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THE FINANCING OF INDUSTRY, 1970–89: AN INTERNATIONAL COMPARISON

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ABSTRACT

The Financing of Industry, 1970–89: An International Comparison*

The main aims of this paper are, first, to construct a consistent comparative set of data on the sources of finance for investment over the period 1970–89 for Germany, Japan, the United Kingdom and the United States and second, to challenge some conventional views of the international differences in financing patterns. The paper documents the substantial problems of international comparisons, and argues that net sources and using data based on National Income Accounts provide the most appropriate and consistent information. We conclude that there is no 'market-based' Anglo-US pattern of financing of industry. Germany, the United Kingdom and the United States are internally financed with small or negative contributions from market sources. Japan has been more externally financed with both banks and markets contributing larger shares than in the former group. Over the 1980s, the period of financial liberalization, all countries, except Japan, have become more internally and less market financed.

JEL classification: G20, G32, G38, P52
Keywords: corporate finance, investment, international comparisons

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NON-TECHNICAL SUMMARY

This paper is intended to contribute to the debate on the role of financial systems in economic performance. That debate is by now very wide-ranging and covers a much broader set of issues than those addressed by this paper. We believe that despite the volume of writing, however, there are still some quite fundamental misunderstandings about the structure of different systems. In this paper we consider the forms of finance, and present international evidence on the relative importance of different sources of finance and on whether there has been international convergence or divergence in the patterns of financing of industry since 1970. We take a highly aggregated view, looking at the whole non-financial enterprise sector over the last two decades. The main aims of this paper are, therefore, empirical: to provide the reader with a consistent comparative set of data on the sources of finance for investment; to establish whether any clear trends have developed over the past two decades in the financing of the corporate sector, in particular whether the increasingly international nature of financial markets has resulted in convergence between the countries under scrutiny; and to consider how financing trends are related to cycles in real physical investment, and whether such relationships differ across countries.

We concentrate on four rather different financial systems. The United Kingdom and the United States are included as representatives of the 'market-based' financial systems, traditionally viewed as having highly developed equity and bond markets, a relatively free market for corporate control and a limited role being played by banks. In contrast, banks are traditionally viewed as playing a pivotal role in the financial systems of Germany and Japan, with equity and bond markets being of secondary importance.

International comparisons of corporate financing encounter a variety of problems. There are conceptual problems about whether to use a stock or flow concept and there are practical problems about comparability and reliability of data sources. The paper argues that the common procedure of computing gearing ratios (normally defined as the ratio of debt to total capital employed) from company accounting data is inappropriate as a basis for international comparisons of the financing of industrial investment. The main conceptual reason for this is that investment itself is a flow concept.

We show that these conceptual problems are best addressed by using sources and uses of funds raised to establish how different countries' companies' investment in physical assets was financed. We rely on countries' flow of funds data compiled in their National Income Accounts, but make careful adjustments to ensure that the figures are as internationally comparable as possible.

We further argue that 'net finance' is the appropriate concept for international comparisons. To identify financing which is associated with physical investment, our approach is to subtract enterprises' acquisition of financial assets from equivalent increases in liabilities. This approach measures the finance of physical investment in terms of the 'net finance' from various sources, and it has a number of attractions for international comparisons. In particular, it nets out certain important differences between countries in the way financial flows are recorded.

Having constructed internationally comparable data for the four countries, the paper shows that sources of net finance in *all* countries are predominantly internal. In Germany, the United Kingdom and the United States only 10% of finance is external. Market sources of finance account for very little. Contrary to the conventional view, bank finance is not higher in Germany than in the United Kingdom or the United States. Japan remains different in this respect, despite the significant impact of our data revisions.

The paper then asks whether an Anglo-US pattern of finance can be identified. We note there are some significant differences between the UK and US patterns of finance which make it difficult to characterize such a financial pattern. There are features of the way the two countries report their data which make careful scrutiny of the comparison very important. We present these issues in some detail because most international comparisons are implicitly (or explicitly as in our case) using the supposed Anglo-US 'model' as a benchmark against which to measure other systems. The conclusion is that comparisons between the United Kingdom and the United States can only be made on the net figures, treating bonds and equities as a combined category ('market finance') and that no reliable comparison of trade credit numbers can be made.

Interestingly the features which remain in such a comparison go some way to resolve the problem of identifying an Anglo-US pattern of finance: the significant features are the high level of internal finance and the rather small use of 'market sources'. The United States appears somewhat more market based than the United Kingdom but, taking bonds and equity together, relied for only 8.3% of net finance from markets. Market sources of finance made a negative contribution to UK investment over the whole period. The characterization of the Anglo-US financial pattern should therefore not be 'market based' but 'internally financed'.

The final part of the paper considers how financing patterns have changed over successive five-year periods in each country, and also how the financing of physical investment varies with the economic cycle. We consider whether there have been changes in the Anglo-US pattern of finance, and whether there has been any convergence in international patterns.

The data expose various common myths regarding financial systems in different countries. The celebrated distinction between the 'market-based' financial pattern of the United Kingdom and the United States and the 'bank-based' pattern of Germany and Japan is inaccurate. There are, indeed, two types of pattern among the four countries of this study but they do not fit the stereotype. In the first group – Germany, the United Kingdom and the United States – countries which are predominantly internally financed, market sources of finance are small, declining and often negative. Only in the United States during the 1970s was market finance relatively large and this may have been the origin of the stereotype. In contrast Japan has a balance of external sources of finance with bank finance the major source and market sources of finance have provided a more consistent share than in the other countries.

Since our results call into question the usual notion of an Anglo-US benchmark pattern it is perhaps not surprising to find we also question the conventional notion of convergence of systems towards this benchmark. Even the conventional view acknowledges that the benchmark is a moving target but it is usually assumed that market liberalization has meant that the target is moving towards more market sources of finance. This is not correct. Over time the UK and US pattern has relied less and less on market sources of finance and has become increasingly internally financed. Indeed, market sources have become steadily more of a drain on UK and US finance. Germany is no more dependent on market sources at the end of the period than at the start of the period, but considerably more internally financed. In that sense these three countries can be said to be becoming more similar if not actually converging.

Japan has also changed, but less dramatically. The major rise in internal finance took place in a leap in the late 1970s and the shift from bank finance to market sources has been exaggerated by Japanese commentators. Japan remains the country with the lowest share of internal finance and the highest external financing but contrary to expectations, market sources have been steady contributors, at levels higher than Germany and the United Kingdom throughout the period.

Our data also show that it is difficult to establish a link between investment performance and the use of external sources of finance. The four countries show very different patterns in this respect. Only in the United Kingdom can a case be made that low external finance shares are linked to slower increases in investment. Such a relationship may have existed in Japan in the 1970s but seems to have broken down in the 1980s. It seems never to have existed in Germany. Arguably, however, this is an idea which is better examined using micro panel data and which is amenable to (and deserves) a more rigorous econometric treatment.

INTRODUCTION

Industrial companies in most countries complain about their financial system. It is commonplace to peer longingly overseas and claim that foreign companies gain a significant competitive advantage by being blessed with a superior system of financing industrial investment. Indeed, in recent years such complaints have been taken up by politicians and the media alike, sometimes to pillory the domestic financial system, but on occasions to defend the domestic system against the excesses of a foreign system. Implicit in this debate is the idea that there may be a link between finance and real investment with some countries more able to finance investment than others. Academic research (Hubbard (1990); Fazzari, Hubbard and Petersen (1988)) shows that, although it is difficult to model theoretically how such a link operates, empirical evidence does support its existence.

There are various criteria of performance for the financial sector: in what form and on what terms finance is provided for investment; the impact the financial system has on the control of enterprises amongst others. In this paper we consider the forms of finance and present international evidence on the relative importance of different sources of finance and on whether there has been international convergence or divergence in the patterns of financing of investment since 1970. We take a highly aggregated view, looking at the whole non-financial enterprise sector over the last two decades.

We concentrate on four rather different financial systems. The UK and US are included as representatives of the "market based" financial systems, traditionally viewed as having highly developed equity and bond markets, a relatively free market for corporate control and a limited role being played by banks. In contrast, banks are traditionally viewed as playing a pivotal role in the financial systems of Germany and Japan, with equity and bond markets being of secondary importance.

The main aims of this paper are empirical: to provide the reader with a consistent comparative set of data on the sources of finance for investment; to establish whether any clear trends have developed over the past two decades in the financing of the corporate sector, in particular whether the increasingly international nature of financial markets has resulted in convergence between the countries under scrutiny; and to consider how financing trends are related to cycles in real physical investment, and whether such relationships differ across countries.

It is important to stress what this paper does not achieve. It contains no theory of why financial systems differ. It is our view that part of the reason why financial institutions, and, indeed, the structure of the corporate sector, develop in a particular way is often the result of

legislation, the initiative of particular individuals, not to mention historical accident. Such issues are well outside the scope of this paper [1]

The paper concludes that the conventional view of an Anglo-US market-based system is not correct[2]. In our view, there is a group of countries (the UK, US and Germany) which are *internally* financed but for which markets are, if anything, a negative contribution. In contrast companies in Japan have been *externally* financed to a greater degree and, while banks have been very important, markets have also provided a more consistent contribution to overall finance than in the so-called market system. Over time all countries have moved more towards the internal finance pattern despite financial liberalization. By 1989 Japan was the only country in our sample with a significant degree of external finance.

The paper proceeds as follows. In the next section we discuss the problems that are encountered in comparing data on financing drawn from different countries. We argue in favour of a comparison based upon *sources and uses of funds* rather than the more traditional approach which considers the relative size of different asset stocks. The relative importance of different sources of finance is considered in section II. Details of the construction of the data are presented in the appendix. Whilst average financing figures over two decades are clearly interesting, there have also been significant changes in the nature of international financial markets in the last 20 years, and in section III we analyse the broad trends in corporate financing over successive quinquennia. Finally, in section IV we summarise the main findings and draw some conclusions about the importance of the international differences identified in this paper.

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[1] Differences in financing are further examined in the context of the possible theoretical explanations, in Corbett, Edwards and Jenkinson (1994)

[2] Clear statements of this conventional view are in fact not easy to find in the academic literature on corporate finance which has concentrated on classifications into "high leverage/low leverage" groups of countries (Borio (1990); Bernanke and Campbell (1988)) or on "arms length" versus "relationship" financial patterns (Cargill and Royama (1988)) and "insider/outsider" systems (Mayer (1990); Hubbard (1990)). Nevertheless the view does still emerge. For example, Frankel (1990, p. 256) states "[This assumption is appropriate for] economies where corporate finance is oriented around a unified central market ... This description applies to the United States, and it applies increasingly to Japan today. But it did not apply very well to Japan in the 1970s" Importantly, the apparent misconception about financial patterns in the richest economies is even more common in policy circles. For example, World Bank (1993, p. 273) implies that successful economies cannot rely upon internal finance: "without financial intermediation firms would have to rely on retained earnings to finance investment, so marginal returns to investment would diverge markedly ..."

I. INTERNATIONAL COMPARISONS: THE PITFALLS

International comparisons of corporate financing encounter a variety of problems. There are conceptual problems about whether to use a stock or flow concept and there are practical problems about comparability and reliability of data sources. In this section we discuss first the conceptual problems and then the data issues.

Stocks versus Flows: Conceptual issues

The common procedure of computing gearing ratios (normally defined as the ratio of debt to total capital employed) from company accounting data is inappropriate as a basis for international comparisons of the financing of industrial investment.

The main conceptual reason for this is that investment itself is a flow concept. If the research question is, as in our case, "How is new physical investment being financed?" then the appropriate data are flows of finance. There may be some interest in the question of how the existing capital stock was financed over a past period of accumulation [3] but we believe that much of the current comment and policy discussion is in fact interested in the flow question (c.f. Fazzari, Hubbard and Petersen (1988); World Bank (1993)).

An example may illustrate the different information contained in stock and flow data. Consider a company which starts up with 100 units each of debt and equity giving a total value of the firm of 200. In period one both flow and stock information show that the firm's capital is 50% debt financed and 50% equity. Suppose over the next three periods no new finance is raised and then, in period five, 100 units of new debt are issued (to finance 100 units of new investment). Over the three periods, flow information shows that the financial system has provided no new finance while the stock information shows only that the ratio of debt to capital (the gearing ratio) has not changed (which would also be consistent with new financing in equal proportions). In period five, flow information would show that new investment had been 100% debt financed while the stock information would show that the gearing ratio had risen to 75%, i.e. the existing capital stock had been 75% debt financed over the lifetime of the firm. In this simple example, the *accumulated* flow data would be identical to stock data, but that would not be the case if the firm already had a history at the starting date of the analysis.

[3] In fact our total period percentage figures do show something similar: the proportion of flows of different types of finance in the funding of the accumulated new investment from 1970-89.

There is a related problem with stock data arising from the effects of uncertainty and inflation on the valuation of assets. In the absence of revaluations to take account of inflation, the book values of capital can be substantially understated. There is considerable international variation in whether assets are reported at book value or periodically revalued [4] The valuation difficulties involved in using capital gearing ratios to make international comparisons have led some authors to use market valuations as a basis for the construction of such ratios (Aoki (1984); Borio (1990); French and Poterba (1991); Friedman (1982,1985)). However, market valuations of debt, equity and capital reflect not only inflows and outflows of debt and equity finance, but also changes in the valuations of existing capital assets as a result of the arrival of new information. The example by Mayer (1990) illustrates:

> "..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%. If the company subsequently strikes oil and the valuation of the land rises to £100 million its gearing level will drop to 1%. 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."

Another valuation problem arises which is more a data problem than a conceptual issue. Book values of assets and reserves are sensitive to depreciation schedules, and accounting conventions and tax regulations regarding depreciation vary significantly across countries. Perlitz *et al* (1985), quoted in Edwards and Fischer (1994), investigate the quantitative significance that different accounting rules in the UK, US and Germany have on the respective shares of equity in total capital. They show, for instance, that the difference in the share of equity in total capital between Germany and the UK for a sample of large corporations in 1979 and 1980 vanishes if a series of adjustments are made to put both accounting systems on a roughly equal basis. Similar issues have been noted in the Japanese context but no attempts have been made consistently to adjust leverage to international standards. Ando and Auerbach (1988) remove the effect of special reserves while Prowse (1990) uses consolidated accounts. None of the Japanese studies present systematic comparisons of all these adjustments on data from the same set of firms. As a result, conclusions about the difference between Japan and elsewhere range from Borio (1990, p. 9) "while no consensus exists, most studies ... confirm that leverage in Japan remains higher [than the US] " to Frankel (1991, p. 231) "the seemingly robust regularity that 'Japanese firms are highly leveraged' now appears to be a thing of the

[4] For example, in the UK land and buildings are periodically revalued. However, in Japan and in Germany revaluations of company accounts are forbidden by law, with the result that all assets are valued at historic cost. In the US revaluations are uncommon. Such differences in convention make simple capital gearing ratio comparisons extremely hazardous.

past ... The debt equity ratio ... has by one measure fallen below the level in the United States"[5]

The Sources and Uses Approach

These conceptual problems are solved by using sources and uses of funds raised for international comparisons. In any period, a company's sources of funds must be equal to its uses of funds, and from this flow of funds statement it is possible in principle to establish how the company's investment in physical assets was financed.

The flow of funds statement shows the sources and uses of finance for an enterprise in a particular time period. A simplified format for a flow of funds statement is presented in Table 1. The sources of finance include internally generated funds (comprising retained profits after taxes plus depreciation), share issues, bond issues, borrowings and other sources.

Table 1: The Flow of Funds

GROSS SOURCES	**GROSS USES**
1. Internal	
2. Bank Loans	7. Cash & Deposits
3. New Equity Issues	8. Equity Purchases
4. Bond Issues	9. Bond Purchases
5. Trade Credit Received	10. Trade Credit Given
	11. New Capital Formation
6. TOTAL SOURCES	12. TOTAL USES
NET SOURCES	**NET USES**
Internal (1)	
Net Bank (2 - 7)	
Net Equity (3 - 8)	
Net Bonds (4 - 9)	
Net Trade Credit (5 - 10)	
NET SOURCES (6 - 7 - 8 - 9 - 10)	**PHYSICAL INVESTMENT (11)**

The uses of finance include both the acquisition of fixed capital assets and stocks, and also the acquisition of financial assets. Some of the sources of an enterprise's funds therefore go towards the accumulation of financial, rather than physical, assets. To identify financing which is associated with physical investment, one approach is to subtract enterprises' acquisition of financial assets from equivalent increases in liabilities. This approach measures the finance of physical investment in terms of the net finance from various sources, and it has a number of attractions in terms of providing a basis for international comparisons.

[5] An early study claiming the US-Japan difference disappeared entirely when accounting differences and off-balance sheet debt finance by US corporations was taken into account, was Kuroda and Oritani (1980).

For example, two difficulties which arise when comparing the finance of industrial investment in Japan with that of other countries are the compensating deposits which borrowers from banks are usually required to make with banks as a term of the loan, and the widespread use of reciprocal financial arrangements between trading firms in Japan. Both these features may lead to an over-statement of the gross liabilities of Japanese enterprises. The approach of measuring finance for industrial investment in terms of the net flows of funds deals consistently with these potential problems. For these reasons (and reasons of international comparability discussed below), we place the main emphasis in our analysis of the financing of industry across countries on the net financing of physical investment.

However, a possible objection to this approach of evaluating the funding of industry in terms of net sources of finance for physical investment is that it implicitly assumes that there is no economically significant difference between an enterprise which has, say, a bank loan of a certain amount exactly offset by bank deposits of the same amount, and another enterprise which has neither a bank loan or deposits with a bank. Although it can plausibly be argued that the former enterprise can easily put itself in the position of the latter, it may be the case that an enterprise which does have offsetting bank loans and deposits is in a somewhat different position as regards its relationship with a bank than one which has neither loans nor deposits. Similarly, since we are considering aggregate data, the role of, say, bank loans might be understated if some firms are net depositors with banks and others are net borrowers; aggregate net financing figures may imply zero bank finance, even though banks are clearly playing a role in financing some firms.

Equally, a company that raises equity finance which it uses to acquire the shares in another company is certainly making use of the capital market, even though it may appear that equity has made no net contribution to funding physical investment. Within the limitations of the data, we therefore discuss both figures showing the sources of funds in terms of the share in total sources raised (equal to total physical and financial investment) - referred to as the gross sources of finance - as well as discussing the net sources of finance. However, for data reasons, discussed below, we concentrate on the net figures when making international comparisons.

Data Sources: National Income Accounts versus Company Accounts

There are two sources of data for making international comparisons of corporate financing patterns: "flow of funds" figures (both stock and flow) based on national income accounts and figures derived directly from company accounting data.

Traditionally the gearing ratio approach to international comparisons of finance has been based on company accounting data sources but in principle the issue of whether to use gearing ratios or sources and uses is separate from the question of which type of data to use (Borio (1990) is unusual in using National Income Accounts data to calculate both gearing and financing flows). There are two problems in making international comparisons on the basis of company accounting data which apply both to stock and flow data. First company accounts are only available for a limited number of firms, and samples are frequently a small proportion of all enterprises in a country. Second, company accounts are usually (though not in Japan) constructed on a world-wide, consolidated basis including foreign subsidiaries, which makes them suitable for analysing how different countries' corporate sectors fund themselves, rather than an analysis of the contribution of the domestic financial system. In addition there are the problems noted above, that accounting practices differ internationally and that asset values are affected by depreciation methods and tax regulations [6]

National accounts sources attempt to estimate financial flows to and from the domestic enterprise sector as a whole, so that by comparison with company accounts sources they give a comprehensive coverage of domestic enterprises, and address the question of how domestic financial markets have performed in funding investment.

The drawbacks of using company accounts have been described, but in some respects the quality of company accounts data is superior to that of the national accounts: the latter are derived from a variety of sources, and inconsistencies in coverage and treatment inevitably introduce statistical discrepancies.

Furthermore, although there is an agreed standard construction of flow of funds figures based on the System of National Accounts (SNA) there are in fact several international differences in definitions of sectors and transactions. The SNA conventions stipulate, for example, that unincorporated businesses should be included in the household sector, and that both private and public enterprises should be included in the non-financial enterprise sector. All the

[6] To some extent these problems are reduced by using sources and uses data, rather than stock data, since internal sources of finance are calculated gross of (i.e. including) depreciation provisions.

countries in our study deviate from these conventions in various ways, as can be seen from Table A2 in the Appendix.

An additional problem is in definitions of items in the flow of funds statements. Tables A3.1 to A3.4 set out the elements in each country's data. The most important issue here is the different degree of consolidation of data used in different countries. The SNA recommends reporting most transactions on a non-consolidated (gross) basis or with a minimal degree of consolidation (netting). This would allow intra-sectoral transactions to be visible since both issues and purchases of any type of financial instrument would be separately shown. (For example, if some companies issue new equity which is mostly purchased by other companies, intra-sectoral transactions will only be visible if transactions are recorded gross, i.e. non-consolidated.) Many countries, however, report only consolidated transactions thus netting out purchases and sales within a sector and showing only transactions between sectors. Confusingly, some countries adopt a general convention on consolidation but then deviate from it in the reporting of certain items. Table A2 shows that the UK, Germany and Japan generally report consolidated (net) transactions while the US reports non-consolidated (gross). However, Germany and Japan report shares and securities on a non-consolidated (gross) basis and Japan, additionally, reports trade credit and bills bought and sold on a non-consolidated basis. The US, on the other hand, while generally reporting on a gross basis, reports equities only on a consolidated basis (net). The categories of finance critically affected by these differences in treatment are bonds, equities and trade credit. The international differences in treatment make a strong case for using our net figures for comparisons since the netting procedure will put all countries on a similar basis.

As a result of these data considerations the emphasis in this paper is on aggregate, national income accounts' flow of funds data. Although we discuss gross sources of finance briefly, the main international comparison is based on the net figures.

II. THE SOURCES OF FINANCE: IS THERE AN ANGLO-US PATTERN?

Gross Sources of Finance

In this section we consider the sources of finance for the non-financial enterprise sector based upon national accounts flow of funds statistics. Despite the limitations of gross figures discussed in the previous section, similar data have been widely used in other international comparisons and we discuss them here for comparability with other studies (e.g. Borio (1990)), and to challenge some established views. Table 2 shows the average gross sources of finance for the four countries over the period 1970-89. These are weighted averages, and show the contribution of each source of finance, in constant prices, over the entire period [7]

Table 2: Gross Sources of Finance - 1970-89
(percentages)

	Germany	Japan	UK	US
Internal	62.4	40.0	60.4	62.7
Bank finance	18.0	34.5	23.3	14.7
Bonds	0.9	3.9	2.3	12.8
New equity	2.3	3.9	7.0	-4.9[8]
Trade credit	1.8	15.6	1.9	8.8
Capital transfers	6.6	-	2.3	-
Other	8.0	2.1	2.9	5.9

Sources: see Table A1 in the appendix and footnote 6 for method of calculation.
Notes:
1. Japanese figures are based on fiscal year data, rather than calendar year data.
2. For Germany, insurance has been included in "other". Trade credit includes foreign trade credit. Pensions are included in "Internal" (see footnote 13 for details).
3. US "short-term securities" are included in "other"

[7] To be precise, we calculated: $\sum_{t=1970}^{t=1989} i_t^j \frac{P_t}{P_{1985}} \Big/ \sum_{t=1970}^{t=1989} i_t \frac{P_t}{P_{1985}}$ where i_t^j denotes the amount of finance of type j in year t (measured in the current prices of year t), i_t denotes total finance in period t (that is, the sum of the different types of finance i_t^j in each year) and P_t denotes the capital goods price index in year t. No allowance has been made for depreciation of the capital stock in the average figures. However, if one were interested in the question of how the capital stock in existence in 1989 was financed, some assumptions regarding depreciation would have to be made. Employing a straight line depreciation schedule the depreciated and undepreciated average figures are remarkably similar. The only notable differences are a slight reduction in the importance of internally generated funds in the case of the UK, which falls to 94.7% (on a net basis) and a slight increase in the case of Germany to 84.4%.

[8] The US data on a gross basis provided by the Federal Reserve nonetheless nets out intra sector purchases and sales of equity (of the corporate sector by the corporate sector), hence the negative figure. This makes it impossible to compare the gross equity figures of the US with those of other countries. See appendix for more details.

A number of observations emerge from Table 2. First, internally generated funds (the sum of retained profits and depreciation) are, in each country, the most important source of finance, even on a gross basis. There is a similarity in the importance of internal funds in the UK, US and Germany (particularly considering that capital transfers in Germany represent internal funds of public corporations, see below), while Japanese firms appear to rely on internally generated funds to a significantly smaller extent.

Second, Japanese firms raise substantially more bank finance, in proportionate terms, than the other countries. This is, perhaps, not surprising. However, the relatively small extent to which German firms rely upon bank finance is somewhat at odds with conventional wisdom. Indeed, UK firms raised proportionately more bank finance, on a gross basis, than German firms. At the other extreme, the relatively minor role of bank finance in the US is noticeable.

Third, bond and equity markets play a relatively insignificant role in the provision of finance in all countries, with the apparent exception of the US bond market. Of course, behind the average figures for all countries there will, for example, be firms that raise significant amounts of equity finance, particularly relatively small, growing firms. The role of different sources of finance at different stages in corporate development is an important issue, but for now we concentrate on overall financing patterns.

Fourth, trade credit might appear to be a significant source of finance for the non-financial enterprise sector, particularly in Japan and US. However, these figures are particularly prone to reporting errors and to international differences in definition. The UK figures are very limited in coverage and the German figures cover only foreign trade credit. In the countries where the figures look large they are reported on a non-consolidated basis and it is important to remember that many firms both receive and supply trade credit. This suggests that net figures are likely to produce more reliable results but the gross figures for three countries do imply that trade credit flows are far from insignificant.

It is important to interpret such gross figures carefully. However, certain conclusions can be drawn. First, on the basis of the figures presented in Table 2 it would be difficult to distinguish between Germany and the UK, despite the widespread belief that their systems of corporate financing differ fundamentally. Second, over the period as a whole bond markets only played an important role in the US, although the recent growth in the Eurobond market has enabled firms from other countries to raise bond finance. Third, equity issues have been most important in the UK, although nothing can be said about its role in the US because of the data issue already noted (in footnote 7).

Even these rough and partly non-comparable gross data challenge some of the conventional wisdoms of international comparisons. The sharp distinction between "bank-based" systems (supposedly Japan and Germany) and the "market-based" Anglo-US system has blurred. The similarities between the UK and US patterns are rather limited and the extent of their differences in use of market finance appear very marked. The role of bank loans in Germany is also thrown into question. In the next section we examine to what extent these figures are illuminated by the *net* financing data.

Net Sources of Finance

Our preferred figures for international comparisons are the *net* sources and these are presented in Table 3. Certain of the features apparent in the gross figures remain, but there are some important differences.

Inevitably, internal finance increases in each country compared to the gross figures. However, the first striking result is the reliance on internally generated funds in the UK and the US: over the period as a whole 97% of all physical investment was funded from internal sources in the UK and 91% in the US. This is considerably higher than in the other countries in our study.

Table 3: Net Sources of Finance - 1970-89
(percentages)

	Germany	Japan	UK	US
Internal	80.6	69.3	97.3	91.3
Bank finance	11.0	30.5	19.5	16.6
Bonds	-0.6	4.7	3.5	17.1
New equity	0.9	3.7	-10.4	-8.8
Trade credit	-1.9	-8.1	-1.4	-3.7
Capital transfers	8.5	-	2.5	-
Other	1.5	-0.1	-2.9	-3.8
Statistical adj.	0.0	0.0	-8.0	-8.7

Sources: as for Table 2.

The second notable feature to emerge from Table 3 is (as in the gross figures of Table 2) the relatively small contribution of bank finance in Germany. Over the period as a whole, only 11% of total physical investment was funded by banks, which is considerably less than in the other countries in the study. It would be tempting to conclude that the characterization of Germany as a "bank based" financial system is hard to justify. However, aggregate financing flows capture only one, albeit important, aspect of the relationship between financier and industry. It is necessary to investigate the type of financial services provided by banks (including their role in corporate control) before dismissing their importance. However, in

purely quantitative terms, banks in the "market based" financial systems of the UK and US seem to have contributed a larger proportion of the funds for physical investment over the last two decades than their German counterparts[9]. It should be noted that this conclusion still holds even if the relatively large negative "statistical adjustments" apparent in the UK and US data are allocated proportionately across the various sources of finance.

The traditional view of Japan seems less at odds with the figures presented here. Banks provided 31% of the funds for physical investment in Japan over the period as a whole, although we will see later that the importance of bank finance has varied in recent years. The other notable feature of the Japanese figures is the large amount of trade credit provided by the Japanese non-financial corporate sector to other sectors. This may, in part, be due to the fact that unincorporated enterprises and partnerships are included in the household sector in Japan (as in the UK) and that much of trade credit is said to be extended by larger firms to smaller suppliers (although within the corporate sector the reverse is true [10]).

Equity markets have apparently been insignificant providers of finance in Germany and Japan, whilst in the UK and US equity has actually been a net *use*, rather than a *source*, of funds. It should be remembered that these are aggregate figures over two decades, and that equity may well have been a significant source of funds for particular types of firms, or in particular years. These issues will be discussed in more detail below. The negative figures reflect, in the main, the vigorous mergers and acquisition process in the UK and US: a firm that uses its cash flow to buy the equity of another company (from the household or financial sector), and issues no additional equity, will produce a negative net source of finance figure for equity.

Is there an Anglo-US financial pattern?

We have shown that on the basis of published statistics there are already some significant differences between the UK and US patterns of finance which make it difficult to characterize an "Anglo-US" financial pattern. In addition there are some features of the way the two countries report their data which make careful scrutiny of the comparison very important. We present these issues in some detail because most international comparisons are implicitly (or explicitly as in our case) using the supposed Anglo-US "model" as a benchmark against which to measure other systems.

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[9] See Edwards and Fischer (1993) for a more complete discussion of banks' role in German firms.

[10] Japanese Ministry of Finance data show that trade credit is typically a source of funds for larger firms and a use of funds for smaller ones.

The five most important issues here are (i) the treatment of unincorporated enterprises (ii) the degree of consolidation of reporting (iii) the treatment of bonds and equity purchases (iv) the reporting of trade credit and (v) the handling of simultaneous paper issues and purchases.

As shown in the appendix tables, the UK and the US differ in their definitions of the corporate sector and in their approach to consolidation. The US includes unincorporated enterprises in the corporate sector[11] (contrary to the SNA definition) and reports most intra-sector transactions on a non-consolidated basis (in line with SNA recommendations). The effect of the former on financing patterns is not clear although it could be assumed that unincorporated enterprises will have a high proportion of own finance and that external finance, if any, will be bank finance. The effect of non-consolidation is clear. It results in larger numbers for external finance (for example, both issues and purchases of corporate bonds are included) and a correspondingly smaller proportion for internal finance. A complication arises from the US treatment of equities which *are* consolidated[12] (hence the negative number in the gross sources) so reducing their size relative to other external sources. These two reporting differences therefore have opposite effects and it is not clear what the overall effect will be. It is likely that the impact of including unincorporated enterprises is smaller than the effect of non-consolidation and on balance there may thus be some understatement of US internal sources of finance compared to the UK.

The difference in degree of consolidation makes a very strong case for concentrating on the net sources rather than gross sources in UK-US comparisons since our netting procedure will remove intra-sectoral transactions from the US. This procedure will also bring the treatment of equities in the US into line with the treatment of other sources of finance.

There are, in addition, some features of UK reporting which make comparisons difficult. First, the coverage of trade credit is very scanty. No trade credit between companies or between corporations and unincorporated enterprises is reported. Essentially UK trade credit numbers reflect only import and export credit guarantees provided by government. Thus no reliable comparison of the importance of trade credit in the UK and other countries can be made[13]. Second, in both the UK and the US corporate bond purchases on the uses side of the balance sheet are not recorded. In the UK they are included with purchases of equity. As a result the UK net sources reported in Table 3 actually use the value of gross bonds issued instead of a true net figure. In the US figures it is not clear where corporate bond purchases

[11] Although our figures do at least exclude the farm sector which OECD figures do not.
[12] That is, intra-corporate sector issues and purchases of equity are netted against each other. The negative figure indicates the corporate sector was buying back equity from the household and the financial sectors.
[13] The poor coverage in the UK may account for the size of the statistical adjustment.

are recorded. Thus a more reliable figure for total "market" sources of finance for both countries is created if "net" bonds and equities are added together.

The final difficulty is that UK figures exclude all issues of financial liabilities which are issued in exchange for financial assets. Thus any debt-equity swap (e.g. some debt-financed management buyouts) or any issue of shares which immediately finances acquisition of shares is excluded from the figures. Only cash transactions are recorded. It appears that US figures, however, follow the SNA definition and do record financial acquisitions even when the counterpart is a new issue of liabilities. Net conversions from bonds to equities for example are included under acquisitions of equities. A conversion of a bond to equity is therefore treated as a redemption of a bond and a (net) acquisition of new shares. This treatment, together with the consolidation of equities, helps to explain the trends in the US figures in both gross and net terms. When bond issues are used to purchase equity (particularly a feature of the junk bond boom of the late 1980s) the figures show a gross increase in bond issues and a *net* decrease in equities even in the *gross* tables. The same financial transaction in the UK (if it involves a *direct* exchange of bonds for equities) simply does not appear in the accounts. If the two categories of bonds and equities are treated together and on our *net* basis these inconsistencies are resolved.

The conclusion from these points is that comparisons between the UK and US can only be made on the net figures, treating bonds and equities as a combined category ("market finance") and that no reliable comparison of trade credit numbers can be made.

Interestingly the features which remain in such a comparison go some way to resolve the problem of identifying an Anglo-US pattern of finance. The features which remain significant are the high level of internal finance and the rather small use of "market sources" The US may appear somewhat more market based than the UK but, taking bonds and equity together, relied for only 8.3% of net finance from markets. The characterization of the Anglo-US financial pattern should therefore not be "market-based" (as in, for example, Cargill and Royama (1988)[14]) but "internally financed". Market sources of finance made a negative contribution to UK investment over the whole period, while in the US the contribution was around 8%.

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[14] The standard distinction is clearly expressed in Cargill and Royama, p.22. "The dominance of intermediation markets (and, within intermediation markets, the dominance of bank intermediation) continues to be a significant feature of Japanese finance. Direct finance in Japan has until only recently played a minor role in the flow of funds. In contrast, direct markets play a major role in the United States." Their analysis is based upon flow of funds figures showing shares of different types of debt in the total of external debt issued by the non-financial sector. The figures do show differences in the type of debt used but fail to capture the importance of internal finance in the U.S.

III. TRENDS IN CORPORATE FINANCING

So far all the evidence on the importance of different forms of finance has considered the 1970's and 1980's as a whole. However, the last two decades have witnessed remarkable innovations in financial markets in all the countries included in this study. These innovations have not only been in the form of new, or modified, financial instruments. There have also been significant changes in the regulation of financial markets, the conduct of industrial and competition policies (which might affect the choice between organic growth or growth through acquisition) and the competitive nature of financial markets, especially the widespread removal of exchange controls which has created a more competitive global financial market.

In this section we consider how financing patterns have changed over successive five year periods in each country, and also how the financing of physical investment varies with the economic cycle[15]. Having established some consistency in the data we now turn to the question of whether there have been changes in the Anglo-US pattern of finance, and whether there has been any convergence in international patterns.

UK

In Table 4 we present data on how the sources of finance for physical investment have changed over successive quinquennia. As will be seen below, in contrast to some other countries there have been few clear trends in corporate financing over the last two decades, but one which is striking is the steady decline in the use of market sources of finance.

As was shown in Table 3, internally generated funds represent a higher proportion of the net sources of finance in the UK than in the other three countries in our study. There is some evidence of a counter-cyclical trend in the use of internally generated funds, especially during the 1980's, when internal sources peaked during the recession of the early 1980's and then dropped sharply during the boom years of the latter half of the decade (see Figure 1).

The contributions of internal funds and bank finance are linked, and this can be seen clearly in Figure 1, which superimposes the proportions of internal and bank finance on top of the overall figures for physical investment (in constant prices) in each year. There is a clear negative correlation between the two sources of finance with the contribution of internal funds

[15] Although most accepted theories of investment behaviour do not allow for an effect of financing (being based upon the Modigliani & Miller irrelevance proposition) recent empirical work has demonstrated that such a link exists. Fazzari, Hubbard and Petersen (1988) suggest that this may be the result of aggregation since some firms face capital market imperfections. They note (p. 143) "financial constraints have a clear macroeconomic dimension because fluctuations in firms' cash flow and liquidity are correlated with movements of the aggregate economy over the business cycle"

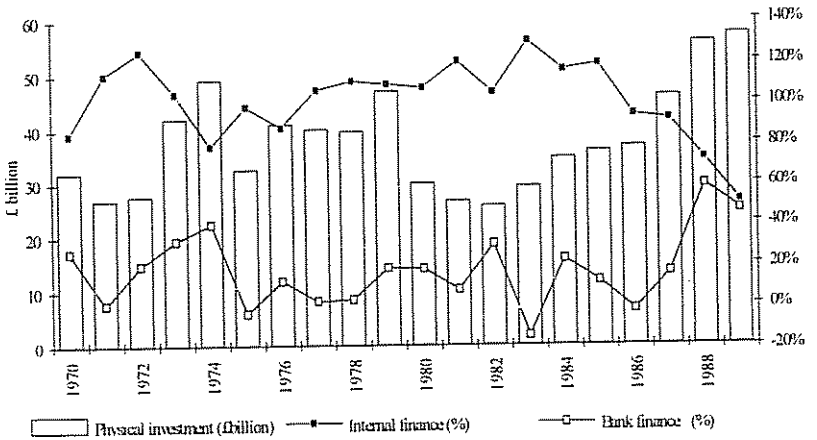
tending to increase in years of low investment, and *vice versa*. However, the most notable aspect of Figure 1 is the variability of physical investment itself, especially, as will be seen, in contrast to Germany and Japan. How much of this variability can be attributed to shortcomings in the financial system compared, for example, to macroeconomic mismanagement is a critical issue that warrants further research but there is *prima facie* evidence that low investment is linked with low use of external finance.

Table 4: Net Sources of Finance - UK
(percentages)

	1970-74	1975-79	1980-84	1985-89
Internal	98.2	102.3	115.4	81.0
Bank finance	26.1	6.8	12.4	29.9
Bonds	3.3	-1.3	2.0	8.8
New equity	-7.3	-3.3	-7.6	-20.6
Trade credit	-0.2	-2.6	-3.1	-0.6
Capital transfers	6.2	2.1	1.6	0.4
Other	2.3	-3.2	-12.2	-0.8
Statistical adj.	-28.6	-0.9	-8.5	-1.8

The second notable feature of Table 4, and Figure 1, is the variable contribution of banks to funding investment in the UK. The resurgence of bank finance in the latter half of the 1980s appears to be primarily due to the large increase in syndicated bank credit, particularly in 1988 and 1989. In each of these years banks contributed over a half of the finance for physical investment, in stark contrast to the second half of the 1970s when bank finance contributed less than 7% of such funds.

Figure 1: The net financing of UK physical investment



At the same time Table 4 shows the consistently *negative* contribution of new equity issues (in aggregate) as a source of finance for physical investment over the last two decades. This effect can be seen most dramatically in the period 1985-89 during the takeover boom in the UK. Recalling that the UK data does not allow a true distinction between purchases of bonds and equities, we describe this phenomenon as a negative contribution from market sources of finance (bonds and equities combined). It is notable that the total contribution of market sources has been consistently negative and has become more negative over the whole period. The only other country in this study which experienced such trends is the US. These observations reinforce our view that the Anglo-US pattern is an *internally financed* one rather than a *market* one.

US

Turning to the US, Table 5 reveals somewhat different trends over the last two decades. The use of internally generated funds showed a modest trend increase until the quite dramatic increase of the late 1980s. This contrasts with the UK where the late 1980s saw a decline in internal finance.

The relationship of internal finance to physical investment can be seen in Figure 2. The cyclical behaviour of the relationship between levels of physical investment and the internal finance proportion is interesting. During the upswing in investment after 1975 internal funding fell steadily, to around 80% by 1980. But in the latter half of the 1980s, when investment in real terms was again relatively buoyant, the proportion of internal finance was

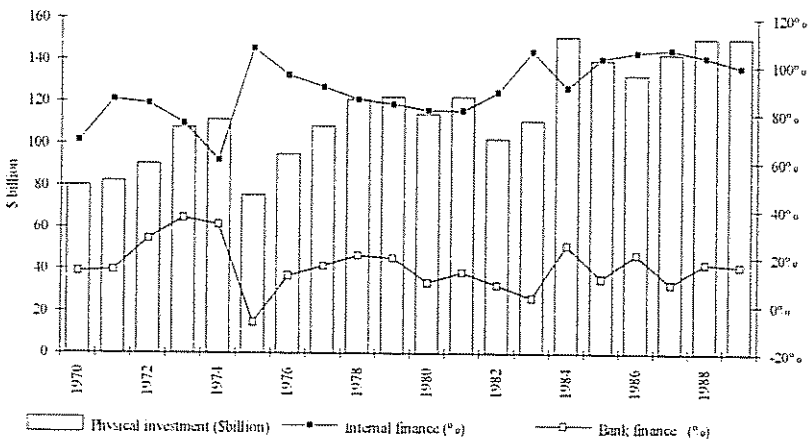
both relatively constant and high by historical standards. Thus in contrast to the UK, there is no obvious connection between the use of external finance and recoveries in investment.

Table 5: Net Sources of Finance - US
(percentages)

	1970-74	1975-79	1980-84	1985-89
Internal	74.5	91.5	89.6	103.7
Bank finance	26.6	14.1	12.9	15.0
Bonds	15.7	14.9	10.9	24.8
New equity	7.3	0.7	-4.8	-29.6
Trade credit	-2.8	-5.4	-1.7	-4.7
Capital transfers	-	-	-	-
Other	-10.8	-8.7	-0.6	1.8
Statistical adj.	-10.5	-7.1	-6.3	-11.0

Turning to bank finance, its role in the US has been relatively stable - certainly since the mid-1970s - contributing around 15% of the funds for physical investment. Figure 2 shows that while there is a negative correlation between internal sources and bank finance it is less marked than in the UK.

Figure 2: The net financing of US physical investment



Perhaps the most notable feature of Table 5 is the apparently large contribution of bonds, which stands in contrast to all the other countries in our study. This is most marked in the latter half of the 1980s when bonds contributed almost one quarter of the funds for physical investment. This explosion in the use of bond finance was probably linked to the growth of high yielding bonds of below "investment grade" (junk bonds). The growth of the junk bond

market made bond finance available for the first time for many smaller or less established firms. This apparent growth in the use of bond finance accompanied a dramatic reduction in the contribution of equity finance, which fell in each successive quinquennia, but collapsed to nearly -30% from 1985-89, again partly as a result of the high mergers and acquisitions activity during the period. Our data analysis of the earlier section again urges caution here. As in the UK, no separate data on corporate bond purchases are available so the netting procedure for bonds and equities are not strictly comparable. Taking the two categories together, as an indication of the provision of "market finance", we see an interesting phenomenon. In contrast to the UK, a net negative contribution from market sources only emerged in the US in 1985-89 but the trend was, as in the UK, consistently towards smaller and smaller proportions of market finance.

The Anglo-US pattern

There are a number of observations which emerge from this comparison of the behaviour over time. First, there is a perceptible trend towards increasing shares of internal finance in both the US and the UK. The credit boom of the late 1980s is an exception for the UK, but the characterization of the two systems as *internally financed* has become increasing valid.

Second, there is a difference in the patterns of finance over investment cycles in the two countries. The UK provides some evidence that a lack of external finance may be linked with low levels of investment. US corporations, on the other hand, have not been held back from investments because of low shares of external finance.

Third, both the UK *and* the US have shown steady declines in sources of "market" finance (bonds and equities together) over the period despite deregulation and financial innovation. In the UK such sources have made a net negative contribution to financing investment for 20 years. This further strengthens the characterization of the Anglo-US system as internal, not market, financed.

Fourth, the pattern of bank finance differs in the two countries. In the UK, the pattern over time is much more variable than in the US. This may suggest that bank behaviour in the UK is more subject to the business cycle or to the stop-go nature of policy.

Germany

There are a number of striking features of the German data, presented in Table 6. First, is the increasing importance of internally generated funds [16] as a source of finance for physical investment. Indeed, in the latter half of the 1980s a higher proportion of investment was funded internally in Germany than in the UK. There is some weak, cyclical relationship between physical investment and the use of internally generated funds, but it is certainly not as marked as in other countries, as can be seen from Figure 3. In the investment boom of 1979 and 1980 the use of external funds rose but the subsequent slowdown of investment in 1981 and 1982 was not accompanied by any marked change in the use of external finance. The prolonged investment boom in 1984-89 was, in fact, accompanied by rising and then stable internal sources of finance, so that the availability of external finance apparently played very little part. In this context, it is worth noting the remarkable smoothness of physical investment in Germany. In only 3 years did investment fall significantly in real terms, and by 1989 the level of investment was, in real terms, around 3 times its level in 1970. In comparison, the level of investment less than doubled in the UK and US.

Table 6: Net Sources of Finance - Germany
(percentages)

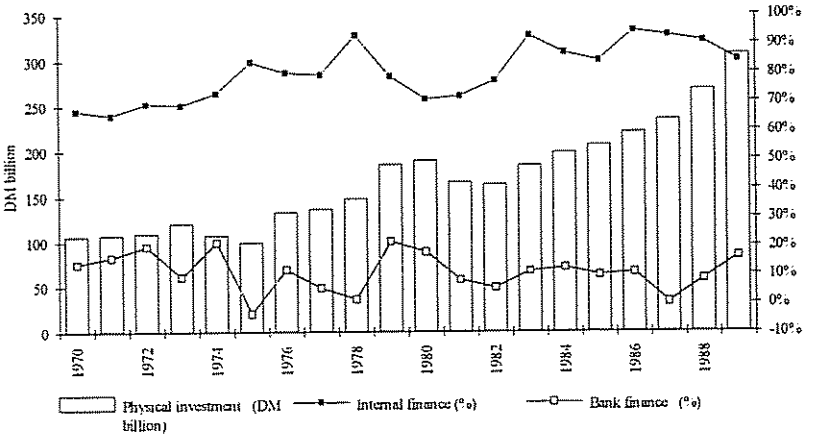
	1970-74	1975-79	1980-84	1985-89
Internal	68.6	82.8	79.8	89.1
Bank finance	15.7	8.2	11.1	9.3
Bonds	1.9	-2.8	-2.1	0.4
New equity	0.7	0.5	-0.5	2.4
Trade credit	-1.4	-1.5	-2.8	-1.8
Capital transfers	6.3	9.5	9.7	8.4
Other	8.3	3.2	4.7	-7.9

Second, despite the fact that Germany is traditionally characterized as a "bank based" financial system, bank borrowing is both relatively unimportant in aggregate and, if anything, appears to have been declining as a source of finance. The variation over time is closer to the more stable US pattern rather than the more variable UK one. Although it is notoriously difficult to

[16] One component of internally generated funds which requires special attention is that which reflects households' claims on company pension funds. A feature of the German system of pension provision is that an important part of pension arrangements is provided by employers, partly via insurance companies and pension funds, and partly via direct claims of employees on enterprises. This latter feature means that employee contributions are a significant source of finance for enterprises. These contributions to company pension funds are included in the internally generated funds category because they are indeed generated within the enterprise, but as they carry with them a liability in the form of commitments to pay pensions to employees in the future they are clearly not equivalent to other forms of internal finance. This feature is unique to Germany, and should be taken into account when making comparisons with the other countries in this study.

obtain internationally comparable data, there is some evidence that bank finance in Germany is relatively long term in nature. Long term borrowing (defined as a term of greater than 2 years) made a net contribution of 14.4% over the period as a whole to physical investment, whereas the net contribution of short term borrowing (less than 2 years) was actually negative, -2.7% on an average basis.

Figure 3: The net financing of German physical investment



Third, bonds and equity are unimportant as a net source of finance for non-financial enterprises over the period as a whole, and even for individual years there are very few occasions when these categories are significant net sources of finance: the maximum figures for bonds and equity are 4.0% and 5.9% respectively, both in 1986. One caveat which should be noted here is that the figure for equity refers only to external equity raised by public companies (and so excludes the large private company sector in Germany), and so may understate overall external equity finance.

A fourth feature of the German data is the relatively important role played by capital transfers from the government. However, since this item contains the internally generated funds of government owned enterprises, such as the Federal Railway and the Federal Post Office, as well as subsidies to these and other industries such as coal mining, shipbuilding and agriculture, it is less important than it appears to the private enterprise sector [17]

[17] Appendix Table A2 shows that Germany is the only country to include all public enterprises in the enterprise sector.

Thus, by comparison with the Anglo-US pattern, Germany presents a challenge to the conventional wisdoms. It displays a similar pattern of high and rising internal finance and lower levels of bank finance than either the US or UK. Market sources of finance are again very small and at times negative. The German pattern is therefore another example of the "internally financed" pattern (although other aspects of the system make it appropriately described as bank based). Interestingly, the smooth growth in investment belies any link between the availability of external finance and the ability to carry out investment.

Japan

Table 7 suggests that Japan remains the quintessential bank-based system but there are still some curious features. Even here, as noted earlier, internal finance is the major source of funds - contributing, on average over the last decade and a half, somewhat over 70% of total net finance - but at a level below that of the UK, US and Germany. By comparison with other countries there has been a rather gentle increase in internal funding and the pattern resembles the UK insofar as a credit boom in the later 1980s reversed the trend.

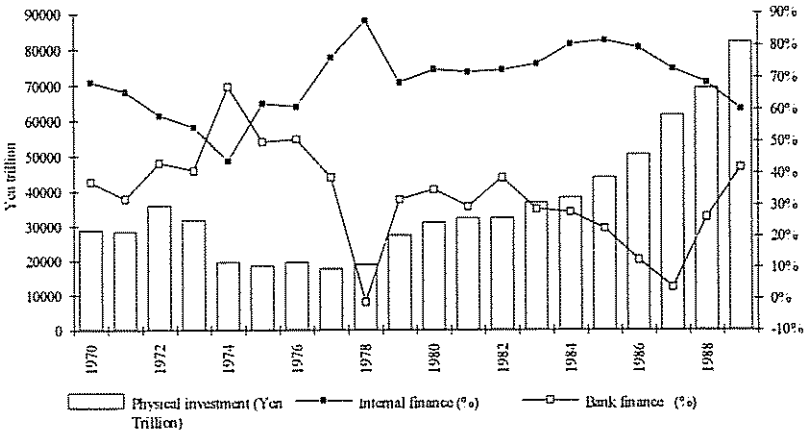
Table 7: Net Sources of Finance - Japan
(percentages)

	1970-74	1975-79	1980-84	1985-89
Internal	59.1	70.8	74.6	70.7
Bank finance	42.7	33.9	31.7	23.1
Bonds	2.7	2.5	0.6	8.6
New equity	2.5	3.3	3.6	4.4
Trade credit	-9.9	-12.2	-8.4	-5.7
Capital transfers	-	-	-	-
Other	2.9	1.7	-2.1	-1.1

As in the case of Germany, the smooth growth of real physical investment is remarkable, particularly after the oil crisis slump of 1974-78. In terms of the growth in investment over the whole period, Japan's performance - with the level of investment increasing by a factor of about 2.8 - is slightly less impressive than that of Germany but significantly better than the UK or US. In contrast to Germany, however, there is some evidence of a link between the use of external finance and investment cycles for the early years but not for the later period. In the high investment years of the early 1970s the use of external sources was rising steadily. The oil crisis recession years 1974-78 saw low growth of investment and a very dramatic fall in the use of external finance. Internal sources peaked in 1978 (at 88%) and although the subsequent investment boom saw a return to levels of external financing similar to 1970 they never reached the high point of 1974. Thus the 1980s recovery was not noticeably dependent on external funding.

Bank finance is the most important source after internal funds. Two features stand out. First, the share of bank finance has been very erratic in Japan over the whole period, varying between 67% (1974) and -1% (1978). Second, over the first half of the 1980s (up to 1987) bank finance fell steadily to the extent that, within Japan, discussion began on whether this was the end of the bank based system of finance.

Figure 4: The net financing of Japanese physical investment



The fall in bank finance in part reflected a new phenomenon of bond finance (after liberalization of access to the market), especially in 1986 and 1987 when interest rates were extremely low and the stock market was rising rapidly. However, it is important to note too that a good deal of the decline is due to a surge in firms' holdings of bank deposits as assets (particularly time deposits after market liberalizations in the 1980s). The share of bank finance in gross sources has fallen much less than the share in net sources.

As in other countries, internal and bank finance have been negatively correlated in the past, as can be seen from Figure 4. During the 1970s Japanese firms used more bank finance when internal funding was low. During the 1980s this relationship has loosened and the use of bank finance has not been as closely related to the level of "need" determined by internal finance.

The role of market sources of finance is interesting in the Japanese case. As noted above, there is a perception in Japan of a radical shift in the pattern of corporate finance over the 1980s away from bank finance and towards market sources (c.f. Campbell and Hamao (1994); Cargill and Royama (1988)). Since much of the bond finance referred to earlier was in the form of convertible bonds, which took advantage of both low interest rates and rising stock

prices, it is difficult to distinguish accurately between bond and equity finance. Taking the two sources together, the striking feature in comparison to other countries is indeed the relatively large positive contribution of market finance in the late 1980s (13%) together with the fact that the market has never been a net drain of finance as in the UK, US and Germany.

The pattern over time, however, does not support the more extreme descriptions of the changes in Japan (e.g. the "end of the bank based system"). Indeed, the description of the Japanese pattern over the last twenty years might reasonably be, in contrast to the internally financed pattern of the UK, US and Germany, "balanced external finance" with bank finance the major source. Despite marked variability in the shares of internal and external finance there is no really clear support for a link between investment behaviour and the use of external finance.

IV. CONCLUSIONS

The main purpose of this paper has been to investigate how physical investment has been financed in four different countries over the twenty year period 1970-89. We have argued that the use of flow of funds data - in particular on a net basis - provides the most reliable and consistent picture, but have also highlighted the formidable problems that are encountered in the attempt to construct internationally comparable figures on aggregate financing patterns. Wherever possible we have imposed a common set of principles in deriving the data for each country, but, as the detailed tables in the appendices make clear, some international differences in the coverage or construction of the data are impossible to correct. Perhaps the main contributions of this paper, then, are not just the actual figures on financing proportions that appear in the text, but also the health warnings that should be apparent in the appendices.

The data presented in the paper expose various common myths regarding financial systems in different countries. The celebrated distinction between the "market based" financial pattern of the UK and the US and the "bank based" pattern of Germany and Japan is inaccurate. There are, indeed, two types of pattern amongst the four countries of this study but they do not fit the stereotype. As can be seen from Table 8, in the first group - UK, US and Germany - countries which are predominantly *internally financed*, market sources of finance are small, declining and often *negative*. Only in the US during the 1970s was market finance relatively large and this was presumably the origin of the stereotype. In contrast Japan has a *balance of external sources of finance* with bank finance the major source. In Japan market sources of finance have provided a *more consistent* share than in the first group.

Table 8: Shares of net "market finance" in physical investment

(percentages)

	UK	US	Germany	Japan
1970-74	-4.0	23.0	2.6	5.2
1975-80	-4.6	15.6	-2.3	5.8
1981-84	-5.6	6.1	-2.6	4.2
1985-89	-11.8	-4.8	2.8	13.0

Source: Tables 5-7

Note: "market finance" is the sum of bonds and new equity for each country. In the US, commercial paper, arguably a market source of finance, is included in other sources. In other countries, commercial paper has been included in bank finance. There are significant international differences in whether commercial paper and commercial bills are mostly bought, or discounted, by banks or are a genuine market instrument, so our definition of market finance may be regarded as rather narrow.

Since our results call into question the usual notion of an Anglo-US benchmark pattern it is perhaps not surprising to find we also question the conventional notion of convergence of systems towards this benchmark. Even the conventional view acknowledges that the benchmark is a moving target but it is usually assumed that market liberalization has meant that the target is moving toward more market sources of finance. This is not correct. Over time the UK and US pattern has relied less and less on market sources of finance and has become increasingly internally financed. Indeed, market sources have become *steadily more* of a drain on UK and US finance. Germany is no more dependent on market sources at the end of the period than at the start of the period, but considerably more internally financed. In that sense these three countries can be said to be becoming more similar if not actually converging.

Japan has also changed, but less dramatically. The major rise in internal finance took place in a leap in the late 1970s and the shift from bank finance to market sources has been exaggerated by Japanese commentators. Japan remains the country with the lowest share of internal finance and the highest external financing. Bank finance is still the dominant source, although, contrary to expectations, market sources have been steady contributors, at levels *higher* than the UK and Germany throughout the period.

Our data also show that it is difficult to establish a link between investment performance and the use of external sources of finance. The four countries show very different patterns in this respect. Only in the UK can a case be made that low external finance shares are linked to slower increases in investment. Such a relationship may have existed in Japan in the 1970s but seems to have broken down in the 1980s. It seems never to have existed in Germany. Arguably, however, this is an idea which is better examined using micro panel data and which is amenable to (and deserves) a more rigorous econometric treatment.

Finally it should be noted that we are not claiming that the whole story of the Anglo-US "market based" stereotype was ever based exclusively on the pattern of financing. There is clearly more to the discussion than that. In particular, much recent research has been interested in the mechanisms for *controlling* companies and for achieving changes of control in cases of financial distress. In this area it is still, in the main, fair to describe the Anglo-US system as a market based system of control. Germany and Japan are different but it is hard to identify their common features accurately. It is interesting to note, however, that the most clearly bank-financed system - Japan - where bank monitoring may have been common, is also characterized by a consistent contribution from market sources. This evidence may provide some support for theories of corporate financing which stress the role of monitoring and control (such as principal-agent models), and these issues are considered further in Corbett, Edwards and Jenkinson (1994).

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APPENDIX

In the tables in this appendix we present detailed information regarding the definitions, coverage and sources of the data used in the paper

Table A1: Sources of aggregate flow of funds data

US	Federal Reserve System, *Flow of Funds Accounts* "Sector Statements of Saving and Investment for Non-Financial Corporate Enterprises"
UK	Central Statistical Office, *Financial Statistics*
JAPAN	Economic Planning Agency, *National Income Accounts*
GERMANY	Deutsche Bundesbank, *Capital Finance Accounts of the Deutsche Bundesbank*
ALL COUNTRIES	OECD, *Financial Accounts*

Table A2: Definitions of non-financial enterprise sector in flow of funds statistics

COUNTRY	Public enterprises	Unincorporated enterprises and partnerships	Consolidation (netting) of intra-sectoral transactions*
US	Excludes	Includes (our data excludes farm sector)	No (but equities are consolidated)
UK	Excludes[a]	Excludes	Usually yes[b]
JAPAN	Excludes[c]	Excludes	Usually yes but depends on items[d]
GERMANY	Includes[e]	Includes	Usually yes[f]

NOTES:

* SNA definitions recommend recording transactions on a gross basis where possible but recognises that a minimum degree of netting of transactions is more likely to be practical. The minimum degree of netting is to subtract dispositions from acquisitions of each class of asset and to offset redemptions of each class of liability against new incurrences of that liability. Higher degrees of netting may also occur (e.g. (i) transactions of a given category of financial assets against the same category of liabilities - equivalent to our netting procedure in Table 2 - or (ii) transactions of one category of financial assets against liabilities of another category) but the disadvantage is that "significant differences in behaviour between the transactions of a class will be obscured." UN, *System of National Accounts*, 1968, p 136.

(a) For the UK, figures for private enterprises only were used. Privatizations therefore result in changes in the sector as previously public enterprises are included.

(b) OECD notes state "Intersectoral transactions are, as far as possible, consolidated." This implies relatively higher degree of consolidation in the UK than other countries as no separate items are listed as non-consolidated.

(c) Our figures for Japan are based on EPA, *National Income Accounts* and exclude virtually all public enterprises. The sector definition in this source is more consistent than the OECD one which is based on Bank of Japan sources. The latter include some public enterprises but not all. Gas and electricity companies, legally classified as private companies, are included in our definition of the sector. As a result of privatization, Nippon Telegraph and Telephone Company and the Tobacco and Salt Public Corporation were included after 1985 and Japan National Railways after 1987.

(d) In principle intra-sector transactions are consolidated in Japan but where it is useful to show non-consolidated data this is done. Non-consolidated items are: short and long term securities, equities, bills bought and sold, trade credit.

(e) Germany also includes legally dependent pension funds under the control of enterprises in the enterprise sector. In other countries where these are administered by outside companies (e.g. by trust departments of banks) they are included in the financial sector.

(f) Financial transactions in Germany are "largely consolidated figures, as the financial relationships within a sector are normally set off against each other". Exceptions are equities and claims and liabilities evidenced by securities.

Table A3.1 (a): US definitions - gross sources

SOURCES	DEFINITION	NOTES
Internal sources	Total internal funds plus inventory valuation adjustment	Standard definition but numbers in the original US source differ from those reported by OECD
Bank finance	Mortgages, bank loans, loans from foreign sources, bankers' acceptances, non-bank finance loans, US government loans	Book value
Bonds	Tax-exempt bonds and corporate bonds	Book value. Equals figures reported by OECD
New equity	Net new equity	Market value. Consolidated figures so intra-corporate sector disappear
Trade credit	Trade debt and consumer credit (latter on uses side)	
Capital transfers	Not available, no distinction between current and capital transfers in the data	
Other	Includes commercial paper, foreign direct investment in US	Contrast with UK where net commercial paper is included in bank finance

Table A3.1 (b): US definitions - net sources

SOURCES	DEFINITIONS	NOTES
Internal sources	Same as gross	
Bank finance	Subtracts: Demand deposits and currencies, time deposits, foreign deposits	
Bonds	Subtracts: Tax exempt and government bonds	No corporate bonds are shown as uses. Not clear whether these are consolidated in the original data
New equity	Subtracts: Mutual fund shares, money market funds shares security r p s	
Trade credit	Subtracts: Trade credit and consumer credit	
Other	Subtracts: Commercial paper, foreign direct investment, miscellaneous other	
Statistical adjustment	Standard definition	

Table A3.2 (a): UK definitions - gross sources

SOURCES	DEFINITIONS	NOTES
Internal sources	Saving (after payment of taxes, dividends and interest) including depreciation less amounts set aside for tax liabilities	
Bank finance	Borrowing from banks including commercial bills; other loans and mortgages (on the uses side, instalment credit by retailers) loans by non-bank financial institutions, net commercial paper, shares of retail coops	
Bonds	Debentures and preference shares	No separate uses figures for this category are shown (see notes under "net sources")
New equity	Ordinary shares and other capital issues (e g management buyouts, ESOPS, issues abroad of UK securities)	
Trade credit	Domestic and foreign trade credit received from government and public enterprises	Very incomplete coverage Does not record intra-sector trade credit or credit received or extended to households
Capital transfers	Standard SNA definition	
Other	Other overseas investment	Commercial bills and commercial paper are included under bank finance

Table A3.2 (b): UK definitions - net sources

SOURCES	DEFINITIONS	NOTES
Internal sources	Same as gross	
Bank finance	Subtracts: Bank deposits, notes and coins, other liquid assets	
Bonds	No uses item recorded so gross and net figures are identical	Even if figures are consolidated, repurchases of bonds from the household and financial sector should appear as a use of funds Apparently there is insufficient data to distinguish between bonds and equities on the uses side
New equity	Subtracts: Investment in UK company securities	See notes above on bonds
Trade credit	Subtracts: Export and other credit given	Inadequate coverage See notes under gross sources
Other	Subtracts: Other public sector assets and other UK domestic and overseas investment	
Statistical adjustment	Standard definition	

Table A3.3(a): Japanese definitions - gross sources (consolidated except where noted)

SOURCES	DEFINITIONS	NOTES
Internal sources	Savings of the non-financial private enterprise sector (after interest, dividends and tax payments) plus depreciation	Depreciation for the non-financial enterprise sector is not separately reported and had to be calculated from the National Income Accounts
Bank finance	"Market loans" Includes bank loans, loans from government financial institutions and is assumed to include bills bought and sold ("tegata" bills discounted at banks)	"Tegata" (bills) figures are non-consolidated so both sales and purchases by companies are included After 1987 includes commercial paper (new instrument)
Bonds	Corporate bonds issued domestically and abroad	Non-consolidated
New equity	Shares	Non-consolidated
Trade credit	Receivables and payables plus deferred payments	Non-consolidated but reporting conventions mean that negative numbers may appear in both sources and uses (e g when trade credit advanced falls year on year the creditor companies' uses are negative and the debtor companies' sources are also negative)
Capital transfers	No data available	
Other	Short term securities, some government loans, foreign direct and portfolio investment (excluding foreign bond issues)	

Table A3.3(b): Japanese definitions - net sources

SOURCES	DEFINITIONS	NOTES
Internal sources	Same as gross	
Bank finance	Subtracts: Cash and demand deposits, other deposits (fixed term deposits, non-resident and foreign currency deposits, trusts, transferable deposits)	After 1987 also subtracts commercial paper
Bonds	Subtracts: Long term securities (government bonds, public enterprise and private corporate bonds, investment trust beneficiary certificates, foreign bonds)	
New equity	Subtracts: Shares	
Trade credit	Subtracts: Receivables and payables and deferred credit	
Other	Subtracts: Short term securities, some government loans and securities, foreign direct investment and portfolio investment	
Statistical adjustment	Rounding error only	No figures for net physical investment are available for an exactly comparable non-financial enterprise sector Total net sources of finance cannot therefore be compared with a figure for physical investment Each net source is expressed as a percentage of the sum of total net sources plus internal sources By construction these should add to 100% so the adjustment represents only rounding errors

Table A3.4 (a): German definitions - gross sources

SOURCES	DEFINITIONS	NOTES
Internal sources	Retained earnings plus depreciation plus pension funds	See footnote 13
Bank finance	Short term and long term bank loans	Includes insurance loans
Bonds	Bonds	Includes money market paper
New equity	Shares	
Trade credit	Domestic trade credit not separately shown	Includes only foreign trade credit
Capital transfers		Includes the internally generated funds of government owned enterprises as well as subsidies to industry
Other		Excludes foreign trade credit Includes flows of funds between non-financial enterprises and housing, which in Germany is a distinct enterprise sector

Table A3.4 (b): German definitions - net sources

SOURCES	DEFINITIONS	NOTES
Internal sources	Same as gross	
Bank finance	Subtracts: Cash and transferable deposits, other deposits short term loans and advances, accounting registration differences, other long term loans	
Bonds	Subtracts: Bonds acquired	
New equity	Subtracts: Shares acquired	
Trade credit	Subtracts: Trade credits	
Other	Subtracts others	
Statistical adjustment	Standard definition	