COST BENEFITS ANALYSIS FOR RETAILERS

Overview

As retail businesses become more complex, decisions need to be taken to adopt expansion strategies or to engage in projects designed to better differentiate the firm's brand. This will generally involve either the injection of new capital or the redistribution of existing funds. The evaluation process might involve considering different investment proposals and or alternative investment approaches. The adoption of Cost Benefit Analysis **(CBA)** techniques can provide the framework to evaluate and compare alternative proposals, thus aiding the decision-making process.

The fundamental method utilized in CBA, is to compare the inflow of monetary values generated by a project (the benefits), against the associated outflows of costs over the project's life. The net benefits over the life of the project would of course need to be positive. However economic efficiency statistics would be used to compare the expected performance of competing projects. These often provide different insights to traditional accounting measures.

Basic Concepts

A fundamental concept in economics is the measurement of opportunity costs. An opportunity cost is the potential cost of an action forgone when opting for an alternative action. The techniques used in CBA, help decision makers compare alternative actions and quantify the possibility of opportunity costs occurring should the least optimum action be chosen.

CBA does not directly use the profit measurement method used in accounting but focuses on the movement of funds over the life of the project and in particular the timing of the funds movements. The initial capital invested is introduced in total at time period 0, and the return of any capital, at the end of the project's life cycle. Similarly, the income and operating cost flows are introduced at the time of occurrence. In other words, accrual accounting is not utilized at any stage other than to calculate periodic income tax payments. The objective being to calculate the Net Present Value **(NPV)**[i] of the cash flows.

An axiom used in this analysis is that a dollar now has a different value to one that exists in the future. Generally, the future dollar will be discounted relative to a current dollar.

The CBA approach provides a framework in which the NPV of each discrete cash flow, at each point of time in the future, is discounted, and aggregated to determine total current NPV for all outflows and inflows. A discount rate is chosen on which to estimate the NPV. There will be a discount rate at which the net sum of all present values of both positive and negative values will equal zero. This could be regarded as the NPV breakeven level. Usually, only projects with positive NPV's would be considered and generally a discount rate is chosen to yield a minimum acceptable NPV.

The other measure often used is the Internal Rate of Return (**IRR**)[ii] ratio. In this case the IRR is the discount rate that yields an NPV of zero.

To demonstrate the CBA approach, the following Case Study provides an example where alternative investment proposals are evaluated and compared in a Retail Industry context.

Case Study 1

A retailer is considering opening an additional store in either of two similar shopping centres. The project term is eight years which corresponds to the duration of the leases on offer. It is calculated that if an additional store is added to the existing chain, no additional head office operating costs will be incurred. The site on offer in Centre A is 100sqm and the other in Centre B, 150sqm. The turnover level and product mix is calculated for each store based on the floor areas utilised in similar sized existing stores in other centres of similar demographics. All estimates exclude GST.

The project estimates are analysed in the following CBA spreadsheet models. The store fit outs have zero scrap value at the end of the leases. The full value of working capital is to be returned at the end of the leases. The project funding is sourced internally.

New Shop in Centre A											
$'000			< ---------- Project Time Frame ---------->								
			0	1	2	3	4	5	6	7	8	Totals
Benefits												
	Gross Profit			150	150	160	160	170	180	190	200	1,360
	Working Capital Returned							-			360	360
Total Inflows				150	150	160	160	170	180	190	560	1,720
Costs												
	Fitout Costs		400									400
	Working Capital Required		300			10	10	10	10	10	10	360
	Operating Costs			45	45	48	48	51	54	57	60	408
Total Outflows			700	45	45	58	58	61	64	67	70	1,168
Company Tax				17	32	34	34	36	38	40	42	271
Net Benefit			-700	89	74	68	68	73	78	83	448	281
	@	NPV										
NPV	3.5%	106										
	4.0%	85										
	5.0%	44										
	6.0%	7										
	7.0%	-28										
IRR		6.2%										

New Shop in Centre B											
			< ---------- Project Time Frame ---------->								
			0	1	2	3	4	5	6	7	8	Totals
Benefits												
	Gross Profit			225	225	240	272	289	306	323	340	2,220
	Working Capital Returned							-			660	660
Total Inflows				225	225	240	272	289	306	323	1,000	2,880
Costs												
	Fitout Costs		700									700
	Working Capital Required		600			10	10	10	10	10	10	660
	Operating Costs			68	68	72	82	87	92	97	102	666
Total Outflows			1,300	68	68	82	92	97	102	107	112	2,026
Company Tax				21	47	50	57	61	64	68	71	440
Net Benefit			-1,300	137	110	108	123	132	140	148	817	414
	@	NPV										
NPV	3.5%	101										
	4.0%	62										
	5.0%	-10										
	6.0%	-77										
	7.0%	-140										
IRR		4.9%										

Alterative with Fixed Interest Return			< ---------- Project Time Frame ---------->									
Interest Rate		9.0%	0	1	2	3	4	5	6	7	8	Totals
Benefits												
	Interest Received			90	90	90	90	90	90	90	90	720
	Investment Returned							-			1,000	1,000
Total Inflows				90	90	90	90	90	90	90	1,090	1,720
Costs												
	Capital Invested		1,000									1,000
												-
												-
Total Outflows			1,000	-	-	-	-	-	-	-	-	1,000
Company Tax				26	27	27	27	27	27	27	27	215
Net Benefit			-1,000	64	63	63	63	63	63	63	1,063	505
	@	NPV										
NPV	3.5%	193										
	4.0%	156										
	5.0%	85										
	6.0%	20										
	7.0%	-41										
IRR		6.3%										

The results indicate that of the two store alternatives, store A delivers an IRR of 6.2% compared to 4.9% for store B. Although store B delivers a higher cash flow in nominal terms, the smaller store utilizes the funds invested more efficiently in real terms. An opportunity cost would be incurred by proceeding with store B instead of store A.

To benchmark the relative returns from either option, a comparison is made against investing the available funds in an interest-bearing deposit (IBD). An interest rate of 9% would be required to match the IRR rate obtained from store A. The average 8 year, IBD rate (August 23) is 4% to 5%.

It should be noted that the level of risk should be considered when making any investment decision. Each proposal has a risk rating to be considered. Funds invested in a fixed term IBD would have a very low probability of failure. The proposals to invest in a new shop would no doubt have a much higher risk rating and some form of sensitivity analysis should be undertaken.

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[i] The following formular can be used to describe the NPV calculation.

$$NPV = \sum_{t-1}^{T} \frac{C_t}{(1+r)^t} - C_0$$

where T is the number of discrete time periods and at each time period t-1, the Cash flow C_t for that time period, is reduced by discount factor 1+r. The sum of these future discounted cash flows is reduced by the initial project cash out lay C_0, at time period 0.

[ii] The following formular for IRR is similar for NPV except it calculates a discount rate that produces an NPV of zero.

$$0 = NPV = \sum_{t=1}^{T} \frac{C_t}{(1+IRR)^t} - C_0$$