Interest and the Rate of Return on Investments

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● FOR MANY YEARS the interest rates used in most economy studies for highways and other public works have been quite low. In its Manual of Instructions, the California Division of Highways uses 0 percent. In its 1951 report, the AASHO Committee on Planning and Design Policies used rates from 1½ percent to 3½ percent in its examples. Recent studies of the economy of alternate highway locations made by a number of state agencies have used 3 percent and 3½ percent. A recent rate for evaluation of Federal water projects has been 2½ percent; this rate was furnished to the various agencies by the Bureau of the Budget under the provisions of Circular No. A-47, December 31, 1952.

The discussion of "Interest and Discount Rates and Risk Allowances" in the 1958 revision of the "Green Book" (Proposed Practices for Economic Analysis of River Basin Projects—Report to the Inter-Agency Committee on Water Resources by the Subcommittee on Evaluation Standards) includes the following:

> ...the minimum interest rate appropriate for use in project evaluation for converting estimates of benefits and costs to a common time basis is the risk-free return expected to be realized on capital invested in alternative uses. At a given time this rate is the projected average rate of return; i.e., yield, expected to prevail over the period of analysis, in the absence of inflationary or deflationary changes in the general price level, on such relatively risk-free investments as long-term Government bonds. ... Use of the minimum risk-free rate assumes that risk elements have been adequately accounted for in the calculations of benefits and costs.

The viewpoint herein is that in many cases the public interest requires the use of substantially higher interest rates in economy studies for public works—particularly in economy studies for highways.

On first impression, it might seem that September 1959 is an unusually favorable time to present a case for the adoption of higher interest rates in economy studies for public works. Interest rates on borrowing by local and national governments have not been so high for a long time. The interest ceiling of 4¼ percent on debt maturing in more than five years presently makes it impossible for the United States Government to do any long-term borrowing; a recent short-term borrowing was at 4¾ percent. The Canadian Government is currently paying more than 6 percent for short-term money. Many recent tax-exempt state and municipal borrowings in the United States have been at interest rates of 4 percent or more.

But the case for higher interest rates in economy studies for public works was a valid one even when Federal and local governments borrowed at much lower interest rates than at present.

Either in private enterprise or in public works, the issue in the selection of an interest rate for use in economy studies that are made to evaluate proposed investments in physical plant may be phrased as follows: "What is the lowest possible rate of return, all things considered, that is deemed sufficiently attractive to justify the proposed investments?"

In such investment decisions in competitive industry or by individuals two relevant questions to consider are as follows: "What investment opportunities, if any, are likely to be foregone as a result of a decision favorable to a particular investment in physical plant?" and "What is the cost of money, all things considered?" In general,

the minimum attractive rate of return should never be less than the cost of money. Often, however, the minimum attractive rate of return should be considerably higher than the cost of money because of considerations related to the investment opportunities foregone. In the language of the professional economist, the concept of "opportunity cost" is applicable to the selection of the interest rate to be used in economy studies.

In a business enterprise, the investment opportunity foregone may be either within the enterprise or outside of it. In modern industrial society, many proposals are often made for investment in new physical assets. In competitive industry, the usual condition is that the proposals at any time are, in total, considerably more than it is practicable to finance.

Whenever I meet anyone engaged in the preparation or review of capital budgets in competitive industry, I ask him, "What is the minimum attractive rate of return in your company?" The first answer is often "Well, it depends." (This seems to mean it depends in considerable measure on management's judgment of the relative risk in different investment proposals.) But by further questioning, I usually discover that proposals having prospective rates of return of less than 10 percent after income taxes are rarely, if ever, approved; many types of proposals will be rejected if the prospective rate of return is less than 15 percent after income taxes; some will be rejected if it is less than 20 percent. One large integrated oil company requires 10 percent after income taxes for proposals in the transportation and marketing divisions, 14 percent in the refining division, and 18 percent in the production division.

I get the impression that in competitive industry, the usual controlling element in setting a minimum attractive rate of return is the relationship betweeen the internal opportunities for investment and the available investment funds. For example, in preparing the capital budget for a manufacturing enterprise, it is determined that $200,000 is the largest amount that can be made available for plant investment during the coming year. This includes funds from all sources including capital recovered through the depreciation element in pricing, retained earnings, long-term borrowing, and new equity funds. Assume that a number of proposals for new plant investments are made and that the aggregate of the proposals is $500,000. Careful estimates are made of the consequences of each proposed investment and prospective rates of return after income taxes are computed for each. Assume that these rates range from 35 percent down to 8 percent. Assume that when the proposals are arrayed in decreasing order of rate of return, it is evident that the available $200,000 will be exhausted by proposals that have prospective rates of return of 17 percent or more. If all proposals are deemed to have equal risk, the minimum attractive rate of return is 17 percent because the approval of any proposal yielding less than 17 percent will cause the manufacturer to forego the opportunity to earn 17 percent or more from some other proposal.

It is my impression that such conditions of capital rationing are the exception rather than the rule in regulated public utilities and that the controlling element is the over-all cost of capital, considering both borrowed capital and equity capital. A common rate used in economy studies for public utilities is 7 percent after income taxes.

Economy studies comparing alternate proposals for investment may be made by any one of several different methods. One method is to compute the prospective rate of return for each proposal and to judge proposals in relation to one another or in relation to some stipulated minimum attractive rate of return. Other methods, applicable to certain types of alternatives, are to convert alternatives to equivalent uniform annual costs or to present worths. In evaluating proposed public works, the most common method is to compare benefits with costs; benefits and costs may be expressed either as equivalent uniform annual figures or as present worths.

It is essential to recognize that the issue or what ought to be the minimum attractive rate of return, all things considered, is still present when decision making is based on comparisons of annual costs, comparisons of present worths, or on an analysis of benefits and costs. These methods all require the use of an interest rate for conversion of non-uniform money series to equivalent uniform annual figures or to present worths. The operational effect of using a particular interest rate in calculation of annual costs, present worths, or benefits and costs, is to adopt that interest rate as the minimum attractive rate of return. For example, if 3 percent is used as the interest rate in computing benefits and costs and if any proposal for which the computed benefits exceed

the computed costs is deemed to be justified, the effect of this procedure is to justify any proposed investment that will yield more than 3 percent.

Although the foregoing point should be self-evident, I am sure that it is not really understood by many of the persons who use benefit-cost techniques in the analysis of proposals for public works. It is my view that the widespread failure of analysts, legislators, and administrators to understand this point is a serious weakness of the benefit-cost technique as it is now commonly used with interest rates from 0 percent to 3½ percent.

What are the considerations that ought to enter into the selection of a minimum attractive rate of return in the evaluation of any proposed investment in highways? I believe that proposed highway investments are similar to proposed investments in competitive enterprise in that the controlling element in selecting a minimum attractive rate of return usually should be the investment opportunity foregone. In judging what investment opportunities are being foregone, it is necessary to look at such opportunities within the highway program and also to look at the investment opportunities available if highway construction taxes are reduced. It is likely that the first look would result in a figure much higher than 3½ percent and feel sure that the second look would also give a figure more than 3½ percent.

In most states it is a common condition for the highway improvements scheduled for any given year to be only a small fraction of those improvements that, on intuitive grounds, are believed to be badly needed. Just as in competitive private industry, each year many proposals are competing for limited investment funds. Suppose that prospective rates of return should be computed for each proposal and that all proposals should be listed in order of rate of return. Such an array would show that the available funds would be exhausted by projects having relatively high rates of return. Moreover, just as a similar analysis year after year for capital budgeting in private industry continues to show a high minimum attractive rate of return because of continued technological progress, population growth and growth in the standard of living, the same factors would continue to cause highway funds to be exhausted by projects having high prospective rates of return.

Now, consider the investment opportunities foregone by the taxpayers who provide the funds for investment in highways. For the many taxpayers who have to borrow money for one purpose or another, a gilt-edge risk-free investment is to borrow less money or, in most cases, to reduce the amount of an outstanding loan. For those taxpayers who borrow to finance homes, this risk-free investment will yield 6 percent more or less (often considerably more if it is necessary to finance with a second mortgage). For those numerous taxpayers (all of them highway users) who borrow to finance automobiles, this risk-free investment will often yield 12 percent or more. For taxpayers engaged in competitive industry, we have already noted that minimum attractive rates of return for proposed plant investments are often 10 percent or more after income taxes. An after-tax rate of return of 10 percent corresponds to a considerably higher rate before taxes; for instance, if the applicable tax rate is 50 percent, an after-tax yield of 10 percent requires a before-tax yield of 20 percent with the return from the investment divided equally between the investor and the government. Such industrial investments are far from risk-free, there always is risk that an analyst's most careful estimates will turn out to be incorrect. But it should be pointed out that neither are highway investments risk-free; in fact it seems to me inherently more difficult to make a reliable economic analysis of a proposed highway improvement than to make one of a proposed investment in industrial plant.

The yields on investment opportunities outside of the highway field seem to be clearly relevant in setting a minimum attractive rate of return for proposed highway improvements. For the past decade in the United States, we have had a steady increase in highway user taxation, both on the state and national levels. The primary purpose of these tax increases has been to make more funds available for investment in highway plant. I personally believe that an economic analysis would indicate that, all things considered, these tax increases have been justified. But the economic grouds for justification should be based in large measure on a showing that the highway agencies can invest these funds as productively as could the taxpayers. To the extent that highway agencies consider increments of investment to be justifiable on the basis of rates of return of from

0 percent to 3½ percent, the agencies are not in fact investing a part of the funds as well as the taxpayers might have done if the taxes had not been collected.

It seems to me that the case for higher minimum attractive rates of return in economy studies for proposed highways should be based primarily on the foregoing considerations relative to opportunity cost—giving weight both to the prospective yield from alternative highway investments that would be displaced by a proposed investment and to the prospective yield from taxpayers' investments that are, in effect, displaced by all highway investments. But there are several other aspects of this topic, as follows:

1. The consideration, if any, that should be given to risk in selecting a minimum attractive rate of return for proposed highway investments.
2. The sensitivity of decisions to distant forecasts in cases where a low minimum attractive rate of return is used.
3. The point that the cost of money borrowed by governments often is somewhat greater than it appears to be.
4. The relationship between the selection of a minimum attractive rate of return and the uneven distribution of the favorable and unfavorable consequences of many public works.
5. The relative merits of the rate-of-return technique and the benefit-cost technique for evaluation of proposed highway improvements.

The quotation from the "Green Book" indicated that the authors believe it is possible to make estimates of the future in a way that eliminates the element of risk. I personally question whether anyone has an efficient enough crystal ball to accomplish this desirable result. Moreover, if analysts make their best possible forecasts regarding a diverse group of investment proposals, the likelihood that forecasts will turn out to be incorrect will be greater for some proposals than for others. My example of the oil company that used different minimum attractive rates of return in different divisions illustrated how a company management recognized different degrees of risk associated with investment proposals in marketing and transportation on the one hand and refining and production on the other.

When an analyst attempts the difficult task of placing money valuation on consequences to whomsoever they may accrue, it seems to me that there are obvious risks that his estimates will turn out to be incorrect. In fact, I beleive that differences in risk for estimates of the consequences of different types of highway investment are so great that highway administrators might reasonably use different minimum attractive rates of return for different types of investment. For example, an investment intended to decrease maintenance costs might be acceptable with a lesser return than an investment to save time for highway users.

I am sure we would all agree, at least on intuitive grounds, that the risk of incorrect estimates of the distant future is considerably higher than the risk of incorrect estimates of the near future. It is common for economy studies for alternate highway locations to be based on forecasts of substantial traffic growth; it is not uncommon for an analyst to forecast that traffic will triple during a 20-yr study period. With low interest rates used in compound interest conversions, the conclusion of the economy study is extremely sensitive to the distant estimates. At 0 percent (the interest rate used in studies in California) a dollar saving 20 years hence is given the same weight as a dollar saving today. At 3 percent a dollar in 20 years is like 55 cents today. In contrast at, say, 7 percent a dollar in 20 years is equivalent to only 26 cents today. A characteristic of economy studies is that the higher the interest rate used, the lower the sensitivity of the decision the estimates of distant future consequences.

Because so many analysts base their selection of an interest rate on the borrowing rate by the particular public agency undertaking the proposed construction, it is worth while to mention the point that the interest rate does not always provide a full measure of the adverse consequences of a particular public borrowing. For example, increased Federal borrowing contributes to inflation. State and municipal borrowings in the United States have a concealed subsidy because of the exemption from Federal income taxes of the interest on the debt. A large issure of general obligation bonds of a state may have the effect of increasing future interest rates to be paid by cities, school districts, and other civil subdivisions of the state.

If proposed public works should be analyzed on the basis of expected consequences "to whomsoever they may accrue," we should also recognize that such consequences are sometimes distributed quite unevenly among the population. Certain persons may be affected extremely favorably; an example is a person who owns land that will increase in value because a particular project is undertaken. Other persons will not be affected at all. Still other persons will be adversely affected; an example is a person whose business will be damaged by the construction of a freeway. This uneven distribution of consequences of certain public works is a reason why such works should not be deemed to be justified unless their prospective rate of return is fairly high.

Professor Oglesby and I have previously advocated the use of the rate-of-return technique for the economic analysis of proposed highway investments. It seemed to us that a major advantage of this technique is that its use avoids the confusion and argument over setting an appropriate interest rate. In addition, the conclusions of a rate-of-return analysis are easier to understand then the conclusions of a conventional benefit-cost analysis.

Both in private industry and in public works, objections have been voiced to rate-of-return techniques on the grounds that the techniques are unduly complicated and time-consuming because it sometimes is necessary to use trial-and-error solutions for unknown rates of return. This objection seems to have little merit. Even where such trial-and-error solutions are necessary they usually add only a few minutes of computational time to an economic analysis that may have taken many man-days. Moreover, it is possible to prepare tables and diagrams that greatly simplify rate-of-return calculations in the majority of cases.

However, if the administrators of highway agencies feel that it is essential to use benefit-cost techniques in highway economy studies, I hope that higher interest rates will be used than the ones presently employed. To be specific, I suggest the use of a 7 percent figure; as already mentioned, this is the figure currently used in many economy studies for regulated public utilities throughout the United States.

Discussion

Moskowitz. —I still think that we are exaggerating minutia when we talk about the details of the theory of the analysis. There are many broad things that we have no answers for and which I hope to get partial answers for. How can we justify the standards? How can we justify systems at all?

The California Division of Highways does use zero percent interest rate. Almost all your arguments are directed to whether we should do the project at all, or which project we should do first. In those cases the use of the time value of money is much more important than it is when you are talking about which alternate between two fixed terminals.

Grant. —I think interest is important in all cases, and I do believe it is important in location studies as well as the other things you mentioned.

Moskowitz. —But less important, isn't it?

Grant. —Not when there is no difference in investment, the bigger the difference in investment the more sensitive the answer is to the interest rate. This I will agree to.

Moskowitz. —In view of some of the problems, we prefer to use zero interest. One problem is that of explaining why we set a given interest rate when we do not pay interest. This is one reason why we don't think it is terribly important. I wish to make it clear that the California Division of Highways is not against the use of interest as a matter of principle.

Zettel. —On most of the California cases on highway location that I have examined I would agree with Moskowitz. Location and economic justification are separable problems. I agree however, that it would be just as easy to use interest all the time if you could explain to the public, and I believe you should.

On the other hand, on the kinds of decisions you are making about alternates, there are so many other things of much greater importance. Such things as community values

and esthestics and the like which we can't value are so important that I have not been tremendously disturbed, in considering alternates between points A and B, whether the highway should go down Ashby Avenue or go down Dwight Way, I don't think there is much to be concerned with when interest is omitted. Not that I condone at any time leaving out interest, but I don't think omitting it gets you very far off base.

Given the income available and given the legislative formulas that allocate this income in this area, interest does not make much difference, when you are working within a very narrow range of alternatives. Usually you are not considering whether you should build, but whether you should build a freeway in Alameda County or Santa Clara County.

Moskowitz. —I would like to get straightened out on two things. The first is a question about the assumption of whether you are going to have a straightline growth of benefits resulting from traffic growth.

Historically, AASHO has shown that the total travel in a state like California has a fairly uniform rate of growth. But whenever we have built a project, especially an expressway project, the growth line goes up. Actually we hope that this particular highway first might level off early so it will get closer to capacity.

This area of estimating is so much larger than guessing what period of amortization and rate of interest, that I cannot attach much importance to using interest in comparing alternates.

You mention present worth, and also mention interest on the capital investment. If you obtain the present worth of future benefits, then you have the benefits for alternate A and alternate B reduced down to 1959.

Now we have the construction cost in 1959. Isn't it fair to take this present worth of benefits against the construction cost? I mean, you don't add interest to the cost do you, if you have already brought the benefits down to 1959.

Grant. —You could add the present worth of the maintenance costs in the study period.

Moskowitz. —But that is the only extra highway expense that you put in.

Grant. —Your outlay is the present worth, unless you have a stepped plan as Mr. Rothrock was suggesting, two lanes now and two more later—something like that.

Moskowitz. —Yes, it seemed several times as though someone was adding the interest to the construction cost in order to figure out how much it is going to cost for 20 years. It isn't necessary to take the benefits and bring them down to the present, is it? You don't do both?

Grant. —If you convert the initial investment to an annual equivalent cost, you ought to convert the benefits to an equivalent annual benefits at that interest rate. The equivalent annual benefits will be less if you have increasing benefits. The equivalent annual figure will be less than the average at any interest rate above zero.

Moskowitz. —I have read about the big "Time" and "Life" building. Do they make a real economic analysis? Do they know they will get enough new subscribers or new advertising, or something to justify the expenditure for this type of space to do business in?

Grant. —There are more arguments among professionals in industry than we have among the highway engineers. There is great diversity of practice, in other words.

Gardner. —Don't we have two kinds of money? The money that a man earns through his labors, and, then by reason of not having spent that money, the money that he puts in the bank as savings, or puts into corporations as an investment. Following that thought, we have been considering what private industry does. Are we on the same plane as private industry? Isn't private industry managing capital, the savings that you and I put in the bank above what we immediately need? I can't quite reconcile interest rates in view of the fact that we are buying in roads a perishable commodity just as we buy eggs, and we certainly wouldn't put an interest rate on the money that we spend for eggs. I would like clarification on that interpretation.

Grant. —It seems to me that the roads are more like the machine tools or the buildings of industry than they are like eggs, which are consumed quickly or they get rotten, unless they are refrigerated. We have been talking about 20-yr or 30-yr periods with regard to roads. With regard to investments in industry you may think of machinery in the industrial plant as having lives of 25 years not too different from the assumed lives of your highways. I don't see that the egg analogy is relevant.

Gardner. —If there is to be a road at my house, and I decide I want to do it with modern equipment so I will save some time and I go out and borrow money, I should be the one paying the interest on it. I can't quite reconcile this picture.

Grant. —As I take it, the economy study is to determine decisions among highway alternatives, where you are going to put this road, what kind of structure you are going to have, how big you are going to build this culvert, whether you will have a dirt surface or a gravel surface or a more permanent surface, what kind of interchange structures, if any, you are going to use, and what kind of traffic control devices to use. These are decisions among alternate capital investments. There is also a decision as to the general level of capital investments. These are what we are talking about.

Zettel. —We can also answer Mr. Gardner in terms of his analogy. If he built that road in front of his house, he figures he is going to use that house. But if he should sell that house he would expect compensation for the road too. You see you have made an investment that is not a dozen eggs but something that has added to the capital value of your home. The driveway to your garage is part of the whole investment in your house, it is a capital investment that has a life longer than the life of a dozen eggs.

Fritts. —What I have to say is that my point of interest does not necessarily go to the determination of whether route A or B or C in this particular complex is the thing to build because I think the decision belongs with the engineers. I think they ought to have the mechanics where they can calculate the value of the proposals. Our interest is a little broader than that. Our interest is in the necessity of saying to the people of America that there is economic justification of a highway system. I am not arguing with whether we divide it into three or four component parts which make a transportation system as a whole, but our big problem has been (and I am speaking now from the ASF point of view because we have worked with people all over the country) in trying to portray to the people of a given state what is a desirable highway plant for that state, divided into systems, if you will, because we logically divide it into systems for certain basic reasons.

The one big essential is to be able to say to the people that this system will provide this kind of service. What does this system produce for you? What does this produce for you in the return of various classes of benefits? The direct returns that we have been talking about today are very limited.

We talk about the economic studies. You put the value on time and operating costs, etc., but these items are minimal amounts of return to the people of the state. We have that problem today and we are having probably the biggest year in our history working with states, even in spite of the accelerated program. Our problem is to determine what the state ought to do in terms of its program. What should its future program be? How should we readjust that program to provide for the people in that given state a desirable economical highway plant? There are dislocations that come from the Federal highway program, dislocations in the allocation of revenue, and many other things. That is the cause for this re-examination of the whole highway program.

We need to set some economic guides which are not concerned about the route from A to C but are concerned about systems, about the economics of a highway plant itself in given categories. What do these mean to the people? What are the economics of this thing? And I for one will tell you that it is perfectly logical to separate economic evaluation of systems or of a system from financing. But the finance men pick it up from that point, have to back up against this economic analysis and say, "Well, the economy of the situation is such, therefore the tax should be such." The Automotive Safety Foundation for one doesn't go into the tax matter.

We have worked on the basic principle we stated this morning. The concept is, you separate the economics from the taxes and you separate it also from the finances.

Now, what I hope will come out of this conference is that we don't just get down to the business of moving a highway from this point five miles over to another point. We want to talk in a broader concept about what is the economic justification of improvement. How do you justify it in toto? What does it mean? What does it mean to you, to me and everybody else, as an individual highway user?

I am not going to discuss interest. I only know this, when you talk to the state legislatures they say, "What are you talking about, interest? You want us to borrow money?" We don't know. We say only that this is the kind of system of highways that will provide the service that is needed justifiably for your traffic. We don't get into interest at all. Generally speaking throughout this country (and even in the Federal Highway Act) what one can do is predicated on a system of highway taxation dedicated to highway purposes. There is no other tax in this country dedicated as the highway tax is.

So I think we need accepted principles of how do we support the highway program in this country, and not tie it to public utilities or anything else. Tie it to an accepted principle in this country that the highway situation is a situation in itself.

Pendleton. —Regarding the basic question of interest calculations and allowances in highway planning, I don't think Professor Grant was really suggesting that we who use the highways and pay for them necessarily pay an interest charge on the investment. He says, rather, that we should be sure that when our money is spent that it is spent in as productive a way as would provide not only a return of principal but also a rate of return, an interest rate. It is a distinction between the financing problem and the project formulation problem. We don't necessarily have to pay the interest but we ought at least to get the interest worth out of our highway investment.

Lang. —I certainly am in violent disagreement with Mr. Fritts and in complete and utter disagreement (and I was long before I ever came here) with Professor Grant and Mr. Zettel.

My principal quarrel with Mr. Fritts is, if I read his meaning correctly, that we might very well be trapped into building highways when in fact highways was not the best thing for us to be building. This is nothing more or less than what you are trying to get at when you include interest charges in your economic analysis.

The fact of the matter is that being more or less of a dyed-in-the-wool railroad man I have long suspected that our investment in highways might be a little more than it should be, and I think that a case can be made in this for specific instances although I am afraid in the aggregate I agree with Professor Grant in saying that if we actually analyzed the investment we are making in highway facilities we would find that the return was adequate to justify the expenditure.

Lindman. —If interest is included in the presentation of a program to the legislature, it is very confusing to say the least and the legislators ask what you are going to borrow money for. I would also say that when you allocate taxes among different taxpayers, they can't see any sense in having the interest charged in that computation.

So here are two applications which may not be—but I think under some considerations might be—called economic analyses. These particular analyses fall outside of the use of interest and amortization.

Do you think that the interest rate should vary from time to time when the Federal Reserve Bank changes its rate of interest?

What do you do when you get into an undeveloped country, for example Paraguay, where the interest rate was 4 percent a month for the commercial rate? It seems to me it distorts highway planning if you try to use such a high rate of interest for such a long term investment.

Grant. —Suppose AASHO, the state division of highways, or somebody reviewing highway needs, looked at prospective rates of return on proposed projects and said to the legislature—not using interest as a cost—"Here are these projects and we are sacrificing 12 percent return or a 15 percent return by not financing the projects." Could the

legislature understand this? I shouldn't be surprised if they could. This, is my general answer to both of you. I have met legislatures, too. They aren't so dumb.

The problem of the underdeveloped country is a tough one and of course you are in an entirely different league—just as you are in different leagues in industry and in government. You are in a different league in Paraguay and in the United States with regard to minimum attractive rates of return. But the situation in the underdeveloped country is not unlike the situation of the business enterprise that does not have enough capital.

I had a friend who went into a reasonably successful business. He needed more capital to put into it. He was, as small business men are, short of cash, so he said to me, "I can't make any investment unless it will pay for itself in three months." This was a very realistic viewpoint, this was capital rationing with a vengeance and this is what I think you have in underdeveloped countries.