Reformulation of Balance Sheet / Income Statement

Standard GAAP Balance Sheet

- Separates assets and liabilities in terms of current and non-current
- Assets ranked in terms of liquidity
- Liabilities ranked in terms of urgency
- Small assets may be classified into “Other current assets” and “Other non-current assets”
- GAAP is not useful for equity valuation but useful for credit analysis

Typical GAAP Balance Sheet

O = operating
F = financial
CSE = common shareholder equity
MI = minority interest

ASSETS

Current assets:
- Cash (O+F)
- Cash equivalents (F)
- Short-term investments - marketable securities (F)
- Deposits and advances (F)
- Accounts receivable net of allowances (O)
- Short-term notes receivable (O or F)
- Other receivables (O)
- Inventories (O)
- Prepaid expenses (O)
- Current portion of deferred taxes (O)

Long-term assets:
- Noncurrent receivables (O)
- Long-term debt investments (F)
- Long-term equity investments with < 20% ownership (O)
- Long-term equity investments - equity method (O)
- Property plant & equipment net of accum. depreciation
  - Land (O)
  - Buildings (O)
  - Equipment (O)
  - Leased assets (O)
  - Leasehold improvements (O)
  - Construction in progress (O)
- Intangible assets
  - Patents (O)
  - Licenses, franchises, & business rights (O)
  - Copyrights & trademarks (O)
  - Goodwill (O)
  - Software development costs (O)

LIABILITIES

Current liabilities:
- Accounts payable (O)
- Accrued expenses (O)
- Deferred (unearned) revenues (O)
- Advances from customers (O)
- Warranty Liabilities (O)
- Short-term notes payable (O or F)
- Short-term borrowings (F)
- Current portion of deferred taxes (O)
- Current portion long-term debt (F)
- Dividends payable (CSE)

Long-term liabilities:
- Bank loans (F)
- Bonds payable (F)
- Long-term notes payable (F)
- Lease obligations (F)
- Commitments and contingencies (F)
- Deferred taxes (O)
- Pension liabilities (O)
- Post employment liabilities (O)

REDEEMABLE PREFERRED STOCK (F)

EQUITY
- Minority interest (MI)
- Preferred equity (F)
- Common equity (CSE)

Classifying items

- Operating assets/liabilities generate operating income
  - How the business makes money
- Financial assets/liabilities produce financial income/incur financial expenses
  - How the business raises and stores cash
  - These resources do not add value unless employed wisely in profitable investments
- Different firms will classify each differently
  - Reformulating for an industrial company (retailer, manufacturer, mining, technology, agriculture) is opposite to classification for financial firms (banks, investment companies, insurance etc)
  - Industrials classify deposits, bonds, loans as financial items, while a bank classifies it as operating as lending and borrowing is a core line of business

Reformulated Balance Sheet

- Separate financing activities that do not add value with operating activities that add value

Investing		**Financing**	
Operating Assets	OA	Financial Assets	(FA)
Operating Liabilities	(OL)	Financial Liabilities	FL
		Net Financial Liabilities	NFL
		Common Shareholders Equity	CSE
Net Operating Assets	**NOA**	Net Operating Assets	**NFL+CSE**

- $NFL = -NFA$

Reformulation Steps

1. **Cash:**
    a. Financial if firm deposits all cash in savings account regularly
    b. Operating if firm requires readily accessible cash for covering obligations falling on a daily basis, and part of the cash is kept in cheque accounts that do not earn any interest.
    c. Typically, $Operating\ cash\ =\ 1\%\ of\ sales$
2. **Receivables:**
    a. Accounts receivable are all operating, but notes receivable can be either.
    b. Operating if written by customers for goods received in trade (e.g. extended credit terms to attract customers).
    c. Financial if short term investments
3. **Long term equity investments in shares of other companies:**
    a. Part financial assets and part operating assets
    b. If information is proprietary, then treat entire amount as operating
4. **Notes payable (equivalent to notes receivable):**
    a. Operating if written to purchase inventory or other working assets
    b. Financial if for some other purpose
5. **Accrued expenses:**
    a. Operating, but if interest payable is part of accruals expense, then that part is financial
6. **Deferred revenue:**
    a. Operating, as it is cash from customers received prior to delivering the good/performing the service
7. **Finance lease assets:**
    a. Operating as it is just like PPE
    b. Financial if lease obligations
8. **Deferred tax:**
    a. Operating, as they arise during the calculation of tax component of operating income
9. **Preferred stock and redeemable preferred stock**
    a. Financial, as financial obligation to the common shareholder
10. **Minority Interest (non-controlling interest):**
    a. Separate classification (MI) so that $NOA = NFL + CSE + MI$

Genetech 2005 reformulated Balance Sheet	2005 $'000	2004 $'000
OPERATING ASSETS		
Cash	6,353	6,011
Accounts receivable, less allowances	172,160	146,267
Inventories	93,648	103,200
Prepaid expenses and other current assets	39,267	28,475
Property, plant and equipment	503,654	485,293
Other assets	105,452	60,989
OPERATING LIABILITIES (show as minus)		
Accounts payable	-37,101	-30,963
Accrued compensation	-36,945	-36,939
Accrued royalties	-23,159	-25,864
Accrued marketing and promotion costs	-18,863	-27,463
Accrued clinical and other studies	-33,621	-36,277
Income taxes payable	-14,329	-17,839
Other accrued liabilities	-69,068	-44,283
Other long-term liabilities	-25,504	-25,483
NET OPERATING ASSETS (NOA)	656,961	579,780
FINANCIAL ASSETS (show as minus)		
Cash equivalents	-130,690	-60,702
Short-term investments	-603,296	-652,461
Long-term investments	-356,475	-201,726
FINANCIAL LIABILITIES		
Current portion of long-term debt	358	871
Long-term debt	150,000	150,358
NFO or (NFA)	-945,086	-769,004
COMMON SHAREHOLDERS' EQUITY	1,602,047	1,348,784

Example Reformulations

- Genetech has small financial debt but has lots of short/long term financial investments. If it has a lot of cash, how can that be, especially after investing into interest-bearing investments?
    1. Idle cash mismanagement
    2. Saving up for an acquisition
    3. A need to cover inherent business risks including competition, saturation of product life cycle, CAPEX needs, threat of technological change

Reformulated Income Statement

- Default GAAP mixes operations with financing activities, and excludes dirty surplus items that go to other comprehensive income (dirty surplus = other comprehensive income/unusual items in net income)

Typical GAAP Income Statement

O = operating
F = financial
CSE = common shareholder equity
MI = minority interest

Net sales (sales minus allowances) (O)
+ Other revenue (royalties, rentals, contracts, license fees) (O)
– Cost of sales (O)
= Gross margin
– Marketing and advertising expenses (O)
– General expenses (O)
– Administrative expenses (O)
– Pension expense (O)
± Special items and non-recurring items (restructuring charges, merger expenses, gains and losses on asset sales, asset impairments, litigation settlements, environmental remediation) (O)
– Research and development expense (O)
= Operating income
+ Interest revenue (F)
– Interest (expense) (F)
± Realized gains and losses on financial assets (F)
+ Equity share in subsidiary income (O)
= Income before tax
– Income taxes (O)
= Income before extraordinary items and discontinued operations
± Discontinued operations (O)
± Extraordinary items (gains and losses on debt retirement, abnormal gains and losses in operations) (O)
± Cumulative effect of an accounting change (O)
– Minority interest (MI)
= Comprehensive income (CSE)

Summary reformulated income statement

+Operating revenue		OR
– Operating expense		(OE)
Operating income from sales before tax		xx
± Restructuring or special charges	xx	
+ Merger expenses	(xx)	
± Gains and losses on asset sales	xx	
± Gains and losses on security transactions	xx	xx
Operating income before tax		**OIBT**
– Tax as reported	(xx)	
– Tax benefit from net financial expense	(xx)	(xx)
Other operating items that are reported after tax		
+ Equity share in subsidiary income	xx	
± Gains and losses from discontinued operations	xx	
± Cumulative effects of an accounting change	xx	
± Extraordinary items	xx	
± Dirty surplus operating items	xx	xx
Operating income after tax		**OIAT**
– Financial Expense	(xx)	
+ Financial Income	xx	
± Realized gains and losses on financial assets	xx	(NFE)
Net financial expense before tax		**NFEBT**
+ Tax benefit from net financial expense		(xx)
Net financial expense before tax		**NFEAT**
± Gains and losses on debt retirement	xx	
± Dirty surplus financial items	xx	
– Preferred dividends	(xx)	xx
– Minority Interest		(xx)
Comprehensive Income		**CI**

Reformulation Steps

1. **Tax:**
    a. Default income statement only reports one tax line
    b. Must be broken into two, allocated into operating and financial parts as both activities have separate tax consequences
    c. Key question – *What would after-tax operating income be if there were no financing activities?*
    d. This is because we want to strictly focus on operations and financing activities that do not add any value need to be removed, such as tax shields from taking on debt
    e. Steps:
        i. Calculate tax shield

$$Tax\ Shield = Net\ Interest\ Expense \times Marginal\ Tax\ Rate$$

        ii. Subtract total tax and tax shield from Operating Income to capture what operating income would have been without any financing activities. Without tax benefit and no financial activities to shield income from tax, actual tax on operating income would be higher. We are trying to find a tax measure of profitability from operations that is insensitive to financing activities

$$Total\ tax\ on\ OI = Reported\ Tax\ Expense + Tax\ Benefit$$

        iii. Add tax shield to Financial Income because it is fully attributable to financing activities.
            - If firm has net financial expense (then tax shield is subtracted from operating income).
            - If firm has net financial income (the tax shield is added to operating income to remove negative effect of paying even more tax due to higher income
2. **Equity share in subsidiary income**
    a. Operating, as we have assumed long term equity investments as operating

Ratio Analysis is used for analysing

1. Composition of operating vs financing parts
2. Profitability analysis of operations

Composition analysis

- Size of assets

$$\frac{\text{Each operating asset}}{\text{Total operating assets}} \qquad \frac{\text{Each financing asset}}{\text{Total financing assets}}$$

$$\frac{\text{Each operating liability}}{\text{Total operating liability}} \qquad \frac{\text{Each financing liability}}{\text{Total financing liability}}$$

- Proportion of revenue

$$\frac{\text{Revenue from an operating activity}}{\text{Total Sales Revenue}}$$

$$\frac{\text{Financial income from a source}}{\text{Total Financial Income}}$$

- Proportion of CSE

Totals relative to common equity	Genentech %	Amgen %	Chiron %
Operating assets	57.7	83.6	189.9
Operating liabilities	-16.1	-30.5	-52.7
Net operating assets (Capitalisation ratio)	41.6	53.1	137.2
Financial assets	-67.8	-61.7	-31.7
Financial obligations	9.4	14.8	68.9
NFO or (NFA) (Financial Leverage Ratio)	-58.4	-46.9	37.2
Capitalisation ratio - Financial Leverage ratio	100.0	100.0	100.0

High NFA

- Happens when there is a need to
  1. Replenish assets via CAPEX
  2. Invest further in forthcoming positive NPV opportunities
  3. Pay obligations that are about to mature
  4. Pay dividends/repurchases back to shareholders
  5. Hedge for incoming difficult periods, such as economic recessions, change in political environment, regulatory interventions
     a. However this may be suspicious as a means for a manager to protect their own job
     b. If difficult times come and firm's assets are valuable, banks would still be happy to lend secured debt to that firm so there shouldn't be issues with liquidity, just a slightly higher cost of debt due to difficult economic times (but still lower than the opportunity cost in investing the cash)
     c. If difficult times come and firm's assets are not valuable, banks would be cautious in lending because the securitized assets may not be valuable enough for the bank to recover its debt. In this case, the shareholder's view is to liquidate the assets and move to another investment. But this might mean the company needs to restructure and the manager may lose his job

$$Price = Value\ of\ NFA\ per\ share + Value\ of\ NOA\ per\ share$$

- Can use this relation to find out how market prices the value of operations
  - If $Price < Value\ of\ NFA$, then equity is underpriced by market as it implies that $Value\ of\ NOA < 0$, i.e. company should not be operating

Residual Operating Income Model (ReOI)

$$ReOI_1 = OI_1 - (r \times NOA_0)$$

- Similar to RIV model, but uses operating income instead of net income, and net operating assets instead of book value of equity
- A specific example is where Dell has a negative NOA (OL > OA) because it holds inventory on demand, and suppliers are effectively its creditors. It has a fast supply chain where if it needs inventory it will acquire it on credit on demand. Hence, ReOI is higher than OI for Dell