ENGR 401
Professional Practice

FINANCE FOR ENGINEERS III

PROFIT, LOSS AND BUDGETS

James Quilty

School of Engineering and Computer Science
Victoria University of Wellington

The Financial Management Cycle

Planning

- Business/Financial goals
- Action plans

Resource Allocation

- Budgeting

Operating and Monitoring

- Profit and Loss
- Balance Sheet
- Cashflow
- Timesheets

Evaluation and Reporting

- Analysis tools (variance, ratio)
- Remedial action

Review of Financial Statements

Profit and Loss

A measurement of revenue and expenses over a period

Balance Sheet

Summarises the financial position at a specific point in time.

Balances *assets* against *liabilities*.

Fundamental Accounting Equation Exercise 2

The Electronics Guy Ltd.

Use the fundamental accounting equation to calculate the business' equity (capital).

Bank balance: $5,000

Tools and equipment: $12,000

Working stock: $200

Creditors: $1,500

Debtors: $300

Fundamental Accounting Equation Exercise 3

Doomed, Inc.

Use the fundamental accounting equation to calculate the business' equity (capital).

Bank balance: $4,000

Tools and equipment: $1,750

Computer software: $1,600

Business loan: $4,300

Creditors: $3,100

Asset Categories

Current assets

- Cash or anything which could be rapidly “liquidated” (converted into cash within an accounting period)
- e.g. cash, accounts receivable, stock/inventories, etc.

Fixed assets

- Assets, most often revenue-generating, which can not be rapidly liquidated.
- e.g. land, plant equipment, machinery, furniture, fixtures, etc.

Other Assets

- e.g. patents, royalty arrangements, goodwill, exclusive use or licensing arrangements, etc.

Liability Categories

Current liabilities

- Any claim against the assets of the business which needs to be paid within the next period (or two).
- e.g. accounts payable, loan repayments, taxation instalments, etc.

Long-term liabilities

- Any claims against assets which persist across periods.
- e.g. mortgages (loans with specific security arrangements), long-term bank loans, equipment loans, any other obligations.

Reading a Balance Sheet

In your pods, find the balance sheet of a publicly listed New Zealand company

Note that NZ corporate legislation requires publicly listed companies to publish financial statements and these are typically to be found in the company's Annual Report.

What can you read in the balance sheet?

We'll discuss each balance sheet in turn.

Profit and Loss Statements

The difference between

The sum of all revenue in the period

and

The sum of all expenditure in the period

to give a profit, a loss or [rarely] break-even.

Please note: some expenditure, and even some revenue, can be *non-cash*.

Examples on the right are depreciation, stock written off and (counter-intuitively) the loss <u>or gain</u> on the sale of a fixed asset.

Reading a Profit and Loss Sheet

In your pods, find the profit and loss statement a publicly listed New Zealand company

As before, these are typically to be found in the company's Annual Report.

What can you read in the profit and loss statement?

Profit and Loss: Cashflow

Cashflow is, as the name suggests, the flow of cash in and out of the business.

More broadly, it can be understood that:

- cash *must* flow *through* the business for it to operate, and
- the details of cashflow affect cash in hand, which affects the ability of the business to operate

Profit and Loss: Cashflow

Cash Inflow

- Capital (external)
- Cash receipts (includes debtors settled for supply of goods or services)
- Investments redeemed or sales of assets

Cash Outflow

- Cash payments (includes creditors settled for supply of materials or labour)
- Investments or purchase of assets

Improving Cashflow

Manage your inputs:

- Invoice promptly & follow-up due dates promptly (and respectfully!)
- Ensure your credit terms are clear and understood
- Reduce excess stock levels

Manage your outputs:

- Pay promptly and maintain good relationships with your creditors
- Negotiate credit terms (e.g. longer payment deadlines) or for discounts from creditors
- Beware of upcoming unusual or atypical business activities which might place demands on cash in hand
- Reduce overheads (non-sales costs, e.g. rent, administration, etc.)

Types of Expenses

Sales and distribution expenses

- Incurred in selling, promotion and delivery of goods and services
- Advertising, travel, wages, freight, etc.

General and administration expenses

- Operational costs, incurred from running “business as usual”
- Note: not project costs
- Rent, phone, internet, electricity, cleaning, etc.

Financial Expenses

- Related to funding operations’ cash requirements (e.g. overdraft, debtors)
- Interest incurred, bad debts

Fixed and Variable Expenses

Fixed expenses

- are constant and/or known for the budget period.

Variable expenses

- are unpredictable or depend on external factors.

Identify the fixed and variable expenses on the following slide.

Fixed and Variable Expenses

Expense	Cost ($)	Fixed	Variable
Electricity	1860		
H&S compliance	22000		
Building Rent	43500		
Courier charges	480		
Insurance	1250		
Depreciation	4400		
Repairs and Maintenance	600		
Photocopying	320		
Wages	185000		
Rates	5200		
Accountancy fees	3500		
Air fares	14500		
Phone and internet	1990		
Software	28000		

Budgeting

The Financial Plan

What is a budget?

- A budget is a financial plan for future activities.
- Can be expressed in many ways, but usually describes activities (personal, business or State) in financial terms.
- It is the primary metric of financial or business performance
- Prepared in advance usually for a period of 12 months
- Budgets are the tactical implementation of the strategic plans

Budgeting: Main Aims

- Financial/business planning
- Coordination of various activities
- Facilitates communication of objectives, opportunities and plans
- Provides a metric for measurement of progress/performance toward the goals of the plan

Disadvantages of Budgeting

- Increased paperwork and time expenditure
- Benefits are not seen until the end of the budget period
- Standardisation which can lead to inflexibility or limited thinking
- Resistance from others who may be reluctant to embrace new procedures

Types of Budgets

- Sales
- Production
- Cashflow
- Profit and Loss
- Capital Expenditure

Monitoring the Budget Process

- Analyse the difference between actual and budget performance
- Monitor discrepancies and analyse errors
- Re-forecast and revise: consider other budget tools; build on experience

Effective Budgets

- Budget continuously
- Don’t underestimate the time required to prepare budgets
- Involve everyone (all relevant stakeholders)
- Focus on what is really required to achieve the goals
- Look to the future and not the past
- Be prepared to amend the budget
- Budgets are not expenditure *targets*
- Size and importance are not the same thing

Types of Budget

Cashflow Budget

- Forecasts cash receipts and cash payments in the period

Profit and Loss (Revenue & Expenditure) Budget

- Includes total revenue and total expenditure
- Cash and non-cash
- Sales, administration, salaries, depreciation, interest, bad debts, etc.

Types of Budget

Production Budget

- Materials expenditure is determined based on sales (revenue)
- Relevant to manufacturing

Sales (Revenue) Budget

- Sales volumes are forecast based on product mix, pricing, markets, etc.
- Relevant to wholesale or retail

Types of Budget

Capital Expenditure Budget

- Cash expenditure for items which will/should generate revenue
- Exchanges a cash asset for a non-cash asset
- Asset is depreciated over a number of periods to reflect its loss of value
- Depreciation is a non-cash expense

The Budget Process: Prepare, Write and Monitor

Prepare:

- Understand your plans
- Choose a budget format
- Check to make sure it is fit-for-purpose

Write:

- Gather financial information
- Check the figures are reasonable and internally consistent
- Develop a cash budget for monitoring purposes

Monitor:

- Analyse differences between actual and budgeted revenues and expenditures
- Monitor discrepancies and analyse errors
- Revise and reforecast as necessary

A Word on Timesheets

A way of monitoring projects

- Monitors time input
- Does not monitor outputs
- Can’t determine “productivity”

Few people enjoy having to keep timesheets for others’ purposes.

Why might you want to keep a timesheet for your own purposes?

What Does Your Budget Look Like?