

Investment basis IX

# The use of comprehensive cash flow analysis as a basis for risk measurement and determination of debt capacity.

The problem of deciding whether it is prudent and proper for a business corporation to finance long-term capital needs through debt, and, if so, how much, is one which management needs to resolve at one time or another. Decisions concerning the financing mix may properly be regarded as the central problem of finance; of critical importance because of its potential impact on margins of profitability and solvency. For all companies, however large and financially sound they may be, the decision is one to be taken with great care.

### Critical issues surrounding debt employment

It is beyond the scope of this article to give an appraisal of the debate that has developed about the existence of a desired level of debt viz-a-viz equity finance that gives rise to an optimal financial structure. In the light of the very 'practical nature' of firms' approaches to suppliers of long-term debt capital to finance growth/operations, such a discussion could be seen as too academic. Suffice it to say that, given the present-day tax considerations, the employment of debt levers rates of return earned on equity over the returns available on assets. This, of course, presupposes that the return on assets exceeds the cost of debt. Nevertheless, the advantage of financial leverage must not be viewed in isolation. The introduction of debt places onto already risky profits (business uncertainty) a fixed and prior charge. The need to meet fixed interest payments out of the firm's uncertain cash flows from operating may increase the variability (financial risk) of the residual earnings accruing to shareholders. In short, the problem of the debt decision is a trade-off of higher prospective income to shareholders against greater chance of loss.

### Financial risk restated

When the word 'risk' is applied to debt, the precise meaning is not always clear. It may refer to a variety of potential penalties. Fundamentally, as far as debt is concerned, risk is the chance of running out of cash. It is, however, the ultimate hazard of running out of cash to the extent that firms default on legal contracts which lurks in the background of every debt decision. In such situations bankruptcy occurs and normal operations cease.

One may choose to use the term "cash inadequacy" to refer to the problems involving the inability to make cash payments for any purpose important to the long-term financial health of the business; and "cash insolvency" in the extreme case of cash inadequacy. It should be emphasized that although debt necessarily increases the chances of cash inadequacy, the risk exists whether the firm has any debt or not. The debt-equity and debt capacity decision does not revolve around the assumption of some or no risk at all; rather it concerns the degree of risk taken.

### Conventional approaches to determining a firm's debt capacity and their limitations

Present-day business practice suggests that concepts of

debt capacity are drawn from one or more of several sources. These may include seeking the counsel of institutional lenders, following the practices of the past, or simply referring to "common knowledge" and "general practice". Without denying the practical significance of some of these considerations, one must recognise the limitations in using them as the only guides to appropriate debt capacity.

Seeking outside counsel is tantamount to equating the risk to borrower, to that of lender. Yet, the standards of one are not necessarily appropriate to the other.

Adherence to the observed practices of comparable businesses possibly guarantees no more than the avoidance of being atypical in so far as capital structure is concerned.

Traditionally, the firm's debt capacity and ability to repay has been measured in terms of balance sheet relationships and income statement data.

### Figure 1 Conventional debt ratios

- (i) Debt ratio: 
$$\frac{\text{Total debt}}{\text{Total assets}}$$
- (ii) Long-term debt to total capitalization: 
$$\frac{\text{long-term debt}}{\text{long-term debt} + \text{preference stock} + \text{ordinary stock}}$$
- (iii) Times interest earned: 
$$\frac{\text{profit before taxes} + \text{interest charges}}{\text{interest charges}}$$

Debt capacity is commonly expressed in terms of long-term debt/total of all long-term sources (total capitalisation), or long-term debt/total assets; 'times interest earned' or the ratio of net income available for debt servicing to the total amount of annual interest, expresses the limits of long-term borrowing. The more obvious weaknesses of these relationships should be borne in mind:

- there may be substantial changes in asset values, particularly as regards stock valuation and depreciation policies translating into changes in the debt to total assets ratio which have no bearing on the capacity to meet fixed cash drains.
- the net earnings figure found in the income statement is not necessarily akin to net cash inflow - an assumption which is implicit in the times interest earned ratio.
- the question of what the proper ratio is between earnings and debt servicing is problematic. Rather than measure risk it would seem to reflect the borrower's attitude toward risk bearing.

### A more useful approach

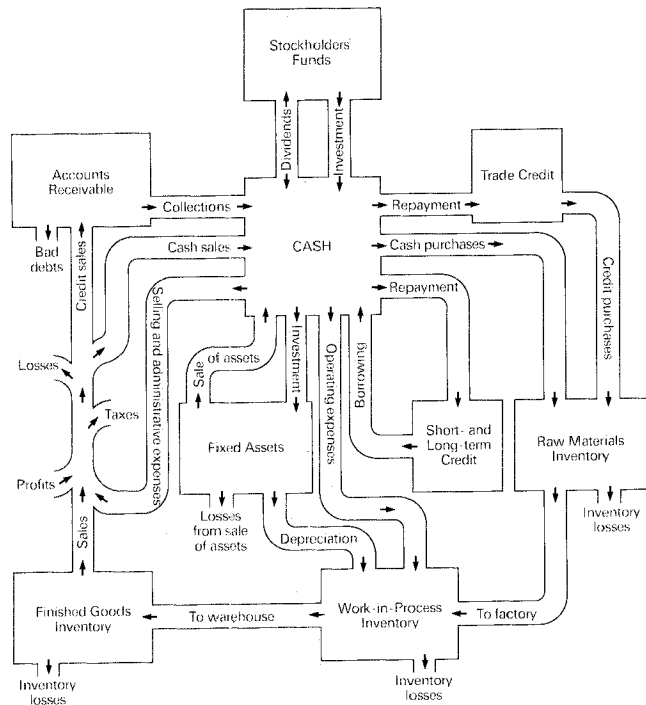
As stated earlier, the basic question in the appraisal of the magnitude of risk associated with long-term debt can be stated as: What are the chances of the business running out of cash in the foreseeable future? Moreover, considering the problem from the viewpoint of a normally profitable

and reasonably well managed company, it is fair to say that the primary concern is with what might happen during a general recession when demand and, hence, profits are depressed.

The approach must therefore concern itself not with balance sheet or income statement ratios but directly with the factors influencing levels of cash inflow and outflow.

There are a number of different approaches to cash analysis. At the outset, it is important to identify the primary factors which produce major changes in cash flow. In particular, those that produce contractions in cash flow. The most significant factor will be sales volume. Other factors include cash expenditures for raw materials, the working relationship between finished goods on hand, work in progress and raw materials ordering, etc.

**Figure 2**  
Complete cash flow of a hypothetical manufacturing firm



(Adapted from Techniques of Financial Analysis, 3rd edition Homewood 111 Richard D. Irwin, Inc., 1972)

Given the factors affecting cash flow, the next step is to observe their behaviour over time and in particular during conditions of depressed demand. Probably past experience will suggest a range of recession behaviour. Translating this in terms of the minimum rands of net inflow (or maximum rands of net outflow), period by period, it is possible to determine whether the company would become insolvent under such adverse conditions and, if so, how soon and by how much. This calculation will, in itself, give management some 'feel' for the nearness or remoteness of the event of cash insolvency. Should the company, even under adverse assumptions, still have a positive cash balance, this amount could be decided upon to represent the total amount of incremental fixed cash charges which the company could rely upon. Furthermore, given the nature and terms of a debt contract, the figure could be translated into the principal amount of additional debt the firm could assume with safety.

### Problems to overcome

The relative simplicity suggested in this analysis is not intended to hide or avoid the complexities one encounters in practice. This analysis requires the guidance of someone well acquainted in financial analysis in order to steer the study of cash flows around potential pitfalls. The problems centre mainly on the accurate description of adjustment patterns of cash flows over time and the assessment of interdependence of factors affecting cash flows. Also, past slump periods may not have provided enough experience of the behaviour of sales, inventory levels, patterns of debtors' payments, etc. on which to base firm estimates of future behaviour.

Nevertheless, the criterion is derived entirely from within and is neither of external judgement or rules of thumb. In this respect it is both meaningful and useful in practice.

### References

Donaldson, G. 'New Framework for Corporate Debt Policy', H.B.R. March-April 1962