

1 CASH FLOW ANALYSIS

1.1 Introduction

For a further discussion on cash flow, please refer to the guide to financial statements in the Learning Centre.

The key to cashflow analysis is recognition of cashflow, not income recognition using accrual accounting. An analyst can construct a cash flow statement from the profit and loss and balance sheets of a company (fortunately the accountants normally do the work for us!). Using our knowledge of simple accounting, we can remove the effects of accrual accounting and show the true cashflow of the company.

One element we must remember is the difference between a debit and a credit.

For a balance sheet item, an asset increase is a Debit
a liability increase is a Credit

On the profit and loss, a income item (e.g. sales) is a Credit
a charge or expense is a Debit.

Consider a credit sale: i.e. a £100 sale to a customer who contracts to pay, say, 60 days after receiving the goods. In accrual accounting, the sale is recognised at the time the invoice is raised. The sales account is credited £100 and debtors are debited the same amount. On payment from the customer, debtors are credited £100, and the cash account debited £100. For a credit sale transaction, cash is not collected when the sale is recognised; the contra entry is to a balance sheet item i.e. to debtors. Cash is collected: i.e when the customer pays, the first entry is to debit cash, the contra is to credit debtors. For a cash sale, as sales are credited, cash is debited.

During a year, a company may have many credit and cash transactions. At the year-end, it may show the following information:

Balance Sheet at beginning of the year	–	Debtors £10,000
Balance sheet at the end of the year	–	Debtors £40,000
Profit and Loss Statement	–	Sales £100,000

How much cash inflow has there been in the year in respect of sales? To calculate the answer we must take the sales figure and adjust it by, in this case, the increase in debtors from the beginning to the end of the year.

$$\begin{aligned}
 \text{Cash Inflow due to Sales} &= \text{Sales} - \text{Increase in Debtors} \\
 &= £100,000 - (£40,000 - £10,000) \\
 &= £70,000
 \end{aligned}$$

As with sales, the same concept applies to purchases:-

$$\text{Cash Outflow} = \text{Costs of Goods Sold} + \text{Increase in Creditors}$$

As a result the following are cash inflows (positive):

- Credit on the profit and loss
- Increase in a liability
- Decrease in an asset (except Cash)

The following are cash outflows (negative):

- Debit on the profit and loss
- Decrease in a liability
- Increase in an asset (except Cash)

It is worth calculating the increases/decreases in all balance sheet items. It is extremely important to follow this sign convention at all times.

1.2 Cash Flow Statement Formats

For analysis purposes we shall break down the cash flow statement into five separate categories. The format we use here is similar to the format required under FRS 1 which you will see when you examine the cash flow statement in a UK annual report. However, we have made a number of adjustments in order to make the task of interpreting the cash flow statement easier.

- Net operating cash flow
- Financing expenditure
- Discretionary expenditure
- External Financing
- Net movements in cash

a) *Calculation of Net Operating Cashflow (NOCF)*

To calculate NOCF we must extract the operating profit from the profit and loss and adjust it first by any non-cash items such as depreciation and amortisation. Next we need to adjust this figure by the changes in working capital and the tax charged.

Working capital is all current assets and current liabilities, except:-

- Cash and Short Term Investments
- Short Term Debt (including overdrafts and Current Portion Long Term Debt (CPLTD))
- Dividends payable

Note that "Tax Paid" = Tax Charged + Increase in Tax Liabilities

The working capital adjustments involve taking into account the cash receipts and expenditures in the company's normal operating or trading cycle. A company uses its existing cash (or borrows it from the bank) to purchase raw materials. There will be a time lag before the company pays for the raw materials bought on credit. The raw material is turned into work-in-progress and then finished goods. During this process there is some expenditure such as wages and some "wastage", perhaps in the form of obsolete stock/inventory. The goods are sold, perhaps on credit in which case the value is held in the debtors ledger. Again there may be some wastage in terms of bad debts from the debtors ledger. Finally cash is collected and either added to the company's cash balance or used to repay debt. In our analysis tax payments are also regarded as part of the operating cycle.

b) *Calculation of Financing Costs*

We include the following as financing costs:

- **Interest** - Watch out for capitalised interest!
- **CPLTD** - Note that the current portion of long-term debt repaid in a year is the CPLTD that was on the balance sheet at the beginning of the year.
- **Dividends** - This is calculated as Dividends from the Profit and Loss + Increase in Dividends Payable. Dividends are considered as a priority outflow on the basis of the attitude of companies to at least maintaining a dividend.

c) *Calculation of Discretionary Costs*

Included in this category are:

- Changes in Long Term Assets
- Changes in Long Term Liabilities
- Miscellaneous Expenses
- Sundry Income
- Exceptional and Extraordinary Items

d) *Calculation of Changes in External financing*

Included in this category are:

- Short-term debt
- Long-term debt
- Capital

e) *Net Movement in Cash and Short Term Investments*

Finally, the net movement in Cash and S/T Investments should be calculated. This should be calculated so that the results reconcile from the balance sheet and from the cash flow.

1.3 Interpretation of Cashflows

As with traditional financial ratio analysis, the emphasis in interpreting cashflow is on both absolute number and shapes.

$$a) \quad \text{Debt Service Coverage} = \frac{\text{NOCF}}{\text{Interest} + \text{CPLTD}}$$

- This tells us how well the company has done in terms of the Net Operating Cashflow covering the payments to service its debt. Obviously, the larger the better! Between 1.0 and 1.5, there may be grounds for concern.

$$b) \quad \text{Priority Outflows Coverage} = \frac{\text{NOCF}}{\text{Priority Outflows}}$$

- This ratio includes Dividends Paid in the Denominator.

$$c) \quad \text{Number of Years to Repay All Debt} = \frac{\text{Total Bank Debt}}{\text{NOCF} - \text{Interest} - \text{Dividends}}$$

- This gives an estimate of how long the company may take to repay all debt if it continues to perform in the future as it has done in the past.

$$d) \quad \text{Cash Flow Available for Debt Service (CFADS)} = \frac{\text{CFADS}}{\text{Bank Debt Service}}$$

CFADS would normally be defined as EBIT after adding back:

- Depreciation
- Other non-cash P & L items
- Movements in working capital

Less:

- Tax paid
- Capex
- Dividends declared or paid
- Preference shares redeemed
- Principal repayments of borrowing

1.4 Quality of Cashflow

Investors look for "Quality of Earnings" in terms of the volatility of the earnings stream. The less volatile the earnings stream, the better quality it represents. Bankers should look for non-volatility in their borrowers' cashflows to demonstrate similar quality in terms of consistent cashflow.

1.5 Sustainable Growth

Companies in fast growth mode consume cash. Growing debtors and inventory consume cash at a faster rate than growth in creditors can throw off cash. There are some exceptions to this general rule – the most obvious being supermarkets.. In addition to financing the increase in net working assets, companies in growth mode will probably have to increase their production capacity; i.e., make significant capital expenditures. On the other hand, companies with declining sales can be cash generating provided that they are effective in managing their net working assets.

For growth companies there is a Sustainable Growth Rate. This is the rate at which they can grow, without increasing their leverage provided that:

- They maintain the dividend payout ratio
- They maintain after tax profit margins
- They maintain Net Working Asset Activity Ratios
- They maintain the Sales/Fixed Asset Ratio.

The sustainable Growth Rate is given by the following formula:-

$$\text{Sustainable Growth Rate} = \frac{P(1-d)}{(1-D)(NWA + FA)}$$

where	P	=	After tax profit margin/Sales
	d	=	Dividend payout ratio
	D	=	Bank Debt/Bank Debt plus Equity
	NWA	=	Net Working Assets/Sales
	FA	=	Fixed Assets/Sales

If the company's actual growth rate exceeds the sustainable growth rate and additional finance is provided through debt, then, ceteris paribus, the company is consuming cash and the leverage will increase.

If the company's actual growth rate is less than the sustainable growth rate, then the company may still be consuming cash and this may be provided by additional debt. However, the rate of additional debt is less than the increase in equity and leverage is reduced.

1.6 EBITDA

EBITDA stands for "earnings before interest, taxes, depreciation and amortisation". It has become a widely accepted indicator of company financial performance and the term is sometimes (but mistakenly) used interchangeably with cash flow.

The analyst needs to treat EBITDA with caution. Remember that EBITDA is not part of Generally Accepted Accounting Principles. The key critical failing of EBITDA is that it ignores changes in net working assets and can overstate cash flow in periods of working capital growth. It can therefore create the appearance of stronger interest coverage and lower financial leverage.

1.7 Cashflow Forecasting

Every loan which has cash flow as its primary repayment source will get repaid by future cashflows. We therefore require an implicit or explicit forecast. Explicit forecasts, however, are far better than implicit forecasts.

Forecasting is notoriously difficult. When forecasting, we need to know how to construct reliable and robust models and how to cope with the uncertainty involved.

1.8 Constructing Forecasts

Good spreadsheet programmes have options for constructing forecasts. We need to construct at least two scenarios for forecasting, the most likely scenario and a worse case scenario. Note that we are not constructing the worst case scenario. Even for the strongest companies it is relatively easy to forecast catastrophic failure, by significant adverse movements in every variable.

Forecasts are only as good as the input variables. We need to make sure that we extrapolate historical trends correctly into the future. Straight-line growth in a particular variable does not always continue, at some stage, it will peak and flatten or indeed peak and decline. The forecaster's main job is talking to the right people in the company and the bank to judge when these peaks may be reached.

The input variables usually include:-

- Sales Growth
- Gross Margin
- S G & A/Sales
- Interest Rates
- Depreciation
- Dividend Payout Rates
- Capital Expenditure
- Activity Ratios (Working capital ratios)
- Increases in Equity
- Changes in Long Term Debt

These are the **Cash Drivers** which will determine not only the shape of the balance sheet and profit and Loss statement, but also the cashflow. Management may help either by giving you their cashflow forecasts or by giving you their views on the cash drivers. Bankers must be wary! No management to my knowledge has forecast its company's failure, and if it had, has certainly not shared this forecast with its banks!

In most cases, banks are prudent to regard management forecasts as a best case scenario and significant changes in the assumptions for the cash drivers must be made by the banker. Only when you are satisfied that the assumptions are reasonably conservative should you run the forecasting model. We then need to critique the result.

1. **Have we identified the really critical variables?** Different companies in different industries react differently to a given change in say, sales growth.
2. **Are the relationships between the variables approximately correct?** For example, do the forecasts show sales doubling in five years with no increase in fixed assets? Is this reasonable?
3. **Are the assumptions clearly identified and obviously not absurd?** Eurotunnel's assumptions included taking a 50% market share of the cross-Channel traffic and that the latter would double in eight years. Is that reasonable?
4. **Are the results roughly consistent with historic results?** With industry averages?
5. **Do the results fit the company's stated goals and strategy?**

We discussed earlier the uncertainty surrounding forecasting. Subconsciously some bankers prefer historical results which are factual rather than forecasts which are uncertain. Forecasts are better because they show the direction in which the company is going even if the numbers will not be exactly right. Ask "What If?" Questions and test them on the model. This is an excellent way of establishing to what drivers the company's cash flow is particularly sensitive. Do several scenarios and ascribe a probability to each.

However, do not forget that probably the most important aspect of forecasting is the assumptions. Get them right.