8.5.5 The cost and benefits of risk control

The simplest financial model of any organisation is

$$R - C = \frac{P}{L}$$

where

R   =   revenue
C   =   costs
P/L =   profit or loss

This equation shows the interdependence between revenue, costs and profit or loss.

Since one corporate objective should be to increase profitability, it is obvious that this can only be achieved by increasing revenue, reducing costs or both. More often than not, competitive pressures or consumer resistance prevent a firm from raising its revenue by increasing sales or prices, and hence the only way to maximise profits is by minimising costs. Management often view the cost of risk control in this light.

How can the economic viability of spending capital on risk control be justified? The solution to the problem lies in the quantification of the effect of risk control on potential losses so that a benefit to cost analysis on the risk control expenditure can be produced. By calculating the ratio:

benefit: cost of risk control

for each risk control measure and comparing this with ratios relative to other capital projects, a priority list may be established showing how, where and when the available capital should be employed. Without an approach such as this management will have to rely solely on their subjective judgement.

One standard approach that management can use for capital expenditure is to measure the viability of the investment in terms of the return on investment:

$$ROI = \frac{Income}{Capital\ invested} \times \frac{100}{1}$$

If this ratio exceeds a certain percentage, say, 18 percent (the so-called "cost of capital"), the investment is regarded in a favourable light. In the risk management context, the term "income" or "benefit" refers to effective income, that is, the amount of money saved by implementing risk control.

Effective income = expected loss before risk control 7 expected loss after risk control

In the aforementioned equation expected losses consist of

● uninsured losses arising from risks for which no insurance is available
● those losses which the enterprise has chosen to bear
● losses attributable to exposures of which there was no prior knowledge
● compulsory or voluntary deductibles under insurance policies
● losses suffered as the result of underinsurance and subsequent application of average

One can determine the rate of return, by quantifying the loss and determining what the effective income would have been if this loss had been prevented because a risk control technique had been adopted. This will serve as a means of ranking the various risk control recommendations in order of importance, thereby assisting management in their decision making on risk control expenditure. The process is called decision making under uncertainty since it involves the uncertainty of whether a loss will occur, and if it does, how large it will be.

The criterion then, is to determine expected loss. If a company suffers a fire every three years and the loss amounts to approximately R90 000, one could say that it suffers a loss of R30 000 per year.

Mathematically, this could be set out as follows:

Expected annual loss = probability of loss x magnitude of loss
= $\frac{1}{3}$ x R90 000
= 0,3 x R90 000
= R30 000

According to probability theory, it means that the likelihood of a loss of R90 000 occurring during the financial year is 0,33. For the purposes of argument, the probability that a loss of R30 000 will occur during the financial year is thus 1,0 (or 100%).

Likewise, if a company suffers a loss every five years and the average value of the losses is R100 000, the probability that it will suffer a loss of R100 000 during the financial year is one in five or $\frac{1}{5}$ = 0,2.

Expected annual loss = 0,2 x R100 000
= R20 000

Theoretically, again there is a 100 percent chance that the firm will lose R20 000 this year.

Given that the risk control capital expenditure to prevent this loss from occurring equals R100 000 and that the loss is thereby converted into an effective income of R20 000, the ROI can be calculated as follows:

$$\text{ROI} = \frac{\text{R20 000}}{\text{R100 000}} \times \frac{100}{1}$$

= 20%

Under normal circumstances, an enterprise will expect a minimum ROI comparable to commercially available interest rates, so that by using probabilities to determine expected loss, a powerful motivation factor for risk control is being introduced. The application of probabilities will often yield entirely different and better decisions.