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Economic Analysis for the Institutional Investor

33 Lombard Street, London EC3V 9BQ Tel: 01-623 9981 Tlx: 883589 Fax: 01-623 6173

Occasional Research Paper No. 1 - July 1989

The UK's Currency Incompatibility with the Rest of Europe

Reprint of Tim Congdon's evidence to the Treasury and Civil Service Committee of the House of Commons

If Britain is to maintain a fixed exchange rate within the EMS, two conditions have to be satisfied:

Condition 1. Interest rate parity theorem. If the exchange rate between two currencies is fixed and expected to remain unchanged into the indefinite future, and if there are no exchange controls, interest rates should be the same in the two currencies concerned. In other words, with the UK in the EMS, sterling interest rates should be similar to those in other European countries.

Condition 2. Similarity of rates of growth of credit and money. Purchasing power parity (i.e., equivalence of price levels, in terms of a common currency, in all countries trading with each other) holds in the long run. If it is accepted that inflation is caused by excessive monetary expansion, and that differences in inflation rates between countries reflect differences in monetary growth, the UK needs to keep the growth rate of broad money similar to that in the rest of Europe.

At present the growth of credit and money is much faster in the UK than in the rest of Europe. This violates the second condition. If the UK joined the ERM, interest rates would have to fall, according to the first condition. But, if interest rates fell, the growth of credit and money would accelerate further, making it even more difficult to satisfy the second condition. **The UK cannot meet two key conditions for its full membership of the EMS and suffers from a deep-seated currency incompatibility with the rest of Europe.** In the paper the source of this incompatibility is located in contrasting histories of house price inflation, notably between the UK and West Germany.

The key conclusion for policy is that Mr. Lawson's suggestion, in his evidence to the Committee on 12th June, that the UK join the ERM in late 1990, is impractical. The implied narrowing of the interest rate differential between the UK and Europe would wreck domestic monetary control.

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Directors: T.G. Congdon, R.J. Elkington, Professor C.A.E. Goodhart

Registered office: 32 Lombard Street, London EC3V 9BE Registered in England No. 235 7712

The following paper was submitted as written evidence to the Treasury and Civil Service Committee of the House of Commons for their 1988/89 enquiry on 'International Monetary Coordination'. It appeared on pp.101-8 of the Committee's Third Report, as Appendix 3.

APPENDIX 3

Memorandum submitted by Mr Tim Congdon

NOTE ON THE ORIGINS OF THE UNITED KINGDOM'S DILEMMA OVER EMS MEMBERSHIP

The last few years have seen an intense debate in the United Kingdom about the advantages and disadvantages of full EMS membership. The passions aroused by this debate, and its inconclusiveness, are surprising. Most European countries have been full members for several years and have few reservations about their participation. Why is the United Kingdom different? The purpose of this note is to examine the contrast between housing market conditions in the United Kingdom and West Germany in recent years and to argue that it helps to explain the United Kingdom's ambivalence about the EMS. Of course, this contrast is only an aspect of wider problem. But the housing market is critical to understanding the marked divergence in credit behaviour which is perhaps the most fundamental reason for the United Kingdom's lack of currency compatibility with the rest of Europe.

1. THE IMPLICATIONS OF THE INTEREST PARITY THEOREM

In the absence of exchange controls and significant transactions costs in the relevant markets, a simple relationship holds between the interest rates in two countries and the exchange rate between their currencies. This relationship—governed by the so-called "interest parity theorem"—is that the difference between the interest rates (for x months) in the two countries equals the forward discount (or premium) between the exchange rate today and in x months' time. The forward discount (or premium) reflects, among other things, the foreign exchange markets' expectations about where the exchange rate ought to be. (The thinking here is that it should not be possible to make an effortless profit from borrowing in one currency, converting the proceeds into another currency, leaving the money on deposit in that currency and simultaneously covering the exchange risk by a forward currency transaction. Any scope for profits from such a sequence of transactions ought to be eliminated by arbitrage activity by traders very close to the market.)

If the United Kingdom becomes a full member of the EMS and participates in its Exchange Rate Mechanism, the pound is *supposed* to be fixed in value against the deutschemark. (Strictly, the pound would become one currency in the EMS grid and its divergence would be restricted to 2¼% from a particular cross-rate. But, since the EMS is effectively dominated by the deutschemark, no great mischief is done discussing the issue in terms of the German currency.)

The word "supposed" has to be used, since in practice the pound has depreciated heavily against the deutschemark over the last 20 years and further depreciation is widely expected in future. At any rate, a corollary of the fixing of the exchange rate is that the forward pound/deutschemark exchange rate should be very similar to the spot rate. A small discount (or premium) on the forward rate would be possible if the foreign exchange markets judged that the probability of a sterling devaluation (or revaluation) was non-zero. But any parity change would be contrary to the intentions of the advocates of full United Kingdom entry, most of whom regard the link with the deutschemark as a strong constraint on United Kingdom inflation. So it is reasonable—as a working assumption—to take the commitment to a fixed exchange rate as meaningful and to envisage virtual equivalence of the spot and forward pound/deutschemark rates.

Equivalence of the spot and forward rates can be reconciled with the interest rate parity theorem only if interest rates are the same in the United Kingdom and West Germany. It follows, at least in theory, that full United Kingdom participation in the ERM would require domestic interest rates in the two countries to be identical. In practice there could be some divergence because of persisting expectations of parity changes, imperfections in the foreign exchange and money markets, and institutional difference (e.g. in the size of financial institutions' profit margins). But any such divergence ought to be small.

Here we come to the key problem. At present interest rates in the United Kingdom are higher than those in West Germany, but the United Kingdom has a credit boom whereas in West Germany the growth of credit is moderate and under good control. If interest rates were to fall in the United Kingdom, the credit boom would gather extra momentum and the disparity between financial conditions in the United Kingdom and West Germany would become more extreme. This disparity would generate a new problem of reconciliation. A widely-held view, which has considerable empirical support over the long run, is that the inflation rate reflects monetary growth. Inflation differences between countries, and also exchange rate trends, should therefore mirror differences in monetary growth. (This view can be termed the "monetary theory of exchange rates". It is closely affiliated to the better known "monetary approach to the balance of payments".) Since every new bank loan creates new bank deposits, and since bank deposits constitute by far the greater part of the money supply (on broad definitions) in all countries, a fixed exchange rate can be maintained between two countries' currencies only if the growth rates of bank credit are broadly similar. When credit growth is markedly different, a fixed exchange rate is unlikely to prove viable in the long run. The divergences in monetary growth, and so in inflation pressures, are likely to put the exchange rate under intolerable strain.

The argument so far can now be summarised. If the United Kingdom were to become a full member of the EMS, the fixed exchange rate thereby established would necessitate close parallelism between interest rate

levels and movements in the United Kingdom and West Germany. But the demand for credit is so sharply different in intensity in the two countries that, at broadly similar interest rate levels, the gap between monetary growth rates would be inconsistent with exchange rate stability over a period of years. More concisely, there is a conflict between the dictates of the interest parity theorem and the requirements of the monetary theory of exchange rates. Before asking how this conflict might be resolved in the real world, we need to identify the origins of the contrast in credit behaviour between the United Kingdom and West Germany.

2. DIFFERENCES IN CREDIT DEMAND BETWEEN THE UNITED KINGDOM AND WEST GERMANY

In the United Kingdom the credit counterpart to M3 (i.e., notes and coin, and bank deposits) is bank lending to the public and private sectors adjusted for a number of external and miscellaneous items. (Setting external influences aside, lending to the public sector is equal to total public sector borrowing *minus* non-bank purchases of government debt.) The only important additional counterpart for M4, which includes building society deposits as well as all the assets in M3, is building society lending to the private sector. It follows that the growth of broad money can be largely "explained"—at least in an arithmetical sense—by the level of bank and/or building society lending to the private sector. (This is particularly true when, as in the United Kingdom today, prudent management of the public sector's finances has resulted in a budget balance close to zero.)

In West Germany the arithmetic of monetary control bears a close resemblance to that in the United Kingdom. The first page of text in every issue of the *Monthly Report of the Deutsche Bundesbank* has a table on "The money stock and its counterparts". The measure of money under consideration is a broad aggregate, M3, which includes currency and all bank deposits. The dominant counterpart to it is the "volume of credit", which is lending by both the Bundesbank and the banks to the private sector and public authorities. The German notion of the "volume of credit" can be readily translated into United Kingdom terms if it is interpreted as the equivalent of "bank lending to the private sector" and "the PSBR minus sales of public sector debt to non-banks". A large deduction is made for "monetary capital formation", which represents the incurrence of non-monetary liabilities (e.g. medium-term bonds) by the banks. This deduction is conceptually similar to the "increases in non-deposit liabilities" which appears in the United Kingdom statistics, but it is many times larger, reflecting the greater preparedness of German banks to incur medium-term liabilities. Other influences—such as changes in "net external assets"—play very much the same role as in the United Kingdom. (To say that monetary analysis in West Germany can proceed with much the same accounting framework as in the United Kingdom is *not* to say that the two countries have the same methods of monetary control. In fact, it is clear from an article on 'Methodological note on the monetary target variable M3' in the March 1988 *Monthly Report of the Deutsche Bundesbank* that the Bundesbank sees the key instruments for controlling M3 as minimum reserve requirements and open market operations. This is quite different from the approach adopted in the United Kingdom.)

Our discussion shows that differences between the United Kingdom and West Germany rates of monetary growth can be largely attributed, at least in terms of numbers, to differences in the rate of growth of lending to the private sector. We need to consider what causes credit demand to be of different intensity in the two countries. We can obtain some insight into this issue by considering the composition of lending. It turns out that, in both countries, lending for house purchase is the biggest single form of credit.

In West Germany official figures split lending into two types of loan—"housing loans" and "lending excluding housing loans". In recent years housing loans have typically been about half of the total, although with some tendency for their share to decline. At any rate, it is obvious that fluctuations in total credit are determined to a considerable extent by the behaviour of housing credit.

Table 1 Composition of increase in lending in West Germany in the 1980s

in m. of DM	Housing loans	Total domestic lending	Housing loans as % of total
1981	40,713	83,560	48.7
1982	37,853	64,639	58.6
1983	48,897	90,043	54.3
1984	43,157	86,421	49.9
1985	35,950	75,226	47.8
1986	30,775	66,682	46.2
1987	22,612	51,067	44.3

Source: *Monthly Report of the Deutsche Bundesbank*

The same is true in the United Kingdom, although the situation is more complicated because of the separate activities of two types of intermediary—banks and building societies—in the housing market. Perhaps the best way to approach the question is to ask how much of the credit which drives the growth of M4 is categorised as being for mortgage or other house finance purposes. In 1987 net advances for house purchase by building societies amounted to £15,210m., while those by the monetary sector as such (i.e. banks) were £10,030m. Moreover, the banks must have provided much of the resources for the £2,406m. of housing finance from "miscellaneous financial institutions" and the £435m. from insurance companies and pensions funds. Altogether we are probably right to think of mortgage credit from M4 intermediaries as amounting to somewhat more than £25b. last year. Since total sterling lending by banks and building societies was just above £53b., housing credit represented almost half the total.

In both countries, therefore, housing finance is practically half of all credit. It should be possible to understand, and largely explain, the contrast in credit trends if we can identify the motives behind this one type of borrowing.

Some economists may object that the emphasis here on housing finance and conditions in the housing market is exaggerated. They may prefer to see significance in lending to manufacturing and other activities which are conventionally regarded as "productive". Two points can be made in reply. First, in many non-housing loans the level and rate of change of house prices are vitally important variables. In loans to small businesses, particularly to new companies where the entrepreneur often has no assets other than his house, residential property is the most convenient kind of collateral. Indeed, a reasonable generalisation is that there is likely to be more lending to small businesses the stronger are expectations of rapid house price inflation. Secondly, in both the United Kingdom and West Germany the housing stock constitutes about half of total personal wealth. Thus, the CSO has estimated that at the end of 1985 personal sector wealth in the United Kingdom was £1,159,449m., while the value of residential buildings was £527,300m. It is striking that the proportion of housing to total wealth is similar to the proportion of housing finance to total credit.

3. REASONS FOR DIFFERENCES IN INTENSITY OF DEMAND FOR HOUSING FINANCE

There is a temptation to attribute the differences in the intensity of United Kingdom and West German mortgage demand to institutional factors. (For example, observers might say that "in West Germany owner-occupied homes are a much lower proportion of the housing stock than in the United Kingdom and so more people need mortgages".) Several of these arguments turn out to be illusory on closer inspection. (Thus, landlords can borrow to finance the purchase of houses for rent, just as owner-occupiers can borrow to purchase houses for residence.) A simpler and more convincing line of analysis is available. It pivots on the markedly different relationships, over the last 10 to 20 years, between interest rates and the rate of house price appreciation in the United Kingdom and West Germany.

Let us consider, first, the position in the United Kingdom. Table 2 shows that over the twenty years to 1987 borrowing to buy a house has been financially very rewarding. The increase in house prices, as measured by the Building Societies Association's "all houses" index, exceeded the mortgage rate in 10 out of the 20 years. Moreover, the gains in the "plus" years (i.e. when house prices went up more than the mortgage rate) exceeded the losses in the "minus" years. When additional allowance is made for the tax relief available on mortgage interest and the amenity value of living in a house (i.e. the imputed rent in national income statistics), taking out a mortgage has—for almost a generation—been one of the wisest financial decisions anyone could make. The role of mortgage interest relief in enhancing the gains needs to be highlighted. Without mortgage interest relief the cumulative capital gain (in excess of borrowing costs) would have been worthwhile but not spectacular. With mortgage interest relief the arithmetic becomes dramatically favourable.

Table 2 Capital gains from borrowing to buy a house in the UK over the last twenty years

%	(1) Mortgage rate pre-tax	(2) Mortgage rate post-tax	(3) Increase in house prices	(4) Capital gain, above interest costs	(5) Cumulative capital gain
1968	7.46	4.38	8.9	4.3	4.3
1969	8.06	4.74	4.3	-0.4	3.9
1970	8.58	5.05	7.0	1.9	5.9
1971	8.59	6.01	18.1	11.4	17.9
1972	8.26	5.78	37.4	29.9	53.2
1973	9.59	6.71	32.1	23.8	89.6
1974	11.05	7.40	1.6	-5.4	79.4
1975	11.08	7.20	7.2	0.0	79.4
1976	11.06	7.19	7.3	0.1	79.6
1977	11.05	7.29	7.1	-0.2	79.2
1978	9.55	6.40	17.1	10.1	97.3
1979	11.94	8.36	29.1	19.1	135.0
1980	14.92	10.44	15.5	4.6	145.8
1981	14.01	9.81	0.8	-8.2	125.7
1982	13.30	9.31	3.0	-5.8	112.6
1983	11.03	7.72	11.9	3.9	120.9
1984	11.84	8.29	7.8	-0.5	119.8
1985	13.47	9.43	7.7	-1.6	116.3
1986	11.92	8.46	14.9	5.9	129.0
1987	11.56	8.44	16.0	7.0	145.0

Notes:

1. The "house price" series used is the BSA's for all houses.
2. The post-tax mortgage rate is obtained by multiplying the pre-tax mortgage rate by $(1 - t)$ where t is the standard rate of income tax. The standard rate in calendar years (e.g. 1957) has been taken as the same as in the dominant nearby fiscal year (e.g., 1957/58) for ease of calculation.
3. The "capital gain, above interest costs" in any one year is calculated using the formula

$$\text{Gain \%} = \left\{ \frac{100 + \% \text{ increase in house prices}}{100 + \% \text{ post-tax mortgage rate}} - 1 \right\} \times 100$$

Source: Building Societies Association *A Compendium of Building Society Statistics*, BSA press releases and *Annual Abstract of Statistics*.

The situation in West Germany has been radically different. Out of the twenty years to 1987 there have been only four in which the increase in house prices has exceeded the pre-tax mortgage rate. Although the calculation of capital gains in Table 3 does not make allowance for tax relief, it is evident that there is nothing comparable to the United Kingdom's history of massive and persistent gains. In the 1980s, the increase in house prices has consistently been about 5% a year less than the cost of borrowing. The cumulative "loss" (i.e. shortfall of capital gains behind interest costs) for someone who borrowed to buy a house in 1980 had reached 30% by the end of last year.

Of course, there are many details which could be amplified. But we see here a plausible general explanation for the difference in the intensity of credit demand between the United Kingdom and West Germany. Over the last 20 years borrowing to buy houses in the United Kingdom has given an excellent financial return. But borrowing to buy houses in West Germany has been costly for the great majority of homeowners. (It should also be noted that the activities of investors/speculators who have bought houses on borrowed money, with the intention of renting them out, have sometimes been disastrous.) Memories, particularly when they are memories based on a whole generation of experience, influence attitudes. Attitudes then influence behaviour. There should be no surprise that, at the same interest rate, the pace of credit and money growth is far higher in the United Kingdom than in West Germany.

Table 3 Capital losses from borrowing to buy a house in West Germany over the last twenty years

%	(1) Mortgage rate pre-tax	(2) Change in price residential buildings	(3) Cumulative Shortfall
1968	7.05	2.9	7.1
1969	7.20	1.9	8.9
1970	8.56	3.4	2.8
1971	8.50	5.3	1.4
1972	8.29	5.5	3.0
1973	9.89	6.9	5.6
1974	10.47	7.0	8.5
1975	8.69	6.0	13.8
1976	7.84	4.5	17.4
1977	7.01	3.7	19.1
1978	6.42	2.7	19.4
1979	7.66	4.1	18.6
1980	9.55	5.5	17.8
1981	11.06	6.3	21.7
1982	10.35	5.3	25.9
1983	8.45	3.3	30.3
1984	8.31	2.4	34.0
1985	7.79	2.2	37.1
1986	6.87	-0.2	40.8
1987	6.39	0.2	43.2

Notes:

1. Figures are available for several mortgage rates. The mortgage rate used here is variable rate and applicable to mortgage loans secured by residential real estate.
2. The change in the price of residential buildings is calculated from an "overall price index for residential buildings", including value added tax, published in the section on "General economic conditions" in the *Monthly Report of the Deutsche Bundesbank*.
3. The "Shortfall" in any one year is the excess of interest costs over the increase in the value of houses. It is calculated using the formula

$$\text{Shortfall\%} = \left\{ \frac{100 + \% \text{ increase in house prices}}{100 + \% \text{ mortgage rate}} - 1 \right\} \times 100$$

Source: *Monthly Report of the Deutsche Bundesbank* and data supplied by the Bundesbank.

4. SOME REFLECTIONS: THE NEED FOR PRICE STABILITY IN THE UNITED KINGDOM

The point of this paper has been to argue that—in an environment of exchange freedom and low transactions costs in financial markets—the United Kingdom suffers from currency incompatibility with the rest of Europe. The origins of this incompatibility are to be sought in different histories of house price inflation.

One response to this argument is that the United Kingdom Government should scrap mortgage interest relief. If this feature of the tax system were removed, the demand for housing credit at any given interest rate would be lower and credit conditions in the United Kingdom would be closer to those in West Germany (and the rest of Europe).

While this viewpoint is widely held and has obvious force, it should not be accepted uncritically. A principle of the United Kingdom tax system is that there should be symmetry in the fiscal treatment of interest payments and deductions. If tax is due on interest received by persons, interest paid by persons ought to be deductible from taxable income. On this basis, mortgage interest relief should be retained. Perhaps even

more fundamentally, almost no one has proposed that interest payments by companies should not be deductible. But, if interest payments by companies are deductible, it is clearly a distortion that interest payments by persons are not deductible. (Individuals would be tempted to convert themselves artificially into companies in order to capture interest relief.)

There is another approach, which leads to a rather different conclusion. In our discussion of the benefits from mortgage borrowing in the United Kingdom, we noted that mortgage interest relief was responsible for the greater part of the cumulative gain over interest costs. It must have been basic to understanding the attractions of mortgage debt to the British public in the 1980s. But it is not difficult to show that the value of mortgage interest relief has been enormously increased by inflation. (See the appendix for further details and some simple algebra.) In essence, both the rate of house price increase and the rate of interest have been increased by inflation. But, whereas the inflation component in the interest rate has been tax-deductible, the inflation component in house price appreciation has not been subject to capital gains tax (or any other tax). *If the United Kingdom had enjoyed approximate price stability over the last 20 years, mortgage interest relief would neither have been of particular value to home borrowers nor would it have given rise to so much political controversy.* In West Germany and Switzerland mortgage interest relief is available, but it is not regarded as a weakness of the tax system and there is little public debate about the advantages and disadvantages of its abolition.

The recommendation which emerges from our argument is that the United Kingdom will be more suitable as a full member of the EMS when its inflation rate—and, perhaps yet more crucially, its inflation expectations—are similar to those in the rest of Europe. Since West Germany has the largest economy in Europe and the Bundesbank is committed to absolute price stability, the United Kingdom should direct domestic monetary policy more definitely to the complete elimination of inflation. After the credit and monetary excesses of the last three years, that task will be more troublesome. The entrenchment of expectations of rapid house price inflation in the United Kingdom, which has clearly been one consequence of the Lawson boom of mid-1986 to mid-1988, has made the Government's acknowledged goal of smooth entry into the EMS more difficult to attain.

Tim Congdon
16 June 1988

APPENDIX:

THE VALUE OF MORTGAGE INTEREST RELIEF DEPENDS ON THE INFLATION RATE

The point of the algebraic argument developed here is to show that the value of mortgage interest relief is increased by inflation. Some numerical examples are given to illustrate the importance of this effect.

1. THE GENERAL CASE

Let g_n be the annual nominal rate of increase in house prices, g_r the excess of the nominal rate of house price increase over the inflation rate (the "real" increase) and p the inflation rate.

Then,
$$g_n = g_r + p$$

Let i_n be the nominal interest rate on mortgage loans and i_r the real interest rate.

Then,
$$i_n = i_r + p$$

Tax relief, at the marginal tax rate (t), is available on mortgage loans. The annual post-tax cost of mortgage borrowing is therefore $(1-t)i_n$. The annual nominal gain from borrowing to buy a house (x_n) is the excess of house price appreciation over post-tax borrowing costs.

$$\begin{aligned} x_n &= g_n - (1-t)i_n \\ &= g_r - i_r + t i_r + t p \end{aligned} \quad 1.$$

The availability of tax relief ensures that the nominal gain is a positive function of inflation since

$$\frac{dx_n}{dp} = t \quad \text{and } t > 0$$

The real value of the nominal gain (x_r) is eroded by inflation. So

$$x_r = \frac{g_r - i_r + t_i + t_p}{1 + p} \quad 2.$$

This real value is nevertheless still a positive function of inflation since

$$\frac{dx_r}{dp} = \frac{t}{(1 + p)^2}$$

and $p > 0$ in the inflationary world we are assuming.

2. SOME PARTICULAR EXAMPLES

I. REAL GAIN ACHIEVED BY HYPOTHETICAL BORROWER WHEN INFLATION RATE 10% COMPARED TO REAL GAIN WHEN PRICES STABLE

Suppose someone takes out a mortgage equivalent to 100% of the value of a house. The borrower does not repay capital and allows interest to accumulate on the debt, but he deducts relief on the mortgage interest from his taxable income. His annual real gain from purchasing the house with borrowed money is given by formula 2 above.

Let us assume that there are two economies, Britannia with 10% inflation and Germania with stable prices, and that in both house prices increase in real terms (i.e., appreciate faster than the general inflation rate) by 2%, the real interest rate is 2% and the marginal income tax rate 32%.

Then by inserting these values into formula 2, we calculate that the real gain every year to the borrower in Britannia is 3.49% and to the borrower in Germania 0.64%. Over twenty years the borrower in Britannia achieves a real gain equivalent to 98.63% of the initial value of the house and the loan, whereas the borrower in Germania has a real gain equivalent to 13.61% of their initial value.

It is also clear that the borrower in Britannia can achieve the same real gain as the borrower in Germania *even if the real interest rate in Britannia is higher than that in Germania*. The demand for credit (expressed as a percentage of the outstanding credit total) could be higher in Britannia than in Germania despite higher real interest rates in Britannia than Germania.

II. THE ROLE OF INFLATION IN ENHANCING THE VALUE OF MORTGAGE INTEREST RELIEF IN THE UNITED KINGDOM IN RECENT YEARS

The nominal gain from borrowing to buy a house is given by formula 1 above. The nominal gain can be thought of as having three parts:

1 $(g_r - i_r)$, i.e. the excess of house price increase in real terms over the real interest rate. (This could be expressed also as the excess of the actual house price increase over the nominal interest rate, but it helps the argument to think of it in real terms.)

2 t_i , i.e. tax relief on the real interest rate.

3 t_p , i.e. tax relief on the inflation element in interest costs.

The first two parts of the gain, $g_r - i_r$ and t_i , would accrue if there was no inflation. The third part accrues only because inflation is fully incorporated in interest costs. What have been the relative sizes of these different elements in the gains from home ownership in the United Kingdom over the last twenty years?

A complete answer would require an analysis of, among other things, the size of mortgage debt at different dates, the marginal tax rate of mortgage borrowers and the rates of house price appreciation enjoyed in different regions. It would be extremely complicated. A more casual approach is to assume that the nation as a whole behaved in the same way as the "average" figures for mortgage interest rates, tax rates and house price appreciation.

From Table 2, we estimate that the annual return from borrowing, to buy a house was 4.83% between 1968 and 1987. On the assumptions given in the box below, the three components of this return were as follows:

Components of the return from borrowing to buy a house, 1968-87

	Components of return, % p.a.	% of return
Excess of house price inflation over interest costs	1.08	22.4
Tax relief on real interest rate	0.44	9.1
Tax relief on inflation element in interest costs	3.31	68.5
	4.83	100.0

Method and assumptions:

- 1. House prices.** The Building Societies Association series for all houses at mortgage approval stage was used. House prices rose from £4,650 in 1968 (average for year) to £44,220 in 1987, implying an annual rate of increase of 12.59%.
- 2. Inflation.** The gross domestic product deflators (factor cost, expenditure data) was used. It rose from 23.7 in 1968 (average for year, 1980=100) to 148.6 in 1987 or at an annual rate of 10.14%.
- 3. Mortgage rate.** The mortgage rate used was the average mortgage rate for the building societies given in the *BSA Bulletin*, successive issues.
- 4. Tax rate.** The tax rate is estimated from formula 1, not by averaging the standard rate of income tax over the 19 years. It is 32.6%.

Sources: *BSA Bulletin, A Compendium of Building Society Statistics and Economic Trends.*

The key message from the analysis is that the return on housing in the United Kingdom has been dominated —to the extent of 65%-70%—by tax relief on the inflation element in interest costs. If there had been no inflation, the return from borrowing to buy a house would have been markedly less. (In fact, it would have been 1½% a year instead of almost 5%.) Moreover, of the non-inflationary return, only a third—a mere ½% a year or so—can be attributed to the existence of tax relief on mortgage interest. Hence, the statement in the text that, "If the United Kingdom had enjoyed approximate price stability over the last 20 years, mortgage interest relief would neither have been of particular value to home borrowers nor would it have given rise to so much political controversy."