**CFA 4.5 Financial Statement Analysis**

**4.7 Analysis of Inventories**

**IFRS: Measurement of inventory**

Inventory is reported at the lower of cost or net realisable value

Net Realisable Value: Expected sales price less the est. selling cost and completion costs

If NRV < Balance sheet value, the inventory is written down to NRV, and loss is recognised in income statement

Write down loss can be recognised in separate line item or by increasing COGS

* If the inventory values recover later, the gain can be a separate line item or by reducing COGS
* Write down/up of inventory is usually in a valuation allowance account, which is a contra asset account (like accumulated depreciation)

**GAAP: Measurement of inventory**

For inventory cost methods other than LIFO or retail method: Lower of cost or NRV

For LIFO or retail method: Lower of cost or market

Market: Equal to replacement cost, but cannot be greater than NRV or less than NRV minus a normal profit margin

* If replacement costs > NRV, then market is NRV
* If replacement costs < NRV minus normal profit margin, then market is NRV minus normal profit margin

Small inventory write down: In income statement through COGS

Large inventory write down: Loss recorded separately, market value becomes new cost basis

Recoveries in value are not written up, regardless of which method is used

**LIFO vs FIFO**

LIFO: Assumes newest items are sold first

FIFO: Assume oldest items are sold first

IFRS permit FIFO

GAAP permits LIFO, FIFO, and weighted average method

LIFO firm less likely to recognise inventory write downs

* LIFO inventory is based on older lower costing (assuming inflation)

In some industries, can report inventory above historical cost

* Mainly commodities producers and dealers
* Inventory is reported at NRV, and unrealised gains/losses are in income statement

**Effect of a write down**

Assume a write down is reported as part of COGS:

* Current assets decrease as inventory is a current asset
* Current ratio decreases, quick ratio is unaffected
* Inventory turnover increases
* Equity decreases
* Decreases margins
* Decrease in net income > Decrease in asset or equity, so ROA and ROE decrease

Following a write down, COGS may be reduced by lower inventory carrying values

* Profitability increases
* Lower assets and equity means ROA and ROE increases in subsequent periods

**Inflation impact on FIFO and LIFO - important**

Assume inventory is stable or increasing

During inflationary periods: LIFO COGS > FIFO COGS

* Last units purchased have higher cost than first units purchased
* LIGO gives lower gross margin 🡪 Lower net income, lower taxes, higher cash flows
* LIFO ending inventory < FIFO ending inventory (more costly new purchases are added to inventory under LIFO)

During deflationary periods: Reverse effect

During stable prices: LIFO, FIFO, average cost will give the same results

When prices are moving, FIFO gives the most useful measure of ending inventory

* FIFO inventory is made up of most recent purchases, which better approximates economic value

When prices are moving, LIFO gives the most useful measure of COGS

* COGS better approximate the currency cost in the income statement

Average cost method: Will produce COGS and ending inventory between LIFO and FIFO

During inflation summary:

|  |  |  |
| --- | --- | --- |
|  | FIFO | LIFO |
| Cost of sales | Lower | Higher |
| Ending inventory | Higher | Lower |
| Gross profit | Higher | Lower |

**LIFO liquidation**

Occurs when LIFO firm’s inventory quantities decline

* Older lower costs are included into COGS 🡪 Higher margins and income taxes

Can be used to artificially inflate earnings

Need to see if LIFO reserve (in footnotes) has decreased, which can show possibility of LIPO liquidation

**Inventory presentation and disclosure**

Required inventory disclosures under IFRS and GAAP

* Cost flow method used (e.g., LIFO, FIFO)
* Total carry value of inventory
* NRV of inventories
* Cost of inventories as an expense (COGS)
* Inventory write downs, reversals
* Carrying value of inventory pledged as collateral

**Inventory ratios**

Merchandising firms purchase ready for sale inventory

* Inventory reported as one account on balance sheet

Manufacturing firms have 3 accounts

* Raw Materials, Work in Progress, Finished Goods

Generally high inventory turnover is desirable

* However can also mean there’s not enough inventory to satisfy demand, or inventory write downs

Signs of reduced demand

* Raw material and WIP to decline relative to finished goods (they would increase if demand is expected to increase)
* Valuation allowance has decreased as a proportion of the cost of finished goods
* Finished goods inventory growing faster than ales

**4.8 Analysis of Long Term Assets**

**Intangible long lived assets**

Identifiable intangible asset

* Capable of being separated from the firm or arise from a contractual or legal right
* Controlled by the firm
* Expected to provide future economic benefits

Unidentifiable intangible asset

* Cannot be purchased separately
* May have indefinite life – not amortised but tested for impairment annually

**Internally created intangibles**

IFRS:

* Research: expensed as incurred
* Development (costs of turning research into product/process): may be capitalised if the firm can complete the asset and use it or sell it

GAAP:

* Research and Development: expensed as incurred
* Creating software for sale – expensed until can demonstrate technological feasibility
* Creating software for internal use – expensed until it is probable firm can complete and use the software

**Purchased intangible assets**

Initially recorded at cost

* If purchased as a group, the total price is allocated to each asset using fair value

**Intangibles obtained in a business combination**

Acquisition method is used for business combinations

Acquisition method:

* Purchase price allocated to identifiable assets and liabilities of the acquired firm is on fair value
* Need to establish fair value of intangible that the acquired company had internally developed (which previously weren’t recognised) – these need to be identifiable intangible assets
* The rest is recorded as Goodwill – unidentifiable asset

**Impairments**

Impairment: Unanticipated decline in asset’s value

**Under IFRS**

Annually assess for impairment

Impaired if the carrying value > recoverable amount

* Recoverable amount: Greater of fair value minus selling costs or Value in use (PV of future cash flows)

Impairment is recognised in the income statement, and asset value written down to recoverable amount

Impairment loss on identifiable long lived assets can be reversed

**Under GAAP**

Assess for impairment only when circumstances are likely to affect carrying value

Two-step process: Test for impairment + Loss measurement

Impaired if the carrying value > asset’s future undiscounted cash flow stream

Loss measurement: Carrying value minus fair value

* If fair value is not known, it is the discounted value of future cash flows (essentially the same as value in use)

Reversals are not permitted

**Impairment effects**

Net income is lower in the year the impairment happens

Net income is higher in the subsequent years as the asset base that faces D&A is smaller

Has no impact on cash flow as impairment does not reduce taxable income

Management can use impairments to manipulate earnings – lots of discretion involved

**Long lived assets held for sale**

If a firm intends to sell an asset it will be reclassified from Held for Use to Held for Sale

* Conditions: Probable it can be sold, available for sale

Held for sale are no longer depreciated or amortised

Can still be impaired

* Loss can be reversed in IRFS and GAAP

**Derecognition**

Derecognition: When an asset is disposed or retired

* Can be sold, exchanged, or abandoned

Sold:

* Removed from balance sheet
* Difference between sale proceeds and carrying value is reporting as a gain/loss on income statement

Abandoned:

* Treatment similar to sale, except no proceeds
* Carrying value removed from balance sheet, a loss of that amount is put on income statement

Exchanged:

* Gain/loss given by carrying value of old asset minus fair value of old asset (or fair value of new asset if its more evident)
* Carrying value of old asset removed from balance sheet, and new asset recorded at fair value
* If no fair value exists, the new asset is recorded at the old carrying value

**Spinoff**

Spinoff: Transfer of assets that constitute a division/subsidiary into a new legal entity

Shares of spinnee are distributed to shareholders

* After spinning off shareholders now have shares in both companies
* Spinnee is no longer included in the consolidated statements of the Spinnor

Once spinnoff becomes probable, the balance sheet assets and liabilities of spinnee are transferred from held to use to held to sale

* AKA held for distribution

No profit or loss on disposal

**IFRS: Long term asset disclosures**

For PPE, must disclose:

* Basis for measurement (usually historical cost)
* Depreciation method and rate
* Depreciation expense
* Gross carrying value, accumulated depreciation
* Carrying amounts at beginning of period, and end of period
* Title restrictions and assets pledged as collateral
* Agreements to buy future PPE

If fair value model was used, need to disclose:

* Revaluation date
* How fair value was determined
* Carrying value using historical cost method
* Revaluation surplus in other comprehensive income

For intangibles, must disclose:

* Similar to PPE
* Finite or infinite
* Amount of impairment and reversals
* Where losses and reversals are in income statement
* What caused it

**US GAAP: Long term asset disclosures**

For PPE, must disclose:

* Depreciation expense
* Balances of major asset classes (e.g., land, buildings, etc)
* Accumulated depreciation
* Depreciation method used

For intangibles, similar to IFRS, but also has:

* Estimation of amortisation for next 5 year
* Description of impairment, circumstances, loss amount, where it is in income statement
* How fair value was determined

**Analysing long lived asset disclosures**

Fixed asset turnover: How efficiently a firm is using long term assets to generate sales

Average age is useful:

* Older assets may be less efficient
* Can help estimate timing of capex and financing requirements

Assume straight line depreciation and no salvage values for formulas

Average age:

Total useful life:

Remaining useful life:

**4.9 Topics in Long Term Liabilities and Equity**

**a) Leases**

Lessee purchases the right to use an asset from the lessor for a specified period

* The lessee makes periodic payments for the use of the asset

3 requirements to be a lease:

1. Must refer to a specific asset
2. The lessee must get all the economic benefit of the asset during the term
3. The lessee can determine how to use the asset during the term

Advantages of leasing rather than purchasing

* Less initial cash outflow
* Less costly financing – lease is secured by the leased asset if the lessee defaults, so interest is lower than a loan to purchase
* Less risk of obsolescence – Since asset is returned, the lessee doesn’t have the risk of a decline in end-of-lease value (except from guaranteed residual income clauses, where the lessee guarantees a min value for the leased assets)

Finance lease: When the benefits and risks of ownership are substantially transferred to the lessee

It is a finance lease if any of the condition are met:

* Ownership is transferred
* Lessee has option to buy it and is expected to do so
* Lease is for most of the asset’s useful life
* PV of lease payments >= fair value of asset
* Lessor has no other use for asset (i.e., it is specialised for lessee)

Operating lease: When the benefits or risks of ownership are not substantially transferred to the lessee

* Anything that isn’t a finance lease

**Lessee accounting**

Need to record a ROU asset and a lease liability

* Both are equal to PV of lease payments
* Essentially the same as the lessee issuing debt and buying an asset with it

This excludes leases <12 months or are of low value (under $5k)

ROU is intangible rather than PPE

* Will be amortised

Lease payments are split between interest and principal repayment

* Lease liability decreases each period by the principal portion

Lease liability and ROU start at the same value and reach 0 at the same time

* Have different values during the life of the lease – ROU is amortised whereas lease liability is reduced by principal repayment

For the exam, assume payments are made at end of period

Repayment of principal – under CFF

Interest payment – CFO or CFF for IFRS, CFO for GAAP

Operating leases under GAAP – different from rest

* Amortised by the same amount as the decrease in lease liability – equal to principal payment
* Interest and amortisation are not reported separately, they are combined into lease expense
* All payments under CFO

**Lessee: Operating lease vs finance lease**

Lease liability the same

* Both should be included in leverage measures

ROU asset is not the same – operating has higher ROU

* Operating: ROU matches lease liability each year
* Finance: ROU only matches lease liability at the start and end

Income statement

* Operating: Combined as lease payment
* Finance: Interest and amortisation reported separately
* Early years finance lease expense greater, later years operating lease expense greater

**Lessor accounting – Finance leases**

Finance lease

* Leased asset removed from balance sheet
* Adds lease receivable asset (equal to PV of lease payments + residual)
* If this is different from book value, the lessor recognises a gain/loss
* Lease receivable is amortised
* Interest portion of lease payments is income – part of revenue if lessor is a manufacturer or dealer
* Entire cash inflow is CFO

If manufacturing or dealing leases is the firms main business:

* Called Sales type lease
* Sales proceeds (PV of lease payments) are in revenue, carrying value of asset is in COGS (carrying value minus PV of residual)
* Similar to selling inventory
* Revenue and COGs from sale all recognised in the first period, interest income recognised in first period and subsequent ones

If lessor is a financing company:

* Called Direct Financing lease
* Gain/loss not recognised at initiation
* Gain/loss is deferred and recognised over the life of the lease as interest income/expense

**Lessor account – Operating leases**

Leased asset is not removed from balance sheet

* Lessor continue to record depreciation expense

Income statement

* Lease payments are income
* Depreciation is expenses

Entire cash inflow is CFO

**Lease disclosures – IFRS 16**

Lessee disclosures must include:

* Carrying amount of ROU by class
* Total cash outflows
* Interest expense
* Depreciation by class
* Expenses relating to variable lease payments not included in lease liabilities
* Additions to ROU assets
* Maturity analysis of lease liabilities, split between current (next year’s repayment) and long term
* Nature of leasing activities, future cash flow not reflected in lease liabilities, restrictions, leaseback transactions

Lessor disclosures for finance leases include:

* Selling profit/loss on derecognition of asset
* Interest received on lease receivable asset
* Income from variable lease payments
* Maturity analysis of lease payments receivable
* Reconciliation of undiscounted lease payments to the net investment in the lease

Lessor disclosures for operating leases include:

* Lease income in income statement
* Maturity analysis of lease payments receivable
* Impairments as the asset is still on the balance sheet

**b) Deferred compensation**

Deferred compensation: Employees earn compensation in the current period, but do not receive cash flow until later

* Examples: Pension plans, stock based awards

**Pension plans**

Pension: Deferred companion earned over time through service

* Two types: Defined contribution plan, Defined benefit plan

Defined contribution plan

* Firm pays a sum each period to the employee’s retirement account
* Investment decisions are left to the employee, who assumes all the investment risk

Defined contribution reporting:

* After the pension expense is paid, no need to report on the balance sheet as a liability anymore

Defined benefit plan

* Firm promises to make periodic payments to employees after retirement – usually based on years of service and salary near end of retirement
* Employer assumes all investment risk as employee’s future benefit is defined
* Plans are typically funded by placing assets with a trust

Defined benefit reporting

* Need to estimate the value of future obligations to employees
* Liability: PV of expected payments to the employees from retirement to death

If fair value of plan’s assets > estimated pension obligation

* Recorded as Net pension asset
* Overfunded

If fair value of plan’s assets < estimated pension obligation

* Recorded as Net pension liability
* Underfunded

Change in net pension asset/liability is included in net income or other comprehensive income (OCI)

Post retirement health care benefits

* Liability represents EV of health care premiums post-retirement
* Typically not prefunded with assets 🡪 Always a liability

**Accounting defined benefit under IFRS**

3 elements of change in funded status:

1) Service cost – Income statement

* PV of additional benefits employees get for working an extra year
* Includes changes to the benefits from previous period from changes in the plan

2) Net interest expense or income – Income statement

* Calculated as Net pension asset/liability multiplied by the discount rate
* Will receive interest income if it is asset, will pay interest expense if it is liability

3) Remeasurements - OCI

* 1) Actuarial gains/losses – change in net pension asset/liabilities from changing actuarial estimates (e.g., salary growth, employee turnover, etc)
* 2) Difference between expected vs actual return on plan assets

**Accounting defined benefit under GAAP**

5 components:

1. Service costs
2. Interest expense/income
3. Expected return on plan assets
4. Past service costs
5. Actuarial gains/losses

First 3 in income statement, last 2 in OCI

For manufacturing companies, pension expense is allocated to COGS or SGA

* No separate pension expense line

**Pension disclosures – IAS 19**

Defined contribution plans must disclose

* Employer contribution expensed in income statement

Defined benefit plans must disclose

* Explain risks and characteristics
* How it affects cash flow
* Reconciliations of beginning and ending values for funded status
* PV of defined benefit obligation
* Sensitivity analysis to actuarial assumptions
* Maturity profile of defined benefit obligation

**Share Based Compensation**

Designed to reduce agency costs: Align interests of managers and stockholders

* Does not require cash outflow, but will dilute EPS

Criticisms

* Individuals probably can’t influence the stock price
* May make managers take too much risk

Accounting treatment (IFRS and GAAP)

* Estimate fair value of stock based compensation at the grant date
* Expense it to the income statement over the vesting period (time between the grant date and when the employee can exercise their options)

1) Stock grants

* Shares awarded outright – no conditions
* Fair value is share price on the grant date

2) Performance grants

* Depend on meeting a performance target
* Restricted stock units: Stock grants that do not vest until certain criteria are ment

3) Employee stock option

* Only have value if stock price > exercise price (grants have value if share price > 0)
* Option valuation models are used to calculate the fair value at the grant date

4) Stock based appreciation rights

* Generate cash for holders that is linked to stock performance
* Employee receives payments without holding stock
* Doesn’t dilute existing shareholders
* Have similar payoff to stock options

**Effect of stock grants on financial statements**

1) Grant date is when fair value is established

* Usually market price

2) If vesting is immediate, the full fair value is expensed to the income statement

* Common stock and APIC are increased by this amount

3) If there is service period, a compensation expense is recognised each year

* Appears in equity in an account as Share based compensation reserve or APIC
* Total amount will be expensed over period
* At the end of period, any amount remaining in the equity reserve will be turned into common stock or APIC

**Effect of stock options on financial statements**

1) Fair value of option is established using an option valuation model

2) At the grant date, no impact on common stock or APIC

* Fair value is expensed over the service period
* Share based compensation reserve or APIC increases

3) On exercise of the option, cash increases by exercise price received

* Stockholder equity increases by same amount, either common stock or APIC
* Any amount in equity reserve is turned into APIC

**Share based compensation disclosures**

Firms must disclose:

* Nature of plan, key details such as grant date, service period, etc
* How fair value at grant was determined
* Effect on earnings and financial position

**4.10 Analysis of Income Taxes**

Accounting standards are often different from income tax laws

* Income tax expense may be different from actual tax owed

**Tax terminology**

Taxable income: Income subject to tax based on the tax return

Tax payable: The tax liability caused by taxable income

* AKA Current tax expense
* Not the same as Income tax expense

Income tax paid: Cash flow for income taxes (inc other years)

Tax loss carryforward: Current or past loss that can be reduce taxable income in the future

* Can result in a deferred tax asset

Tax base: Net amount of asset/liability used for tax reporting purposes

**Financial reporting terminology**

Accounting profit: Pretax financial income (aka income before tax)

Income tax expense: Expense in the income statement that includes taxes payable and changes in deferred tax liabilities and assets

Deferred tax liabilities: Balance sheet amounts that result from an excess of income tax expense over taxes payable

* Result in future cash outflows

Deferred tax assets: Balance sheet amounts that result from an excess of taxes payable over income tax expense

* Can result in recovery in the future or tax loss carryforwards

Valuation allowance: Reduction of deferred tax assets based on the likelihood the assets will not be realised

Carrying value: Net balance sheet value of an asset/liability

Permanent difference: Difference between taxable income and pretax income that will not reverse in the future

Temporary difference: Difference between the tax base and the carrying value of an asset/liability

* Will result in either taxable amounts or deductible amounts in the future

**Differences between tax and financial reporting**

Reasons for differences between tax reporting and financial reporting

* Timing of revenue/expense recognition
* Certain revenues/expenses are recognised in the income statement, but not on the tax return, and vice versa
* Different carrying amounts and tax bases
* Gain/loss recognition in income statement that differs from the tax return
* Tax losses from prior periods may offset future taxable income
* Financial statement adjustments may not affect tax return or may be recognised in different periods

Types of differences between carrying value and tax base

* Temporary timing differences: Same total amounts pass through income statement and tax returns over time, but with individual period differences – creates deferred tax assets/liabilities
* Permanent timing differences: No deferred tax assets/liabilities

**Deferred tax liabilities**

Deferred tax liability: Created when income tax expense > taxes payable due to temporary differences

* AKA taxable temporary differences

Occurs when:

* Revenues/gains recognised in the income statement before they are included in the tax return due to temporary differences
* Expenses/losses are tax deductible before they are recognised in the income statement

Expected to reverse and cause future cash outflows

Often created when accelerated depreciation is used on the tax return, but straight line depreciation is used on the income statement

* Tax return depreciation greater in first few years, but less in later years
* Taxable income initially lower than income before tax initially, but higher later on

**Deferred tax assets**

Deferred tax asset: Created when tax payable > income tax expense due to temporary differences

* AKA deductible temporary differences

Occurs when:

* Revenues/gains are taxable before they are recognised in income statement
* Expenses/losses are recognised in income statement before they are tax deductible
* Tax loss carryforwards are available to reduce future taxable income

Expected to reverse and provide future tax savings

Typical causes: Post employment benefits, unearned revenue, warranty expenses, tax loss carryforwards

**Taxable and deductible temporary differences**

|  |  |  |
| --- | --- | --- |
| **Balance sheet** | **Carrying value vs Tax base** | **Type of tax asset** |
| Asset | Carrying value > tax base | Deferred tax liability |
| Asset | Carrying value < tax base | Deferred tax asset |
| Liability | Carrying value > tax base | Deferred tax asset |
| Liability | Carrying value < tax base | Deferred tax liability |

**Permanent differences**

Permanent difference: Difference between taxable income and pretax income that will not reverse in the future

* No DTL or DTA created

Caused by: Non-taxable revenue, non-deductible expenses, tax credits that directly reduce taxes

* E.g., In the US municipal bond interest is not taxable, life insurance for key company management not tax deductible

Causes the Effective tax rate to be different from the statutory tax rate

**Tax expense**

Tax expense is the tax payable plus changes in DTA and DTL:

**Changes in enacted tax rate**

The company’s statutory tax rate changes DTLs and DTAs

* If the statutory tax rate changes, DTLs and DTAs must be adjusted

DTLs and DTA’s need to reflect the expected statutory tax rate for when the reversal occurs

Increase in statutory tax rate increase DTLs and DTAs

**Creation of DTAs and DTLs**

Calculation:

**Realisability of DTA and DTA**

DTAs and DTLs are not recorded at their discounted present value

DTA’s are assessed annually to find the likelihood the company will have sufficient future taxable income to recover the tax assets

If there are doubts that DTA benefits will be realised, the diminished value of the DTAs must be recognised

* IFRS: DTA is reduced
* GAAP: DTA remains the same, is reduced through a valuation allowance

If the DTL is unlikely to reverse (usually due to continued capex growth), they are treated as equity

* Decrease DTL, and increase equity by the same amount

**Tax rates**

Statutory tax rate: Corporate income tax rate in which the company is domiciled

Effective tax rate:

Cash tax rate:

Reasons for differences between statutory tax rate and effective tax rate:

* Different tax rates in different countries
* Permanent tax differences
* Tax holidays in different countries
* Temporary timing differences do not cause them to differ

Need to differentiate between continuous items and sporadic items

* E.g., different tax rates are continuous, tax on asset sales is sporadic

**Examples of temporary differences**

Need to disclose sources of temporary differences:

Straight line depreciation vs accelerated depreciation

Impairments: Generally creates a DTA, as write down is immediately an expense, but tax deduction is only allowed when asset is disposed

Restructuring: Generates a DTA, as costs are recognised as an expense, but tax deduction is only allowed when cash is actually paid

Choice of inventory cost flow method - if it matches what is used for tax

Post unemployment benefits/Deferred compensation

* Costs are recognised as expense, but tax deduction only allowed when cash is paid

Gains/losses on available-for-sale marketable securities taken directly to equity

* Deferred tax adjustment made to equity
* No DTL added

**Common tax disclosures**

DTLs, DTAs, any valuation allowance

Any unrecognised DTL for undistributed earnings of subsidiaries and JVs

* Some countries tax profits of foreign subsidiaries when they are remitted back

Current year tax effect of each type of temporary difference

Components of income tax expense

Conciliation of ETR and STR

Tax loss carryforwards

**4.11 Financial Reporting Quality**

**Financial reporting quality**

Determined by adherence to accounting principles

High quality financial reporting is decision useful - must have Relevance and Faithful representation

* Relevance: Useful and material for decision making
* Faithful representation: Complete, neutral, absent of errors

**Quality of earnings**

Quality of earnings is judged on:

* Sustainability of the earnings (e.g., Currency gains aren’t sustainable, efficiency gains are)
* Level of earnings
* Sustainability of reported cash flow

Can have high financial reporting quality, but low quality of earnings

If there is low financial reporting quality, quality of earnings is impossible to assess

* Lowest quality financial reporting deviates from accounting principles

**Conservative vs aggressive accounting**

Aggressive accounting: Improves earning and financial position for the current period

* Often results in decreased earnings for future periods

Conservative accounting: Decreases earnings and financial positive for current period

* Often results in increased earnings for future periods

Both of these can be used for earnings smoothing

Can adjust an accrued liability upwards to reduce earnings for a period if earnings are high

* This defers the recognition of the earnings to a future period if earnings are low by adjusting the accrued liability downward

Neither is bad or good per se

Bias in presentation: May disclose extra information for positive developments, and less on negatives

Benefits of conservative bias:

* Reduce chance of future litigation
* Reduce current period tax liability
* Protecting those with less information about company than management

**Motivations for low quality reports**

To exceed a benchmark number for EPS

* E.g., earlier guidance, consensus estimates

Managers may be motivated by incentive compensation, career opportunities, improve reputation

For highly leveraged and unprofitable companies, aggressive accounting can help avoid debt covenants

Opportunity for low quality reports:

* Weak internal controls
* Inadequate oversight from Board of Directors
* Accounting standards are too broad, penalties too small

Rationalisation: People make moral excuses for bad behaviour

**Discipline financial reporting quality and limitations**

Each country has a regulatory body for public securities

* SEC (US), FCA (UK), ESMA (EU), IOSCO (International)

Securities regulations require:

* Registration process for new public traded securities
* Specific disclosure and reporting requirements
* Independent audit of financial reports
* Statement of financial condition from management
* Signed statement by person responsible for financial reports
* Review for securities
* Assessment of internal controls

Enforcement examples: Fines, suspension of issuance or trading, public disclosure of disciplinary proceeds

Audits only offer reasonable assurance of fair reports

* Firms select and pay the auditor

Private contracts can specify how financial measures need to be reported

**Non-GAAP measures**

Non-GAAP: Firms can report measure that aren’t defined or required under GAAP

Typically excludes some items to make performance look better

* Can exclude one-offs or non-operating costs

GAAP requirements:

* Comparable GAAP measure must have equal prominence
* Provide explanation why non-GAAP measure is useful
* Reconcile differences
* State if any items in non-GAAP are likely to reoccur

IFRS requirements:

* Define and explain non-IFRS measures
* Reconcile differences

**Revenue recognition**

Firms can choose when in the shipping process the customer becomes the owner of the goods

* Free-on-board: Can be at shipping point, or at destination
* FOB at shipping point means revenue is recognised earlier

Firms can accelerate or delay shipments of goods

* Channel stuffing: Overloading a distribution channel with more good than would normally be sold during a period

Bill-and-hold transactions: Customer buys the goods but the firm keeps the goods at their location

* Fictitious ones can increase earnings in the current period – recognise goods still in inventory as sold

**Estimates of credit losses**

Management can understate uncollectable debt to boost current earnings

* Uncollectable debt is an offset to account receivable

Bad debt can be used to smooth earnings

* Increase during high earnings, and store earnings for later use

Other reserves can also be used

* E.g., Warranty expense

**Valuation allowance**

Increasing valuation allowance will reduce the net deferred tax asset and net income for the period

**D&A and Impairment**

Depreciation/amortisation can be manipulated by:

* Method of depreciation
* Estimated useful life and salvage value

Impairment recognition can be delayed

**Inventory method**

Choice of inventory cost method

* FIFO more accurate for balance sheet, LIFO more accurate for COGS

**Related party transactions**

When the firm does business with a private supplier that is controlled by management

* Adjusting prices of goods supplied can shift profit to or from the private company

**Capitalisation**

Capitalisation reduces expenses in the current period and shifts them to the future

Affects cash flow classifications – capitalised makes it CFI instead of CFO

**Other cash flow effects**

Stretching payables: Taking longer to pay suppliers

* Increases CFO

Capitalising interest – decreases CFI and increases CFO, and affects earnings over time

Under IFRS, interest and dividends paid can be classified under CFO or CFI

**Warning signs of manipulation**

Revenue recognition

* Changes in revenue recognition methods
* Bill-and-hold transactions
* Barter transactions
* Rebate programmes that require estimation of rebates on net revenue
* Lack of transparency about how components are recorded as revenue
* Revenue growth out of line with peers
* Receivables turnover decreasing over many periods – indication of channel stuffing
* Total asset turnover decreasing, especially during acquisitions
* Inclusion of non-operating or one-time items into revenue

Inventories

* Declining inventory turnover ratio
* LIFO liquidations – COGS look lower

Capitalisation, depreciation, salvage values out of line with industry

Operating cash flow to net income is persistently <1 or declining

Significant transaction with related parties

Minimal disclosure from management

Emphasising non-GAAP earnings

Classifying expenses as non-recurring frequently or incorrectly

Growth through many acquisitions can create many opportunities manipulate asset values and D&A

Q4 earnings patterns not caused by seasonality

**4.12 Financial analysis techniques**

**Common size analysis**

Vertical common size balance sheet:

Vertical common size income statement:

Examples: Gross profit margin, op profit margin

Horizontal common size analysis:

* Standardise the year 1 value to 1.0, and divide all future values by year 1 value

**a) Ratios**

**i) Activity ratios**

Show how efficiency a firm is managing its assets

Often use average values: Average the beginning and ending amounts

**Receivable turnover:**

High receivables turnover can show:

* Positive: Good at managing credit terms
* Negative: Might have stringent credit terms, might be giving discounts for early payment

Days sales outstanding:

**Inventory turnover:**

High inventory turnover can show:

* Positive: Good at managing inventory
* Negative: Might have too low inventory which can lose sales

Days of inventory on hand:

**Payables turnover:**

High payables turnover can show:

* Positive: Paying early to get discounts, no short term cash flow problems
* Negative: Might not be taking advantage of supplier credit terms

Days of payables:

**Total Asset turnover**

Total asset turnover shows the effectiveness of its total assets in creating revenue:

Ratio depends on how asset heavy an industry is

Ideal to have total asset turnover to be close to the industry norm

* Low: Might have too much capital
* High: Too few assets for sales, or asset base is outdated

**Fixed asset turnover**

Net includes accumulated depreciation

* Too high may mean assets are all old

**Working capital turnover**

**ii) Liquidity ratios**

Show ability to pay short term liabilities

**Current ratio:**

Current ratio < 1 means the company has negative working capital

* Probably facing liquidity crisis

**Quick ratio:**

Show ability to pay short term bills

**Cash ratio:**

Most conservative liquidity measure

**Defensive internal ratio:**

Shows no. of day of average cash expenditures the firm can pay with it current assets

* Expenditures include COGS, SG&A, R&D

**Cash Conversion Cycle**

Show time it takes to turn firm’s cash investment in inventory back into cash

High CCC means too much capital investment in the sales process

Shows whether cash is received from customers first, or cash is paid to suppliers first

**iii) Solvency ratios**

Solvency ratios show leverage and ability to meet long term obligations

**Debt to equity**

Shows mix of fixed cost financing sources

Total debt: Interest bearing long term and short term debt excluding leases

* Just for CFA exam

**Debt to capital**

Shows proportion of debt

**Debt to assets ratio**

**Financial leverage ratio**

Shows how much assets are funded by equity

**Interest coverage ratio**

Shows ability to meet interest payments

**Fixed charge coverage ratio**

Shows ability to meet interest and lease payments

**iv) Profitability ratios - operating**

Show the performance of the firm relative to revenue

Net profit margin:

Gross profit margin:

Operating profit margin:

EBIT includes some non-operating items

Pretax margin:

**v) Profitability ratio – funds invested**

**Return on assets:**

Can be misleading: Excludes interest from net income, but total assets includes debt

Can use alternative calculation instead:

**Operating ROA:**

**Return on invested capital (ROIC):**

Long term capital includes: Long term debt, preferred equity, common equity

* Excludes working capital

**Return on Equity:**

Total equity: Includes common and preferred stock

Return on common equity:

**b) Dupont Analysis**

Dupont equation takes ROE and splits it up:

If ROE is low: One of the above ratios must be low

Can split Dupont 5 ways:

is the tax burden

* Equal to

is the interest burden

This shows more leverage (5th term larger) doesn’t always increase ROE

* As leverage rises, the interest burden increases (2nd term smaller)

**c) Industry specific ratios**

Net income/sales per employee

* For service and consulting companies

Growth in same store sales

* Restaurants and retail
* Shows how well existing customers are kept

Sales per square foot

* Retail

Average daily rate (room revenue/no. of rooms sold)

* Hotels

ARPU

* Subscription services

Banks, insurance and financial firms have to maintain within ranges of certain ratios for regulations

* Capital adequacy – buffer to absorb losses
* Reserve requirements – ratios of liabilities to CB reserves above minimums
* Net interest margin – interest income divided by interest earning assets

**Business risk**

Coefficent of variation for a variable is standard deviation divided by expected value

Can be done for any line item

**Variability of financial outcomes**

Three methods of examining variability of financial outcomes

1) Sensitivity analysis

* What if questions with a range of parameters

2) Scenario analysis

* Based on specific scenarios

3) Simulation

* Uses probability distributions for key variables and generates distribution of values for outcomes

**4.13 Introduction to Financial Statement Modelling**

**Creating a model**

1) Estimate revenue growth, based on market growth and share

2) Estimate COGS based on % of sales

3) Estimate SG&A as fixed or growing with revenue

4) Estimate financing costs using interest rates, debt, expected capex, financial structure

5) Estimate income tax expense and cash taxes

6) Model the balance sheet based on flows in income statement

7) Use D&A and capex to estimate net PPE

8) Make a pro forma cash flow statement from pro forma income statement and balance sheet

**Behavioural factors affecting analyst forecasts**

1) Overconfidence bias

* Underestimate their own errors 🡪 Confidence interval too narrow

2) Illusion of control bias

* Overestimating what can be controlled
* Examples: Seeking expert opinions to justify a forecast, making model too complex

3) Conservatism bias/Anchoring

* Only making small adjustments to prior forecasts

4) Representativeness bias

* Tendency to rely on known classifications
* Base rate neglect: Rate of incidence in larger population is neglected in favour of specific information
* Inside view is fixating on company-specific factors, outside view is viewing the company within the industry

5) Confirmation bias

* Seek out data to affirm earlier convictions, and disregard information which challenges those opinions

**Porters 5 forces**

Threat of substitute products

Intensity of industry rivalry

Bargaining power of suppliers

Bargaining power of buyers

Threat of new entrants

**Forecasting in inflation and deflation**

Companies can hedge input costs through fixed price contracts for future delivery

* Reduce effect of short term price changes

Vertical integration reduces input cost risk

Need to model how quickly costs can be passed onto customers, and the effect on volume and revenue

* Need to monitor production costs by location
* Need to estimate elasticity of demand – affected by substitutes

**Forecast horizons**

Buy side analyst: Appropriate forecast horizon is the holding period for the stock

Highly cyclical companies: Forecast horizon should be long enough to include the middle of the business cycle

* These are normalised earnings – earnings when events/cyclicality no longer affects

M&A and restructuring are considered temporary

* Forecasts should be long enough for the benefits to be felt (or not)

Revenue growth for long term: Can assume trend growth rate of previous cycle

Terminal value can be estimated using the multiple approach or DCF approach

* Multiple: Use a multiple that is consistent with estimated growth rate and WACC
* DCF: Should be normalised to a midcycle value not affected by temporary events