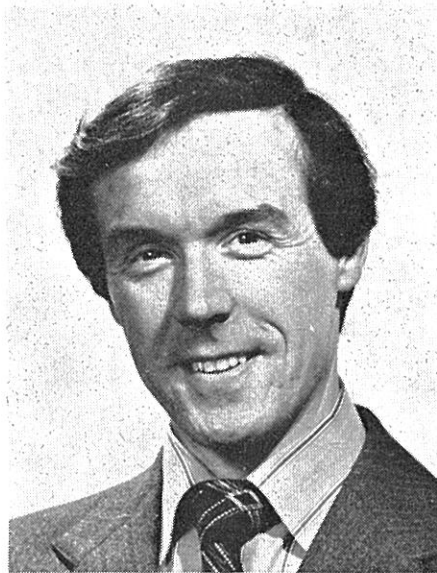


# Plant Costing: Tax Savings on Hire Purchase and Bank Loans

## Are the Banks doing enough for Industry and Commerce?

Sir, The article by Mr. S. Proctor of Williams and Glyn's Bank entitled, "Are the Banks doing enough for Industry and Commerce?" (The Quantity Surveyor, Vol 35 No 14) is most interesting and has prompted me to send you a copy of a paper I have prepared on the opportunities for firms to claim tax relief on bank loans and hire purchase agreements in a more advantageous way than at present.

The main point is that banks and hire purchase companies normally notify borrowers that interest is charged at an equal amount per month. They also tend to indicate interest chargeable at simple rather than compound rates. When charged at compound rates, the repayments made early in the life of the loan period contain a higher proportion of interest than the later payments. The firm should thus be able to claim higher tax relief on the interest early in the life of the asset which may be advantageous on the grounds that it is in the early part of its life that the asset might be earning the highest return on the investment.



T. M. Ryan

## By T M Ryan, BSc, FRICS, FIQS

Head of School of Construction and Urban Studies, Preston Polytechnic

It all started when a former student told me that his firm had bought a lorry on hire purchase at an interest rate of  $6\frac{1}{2}\%$ . It sounded too good to be true, but this is how it appeared:—

Amount borrowed	£	
(Simple) interest at $6\frac{1}{2}\%$ for 2 years	10,000	
= 13% =	1,300	
	Total	11,300
Divide by monthly payments	÷ 24	
Monthly payment	£470.83	
Rounded off to £470.90 per month		

The interest, it will be noticed, is taken on the initial amount borrowed for the full two years. Repayments are made monthly which means that the full amount is not borrowed for the whole two years. Part of it is being repaid each month. It is not strictly accurate, therefore, to record interest in this fashion. It does, however, provide an easily understood method of calculating the interest payable. The more accurate method when assessing true costs is to calculate the amount of interest on the remaining balance of the capital outstand-

ing after each monthly payment is made. The calculation is more complicated than the one which is shown above and the true compound rate of interest is not  $6\frac{1}{2}\%$ .

The firm bought the lorry two months before the end of its financial year and planned to claim tax relief on the interest as follows:—

1st financial year 2 months.	
2nd financial year 12 months.	
3rd financial year 10 months.	
	Total 24 months
Total Interest $\frac{£1,300}{24}$	= £54.166 per month

*First Financial Year:—*  
Two months interest @ £54.166 = £108.33 paid  
Two at 52% = £56.33 claim for tax relief

*Second Financial Year:—*  
Twelve months interest @ £54.166 = £650.00 paid  
Tax at 52% = £338.00 claim for tax relief

*Third Financial Year:—*  
Ten months interest @ £54.166 = £541.67 paid  
Tax at 52% = £281.67 claim for tax relief

	Total Interest £	Total Tax Relief Claimed £
Yr. 1	108.33	56.33
Yr. 2	650.00	338.00
Yr. 3	541.67	281.67
	<u>£1,300.00</u>	<u>£676.00</u>

This method is also incorrect, for it assumes that each monthly payment includes the same amount of interest. If the proposition is accepted that each monthly payment contains a repayment of capital plus interest on the remaining balance of capital, then it follows that more interest and less capital will be paid per month at the beginning and more capital and less interest will be paid per month at the end. This may explain why early repayment of a hire purchase loan always costs more than the buyer expects.

More tax relief is therefore available in the first and second financial years than in the second and third. This is valuable, because in the first year of its life, the lorry is earning the highest income due to lower running costs and hopefully, greater reliability.

The Schedule of payments is reproduced below:—

Financial year	Month	Payment £	CASH OUTFLOWS		Capital Balance £
			Interest £	Capital £	
1977/78	Amount borrowed				10,000
	11	470.90	100.30	370.60	9,629.40
	12	470.90	96.58	374.32	9,255.08
1978/79	1	470.90	92.83	378.07	8,877.00
	2	470.90	89.03	381.87	8,495.14
	3	470.90	85.20	385.70	8,109.44
	4	470.90	81.34	389.56	7,719.88
	5	470.90	77.43	393.47	7,326.41
	6	470.90	73.48	397.42	6,928.99
	7	470.90	69.50	401.40	6,527.58
	8	470.90	65.47	405.53	6,122.15
	9	470.90	61.40	409.50	5,712.66
	10	470.90	57.30	413.60	5,299.05
	11	470.90	53.15	417.75	4,881.30
	12	470.90	48.96	421.94	4,459.36
1979/80	1	470.90	44.73	426.17	4,033.19
	2	470.90	40.45	430.45	3,602.74
	3	470.90	36.13	434.77	3,167.97
	4	470.90	31.77	439.13	2,278.85
	5	470.90	27.37	443.53	2,285.31
	6	470.90	22.92	447.98	1,837.34
	7	470.90	18.43	452.47	1,384.86
	8	470.90	13.89	457.01	927.85
	9	470.90	9.31	461.59	466.26
	10	470.90	4.68	466.22	0.04

Enquiries were made of the Hire Purchase Company to find out:—

- the true compound rate of interest; and
- the month by month schedule of payments of principal and interest.

The Company was unable to supply the information.

It was necessary to investigate further and the mathematical formula for the calculation of compound interest for monthly payments was adopted. This formula cannot easily be solved when the only information available is:—

- the amount borrowed
- the monthly payment
- the number of months.

The solution can be found by using the formula on a trial and error basis and the Polytechnic's Computer was used to enable the large number of calculations to be performed at high speed.

The Computer carried out a number of calculations and produced the true annual rate of compound interest and the schedule of monthly payments showing the amount of interest and capital paid off each month.

The true annual rate of compound interest proved to be 12.72%—quite a difference from 6½% Simple Interest.

It will be noticed that the total amount of interest charged is slightly higher due to rounding off figures, and the rate per cent of compound interest is more accurately stated.

What is the effect of all this on the claim for tax relief? The Company's new claim is:—

*First Financial Year:—*  
 Month 11—Interest paid £100.30  
 Month 12—Interest paid 96.58  
 Total interest paid yr. 1 £196.88

Tax at 52% = £102.38 claim for tax relief.  
 This claim for tax relief is 81.75% higher than the claim available under the first calculation and makes this exercise well worthwhile.

*Second Financial Year:—*  
 Months 1–12 inclusive Interest paid £855.09  
 Tax at 52% = £444.65 claim for tax relief

*Third Financial Year:—*  
 Months 1–10 inclusive Interest paid £249.68  
 Tax at 52% = £129.83 claim for tax relief

	Total Interest £	Total Tax Relief Claimed £
Yr. 1	196.88	102.38
Yr. 2	855.09	444.65
Yr. 3	249.68	129.83
	<u>£1,301.65</u>	<u>£676.86</u>

This again, is almost the same as the original computation and the differences

arise through rounding off the monthly payments.

It is suggested that it would be profitable for any firm buying expensive equipment on hire purchase to carry out this exercise for the following reasons:—

- the correct calculation of compound interest is vital, for it enables tax relief to be properly claimed.
- the greater tax relief is available at the time when the profits on a new lorry or machine are probably at their highest.
- the figures given in this example are relatively small, but could have considerable benefit to a firm with large plant holdings on hire purchase agreements.
- knowledge of the true rate of interest at which money is being borrowed is of the greatest importance when the computations are being made of the cost of buying and operating plant and which leads into the calculation of a rate per unit of output for tendering purposes.

It is recognised that a firm interested in checking their own costs may be able to obtain all the figures from the hire purchase company. If this is not possible, and the means of doing the calculations are not readily available, the Author may be able to provide assistance.

## Reply to T. M. Ryan

By G C Naylor

Head of Marketing,  
Williams & Glyn's Bank Limited

Mr. Ryan raises a number of relevant and interesting points. Perhaps I can deal with what banks actually do first and then briefly touch on the wider implications of Mr. Ryan's comments.

We are talking about fixed rate lending, that is lending for which the rate of interest is agreed at the start and is not linked to banks' Base Rates. Such fixed rate lending is a small proportion of all bank lending, though not uncommon for loans to persons.

The first point to make is that banks never use simple interest. After all, they don't borrow at simple interest either. Compound interest is, of course, more complicated than simple interest and banks use two ways of describing compound interest rates, each of which has certain benefits. These two ways are as a "Flat rate" and as a "True rate" or, as it is sometimes called, an "Effective rate". The flat rate (which it seems Mr. Ryan has confused with simple interest) simply states that if you borrow, say, £1,000 at 9% p.a. flat for two years, you will pay a total of £180 in interest. It is an easy to understand method of stating what the borrower will pay. As a rule of thumb, flat rates can be converted into true rates (both, remember, are compound rates) by multiplying by two and taking away 0.5. For example, 9% p.a. flat becomes 17½% p.a. true, although the correct formula yields 17.7% p.a., for a two-year loan. (For one year 9% p.a. flat is 17.4% true.)

Of course true rates are higher because the amount of the loan outstanding falls over its term. They are roughly twice as high because the average loan outstanding will be about half the amount agreed. (Roughly twice and not exactly twice because repayments do not start until the end of the first period, a month or a quarter, whereas the interest starts running from the start of the first period.) The formula for calculating the "Annual Percentage Rate of Charge" is laid down in a paper presented to Parliament in September 1973 - Cmnd 5427; para. 11.4.

The second point is concerned with how interest is charged as opposed to how it is expressed as a rate. There are again two basic methods used by banks. One charges an equal amount of interest each period - very uncommon except for certain small loans to individuals - and the other uses the "Rule of 78". This rule allocates interest in proportion to the amount outstanding in any period and is indeed used by banks as Mr. Ryan suggests. The rule derives from the fact that if in a one-year loan, with interest charged monthly and repayments of capital paid equally each month, then the total interest payable would be divided into 78 portions of which 12 would be charged in the first month, 11 in the second and so on. By the twelfth month it will all have been paid. (The rule for monthly repayments over three years would be a Rule of 666.)

In practice, whether for fixed rate lending or for loans with interest rates linked to base rate (which itself could change during the term of the loan) banks simply take the amount of the loan outstanding averaged over the number of days in the period and apply the appropriate rate of interest. In Williams & Glyn's we do this quarterly unless otherwise agreed. By applying interest at "quarterly rests" and not daily, the true rate of interest actually charged is slightly lower. Of course the borrower can see from his bank statement exactly how much interest has been debited to his loan account and can charge this to his P/L account if he is a company, or enter it on his tax return if he is a private borrower and the loan was for an "approved" purpose.

So far then the banks do indeed do as Mr. Ryan suggests - and anyone who borrows from a bank can easily obtain these details of the loan agreement. It is a matter of surprise to me that the Hire Purchase Company was "unable" to give them.

The wider implications of Mr. Ryan's remarks take us into other taxation matters and also into matters of principle. It is true that any "front end loading" of benefits is an advantage not only because bushes are unsafe places to keep birds but also because of the time-utility of money - a pound today is worth more than a pound next year because it can earn interest.

But when a company buys a lorry other implications arise. Capital allowances need to be taken into account, in deciding whether to lease or buy for example, and the opportunity cost (what the money could earn if devoted to another purpose) needs to be considered before deciding whether getting the lorry at all is in the company's best interest.

Investment decisions are seldom easy. Certainly smaller businesses are often ill-equipped to subject them to rigorous analysis. But often your local bank manager can be a great help - much more so than simply as a provider of cash. So it pays to consult early rather than late - just as our advertisements suggest!

P.S.—Mr. Ryan's computer was right - but the calculation is in fact possible on the back of an envelope. The formula for the effective annual rate for monthly repayments is

$$\frac{2400d}{p(n+1) + \frac{d}{3}(n-34)}$$

where  $n$  is the total number of payments  
 $p$  is the amount borrowed  
 $d$  is the amount paid in interest.

### Simple Tax Service Saves Time and Money

A new weekly information and advice service has just been launched which aims to simplify tax for businessmen and save them time and money.

The publication, *Tax File*, claims that subscribers will keep up to date with accountants and tax experts through 10 minutes' easy reading each week.

Subscribers receive initially a personalised bound file divided into 10 tax sections, each with a simple check list of established facts. The sections cover: personal tax both for the employed and self-employed, staff tax, VAT,



Mr. Dennis Fowle, Managing Director of *Tax File*, was formerly Editor of the *Kent Messenger Group*, Maidstone, and is now deeply involved in running his own publishing companies.

Capital Transfer Tax, Corporation Tax, Capital Gains Tax, pension schemes, tax-saving investments, offshore planning and dealing with the taxman.

The check list for personal tax includes more than 20 ways or "perks" to be considered to save on your own tax bill.

A team of top tax experts and financial journalists skilfully summarise everything of importance to businessmen and the news is posted weekly on clearly headed and numbered sheets to clip into the file. Tax jargon is eliminated but all official references are given to help accountants.

In addition to the main service subscribers also receive regular, authoritative and highly-readable articles on current tax topics. Subscribers' questions are also answered in another series.

In addition, subscribers receive a weekly newsletter - which refers briefly to all other important tax matters which have been the subject of speculation or have come into the news during the preceding week.

*Tax File*, however, does not become involved in highly-artificial avoidance schemes.

Mr. Dennis Fowle, publisher of *Tax File*, said this week from his offices at 4 Valentine Place, London SE1: "Businessmen are generally too involved to read heavy tax literature and find it difficult to understand.

As a small businessman myself I know how difficult, but important it is to be well informed and organised on tax matters. Accountants are generally not efficient in forward planning and advising clients.

We all want to reduce our personal and business tax bills but our own time is too valuable to spend hours studying and planning our best tax paths.

*Tax File* will cover everything new of importance and guarantees not more than 10 minutes reading a week, apart from after Budgets.

The service informs and also signals areas to take further advice from an accountant".

Editor-in-Chief of *Tax File* is Mr. Nigel Eastaway, FCA, partner in a firm of leading London Chartered Accountants, an experienced lecturer and author on taxation. The editorial board also includes other tax consultants, a former Inspector of Taxes, a solicitor and experienced journalists.

Cost of the service is £52 for the year. "With most professional advice now running at £25 an hour or more I think subscribers will soon realise they are on to a really valuable bargain", added M. Fowle.