IMPACT OF CHANGING CONDITIONS ON INTERNATIONAL RESORT RETURNS

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ABSTRACT

Financial returns to a proposed beach resort, including a model hotel, the hotel complex, and the entire project, are analyzed under changing conditions. Returns to hotels increase when the cost of debt decreases. However, when the cost of debt rises above the IRR, the use of debt will lower the returns. Changes in tourist forecasts affect the project ERR, but may not change the IRR for the hotel complex. To insure that both the state and private investors maintain an adequate return, the hotel trade-offs between equity financing and interest rates warrant investigation.

Keywords: Internal rate of return; economic rate of return; equity-financing; cost of debt.

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Introduction

International tourist resorts may be viable investments for some developing countries: they can assist in the long term development of the country and earn needed foreign exchange. Initiating the development of a resort complex requires government planning and encouragement in order to attract domestic and, especially, foreign hotel investors. Licenses, tax incentives and guarantees to hoteliers are essential. Heavy expenditures for infrastructure, primarily water, sewage, electricity, and roads, if not available, must be provided by the government. Analysis of financial returns to both the private sector and the state is essential to determine whether the project is acceptable.

The anticipated returns are based on projections of future costs and revenues. If circumstances cause these costs and revenues to change, the rate of return will also change. In this paper, the impact of changing conditions on the return to international resorts is demonstrated. Those problems which may arise during the developing stage and after construction which call for revised planning and changes in rates of return are discussed. Domestic political and economic upheaval, destruction of host values, and increased crime rates, exchange rate changes, and competition from alternative sites can stop or slow down resort development and the flow of tourists.

When the number of tourists initially forecast declines, the returns decline. This study investigates two alternatives: when owing to a decrease in the number of foreign tourists, fewer hotels are constructed; and when all hotels in the development plan are built, but the occupancy rate of each is significantly lower.

Model resort

The resort complex consists of hotels, restaurants, shops, and recreation and sport facilities, such as tennis, golf, horseback riding, pool and beach swimming, and other facilities. The potential market is middle-income sun/fun vacationers who want a two-weeks holiday package, including air fare, transfers, and two meals a day. The resort model used in this case study could apply to the Seychelles, Sri Lanka, Malaysia, and islands in the Caribbean as well South Pacific beach resorts. Although the data are realistic, the study does not describe a specific resort; rather, the objective is to show how rates of return on proposed new capital expenditures are sensitive to changing conditions.

In order to attract domestic and foreign private hotel investors, the government will spend $24,140,380 to build the required infrastructure: a water system, electricial power, communication systems, waste disposal, and roads. In addition, a personnel training program for hotels and restaurants is budgeted. These investments take place during the first four years of the undertaking which leaves government maintenance and operating expenditures for the remaining 30 years of the project. The government offers the usual incentives to

attract foreign investors, including tax free importation of construction material and machinery, tax relief on the purchase of local construction material, and an income tax holiday of ten years.

The hotels and associated clubs and recreational facilities will be financed and built by domestic and foreign investors. Private investment in hotel construction and other tourism facilities is estimated at $33,968,088. The average hotel construction costs (turnkey) are estimated at $11,697 per bed. Each of the nine beach hotels requires a two year construction period with the cost divided between the two years. Private investment is staggered over a nine year period, beginning in the third year.

Rates of return

Decisions by hotel investors are made on a variety of bases. Large investors use sophisticated quantitative analyses based on annual cash flows anticipated. Governments have available equally elaborate decision criteria. Payback, return on investment, benefit cost ratio, net present value, internal and economic rates of return, and other measures are used for evaluating potential capital investments. Although these techniques give valuable commercial measures of profitability, socioeconomic appraisals are needed when environmental and economic externalities are important. Adjustments, such as shadow pricing (imputing an economic instead of the nominal cost) add a public dimension to government analysis.[1]

Here the rate of return (IRR) and economic rate of return (ERR) are used for hotel and resort analyses. These calculations determine

the interest rates that equate the present values of the expected future cash flows to the initial cash outlays on investments. In the formula,

$$\sum_{t=0}^{n} \frac{R_t}{(1+i)^t} = 0,$$

R is the net cash flow and i is the internal rate of return or the economic rate of return.[2] The IRR usually applies to private capital investment while ERR which refers to an entire project generally includes both private and public benefits. Since this study does not compare alternative projects, problems of ranking do not occur.

Rates of return on the hotels and resort project involve 30-year revenue and cost assumptions. Recent government and business data concerning construction and operational hotel costs and information were collected from private and state economic planning units. Hotels estimated construction costs per bed as well as operating costs, occupancy rates, and tourist expenditures. The state forecasts the number of tourists, their expenditures outside the hotel complex, and tax revenues.

Resort hotel

Table 1 summarizes the sensitivity of the IRR on a model hotel to different equity/debt packages and interest rates.[3] The IRR on a standard 400 bed beach hotel was based on a seven month season with a first and second year occupancy rate of 60 percent and a long-term operating occupancy of 70 percent. The average tourist stays 14 days. Gross revenue per bed night was $32.18. Salvage is the value of the

original capital formation. Operating costs, calculated by a standard formula, were $11.74 the first year of operation, $10.74 the second, and then stabilized at $9.90 per bed night for the remaining 30 years of operation.[4] Hotel maintenance expenditures are part of operating costs.

[Table 1]

When total ownership equity is assumed, the hotel IRR is 20.6 percent. However, as the equity drops from 100 percent to 50, 30, and 10 percent with a 10.5 percent interest rate on debt, the return goes up by increasing percentages to 36.5 percent.

As Table 1 also shows, interest rate changes significantly alter the hotel's IRR. When the investors' carry a fifteen year loan on a 70 percent debt at an interest rate of 8.5 percent, the rate of return is 32.0 percent. An increase in the lending rate to 10.5 percent lowers the return to 28.9 percent. Continued interest rate increases lower returns to 17.0 percent at a 20.5 percent interest rate.

The question of trade-offs arises: an increase in the interest costs of 10 percent lowers the IRR by slightly more than 10 percent. The relationship is close to a 1 percent increase in the interest rate calls forth a 1 percent decline in the IRR. Whereas a 10 percent decrease in equity (with a 10.5 percent cost of debt) triggers a 2 to 4 percent increase in IRR. Thus, at the margin, decreasing equity by 10 percent would be beneficial as long as it doesn't involve a greater than, say 5 percent, increase in the interest rate. This trade-off is of particular concern since, other things equal, the cost of borrowing

Table 1. Sensitivity of hotel IRR

Changes in equity/debt mix[a]		Changes in cost of borrowing[b]	
Percent equity Owner	IRR	Interest rate	IRR
100	20.6	8.5	32.0
50	25.1	10.5	28.9
40	26.7	12.5	26.0
30	28.9	14.5	23.4
20	31.9	16.5	21.0
10	36.5	18.5	18.9
		20.5	17.0

[a]Interest rate set at 10.5 percent.

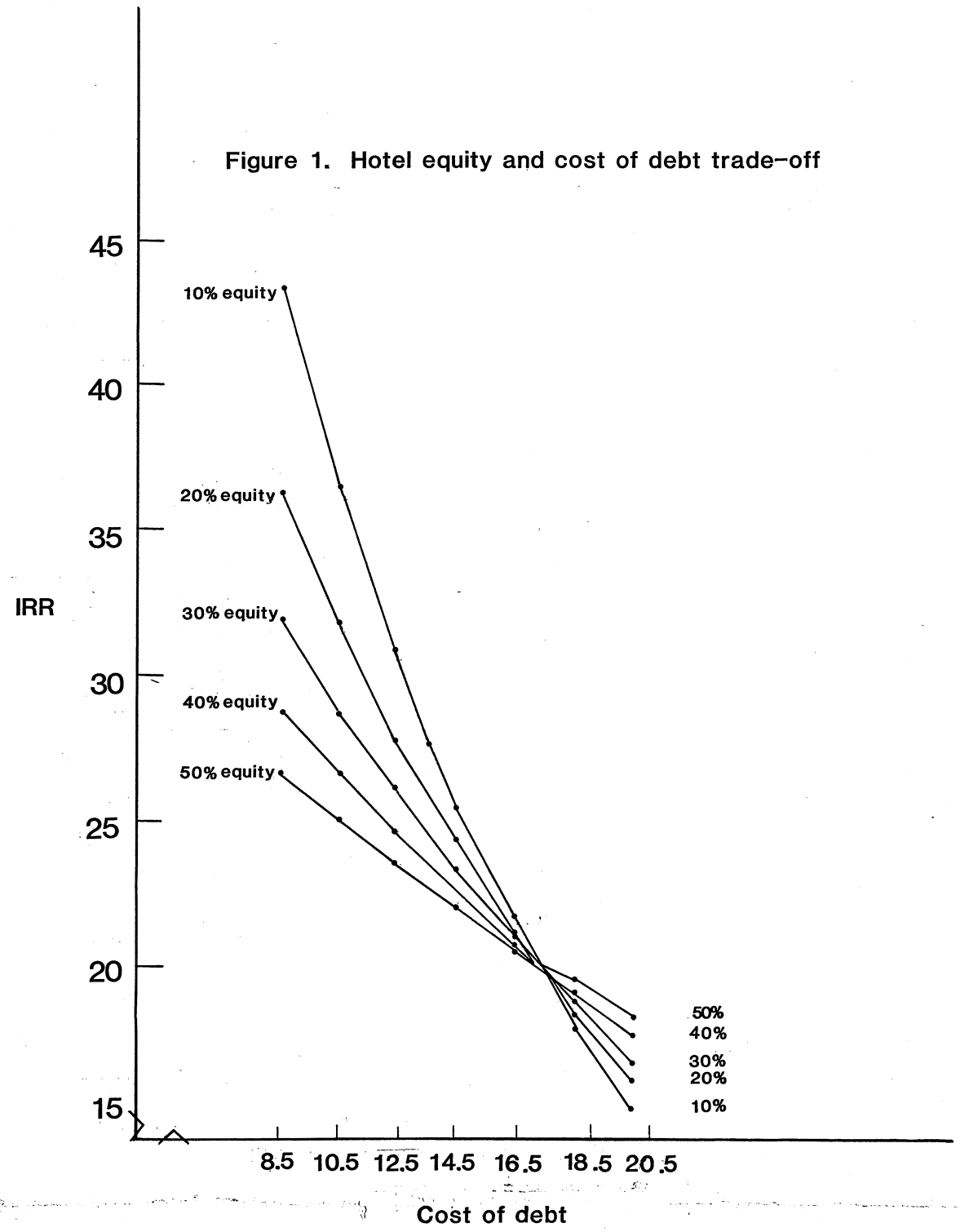
[b]Owner equity set a 30 percent, debt at 70 percent.

would be expected to increase as the debt-equity ratio increases. Lenders need to be compensated for the additional risk implied by the additional debt.

Understanding the relationship between equity and interest costs for a hotel is facilitated by Figure 1. Each line in Figure 1 is related to a given level of equity investment. Not unexpectedly, for each level of equity investment below 100 percent, the IRR declines as the cost of borrowed funds increases. The size of the impact of changing financing costs varies as debt as a percentage of total financing changes. The more important debt is, the greater the impact of a change in the cost of debt. At relatively low rates of interest, the more debt in the capital structure the higher the IRR. As the cost of borrowing increases, the advantage of debt over equity financing declines. Eventually, when the cost of debt rises above the IRR, the use of debt will cause the IRR to fall. The IRR-cost of debt lines intersect at approximately 17 percent. At any point to the left of 17 percent, the cost of debt is less than the IRR and leverage will be favorable. At any point to the right, the cost of debt will be greater than the IRR and the impact of leverage will be unfavorable.

[Figure 1]

Figure 1. Hotel equity and cost of debt trade-off



All resort hotels

Table 2 shows the sensitivity of the IRR of the hotel complex to changes in debt, cost of borrowing, and the number of tourists. The hotel complex net revenue, estimated at $13.17 per tourist per day, covers basic accommodations, restaurants and bars, and general items purchased in the hotel and its jurisdiction. Occupancy rates and salvage are similar to the one hotel case. When all the hotels are considered for 30 years, 13.6 percent is the IRR to total ownership equity. This rate increases when the equity decreases. The total change, however, from 100 to 10 percent equity is limited to an increase of 3.2 percent.

The impact on the IRR is dramatic when the interest rate increases from 8.5 percent to 20.5 percent on 70 percent fifteen year loans on the hotels. The return decreases from 18.5 to 5.7 percent--a rate drop of about 1 percent for an equivalent increase in the interest rate.

[Table 2]

Middle income vacationers from the Orient, South and North America, Scandinavia, Europe, and the United Kingdom looking for a moderate priced beach holiday represent the potential market for the resort. This group tends to be sensitive to changes in their level of income and in the cost of vacations. The estimated income elasticity for international tourists is around 1.5. While the estimated 2.0 price elasticity of sun/fun beach holidays means that visitors are highly sensitive to the price of competitive sites, exchange rates,

Table 2. Sensitivity of hotel complex IRR

Changes in equity/debt mix[a]		Changes in cost of borrowing[b]		Changes in number of tourists[c]	
Percent owner equity	IRR	Interest rate	IRR	Percent decrease	IRR
100	13.6	8.5	18.5	0	13.6
50	14.5	10.5	15.2	10	12.3
40	14.8	12.5	12.5	20	11.0
30	15.2	14.6	10.3	30	9.7
20	15.5	16.5	8.5	40	8.3
10	15.8	18.5	7.0	50	7.0
		20.5	5.7		

[a]Interest rate set at 10.5 percent.

[b]Based on 30 percent equity ownership.

[c]Total hotel complex private investment is not decreased.

and air fares.[5] Table 2 illustrates the drop in the hotel complex IRR if the number of tourists decreases from the initial projection by 10 to 50 percent. A close to 1 percent drop in the IRR is associated with a 10 percent drop in tourists. Thus, the tour package price set at $900 to $1200 must be competitive with comparable sun/fun spots to avoid serious declines in returns.

Total project

The project's economic return incorporates the cash flows to the hotel complexes, given above, and to the state. In this section the impact of changes in the tourists forecast and amount of construction on the economic rate of return are analyzed.

The net returns to the state include associated airport, utilities, general, and hotel tax revenue, minus capital and operating costs. State taxes claim 10 percent of the total tourist out-of-pocket expenditures estimated at $47.90 per day. State costs include capital and operating expenditures for the infrastructure and other tourist facilities including operation of the hotel training school and advertising. Government operating costs also include salaries to tourist police and maintenance expenditures for roads and other facilities which increase over the years.

The project's economic return is 8.5 percent when government and private capital investments are totally financed with domestic equity. Although not affecting state returns, the numerous combinations of equity/debt for private financing, lending cost, and occupancy rates affect the project's profitability.[6] For example, the 8.5 percent

return is affected by the manner in which the hotels finance capital expenditures. If the estimated $34 million private domestic financing involves only 30 percent equity and a 10.5 percent interest rate on the debt, the return increases to 14.1 percent. However, although decreases in equity and interest rates increase hotel profitability, and, therefore, the ERR, the return earned on government investment, per se, is not changed.

The impact of a long-term decrease in the number of tourists per season, with total equity capital construction by both the hotels and state, is shown in Table 3. A 50 percent decrease in the number of tourists planned lowers the return from the original 8.5 to 2.7 percent. However, if hotel construction is decreased by the same percentage as tourist volume, the initial 8.5 percent return falls to 4.3 percent with a 50 percent decrease in visitors.

The affect of the simultaneous decrease in bed and visitor targets falls on the government rather than the private investors since the hotels still operate at the same occupancy rates. The profitability of the hotels is not altered. The government's infrastructure, constructed during the first four years, represents fixed costs of the project. With the exception of some operating costs, government expenditures do not decline with the decrease of tourists.

[Table 3]

Several experimental computations based on economic concepts give interesting results and have a bearing on government decision making.

Table 3. Sensitivity of resort ERR

Changes in number of tourists[a]		Changes in number of tourists and hotel construction[a]	
Percent decrease	ERR	Percent decrease	ERR
0	8.5	0	8.5
10	7.1	10	7.4
20	6.0	20	6.8
30	5.0	30	6.1
40	3.8	40	5.3
50	2.7	50	4.3

[a]Both government and hotel capital investment is equity financed.

Since the host economy has a close to 25 percent unemployment rate, shadow pricing domestic labor costs involved in all capital expenditures and operating costs at an arbitrary 50 percent of nominal costs, raises the basic return from 8.5 to 11.6 percent. Even more striking, if the hotels are foreign owned and a 10 percent annual dividend is paid overseas as an expense of attracting private foreign funds, the ERR is 12.2 percent. This return represents only state earnings since foreign capital expenditures on the project are paid with dividends.

Summary and conclusions

The profitability of a proposed international beach resort is analyzed on three levels. Financial returns to a model hotel in the resort, the hotel complex, and the entire project provide information for both private and government decision-making. Returns to individual hotels increase from 20.6 to 28.9 percent when equity falls from 100 to 30 percent and interest is 10.5 percent. Changes in the IRR at different levels of equity are shown to be related to the cost of debt. However, as the cost of borrowing increases, debt financing becomes less desirable. When the interest rate is larger than the IRR, debt usage lowers the IRR. For the hotel complex, the IRR is 13.6 when all equity financing is used and rises to 15.2 percent with 30 percent equity and a 10.5 percent lending rate.

The ERR for the project is 8.5 percent with total equity ownership. Most of the project's cash inflows belong to the hotel owners. Clearly, the state must either justify the investment on

other than financial grounds or increase taxationto increase cash flows to the state. Yet, claiming an additional share of the tourist package because of the need for a competitive price, has to be carefully investigated. If prices cannot increase then the alternative is to claim a share of the revenue going to private investors. Although the hotel complex IRR would be lowered, the project ERR would remain the same with a larger portion going to the state. However, to insure that returns to private investors remain at a satisfactory level the trade-offs available between interest rates and equity levels offer a starting point to determine if revenue can be transferred to the public sector.

NOTES

*The College of Commerce and Business Administration of The University of Alabama awarded a 1982 research grant to assist in the computer processing facet of this project.

1. See United Nations, Guidelines for Project Evaluation (New York: United Nations, 1972), pp. 18-114.

2. The computer program used is available from the authors on request. The rates of return were calculated as follows:

$$\text{The function } F = \sum_{t=1}^{n} R(t) \,/\, (1 + i)^t, \text{ where}$$

R(t) is the cash flow for the t^{th} period, has its roots (i internal rate of return) evaluated by using the Regula Falsi method over an interval of [0,1] with increments equal to 1/10 * n years. It then prints out the number of roots found. The program calculates 'deviation of check from zero' by using the first root found as the final internal rate of return value:

$$\text{check} = \sum_{k=1}^{n} R(k) \,/\, (1 + i)^k \quad \text{(same as above function).}$$

The root (i) is multiplied by 100 to obtain the percentage value and the internal rate of return value is printed out. There are of course error checks (no roots, or invalid input) and the input data are printed out in tabular form.

3. Kenneth Marshall, Rugby, Warwickshire, United Kingdom, estimated some of the original rates of return.

4. The hotel operating costs include wages and salaries and supplemental labor expenses, maintenance, utilities, laundry and dry cleaning, insurance, taxes, and miscellaneous expenses.

5. See H. Peter Gray, "Towards on Economic Analysis of Tourism Policy," Social and Economic Studies, Vol. 23 (September 1974), pp. 386-97 and M. E. Bond and Jerry R. Ledman, "Tourism: A Strategy for Development," Nebraska Journal of Economics and Business, Vol. 2, No. 1, pp. 37-52.

6. The state's weighted residual was calculated as:

$$.585(.136) + .415(X) = .085$$

$$.080 + .415X = .085$$

$$.415X = .085 - .080$$

$$X = \frac{.005}{.415} = .012.$$