability to service a financial obligation may be sought. A debt contract meets that need. It allocates control to the manager, entrepreneur or shareholder in states in which interest and principal obligations can be paid and transfers control to the creditor where they cannot.

The link with finance here comes from the observability of financial returns. This approach bears a close resemblance to a particular class of signalling model due to Miller and Rock (1985) where dividends are informative about companies cash flows. The advantage of the Aghion and Bolton approach over earlier models is that it provides a rationale for setting payments to investors in terms of the relative productivity of different classes of investor in controlling the activities of firms.

The link between control and finance that Mayer emphasizes is the claim that investors can make in the event of a default.

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<sup>8</sup> No distinction is being drawn here between entry and exit valuations. This is an important simplification. For the implications of its relaxation see Mayer (1989).

Suppose that Agent 2's earnings are continuously increasing in the value of expropriations from Agent 1. Expropriation may arise from direct transfer, slack, the pursuit of managerial objectives, investment in unduly risky activities and a range of other activities that diminish investors' wealth. The assumption that earnings are continuously increasing implies that the value that agent 2 attaches to expropriations increases at a faster rate than her human capital suffers from, for example, loss of reputation. This is a strong assumption and we return to it below. If that is the case, then agent 1 will be unwilling to invest more than  $\underline{v}^1$  knowing that that is the amount which can be extracted from the firm in the event of default and the amount which can therefore be expected when agent 2 is in control.

The two models are obviously clearly related. Mayer's differs from Aghion and Bolton by emphasizing exogenous influences on the capital structure of firms reflecting the value of assets under alternative management. It is this that determines the amount of finance that agent 1 is willing to provide. A host of instruments may then be employed to effect transfer of control when different signals suggest that the default valuation ( $\underline{v}^1$ ) is being violated. A variety of covenant restrictions as well as interest and principal payments are commonly employed.

Where the inverse relation between agent 1 and agent 2 valuations does not hold, valuations in excess of  $\underline{v}^1$  can be sustained. In that case the valuation that agent 1 attributes to agent 2 control is associated with those actions by agent 2 that maximize  $2v^1$ . If  $2v^1 - v^2 = v^1 > \underline{v}^1$  corresponding to those actions then agent 1 will be willing to contribute up to an amount  $v^1$ . In the extreme where  $v^2 = \underline{v}^2$ ,  $v^1 = 2v^1 - \underline{v}^2$ .

Before discussing the implications of this analysis for the above observations on financing, it is worth noting some attractive features of the approach. First, it provides a rigorous basis for encapsulating some of the features of agency

and managerial models that previous models have not. Secondly, it provides the rationale for the existence of a multiplicity of financial instruments (short- and long-term finance and covenants) that traditional finance models have been unable to explain. Thirdly, it provides predictions about corporate capital structure that are readily testable.

We turn to this last point now. It is hypothesized that a control model gives rise to the following predictions:

Prediction 1: Gearing levels will be high where the value of assets under creditor management is high.

Comment: High values of  $\underline{v}^1$  should be associated with large external financing.

Prediction 2: Assets which are not specific to their current employment will attract more external finance.

Comment: Assets that are specific to their current employment, e.g. intangibles, will have a low value of  $\underline{v}^1$ .

Prediction 3: Where the costs of organizing external control are high, there will be little external finance.

Comment: If it is costly to organize a disparate group of investors then the degree of control that they would be expected to exert is small. Likewise, the provision of external finance may be constrained by bankruptcy costs.

Prediction 4: The relation between control and finance is weakened where interests of investor and manager do not diverge.

Comment: Prediction 4 follows immediately from the observation that investors will be willing to provide more than  $\underline{v}^1$  where  $v^1 > \underline{v}^1$ .

The determinants of corporate capital structure are therefore:

1. The managerial ability of creditors (prediction 1),
2. The nature of assets (prediction 2),
3. Bankruptcy and creditor coordination costs (prediction 3),
4. Non-financial controls on managerial opportunism (prediction 4).

The first five observations on the dominant role of retentions, low contributions from security markets and the importance of banks in some countries are consistent with predictions 1 and 3. If external intervention is costly because creditors are either poor managers or difficult to organize, then own finance will dominate (observation 1) and be particularly large in countries in which management and finance are separated (observation 2). Creditors that are dispersed and difficult to organize will play an especially small role (observation 3). Instead, finance will come from intermediaries (observation 4) that are closely integrated into their corporate sectors (observation 5).

The relation between finance and control is particularly evident in the provision of working capital. The main providers of working capital (banks and trade creditors-observation 7) also have the most direct claim on assets in the event of default (fixed and floating charges). The ability to trigger these claims automatically with little direct managerial input means that institutions can smooth cash flows even where their longer term involvement is small (comparison of observations 2 and 7).

Predictions 2 and 3 help to account for observations 9 and 10. Small and newly-formed companies have a low intangible (goodwill) to tangible valuation ratio. Therefore a smaller proportion of their assets are specific to their current

employment and investors can realize a larger proportion of their ongoing value in the event of default. As a consequence, the external financing ratio of small companies is higher than average (observation 9) and finance is provided by investors who can take control at low cost (observation 10). By way of a corollary, it is worth noting that capital market deficiencies will be particularly pronounced in firms with a high proportion of intangible assets (i.e. companies involved in substantial research and development (R and D) programmes) and few own resources. This is consistent with the Schumpeterian hypothesis that product market dominance is required to provide finance for R and D.

As for the other two observations not included in Table 1, the apparent constancy of financing patterns (observations 6) supports the emphasis that is placed on structural factors (quality of management, nature of assets and costs of creditor coordination) by control models. The decline in the proportion of certain classes of external finance (observation 8) probably then reflects a shift in the balance of corporate and investor control as the complexity of corporate organizational arrangements increases in the U.K.

Observations on international patterns of corporate finance are therefore suggestive of the relevance of control theories of finance. However, there is one observation that at least at first sight appears inconsistent with control theories. Despite having a banking system that is closely integrated with its corporate sector, German industry raises a comparatively modest proportion of its finance in the form of loans (observation 5).<sup>9</sup> Prediction 4 was that the relation between finance and control would breakdown where investor and

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<sup>9</sup> There are, of course, numerous other services that German universal banks provide for their customers, for example, bond and equity issuing facilities, and portfolio management services for investors. In addition, banks were probably a more important source of finance in earlier periods.

management interests do not diverge. This description, it is suggested, is applicable to German bank-investor relations.

Schonfield (1965) in his classic account of the German financial system saw banks as the prefects of German industry. Their power derived from their equity investments, their proxy votes and their representation on supervisory boards (the Aufsichtsrat). Knight (1988) views the relation as more advisory than dictatorial and echoes the sentiments of German bankers when he concludes "the evidence then points to the banks as sometimes providing companies with independent, well-informed and well-connected non-executive chairmen able to make a powerful contribution to the board's performance" (p. 15). Consensus or command, the need for financial control is lessened by the other instruments that German banks have at their disposal.



#### Section 4 Implications for Economic Development

There are clearly numerous implications of both theory and observations for the design of financial systems. This section will restrict attention to the issues raised in the introduction.

Over the past decade, policy towards the financing of developing countries has shifted from government and banks as sources of economic growth towards financial liberalization. As the quote from the article by Cho suggests, part of that liberalization programme has been seen to be the development of security and in particular equity markets. However, one of the most consistent patterns to emerge from the international comparisons was the small level of financing provided by security markets. Banks in all developed countries are the primary source of external funding.

Control models of finance help to explain the apparent divergence between theory and practice. The feature that control models emphasize is the relation between finance and management. Traditionally, financial instruments have just been regarded as alternative mechanisms for sharing risks between investors. It almost immediately follows that impediments to the smooth functioning of financial markets are undesirable. However, according to control theories, a primary distinguishing feature of financial instruments is the degree of involvement that they confer on different classes of investors. Those who are best placed to exert control if circumstances demand it will hold the financial instruments with the largest element of control and the most extensive provisions for interference in corporate management.

Within the confines of control theories, finance can be seen as a layer of management. Firms determine the allocation of resources across projects; banks allocate resources between firms; and central banks allocate resources between banks and industries. In the presence of limited managerial resources,

which I contend is the primary impediment to economic development, the best management will have to be concentrated at the apex of this hierarchy. The role of financial institutions is then to extend management skills through an economy at large. The major impediment to this is the absence of intangible valuations in an underdeveloped economy. Reputations are in short supply and the ability to sustain valuations in excess of minimum amounts that can be realized is very limited. Control is therefore a central component of financial involvement in developing country industry and financial instruments that permit direct involvement in the allocation process at low cost will be sought.

The picture of economic development that this suggests is one in which bank involvement is required at early stages. This is not so much a consequence of market failures of other financial instruments as commonly described but simply a reflection of the limited availability of managerial resources and the fact that those resources are best deployed at the higher levels of a country's economic activities. As economic development progresses, there comes a point at which management skills of the corporate sector equal or exceed those within financial institutions and the direct control exerted by the financial sector diminishes. At that stage, less involvement of the financial system in the funding or control of the corporate sector is to be expected and control internal to the corporate sector (takeovers) supercedes it.

Controls on the banking sector within this framework should not therefore necessarily be regarded as unwarranted interference with markets but as part of the overall management of the growth of companies and financial systems. There is, of course, no presumption in any of this that bank or government involvement will be successful. The potential abuses that can occur in the presence of dominant bureaucracies and suppression of competition are well known. Financial liberalization may well be preferred to corrupt, inefficient and oppressive bureaucracies. However, economic development, beyond the mere

avoidance of the worst abuses of the control of resources, necessitates the establishment of appropriate management by governments and banks. How that it is to be achieved is not the proper subject of this paper. It may, though, be worth noting that one feature of successful companies and economies that may be relevant here is the infusion of limited but controlled competition between a small number of groups and firms. In any event, finance is almost certainly a key instrument of that management.

Two results flow from this almost by implication. The first is that assertions about the desirability of particular classes of finance are probably naive. The absence of long-term finance is not a capital market failure. The problem is that the economic conditions do not exist to encourage its provision. Simply making long-term finance available where it has not previously been supplied is almost certainly a recipe for financial disaster. Restrictions on maturities are important forms of control on corporate activity. They allow investors to intervene where conditions demand it and they therefore allow corporate valuations to be sustained at higher levels than would otherwise be possible. There are costs to the absence of long-term credit markets (see, for example, Mayer (1989)) but these reflect more underlying deficiencies than those suggested by the proponents of development finance companies.

The second implication is that the objective of economic development should be the promotion of the growth of firms not the initiation of projects. Economic systems remain rudimentary so long as intangible valuations (goodwill) that permit organizations to operate without direct investor control do not exist. The World Bank in sponsoring projects not companies is therefore failing to establish the basis for sustained growth. It is corporate organization not project activity that distinguishes developed from developing countries. This presents a difficulty because, while an external agency may have technical skills and financial

resources, its knowledge about individuals and management teams may be limited. Economic growth is therefore crucially reliant on the structure and quality of financial institutions and it is towards an improvement in those that most attention should be directed. Financial assistance will be only one part of the process of creating an appropriate institutional structure. Screening, monitoring and rewarding of individuals will in many cases be more pertinent.

## Appendix 1: Alternative sources of data

There are two sources of information on corporate financing: flow-of-funds statistics and company accounts. Company accounts are available on an individual firm basis; flow-of-funds are aggregated across sectors. For this purpose, the relevant flow-of-funds sector is non-financial enterprises.

The primary advantage of flow-of-funds data is that their coverage is comprehensive. In contrast, company accounts are only available for a limited number of firms and samples are frequently a small proportion (by number) of all enterprises. On the other hand, definitions of enterprise sectors differ across countries. In theory, Standard National Accounting (SNA) conventions stipulate that private and public corporations should be included in the non-financial enterprise sector. Unincorporated businesses should be included in the household not the non-financial enterprise sector. In practice, as table A.1 records, only Canada abides by the SNA definition.

The major problem with flow-of-funds data is that they are collected from a variety of different sources. For example, in the U.K. profits are largely based on tax returns to the Inland Revenue and loans and securities issued on returns by financial institutions to the Bank of England. As a consequence, sources and uses do not in general balance and a statistical adjustment is required to reconcile entries.<sup>10</sup>

A fundamental distinction between flow-of-funds and company accounts is that the former only relate to domestic activities while the latter are constructed on a world-wide basis including foreign subsidiaries. Thus issues of bond and equity securities are restricted to those made on domestic markets in flow-of-funds accounts but include issues on all markets in

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<sup>10</sup> There is no statistical adjustment in Germany. Instead, adjustments are made to recorded items to eliminate any discrepancy.

company accounts. Company accounts are therefore more suitable for analysing how different countries' corporate sector fund themselves but flow-of-funds allow the contribution of a domestic sector's financial system to be identified.

Overall there is a presumption that company accounts are more accurate than flow-of-funds. However, company accounting analyses are lengthy exercises, frequently involving the manipulation of very large data banks. As yet comprehensive information is only available on the U.K. Even here there are serious discontinuities in aggregate series. For example, in 1977 the sample of U.K. company accounts was extended from firms quoted on the Stock Exchange to a representative sample of all companies.

For other countries, aggregate company accounts constructed by the OECD have had to be used. These suffer from similar discrepancies in definitions of sectors to flow-of-funds. Eventually, comprehensive accounting information on the five countries of the study will be available which will provide a greater degree of comparability than has been available to date. In the meantime, more emphasis is placed in this article on flow-of-funds sources. The relative merits of company accounts and flow-of-funds are summarized in Table A.2.

Table A.1 Definitions of Non-Financial Enterprise Sectors

Country	Definition
Canada	As for SNA
Finland	Includes unincorporated enterprises
France	Excludes large public corporations
Germany	Includes unincorporated enterprises
Italy	Excludes some public corporations
Japan	Excludes large public corporations
U.K.	Excludes public corporations
U.S.	Includes unincorporated enterprises, excludes public corporations

**Table A.2 A Comparison of Flow-of-Funds and Company Accounts  
as Descriptions of the Funding of Industry**

	<b>Flow-of-Funds</b>	<b>Company Accounts</b>
<b>Consistency in definitions of corporate sectors</b>	<b>Can be poor</b>	<b>Own aggregation is possible</b>
<b>Coverage of companies</b>	<b>Comprehensive</b>	<b>Limited, sometimes very limited</b>
<b>Coverage of items</b>	<b>Domestic</b>	<b>Global</b>
<b>Internal Consistency</b>	<b>Poor</b>	<b>Good</b>
<b>Quality of Data</b>	<b>Can be very poor</b>	<b>Good</b>



## Appendix 2: Derivation of financial statistics

This study differs from previous international comparisons in both the data it uses and the way in which those data are presented.

(i) The data Most existing international comparisons use stock data from company balance sheets to derive gearing levels. Two serious objections have been raised against this approach. First, in the absence of inflation corrections, capital stock and equity valuations can be substantially underrecorded. In Japan revaluations of company accounts are uncommon and in Germany they are forbidden by law. As Aoki (1984) has noted, the failure of Japanese accounts to revalue assets, in particular land, has resulted in Japanese gearing levels being considerably overstated. Secondly, book values of assets and reserves are sensitive to depreciation schedules.<sup>11</sup> Accounting conventions on depreciation vary appreciably across countries, partly in response to differences in corporate tax regimes.

Problems with accounting valuations have led several authors to advocate the use of market valuations. However, consideration of the use of market valuations suggests a more fundamental objection to stock measures. Market valuations respond not only to inflows and outflows of new financial resources but also to changes in valuations of existing resources. Valuations serve many useful purposes but do not assist in measuring financial flows.

To see this, consider a company that purchases land on the uncertain prospect of striking oil. Suppose that the land costs £1 million and the company funds this entirely from a bank loan. Assuming no other resources, its initial gearing is 100 percent. If the company subsequently strikes oil and the valuation of the land rises to £100 million, its gearing level

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<sup>11</sup> For a convincing demonstration of this point see Fisher and McGowan (1983). See also Harcourt (1965).

will drop to 1 percent. If it does not, then values of both land and debt fall to £100,000 and the company is insolvent. The outcome of explorations appropriately affects valuations of debt and equity but does not alter the way in which the original investment was financed.

For this reason flows are used in preference to stocks. One implication of using flows rather than stocks is that retentions are defined on a gross of depreciation rather than a net basis. The reason for this is that by subtracting depreciation, financing is being distorted by accountants estimates of valuation changes. These should not be part of a sources of funds account and are in any event inconsistently measured across countries.

(ii) Data presentation All financing proportions are recorded on a net basis: acquisition of financial assets are subtracted from increases in corresponding liabilities. The rationale behind using net financing proportions is that aggregate corporate financing figures attempt to answer the question, in what form did the non-financial corporate sector as a whole fund its physical investment. Intra-corporate sector flows should net out and offsetting flows should be eliminated. Thus, for example, from the perspective of the company sector as a whole new equity issues by one company are negated by repurchases of equity of equal magnitude by another company. Any other approach leads to nonsensical results.

Consider, for example, a company that is required to make a compensating deposit of £30 for each £100 of finance raised. Compensating deposits are common in Japan and the U.S. The company has raised £100 gross but only £70. But suppose the company voluntarily holds £40 in deposits; should it be treated as having raised £70 or £60? Clearly net financing raised from the bank in this period has been £60. It may choose at a later date to increase this to £70 but the additional £10 has to be attributed to the period in which financial assets are reduced.

Economic theory does not currently allow reductions in stocks of financial assets to be distinguished from increases in financial assets. When a robust theoretical distinction is available then separate classification will be appropriate. Control theory offers just such a distinction by distinguishing finance by degrees of intervention. Ironically then, the theory that this paper emphasizes will in time invalidate the netting approach that has been advocated here. However, at the current time the appropriate null hypotheses that should guide the construction of financing data are Modigliani and Miller irrelevance propositions and corporate taxation models. Tables A.3 and A.4 record definitions of net as well as gross flows for U.K. company accounting and flow-of-funds data.

In moving from single projects to company finance, flows in different time periods have to be aggregated. The most straightforward approach is simply to average financing proportions. However, that does not take account of amounts of finance raised and so puts undue emphasis on periods of low investment. Instead, averages could be created by revaluing flows of different classes of finance to constant prices and then aggregating them. If a capital goods price index is used for revaluations, this is equivalent to weighting financing proportions by gross levels of investment at constant prices. An appealing alternative is to weight by depreciated values of investment at constant prices. This answers the question, what would the capital structure of a company be if it replicated its existing capital stock using the same sources of finance as it employed in the past.

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