ESTIMATING CASH FLOWS FROM A PROJECT

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Abstract:
In this article I tried to point the steps to follow to estimate the Income Statement, and the Balance Sheet, how to roll the Income Statement into a Cash Flow Statement and how to use this information to make the decision.

Key words: *Income Statement, Balance Sheet, Cash Flow Statement, corporate income*

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1. Estimating the Income Statement

The income of a business is the revenue, minus the expenses. The main sources of revenue for most business are the sales of goods and services. Also included in revenue is investment income such as interest, rent, and so on. Companies may also receive revenue in the form of payments under licensing agreements or royalties for the use of their inventions or other creations. To arrive at ordinary income, expenses are subtracted from revenue. A typical income statement may look as follows:

+ Revenues
- Cost of goods sold
- Selling and administrative expenses
- Bad debt expense
- Wages, salaries and employee benefits
- Repairs
- Rent expense
- Property taxes and other non income taxes paid
- Interest expense
- Depreciation expense (recognition of wearing out of fixed assets)
- Lease payment
= Taxable income
- Income tax
= After tax income

Incremental revenues are recorded as positive numbers because they are assumed to be cash inflows, and expenses are recorded as negative numbers because they require cash payment and are therefore cash outflows.

Most business and all publicly traded corporations keep their books on an accrual rather than a cash basis. A cash basis recognized or made. Under accrual accounting, revenue and expense are recognized in the period in which they constructively occur, whether or not payment occurs during that period.

For example, an accrual-basis taxpayer will generally recognize revenue from a sale when title is passed, even if payment is not actually received for months.

With the accrual method, some expenditures are deemed costs in the period in which they occur and other expenditures are deemed to be asset acquisition is considered to be an investment in inventory assets, not an expense. The cost of inventory is sold. When an asset like a building or piece of machinery is acquired, the purchase itself is the

acquisition of an asset, not an expense. The wearing out of the asset is recognized as a series of depreciation expenses over the life of the asset.

2. Estimating the Balance Sheet

Most projects have an acquisition stage, an operating stage and a disposition stage, and throughout these phases these projects affect both the balance sheet and the income statement. During the acquisition stage land is purchased, buildings are built, machines are installed, employees are trained, inventory is accumulated and advertising is spent. The building, land, machines and inventory are all first placed on the balance sheet as assets. As time passes, these buildings and machines are written off by recognizing yearly depreciation expense on the income statement. Training and advertising are recognized as expenses at the time these activities occur, resulting in a tax savings to the extent of marginal tax rate of the organization.

In the first few days of operation, operating cash is needed to pay bills or transact business, credit is extended to customers, inventory is sold and replaced, credit is granted by suppliers and employees perform services for which they are not yet paid. The extension of credit to the customers is recorded on the balance sheet as accounts receivable. The inventory purchased is placed into inventory on the balance sheet, while the inventory sold is recorded as a cost of goods sold expense on the income statement. The credit granted by the suppliers is recorded as an accounts payable on the balance sheet. The credit extended by the employees is recorded as an accrued expense on the balance sheet.

If all goes well in the first few years of operation, cash balance as sales increase and the firm grows. All of these increases will cause more cash to be tied up in working capital. As an offset, credit balances owed to suppliers (accounts payable) and employees (accrued expenses) will also increase and offset some of the working capital needs.

3. Rolling the Income Statement and Balance Sheet into a Cash Flow Statement

Accounts Receivable

Credit sales are an example of an item that is recognized as revenue at the time of sale using the accrual basis of accounting but as a change in the accounts receivable balance on the cash flow statement. In the normal course of business, we extend credit to our customers for collection at some later date. As some customers pay, others are receiving credit. The net effect is that credit is extended at the beginning of the project's life (year 0) and as sales grow, more credit is extended. These credit balances are not liquidated until the disposition stage of the project's life.

Since taxes are calculated based on the accrual accounting definition of revenue for most business, we typically include all incremental sales or revenues in the projected income statement and then adjust for the extension of credit as a line item in the cash flow statement.

The easiest way to measure the incremental extension of credit in a period is to look at the change in the accounts receivable balances are increasing, then sales are being recognized in the income statement but cash is not being received. In reverse fashion, if accounts receivable balances are decreasing, then more cash is being received than is shown in the revenue numbers.

Inventory

When a Super-Centre opens, often the $10.000.000 worth of inventory inside the store is worth more than the land, building and shelving combined. Add this to all the inventory at the supporting warehouse and the cash invested in inventory accumulates to balances that are quite meaningful in a typical net present value analysis.

As with accounts receivable balances, the inventory investment is usually made in advance of a store's opening or the placing of an asset into service. This investment is commonly recorded as a year 0 (the first day of the project) investment. As the operation expands, additional inventory will be necessary to support the larger operation.

Over time, inventory can suffer holding losses due to obsolescence, theft, destruction, or many other reasons. These holding losses, if material, should be estimated and deducted from estimated benefits (revenues) of the project. Under current tax law, these losses are fully tax deductible.

Prepaid Expenses

Prepaid expenses are expenses that are paid before the period of their use. Suppose that an insurance premium covering the next 2 years is paid in advance on January 1, year 1. Half of the payment is recognized as an expense in year 1, and half is recognized as an expense in year 2. On the year 1 balance sheet, the amount applicable to year 2 is an asset called prepaid expense. In the disposition year, prepaid expenses are usually projected to be fully recovered with no associated losses.

Cash Balances

Most, but not all, new projects will involve the need for some cash balance to transact business. For example, McDonald's adds a new outlet and on the first day that the doors open for business, the establishment must have enough cash in the register to make change for the level of purchases projected for the day. For simplicity's sake, we assume that the initial cash balance needed to operate through the first year is needed at the beginning of the project and would there-fore be a year 0 cash flow. As the business grows in outlets or as sales increase in dollars, cash balance increases must be estimated.

Accounts Payable and Accrued Expenses

Accounts payable result when an asset is acquired on credit and payment for the assets follows. When inventory is purchased on credit, the inventory itself is treated as an asset, and the amount awed is treated as an account payable.

Wages and many other expenses are not paid on a daily basis. These expenses are often recognized for accrual income purposes in the period in which they are incurred, even if they are actually paid for with cash in a different period. When these expenses are recorded but not paid, an accrued expense is shown on the balance sheet until payment is made. As with accounts payable, this delaying of the payment is considered a source of cash or a positive number in calculating the estimated after tax cash flow on the projected cash flow statement.

4. Conclusions

To estimate the cash flow from a project you need to :

- Estimating the Income statement

1. Estimate the relevant revenues and/or expenses you expect to receive from the project

2. Assemble these revenues and expenses into a preliminary income statement making an appropriate calculation of the after tax income.

- Estimating Balance Sheet

3. Determine all of the balance sheet accounts that ate impacted by the project
4. Estimate the initial size of the investment in these balance sheet accounts. In particular, estimate is incremental investment in fixed assets, such as buildings and equipment, and in working capital items, such as cash balances, accounts receivable, inventory, accounts payable and accrued expenses
5. Determine size and growth of these accounts after the project is operational.

- Roll the Income Statement and Balance Sheet into a Cash Statement

6. calculate the depreciation change flowing from the fixed assets on the balance sheet to the income statement
7. Estimate the life of the project
8. Determine the terminal values for fixed assets and the disposition values of working capital
9. Roll all of this information together into a projected cash flow statement

- Making the Decision

10. Calculate the net present value of the project using the appropriate discount rate
11. Make the appropriate accept or reject decision.

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