INTERNATIONAL PROJECT FINANCE   **PROF G A WALKER**

(3)   Project Viability and Financial Ratios

It is essential that the initial project appraisal is carried out effectively in light of the high degrees of risk and limited recourse available. The lenders must ensure that the project is viable before proceeding. The ability of the borrower to repay and underlying credit and repayment risk depends on the projected income stream which, in turn, is dependent on the commercial and economic success of the project as a whole. The appraisal also includes a project cash flow analysis based on projected cash outflows and cash inflows[1].

The separate stages in a typical project cycle have already been referred to[2]. These include project identification, preparation, appraisal, negotiation, implementation and possibly post-project evaluation[3]. Project appraisal and financial viability are principally conducted on the basis of the projected financial statements made available to the banks and their financial analysis conducted on the basis of the financial ratios commonly used in such financings.

Annual projected financial statements are prepared for the proposed life of the project using common financial ratios. The three principal sets of financial statements are the projected income statement[4], balance sheet[5] and cash flow statement[6]. The main financial ratios used include:

(a)   Liquidity ratios (including current ratio[7] and quick or acid test ratio[8]);

(b)   Leverage ratios (including debt-to-total assets ratio (debt ratio)[9], debt to equity ratio[10], interest coverage ratio[11] and debt service coverage ratio[12]);

(c)   Activity ratios (including inventory turnover ratio[13], average collection period[14] and total assets turnover[15]);

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[1]

[2]   Sub-section

[3]   Buljevich and Park (n) 133.

[4]   Income statement projections are based on revenues from projected sales volumes and projected unit prices. Projected cost of goods sold is estimated from projections of production volume, raw material and overhead costs and labour costs. A projected depreciation and amortisation schedule is also used with projected interest expenses based on the disbursement schedule, grace period, amortisation schedule, interest rates and fees set out in the financial agreement. Buljevich and Park (n) 132-141.

[5]   The projected balance sheet is calculated from the projected income statement and projected cash flow statement. This incorporates figures with regard to projected current assets, projected accounts receivable, projected inventory, projected fixed assets, long-term debt and paid-in capital.

[6]   Projected cash flow is based on cash flows from operations (using projected net income, depreciation and amortisation and deferred income tax), financing activities and investment activities.

[7]   The current ratio is based on current assets (cash, marketable securities, accounts receivable, inventories and short-term pre-paid expenses) divided by current liabilities (accounts payable, short-term notes payable, long-term debt maturing within one year, accrued income taxes and other accrued expenses including wages). The current ratio is used to assess short-term solvency as it reveals inability to cover immediate accounts payable. Ratios should be high without leading to excess working capital including cash or inventory.

[8]   The quick or acid test ratio is calculated on the basis of current assets less inventory and pre-paid expenses divided by current liabilities. This simply removes non-realisable elements from the assets in the current ratio.

[9]   The debt ratio is used to measure the degree of financing provided by creditors. Creditors prefer low debt ratios and equity investors high debt ratios.

[10]   The debt to equity ratio is total debt divided by equity or D/E. This confirms the degree of equity capital against debt capital for funding purposes.

[11]   The interest coverage ratio (or times interest earned ratio (TIE)) is earnings before interest and taxes (EBIT) divided interest expenses..

[12]   The debt service coverage ratio represents earnings before interest and taxes plus depreciation and amortisation expenses (EBITDA) divided by debt service payments. This measures gross internal cash generation within the project company.

[13]   The inventory turnover ratio (or utilisation ratio) is calculated on the basis of the sales or costs of goods sold divided by inventory (or average inventory). Efficient inventory use is shown by a higher ratio although excessively high figures may lead to inventory shortages and delivery delays.

[14]   The average collection period (ACP) is accounts receivable divided by average daily sales revenues which represents collection efficiency.

[15]   Total assets turnover is sales revenue divided by total assets which reflects efficiency of asset utilisation. Separate fixed assets turnover ratios may be used.

(d)   Profitability ratios (including basic earning power ratio[16], net profit margin[17],operating profit margin[18], return on assets[19], return on equity[20] and earnings per share); and

(e)   Market ratios (including price earnings ratio[21] and market price to book value ratio[22]).

Three principal techniques are also used to appraise the project's cash flows:

(a)   Net present value (NPV)[23];

(b)   Internal rate of return (IRR)[24];

(c)   Modified IRR (MIRR)[25].

These calculations are nevertheless still only based on projected data and set assumptions. Further techniques are then used to assess uncertainty or uncertainty risk within a specific project's possible performance range. This parallels the techniques used for market risk analysis under international and European capital adequacy standards[26]. The main methods consist of:

(a)   Sensitivity analysis[27];

(b)   Scenario analysis[28]; and

(c)   Monte Carlo simulation[29].

The objective of using all of this projected financial information and analysis technique is to assess the financial viability and consequent profitability of a particular projects. Banks will use this with an assessment of all of the other project risks involved to determine whether and to what extent they will support the project.

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[16]   The basic earning power ratio is operating income divided by total assets which is used to compare earning power under different tax models and with different leverage.

[17]   Net profit margin ratio (or profit margin) is net income divided by sales revenue.

[18]   Operating profit margin ratio is operating income divided by sales revenues.

[19]   Return on assets (RAO) ratio is net income divided by total assets which combines the key figures set out in the income statement (net profit) and the balance sheet (total assets).

[20]   Return on equity (ROE) ratio is net income available to shareholders divided by equity. This represents the rate of return on investment although it is also affected by the degree of leverage involved.

[21]   The price earnings (P/E) ratio is market price per share divided by earnings per share which reflects expected project performance. High P/E ratios reflect positive expectations and low P/Es negative expectations..

[22]   The market price to book value ratio (market-book ratio) is the total number of shares times market price divided by net worth which also corresponds with investor expectation in project performance.

[23]   The NPV is the sum of present values of net annual project cash flows discounted by discount rate calculated on the basis of the company's weighted average cost of capital. Viable projects have a positive NPV although this does not fully reflect projects costs or the investment scale factor.

[24]   The IRR is the discount rate that makes the NPV equal to zero. Viable projects have an IRR greater than the weighted average cost of capital or discount rate.

[25]   As the IRR is only a mathematically produced figure, the modified IRR (MIRR) is used using the discount rate and assumed reinvestment of earnings in the project. This can provide a more accurate assessment of viability over the life the project.

[26]   Walker, *International Banking Regulation Law, Policy and Practice* (Kluwer Law London 2001) ch.

[27]   The projected NPV, IRR and MIRR are recalculated using lower estimated figures with regard to such key variables as project cost, unit price and sales volume.

[28]   Three sets of NPV, IRR and MIRR are calculated to provide a worst, best and average projected scenarios.

[29]   A more complete risk profile is developed using different variable assumptions with their estimated probability of occurrence.