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BAR Notes – B1 Risk Management and Economic Analysis

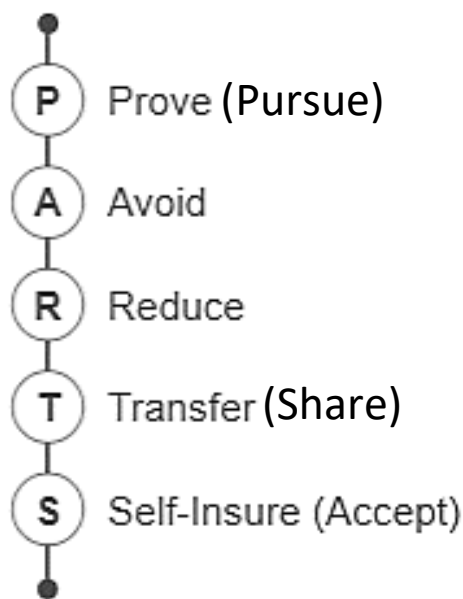
ERM Framework

Governance and Culture	D	Defines d esired culture
	O	Exercises board o versight
	V	Demonstrates commitment to core v alues
Strategy and Objective-Setting	E	Attracts, develops, and retains capable individuals (e mployees)
	S	Establishes operating s tructure
	S	Evaluates alternative s trategies
	O	Formulates business o bjectives
Performance	A	A nalyzes business context
	R	Defines r isk appetite
	V	Develops portfolio v iew
	A	A ssesses severity of risk
Review and Revision	P	P rioritizes risk
	I	I dentifies risks (events)
	R	R esponds to risk
Information, Communication, and Reporting (Ongoing)	S	S ubstantial change
	I	I mprovement in enterprise risk management
	R	R eviews risk and performance
	T	T echnology and information

Drive Processes

Mission: Core purpose <-- Strategy & Business Objectives
Vision: Aspirations/goals <-- Strategy & Business Objectives
Core Values: Beliefs/ideals <-- Culture

Risk Responses



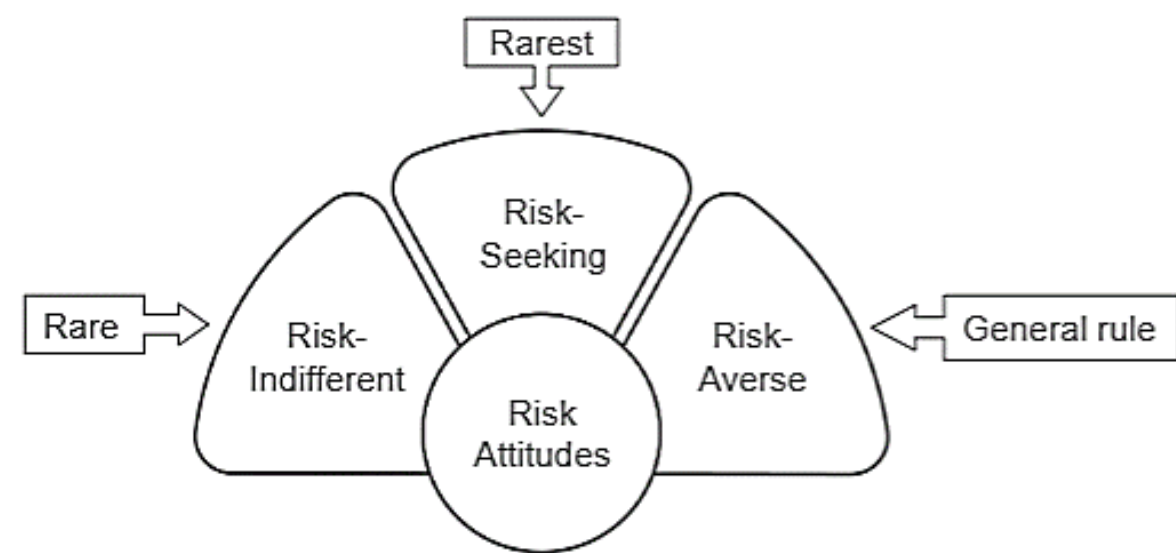
Cost-Benefit Analysis

Benefit = impact x (%risk - proposed%)
 Cost = Given
 Net Benefit = Benefit-cost

Assessing Risks

Inherent Risk = mgmt does nothing
Residual Risk = After mgmt takes actions

Financial Risk Management



(Non) Market Risk

- D** Diversifiable risk
- U** Unsystematic risk (nonmarket/firm-specific)
- N** Nondiversifiable risk
- S** Systematic risk (market)

Risk & Return: Result of market conditions and risk preferences

Stated Interest Rate

Given, nominal rate

Effective Interest Rate

$$\frac{\text{Payment per period}}{\text{Net proceeds of loan}}$$

Annual Percentage Rate (APR)

$$\frac{\text{Periodic PMT}}{\text{Net Proceeds}} \times \text{number of periods}$$

Effective Annual Percentage Rate

$$[(1 + \text{effective periodic rate})^n] - 1$$

Simple Interest

$$P_0(i)(n)$$

Compound Interest

$$P_0(1+i)^n$$

Currency Exchange – Risk Exposures

Transaction – settlement

Economic – CF FV (org-wide)

Translation – FS components (subs)

Currency Exchange Rates – Influences

Trade-Related Factors

- Relative inflation rates
- Relative income levels
- Government controls (*Trade restrictions*)

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Financial Factors

- Relative interest rates
- Capital flow

Required Rate of Return

Real rate of return

+ Inflation premium (IP)

 Nominal rate of return

+ Risk premium:

Interest rate risk (MRP)

Liquidity risk (LP)

Default risk (DRP)

Required rate of return

Call = buy (-premium)

Put = Sell (+premium)

Market Influences on Business

Law of Demand

As $P \uparrow$, $Q_D \downarrow$ (inverse-)

Due to substitution and Income effect

Factors that shift Demand

Wealth

Related Goods (Substitute/Compliment)

Consumer Income

Consumer Tastes or Product Preferences

Consumer Expectations

Number of buyers served by market

Law of Supply

As $P \uparrow$, $Q_S \uparrow$ (direct+)

In supply side, all inputs are variable

Factors that shift Supply

Price Expectations of supplying firm

Production Costs

Price or demand of Other goods

Subsidies or taxes

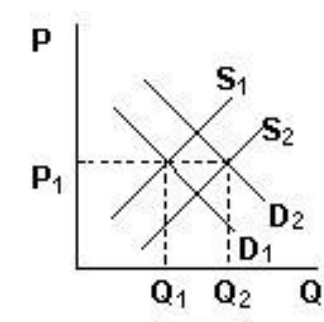
Production Technology

Shift

New line. Change in demand/supply

Movement

Movement in same line. Change in quantity demanded/supplied



Market Equilibrium

Point at which supply and demand curve intersect

Government Intervention in Market

Price Ceiling = [$<$ equilibrium] shortage | Price Floors = [$>$ equilibrium] surplus

BAR Notes – B1 Risk Management and Economic Analysis (Cont.)

Price Elasticity of Demand/Supply

$$E_p = \frac{\% \Delta \text{ in quantity demanded/supplied}}{\% \Delta \text{ in price}}$$

Interpretation:

- Unit Elasticity = 1
- Elastic = >1 [normal treatment]
- Inelastic = <1 [opposite treatment]
- Perfectly Inelastic = 0 (insulin, electricity, heater)

Income Elasticity of Demand/Supply

$$I_e = \frac{\% \Delta \text{ in \# of units of X demanded/supplied}}{\% \Delta \text{ in income}}$$

Interpretation:

- Normal = +
- Inferior = -

Cross Elasticity of Demand/Supply

$$C_e = \frac{\% \Delta \text{ in \# of units of X demanded/supplied}}{\% \Delta \text{ in price of Y}}$$

Interpretation:

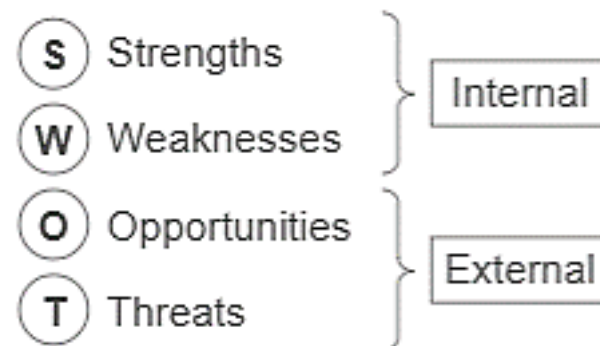
- Substitute = +
- Complementary = -
- Unrelated = 0

$$\% \Delta = \frac{\text{New-Old}}{\text{Old}}$$

Inflation

Prices ↑, purchasing power ↓
(Alternative Investments used to hedge)

Factors that Influence Strategy



Porter's Five Forces

- Barriers to Entry – impediments
- Market Competitiveness – intensity
- Existence of Substitute Products
- Bargaining Power of the Customers – One customer is large % of business (bad)
- Bargaining Power of the Suppliers – not many suppliers or difficult to switch (bad)

Competitive Strategies

- Cost Leadership – match or sell less than rival
- Product Differentiation – “superior” product
- Best Cost – Cost leadership and product differentiation
- Focus/Niche Strategy – Small group/niche

International Business Operations

Motivations

- Comparative advantage
- Imperfect markets
- Product cycle

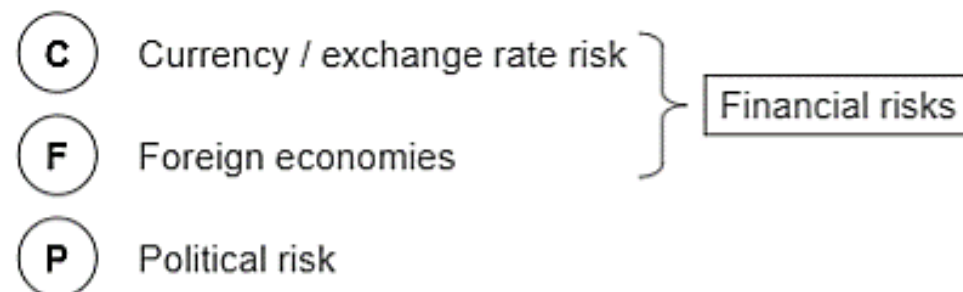
Methods

- Franchising
- International Trade
- Licensing
- Joint Ventures
- Direct Foreign investment (DFI) – subs
- Global Sourcing

Economic Systems

- Centrally Planned Economies [China] – Gov restricted
- Market Economies [US, Japan] – Individuals/Industry
- Conglomerates – Cross Shareholders. Creates Self-sustaining entities. VIOLATES U.S. ANTI TRUST LAWS

Inherent Risks



Sourcing Requirement

(Content or value-added limits)
Tariff reductions for specified % of materials/labor bought

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Culture

- Individualism vs collectivism
- Uncertainty avoidance
- Short-term vs long-term orientation
- Acceptance of leadership Hierarchy
- Technology & Infrastructure

The Economic Effect of Significant Transactions

Business Combinations – Types

- horizontal; ← Between competitors
- vertical; ← Companies in similar industry, but in different stages of production
- circular; and ← Remote connections between entities
- diagonal combinations. ← Entity that provides ancillary support



Three Cs:

- Circular combination
- Centralized management
- Cost reduction

Business Combinations – Types

- mergers; ← Company A + Company B = Company C
- acquisitions; ← Company A buys Company B = Bigger Company A
- consolidations; ← Combined financial statements of parent company and subsidiaries
- tender offers; ← Acquiring company makes an offer directly to shareholders
- purchases of assets; and ← Buy a division or a product line from a larger conglomerate
- management acquisitions.

Divestitures

- Sell-Offs – Sale of a subsidiary [Probably underperforming]
- Spin-Offs – New independent company separate from parent [Some potential. Unlock value]. No Cash Inflow
- Equity Carve Out – Sub made public through IPO [See a lot of value]. Generates cash and provides parent with controlling interest

BAR Notes – B2 Financial Management

Capital Structure

Debt Financing

Fixed cost

Advantage: interest expense is tax deductible

Amount borrowed × Cost of borrowing × Tax rate = Interest tax shield



- Lender's (investor's) required rate of return dictates issuer (borrower's) cost of borrowing.
- Cost long term > Cost short term
- Riskier the security, higher the cost.

Equity Financing

Variable cost → Dividends not legally required

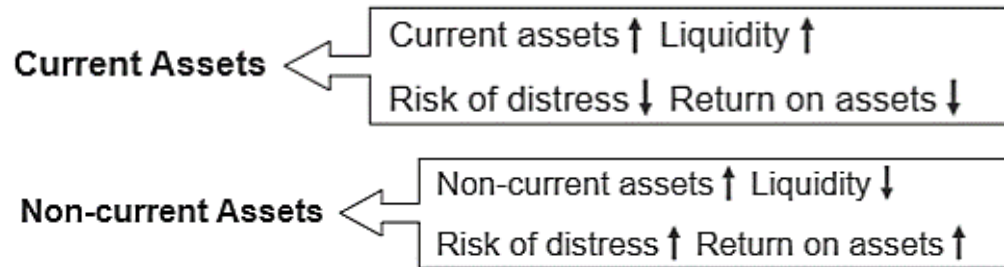
No maturity risk thus creditworthiness of corp ↑

Cost CE > Cost PE > Cost debt

Most expensive ↔ least expensive

	Debt	Equity
Flexibility	No	Yes
Tax deductibility	Yes	No
EPS dilution	No	Yes
Increased financial risk	Yes	No
Security issuance costs	Low	High
Investor return	Fixed	Variable

Asset Structure



Growth Rate (g)

ROA x Retention

1 - (ROA x Retention)

OR ROE ↑ x Retention Rate ↑

Operating Leverage

% Change in EBIT = Degree of Operating Leverage (DOL)

% Change in Sales

↑ fixed costs = ↑ leverage (↑ return, ↑ risk) Beneficial when Revenue >

Financial Leverage

% change NI or EPS = DFL

% change EBIT

Debt use vs equity

> EBIT to cover fixed interest costs

Profitability

- Return on Sales (ROS) = EBIT/Net Sales
- Return on Investment (ROI) = NI/Avg Investment Capital
- Return on Assets (ROA) = NI/Avg Total Assets
- Return on Equity (ROE) = NI/Avg Total Equity
Or ROA x Degree of Financial Leverage

Value of a levered firm

Value of unlevered firm + PV of Interest Tax Savings = Value of levered firm

Value of unlevered firm + $\frac{\text{Corporate tax rate} \times (\text{Interest} \times \text{Debt})}{\text{Interest}}$

Value of unlevered firm + TID/I = Value of levered firm

Weighted Average Cost of Capital (WACC) Hurdle rate [Want ↓]

(RE Cost\$ · RE fmv%) + (PS Cost% · PS fmv%) + ([Debt Cost% · (1-tax)] · Debt fmv%)

○ Cost = Expected Rate of Return

○ Fmv = finance% <https://www.facebook.com/groups/1632715387517897>

Cost of Debt

↑ tax rate = ↑ incentive to use debt financing

Effective annual interest payments = Pretax cost of debt x (1-tax) = After tax Cost of Debt
Debt outstanding

Cost of Preferred Stock

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Dividend/Market Price

Formula

Cost of preferred stock = $\frac{\text{Preferred stock dividends}}{\text{Net proceeds of preferred stock}}$

Dividend percentage × Par value

Outflow
Inflow

Cost of Retained Earnings

3 methods. If all 3 available, take average

- Capital asset pricing model (CAPM) ← Need beta to calculate
- Discounted cash flow (DCF) ← Need dividend yield to calculate
- Bond yield plus risk premium (BYRP) ← Need pretax cost of debt to calculate

Capital Asset Pricing Model (CAPM)

RF BMR

- = Risk-free rate + Risk premium
- = Risk-free rate + (Beta × Market risk premium)
- = Risk-free rate + [Beta × (Market return – Risk-free rate)]

Beta = stock price% change to overall market value

- 1 = stock is as volatile as market stock
- <1 = stock is less volatile than market
- >1 = stock is more volatile than market

Bond Yield plus Risk Premium

BYRP

Pretax cost of debt + Market Risk Premium
Bond Yield + Market Risk Premium

Discounted Cash Flow

$$= \frac{D_1}{P_0} + g$$

$$D_1 = D_0 \times (1 + g)$$

Dividend growth model

Market Value

BS total x Trading\$

Par

Applies to CS, PS, Debt

%s of all 3 gives

fmv% (AKA finance%)

Working Capital Management

Motives for holding cash

- Transaction motives
- Speculative motives
- Precautionary motives

Methods of ↑ Cash Level

- Speed up Cash Inflows – faster AR
- Slow down Cash Outflows – Delayed (deferred) disbursement
- Operating Conversion Cycle = ↓ # days to sell/collect to ↓

Inventory



Too much: Carrying costs ↑, Profit ↓
Too little: Lost Sales ↓, Profit ↓

Determination of optimal level of Inventory

- Safety Stock
- Reorder Point
- Economic Order Quantity
- Inventory turnover
- Materials Requirements Planning



Reorder point = Safety stock + (Lead time × Sales during lead time)

Safety stock ← Cushion



$$E = \sqrt{\frac{2SO}{C}}$$

Economic Order Quantity

Sales (units)

Order Costs

Carrying Costs/unit

BAR Notes – B2 Financial Management (Cont.)

Other Inventory Management Issues

- Just-in-Time Inventory Models – ↓ lag time
- Kanban Inventory Control – Visual signals
- Computerized Inventory Control – cashier/stockroom (instant) communication

$$\text{APR of quick payment discount} = \frac{360}{\text{Pay period} - \text{Discount period}} \times \frac{\text{Discount \%}}{100\% - \text{Discount \%}}$$

Supply Chain Operations Reference (SCOR) Model



SCOR Model: Plan, source, make, deliver

Short-term Financing

Advantages

- Increased liquidity
- Increased profitability
- Decreased financing costs

Disadvantages

- Increased interest rate risk
- Decreased capital availability

Long-term Financing

Advantages

- Decreased interest rate risk
- Increased capital availability

Disadvantages

- Decreased liquidity
- Decreased profitability
- Increased financing costs

Financial Valuations Methods

Absolute Valuations Models

Assigns intrinsic value based on PV of FCFs

- Annuities/Perpetuities
- Constant Growth Dividend Discount Models

Annuities/Perpetuities

[Zero growth stock] Dividend assumed constant. D/R

$$\text{Stock Price} = \frac{\text{Fixed Dividend}}{\text{Required Return}} \leftarrow \text{constant}$$

$$\text{Required Return} \leftarrow R = R_f + B(M - R)$$

Constant (Gordon) Growth Dividend Discount Models (DDM)

Dividend assumed to grow at constant rate. $D_1/R - G$

$$\text{Price} = \frac{\text{Dividend after 1 year}}{\text{Required Return} - \text{Growth}} \leftarrow \text{if given current Dividend, do } D \times (1+G)$$

$$\text{Required Return} - \text{Growth} \leftarrow R = R_f + B(M - R)$$

Relative Valuation Models

Use value of comparable stocks

- P/E Ratio
- PEG Ratio
- P/S Ratio
- P/CF Ratio
- P/B Ratio

Price-Earnings Ratio

P/E_1

$$\text{P/E Ratio} = \frac{P}{E_1} \leftarrow \text{Stock price/value today}$$

$$E_1 \leftarrow \text{Expected EPS in 1 year}$$

Price-to-Sales Ratio

P/S_1

$$\text{P/S Ratio} = \frac{P}{S_1} \leftarrow \text{Stock price/value today} = \frac{\text{market capitalization}}{\text{shares outstanding}}$$

$$S_1 \leftarrow \text{Expected sales in 1 year} = \text{sales/shares outstanding} \times (1 + \text{growth})$$

PEG Ratio

PE_1G

$$\text{PEG Ratio} = \frac{P}{E_1} \leftarrow \text{Stock price/value today}$$

$$\frac{E_1}{G} \leftarrow \text{Expected EPS in 1 year}$$

$$G \leftarrow \text{Growth rate} \times 100$$

Price-to-Cash-Flow Ratio

P/CF_1

$$\text{P/CF Ratio} = \frac{P}{CF_1} \leftarrow \text{Stock Price/value today}$$

$$CF_1 \leftarrow \text{Expected CF in 1 year (per share)}$$

Price-to-Book Ratio

P/B

$$\text{P/B Ratio} = \frac{P}{B} \leftarrow \text{Stock price/value today}$$

$$B \leftarrow \text{BV of common equity (per share)}$$

Valuing Debt Instruments

PV of FCFs

Ex: \$1,000 face, pays 4% interest, 5% market rate, 3 yr bonds

$$\$1,000 \times 4\% = \$40$$

$$1^{\text{st}} \text{ year} = \$40/1.05 = 38.10 \text{ interest}$$

$$2^{\text{nd}} \text{ year} = \$40/1.05/1.05 = 36.28 \text{ interest}$$

$$3^{\text{rd}} \text{ year} = \$40/1.05/1.05/1.05 = \$34.55 \text{ interest}$$

$$\$1,000/1.05/1.05/1.05 = \$863.84 \text{ principal} = \$898.39 \text{ total}$$

$$\text{Total value} = \$972.77$$

Valuing Tangible Assets

- Cost Method – Cost - AD = NBV
- Appraisal Method – Professional appraisal
- Liquidation Method – Amount if sold today
- Market Value Method – SP - Cost to Sell = NRV

Valuing Intangible Assets

- Market Approach – Similar markets
- Income Approach – Discount rates [FCF to PV]
- Cost Approach – Replacement/Reproduction Cost

Option Pricing Models

- **Black-Scholes Model** – one point in time [European-styled = exercise at maturity] = NO transactions costs
- **Binomial Model** – over a period of time [American-styled = exercise at any time until maturity]

Fair Value Measurement: All of these are **MARKET** approaches!

- **Hierarchy Valuation Techniques:** 1 = High priority/reliable, 3 = Low priority
 - Level 1 = **ACTIVE** market, **IDENTICAL** asset
 - Level 2 = **SIMILAR** asset **active** or **identical INACTIVE**
 - Level 3 = **UNOBSERVABLE** assumptions/estimate (DCFs)

Principal Market = Greatest **volume/activity** sold (by **SUPPLIERS!**)

Most Advantageous Market = (if no principal market) **\$Quoted** - Transaction\$ = Net >

- FV = Quoted\$ for the 1 with the greatest > Net!

Financial Decision Models

Stages of Cash Flows

- Inception of the project (time period zero)
- Operations
- Disposal of the project

Depreciation expense x tax% =
Depreciation tax shield

Pre-Tax Cash Flows

Δ EBITDA

After-Tax Cash Flows

Δ EBITDA x (1-tax%) or
Cash Inflows x (1-tax%)
+ Depreciation x tax%
After-tax CF

Discounted Cash Flow

NPV = Absolute value \$

IRR = Relative value %

NPV superior to > IRR. NPV is flexible and can handle inconsistent rates of return

Net Present Value (NPV) Method

- Calculate After-Tax Cash Flows: Annual net CF x (1-tax%)
- Add depreciation tax shield: Depreciation x tax%
- [Final year, add SV: SV x (1-tax%)]
- Multiply result by PV for each year
- Subtract initial cash outflow (hurdle) x 1 PV

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NPV results in the profit or loss in dollars
 $NPV = \sum PVFCF - \text{Today's cost}$
 Positive NPV: profit
 Negative NPV: loss

BAR Notes – B2 Financial Management (Cont.)

Capital Rationing – Profitability Index

Add next highest until \$capital to invest reached

$$\uparrow \text{Profitability index} = \frac{\text{Present value of cash flows} \uparrow}{\text{Cost (present value) of initial investment} \downarrow}$$

The higher the better

Internal Rate of Return (IRR)

Expected rate of return of a project
[Determines PV factor that yields NPV = to 0]
\$Earn/Investment\$ = % (@ discount rate)

Accept if IRR > Hurdle rate
IRR ignores the size of investment

Payback Period Method

Time to recover initial investment
(disregarding time value of money)

$$\frac{\text{Investment}}{\text{Net cash savings}}$$

Nonuniform Cash Flows

$\frac{\text{CF needed to attain cumulative} + \text{years earned}}{\text{CF next year}}$

Discount Payback Method

AKA Break Even Time Method (BET)
[considers time value of money]

$\frac{\text{PVF CF needed to attain cumulative} + \text{years earned}}{\text{PVF CF next year}}$

$$\text{PV} = \frac{\text{FV}}{(1+r)^n} \quad \text{PV factor} = \frac{1}{(1+r)^n}$$

Economic Value Added (EVA) Method

$$\text{Economic value added} = \text{Net operating profit after taxes (NOPAT)} - \text{Required return}$$

Form of economic profit Investment × WACC

+ EVA = + economic profit and strong performance
- EVA = economic loss and poor performance

Marginal Analysis

Avoidable Costs/Revenue

Results from choosing a course of action vs another = Relevant cost

Unavoidable Costs

Same regardless of chosen course = Not Relevant

Opportunity Costs

Forgoing next best alternative

Make vs Buy Decision

Select lowest cost alternative.

Avoidable = cost of making product = relevant

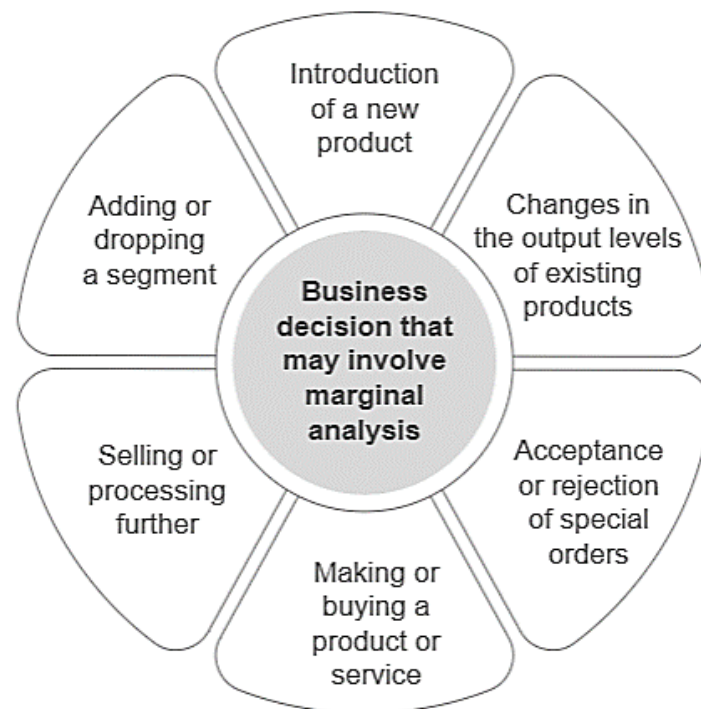
Excess Capacity

Make if: Cost to buy > Variable and Avoidable cost/unit

No Excess Capacity

Include opportunity costs

Make if: Cost to buy > Variable cost and Avoidable cost/unit + Opportunity Cost



Special Order Decision

Accept or reject specially priced order
Relevant Revenue must be > Relevant Costs

Presumed Excess Capacity

Accept if: SP/unit > Variable cost/unit

Presumed Full Capacity

Include opportunity costs [contribution margin/units]
Accept if: SP/unit > Variable cost/unit + Opportunity Cost

Sell or Process Further Decision

Additional processing.

Joint costs = Untraceable = sunk cost = not relevant

Separable = incurred after split-off and traceable = relevant

Incremental Revenue = New SP – current SP [AKA additional]

Process Further

Incremental Revenue > Incremental Costs

Sell at split-off

Incremental Revenue < Incremental Costs

Keep or Drop a Segment

Basically, drop segment if the unavoidable fixed costs [new NI] > current NI

Keep Segment

Lost contribution margin > Fixed Costs

Drop Segment

Lost contribution margin < Fixed Costs

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BAR Notes – B3 Operations Management

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Cost Accounting

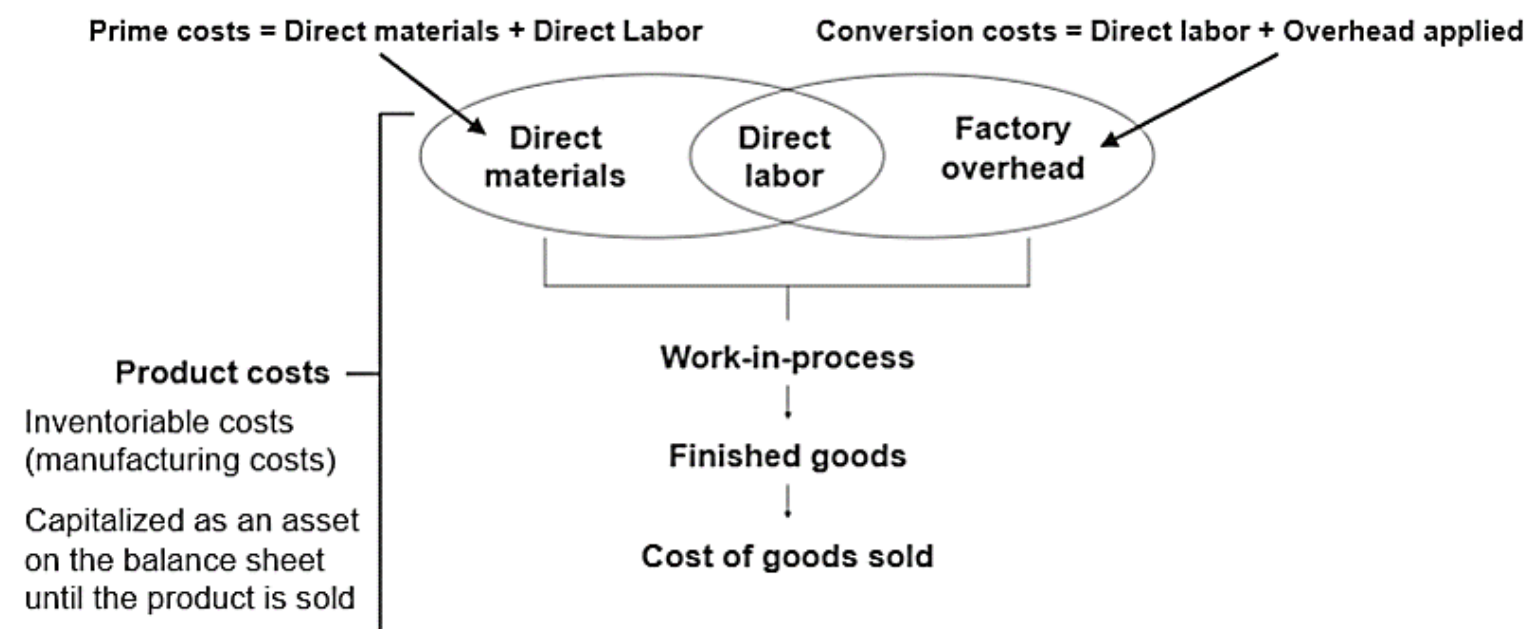
Focus of Cost Objectives

- **Product Costing** – inventory, COGS manufactured and sold
- **Income determination** – profitability
- **Efficiency** – comparisons to standards

Relationship between Raw Materials, WIP [COGM], and Finished Good [COGS]

Raw Materials	Beginning Raw Materials Plus: Raw Materials Purchased Less: Ending Raw Materials Equals: Raw Materials Used
Work in Process (WIP)	Beginning WIP Plus: Manufacturing Costs Less: Ending WIP Equals: Inventory to Finished Goods (COGM)
Finished Goods	Beginning Finished Goods Inventory Plus: Inventory to Finished Goods (COGM) Less: Cost of Goods Sold (COGS) Ending Finished Goods Inventory

Product Costs



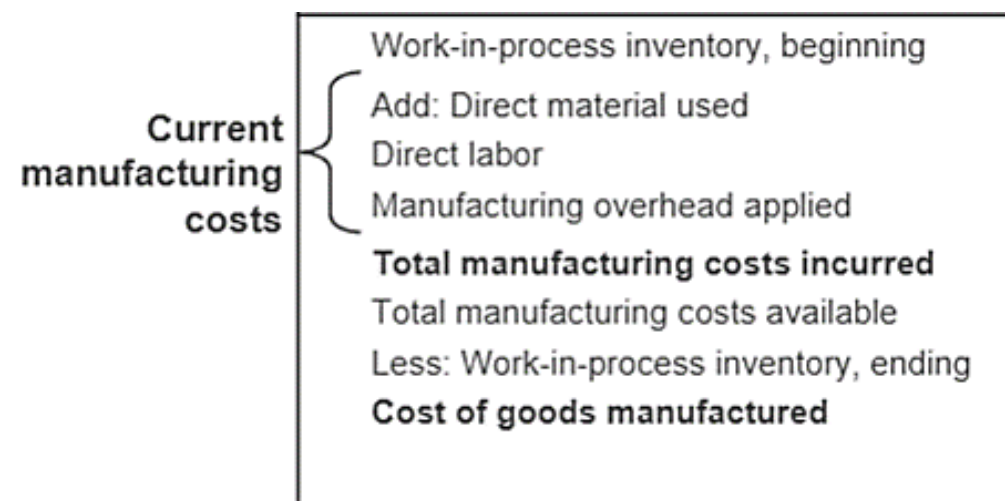
Period Costs

Expensed in the period incurred. SG&A (includes interest and abnormal costs)



Costs of Goods Manufactured (COGM)

Manufacturing costs of products completed



Costs of Goods Sold (COGS)

Manufacturing costs of products completed

- ⓑ Finished goods inventory, beginning
- ➕ Add: Cost of goods manufactured
- ⓐ Cost of goods available for sale
- Ⓛ Less: Finished goods inventory, ending
- ⓔ **Cost of goods sold**

Cost Accumulation Systems

- **Job-Order Costing** – cost object is a custom order
- **Process Costing** – mass-produced, homogenous product
- **Operations Costing** – components of job and process costing
- **Backflush Costing** – accounts for costs at end of process
- **Life-cycle Costing** – monitors costs throughout its life

Traditional Cost Accounting System

Single cost pool and driver

- 1 Calculate standard overhead rate:

$$\frac{\text{Budgeted overhead costs}}{\text{Estimated cost driver}} = \text{Overhead rate}$$
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- 2 Apply overhead:
 Applied overhead = Actual cost driver x Overhead rate

Activity-Based Costing System (ABC)

Multiple cost pools, cost drivers, and overhead rates
Can be part of job-order or process costing system

Overhead rate: Done for each cost pool!

- Overhead rate = $\frac{\text{Total OH costs}}{\text{Estimated Cost driver}}$
- Applied OH = Actual cost driver x OH rate

By-Product Costing

Incidental outputs of relatively minor value that have sales value too low to cover share of common costs

- Revenue earn credit to Joint Costs – Common Costs - BP SP
- Revenue may be credited to miscellaneous income

Process Costing

Large volume of homogenous items

FIFO

- 1 FIFO equivalent units
- 2 FIFO cost per equivalent unit

Pass Key

FIFO (three steps) (1-% already completed)

Beginning WIP × % to be completed XXX

(Units completed - Beginning WIP) + XXX

Ending WIP × % completed + XXX

Equivalent units XXX

Started and completed

Pass Key

$$\text{FIFO} = \frac{\text{Current cost only}}{\text{Equivalent units}}$$

Weighted Average (WA)

- 1 Weighted average equivalent units
- 2 Weighted Average equivalent unit

Pass Key

Weighted average (two steps)

Units completed XXX

Ending WIP × % completed + XXX

Equivalent units XXX

Pass Key

$$\text{Weighted average} = \frac{\text{Beginning cost} + \text{Current cost}}{\text{Equivalent units}}$$

Joint Product Costing

2 or more product generated from a common input (up to split-off point)

Total cost = Direct (separable) cost + \$ share of joint cost

- Example: Direct costs \$25,000 A, \$50,000 B, \$10,000 joint. Volume A 10,000-gal, B 20,000-gal
- (10,000/30,000) vol x \$10,000 joint = \$3,333 + \$25k = \$28,333 A
- (20,000/30,000) vol x \$10,000 joint = \$6,667 + \$50k = \$56,667 B

Unit volume or NRV [SP - Cost to complete/dispose]

BAR Notes – B3 Operations Management (Cont.)

Performance Management

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Performance Measures

Provide feedback and link to incentives/goals

Financial Measures

- Financial scorecards (balanced)
- ROI, ROA, ROE
- Residual Income (RI)
- Economic Value Added (EVA)

Nonfinancial Measures

- External benchmarks (Productivity)
- Internal benchmarks (Quality Control)

External Benchmarks

How business compares to others in industry

Total Factor Productivity Ratio (TFP)

$$TFP = \frac{\text{Output quantity}}{\text{Input cost}}$$

Partial Productivity Ratio (PPR)

$$PPR = \frac{\text{Output quantity}}{\text{Specific input quantity}}$$

Internal Benchmarks

Find/analyze problems or measure performance. Minimal resources/effort

- Control Charts – compare actual result to an acceptable range
- Pareto Diagrams – Determine most frequent quality controls
- Cause-and-Effect (Fishbone) Diagram – Further analyze defects and identify source

Customer Retention Rate

$$CRR = \frac{E - N}{S}$$

E = number of total customers at the end of the period
N = number of new customers added within the period
S = number of existing customers to start the time period

Employee Turnover Rate

$$ETR = \frac{EL}{AE}$$

EL = summation of the total number of employees who leave within a specific time period
AE = average number of employees who work within the selected time frame

Labor Productivity Rate

$$LPR = \frac{O}{HW}$$

O = total output
HW = total hours worked

Ticket Response Time

Time between customer initiating service ticket and agent responding to it
[Want to reduce]

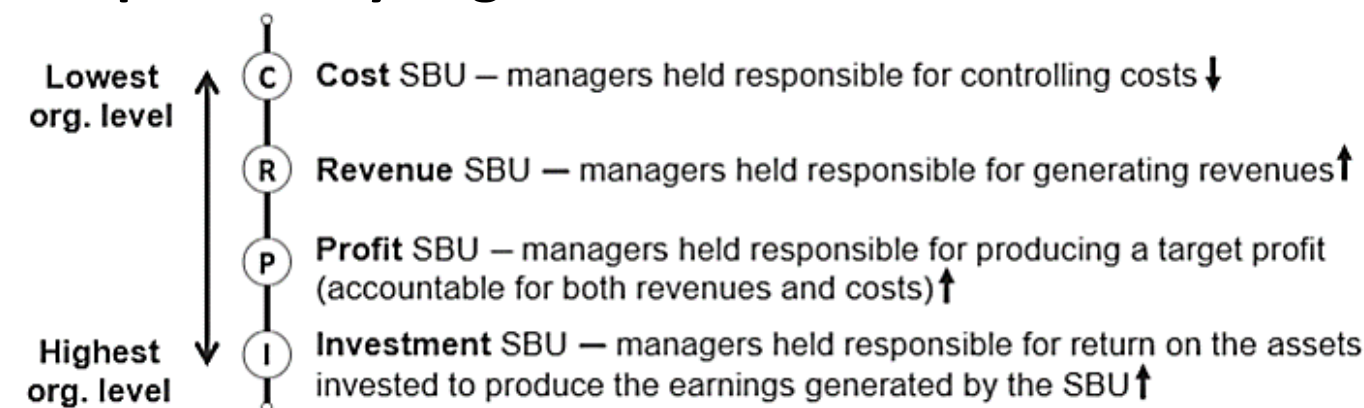
Non-GAAP Measures

- EBITDA – Earning before interest, taxes, depreciations, and amortization [Removes factors that do not impact operating performance]
- Free Cash Flow – Cash after paying operating expenses and capital expenditures
- Core Earnings – Profits derived from main/principal business
- Adjust NI for Nonrecurring Expense – NI adjusted by removing nonrecurring expenses, which are not expected to impact the IS in future years

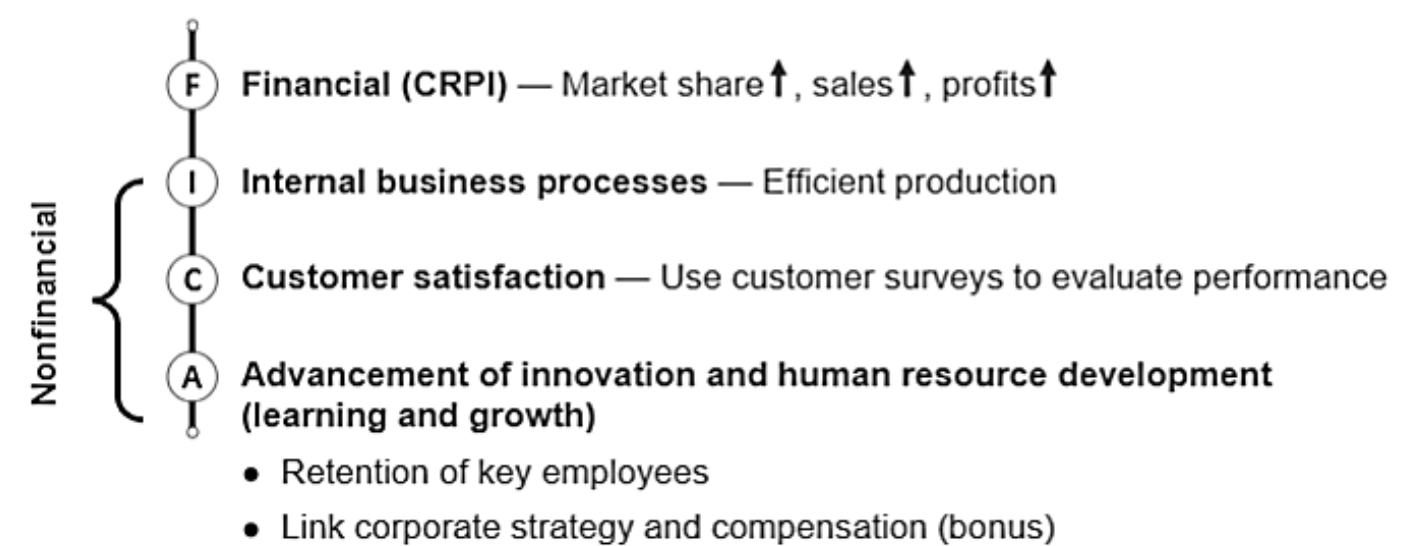
Financial Scorecards

Budget vs actual, other variance reports, and analysis of business performance

Responsibility Segments



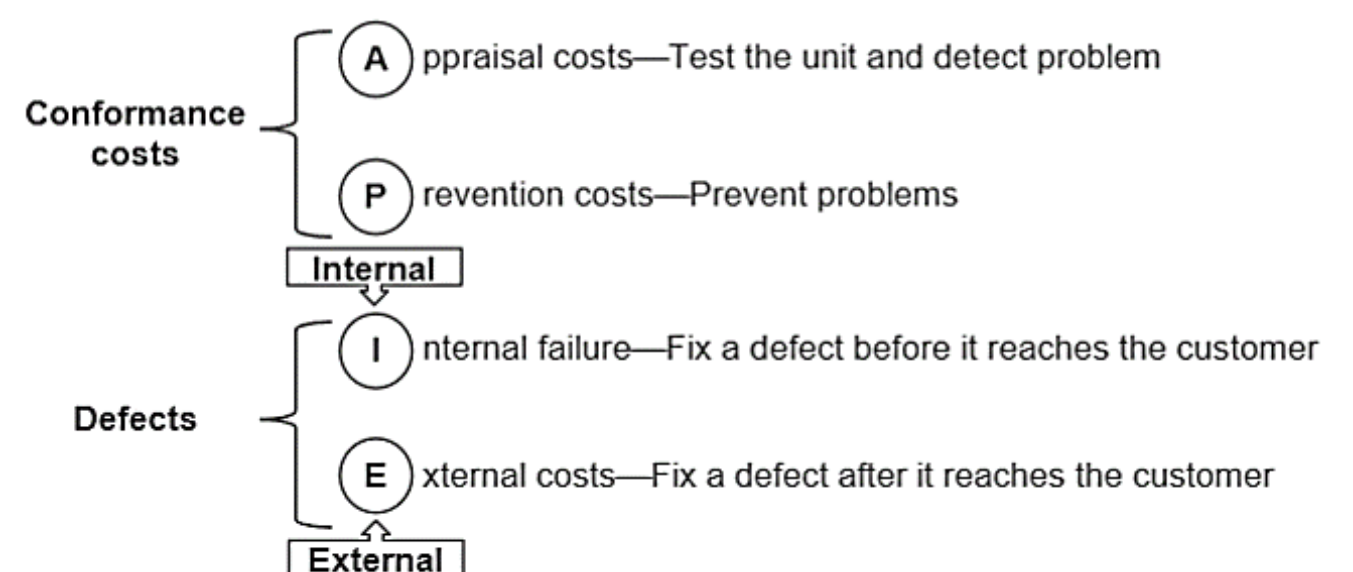
Balance Scorecard



Areas of Accountability

- Product Lines
- Geographic Areas
- Major Customers – most significant

Cost of Quality



1 Contribution margin = Revenues – Variable costs

2 Controllable margin = Contribution margin – Controllable fixed costs

Projection & Forecasting Techniques

All-CPA-CMA

Projection Techniques

Multiple, hypothetical scenarios that a business might follow

Sensitivity (What-if) Analysis

Use probabilities to approximate reality
[Change ONE thing]

Scenario Analysis

Multiple scenarios which represent alternative possible outcomes

- Expected sales growth/decline = (%likelihood * (+/-) growth%) + repeat
- Projected Sales = Previous sales \$ * (1 + % expected)

Simple Linear Regression Model

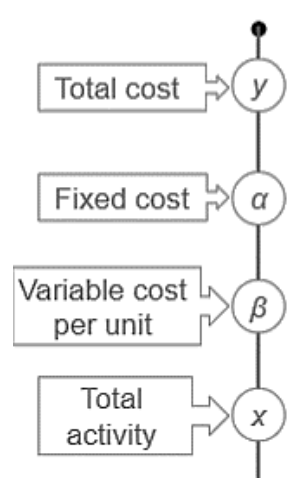
$$y = a + Bx$$

y is dependent variable

a is y-axis

B is slope of regression

x is independent variable



BAR Notes – B3 Operations Management (Cont.)

Coefficient of Correlation (r)

Measures strength of linear relation between x and y

- Positive correlation +1 [$\uparrow = \uparrow$, $\downarrow = \downarrow$]
- Inverse correlation -1 [$\uparrow = \downarrow$, $\downarrow = \uparrow$]
- No correlation 0

Coefficient of Determination (R²)

How much the change in y is explained by change in x

Learning Curve

As worker become more familiar with task, production will be more efficient [Repetitive, intense labor, and have little/no labor force turnover or breaks]

Avg time (2 units) = #first hours * % learning curve

Total time (2 units) = Avg time * 2 units

Avg time (4 units) = #Prior hours * % learning curve

Total time (4 units) = New avg time * 4 units

Same concept as above for 8 units

Cost-Volume-Profit (CVP)

Analysis

(Breakeven Analysis) used by managers to forecast profits at different levels of sales and production volume

Breakeven Analysis

Determines sales required to achieve zero profit/loss from operations

Breakeven Point in Units

$$\text{Breakeven point in units} = \frac{\text{Total fixed costs}}{\text{Contribution margin per unit}}$$

Breakeven Point in Dollars

$$\text{Breakeven point in dollars} = \text{Unit price} \times \text{Breakeven point (in units)}$$

$$\text{Breakeven point in dollars} = \frac{\text{Total fixed costs}}{\text{Contribution margin ratio}}$$

High-Low Method

Simple technique used to estimate the fixed and variable portions of costs

$$\text{Total cost} = \text{Fixed cost} + [\text{Variable cost per unit} \times \text{Number of units}]$$

1. Take difference of high and low total costs and volume
2. Divide to find variable cost/unit
3. Calc variable cost using either high or low numbers
4. Plug into the flexible budget formula (above) to calculate fixed costs

Period	Units/Volume	Cost
January	1,200	\$9,000
February	1,000	8,450
March	1,050	8,600
April	1,130	8,750
May	1,400	9,550
June	1,200	9,000
High	1,400	9,550
Low	1,000	(8,450)
Difference between high and low	400	\$1,100

Variable cost per unit = \$1,100 / 400 units = \$2.75 per unit

	High	or	Low
Units	1,400		1,000
Total cost of units	\$9,550		\$8,450
Variable costs @ \$2.75 per unit	(3,850)		(2,750)
Total fixed costs	\$5,700	=	\$5,700

Total costs = Fixed costs + (Variable costs per unit × Number of units)
Total costs = \$5,700 + (\$2.75 × Number of units)

Absorption vs Contribution Approach

Absorption Approach

[U.S.GAAP] Does not segregate between fixed and variable costs. Useful for external

Revenue
Less: cost of goods sold
Gross margin
Less: operating expenses
Net income

Contribution Approach

[Not GAAP] Uses variable (direct) costing. Useful for internal decision making

Revenue
Less: variable costs
Contribution margin
Less: fixed costs
Net income

Variable costs = direct labor/material/OH, shipping and packaging, variable selling expenses
Fixed costs = fixed OH, fixed SG&A

$$\text{Contribution Margin Ratio} = \frac{\text{Contribution Margin}}{\text{Revenue}}$$

Fixed Factory OH in both approaches

Absorption = Product cost (COGS) [Sold = product cost. Produced but not sold remains in inventory!]

Contribution = Period cost (Fixed Cost)

Fixed OH #units produced (fixed cost/unit) * Δ in inventory units = Δ in income

- No Δ in inventory: Absorption NI = Variable NI
- ↑ Inventory: Absorption NI > Variable NI
- ↓ Inventory: Absorption NI < Variable NI

Required Sales Volume for Target Profit

$$\text{Sales (units)} = \frac{\text{Fixed cost} + \text{Pretax profit}}{\text{Contribution margin per unit}}$$

$$\text{Sales} = \frac{\text{Fixed cost} + \text{Pretax profit}}{\text{Contribution margin ratio}}$$

$$\text{Sales dollars} = \text{Variable costs} + \text{Fixed costs} + \text{Pretax profit}$$

Setting SP

$$\text{SP/unit} = \frac{\text{Fixed costs} + \text{Variable costs} + \text{Pretax profit}}{\text{\# of units sold}}$$

Margin on Safety

Excess of sales over breakeven sales

$$\text{(in dollars)} = \text{Total sales (in dollars)} - \text{Breakeven sales (in dollars)}$$

$$\text{percentage} = \frac{\text{Margin of safety in dollars}}{\text{Total sales}}$$

Target Costing

Used to establish the product cost allowed to ensure profitability/unit and total sales volume

$$\text{Target cost} = \text{Market price} - \text{Required profit}$$

Budgeting

Budget Policies

Should include below key features

- Management participation – budget committee [including senior management]
- Budget guidelines – evaluate current conditions, mgmt instructions

Standards

Referred as per-unit budgets and integral to development of flexible budget

- Ideal standards – perfect efficiency and effectiveness in job performance [No spoilage]
- Current attainable standards – worked by employees with appropriate training and experience but without extraordinary effort [Spoilage/downtime]
- Authoritative standards – set exclusively management
- Participative standards – set by managers and individuals held accountable for them

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BAR Notes – B3 Operations Management (Cont.)

Master Budget

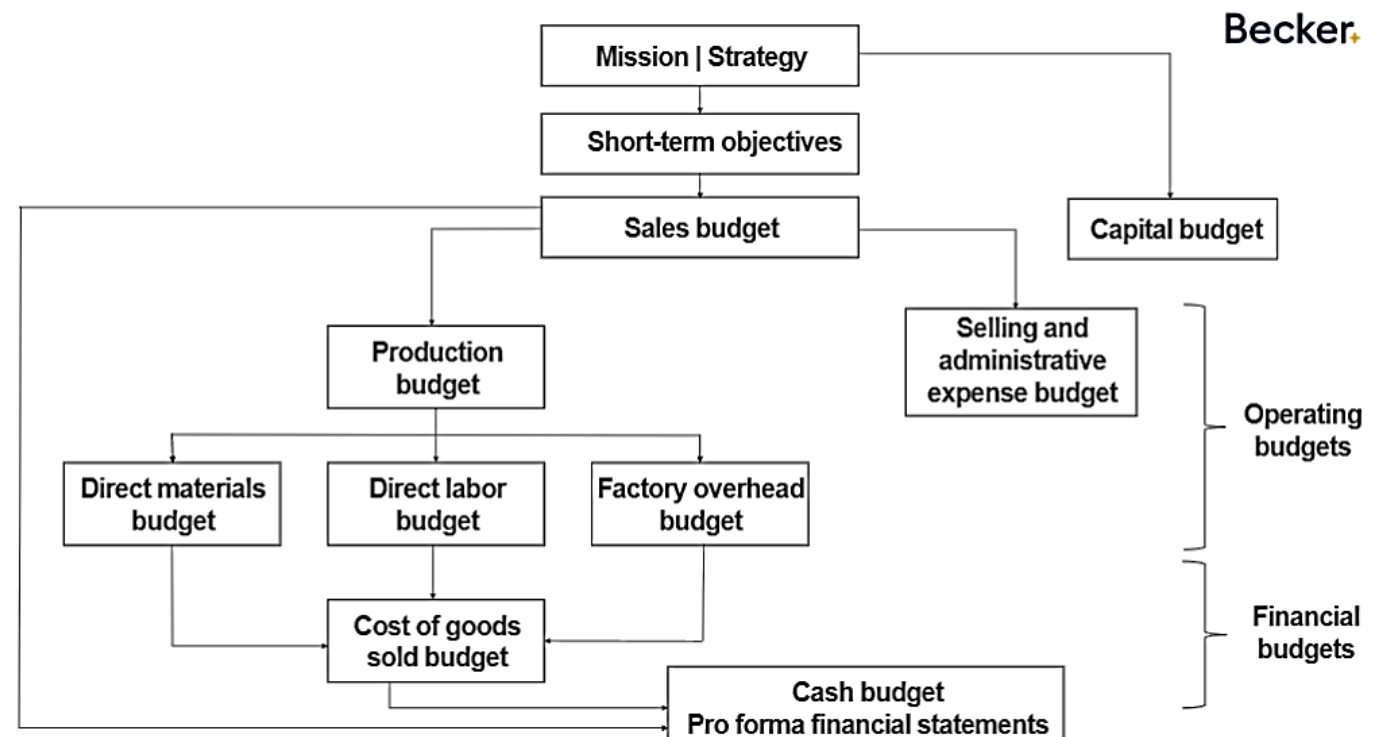
[AKA static budget or annual business plan] Short-term operating performance goals for a period (1 year <)

Operating Budgets

- Sales budgets
- Production budgets (DM, DL, OH, COGS)
- Selling & administrative budgets

Financial Budgets

- Pro Forma Financial Statements (IS, BS, CF)
- Cash budgets



Sales Budget

Foundation of entire budget process. Based on sales forecast (#units and \$dollars)

Selling & Administrative Expense Budget

Fixed and variable nonmanufacturing expenses [Ex: Bad debt, depreciation, sales commissions, delivery]

Direct Materials Budget

Units of direct materials needed for a production period
+ Desired ending inventory at the end of the period
- Beginning inventory at the start of the period
<hr/>
= Units of direct materials to be purchased for the period

Units of direct materials to be purchased for the period
× Cost per unit
<hr/>
= Cost of direct materials to be purchased for the period (purchases at cost)

Beginning inventory at cost
+ Purchases at cost
- Ending inventory at cost
<hr/>
= Direct materials usage (cost of materials used)

Operating Budgets

Describe resources needed and how those resources will be acquired

Production Budget

Prepared for each product/department based on estimated amount that will be produced (units)

Budgeted sales
+ Desired ending inventory
- Beginning inventory
<hr/>
= Budgeted production

Factory Overhead Budget

Fixed and variable production costs that are not direct labor or direct materials

Direct Labor Budget

Budgeted production (in units)
× Hours (or fractions of hours) required to produce each unit
<hr/>
= Total number of hours needed
× Hourly wage rate
<hr/>
= Total wages

COGM and Sold Budget

Cost of goods manufactured
+ Beginning finished goods inventory
- Ending finished goods inventory
<hr/>
Cost of goods sold

Financial Budgets

Define detailed sources and use of funds for operations

Cash Budgets

Detailed projections of cash receipts and disbursements. Provide information regarding availability of funds for distribution to owners, debt repayment, and for investments

- Cash available – balances (on hand) and collections (sales)
- Cash disbursement – purchases, operating expenses
- Financing – maintaining min cash balance, using excess to ensure liquidity/returns

Pro Forma Balance Sheet

Displays balance of each BS account, consistent with IS and cash budget plans

Pro Forma Financial Statements

Use historical data as primary input. Individual line items adjusted based on management expectations

Pro Forma Income Statement

Derived using data from operating budget

- Sales budget
- COGS budget (from production budget)
- Selling & administrative budget
- Interest expense budget (from cash budget)

Pro Forma Statement of Cash Flows

Derived from budgeted IS, current and previous budgeted BS, and then reconciled to the cash budget

Capital Budget

Provides detail on planned capital expenditure items (long-term). Highly dependent on availability of cash or credit. Impacts pro forma BS, pro forma IS, and cash budget

Flexible Budgeting

Financial plan that allows for adjustments for changes in production or sales and accurately reflect expects cost for adjusted output. Include considerations of revenue/unit, variable cost/unit, and fixed costs with the relevant range

BAR Notes – B3 Operations Management (Cont.)

Financial Statement Analysis

Ratio Analysis

$$\frac{\uparrow \text{Numerator}}{\text{Denominator}} = \text{Resulting ratio} \uparrow$$

$$\frac{\text{Numerator}}{\uparrow \text{Denominator}} = \text{Resulting ratio} \downarrow$$

Categories

- Profitability ratios
- Liquidity ratios
- Solvency ratios
- Performance metrics

Working Capital

Current assets – Current Liabilities

Note: Exam will specify whether to use average or end balance for the ratios

Gross (Profit) Margin

$$\frac{\text{Sales (net)} - \text{Cost of goods sold}}{\text{Sales (net)}}$$

Profit Margin

$$\text{Profit margin} = \frac{\text{Net income}}{\text{Sales (net)}}$$

Operating Profit Margin

$$\frac{\text{EBIT/Net Sales}}{(\text{NI} + \text{Int} + \text{Tax}) / \text{Net Sales}}$$

Return on Sales

$$\frac{\text{Income before interest income, interest expense, and taxes} \leftarrow \text{EBIT}}{\text{Sales (net)}}$$

Return on Assets (ROA)

$$\frac{\text{Net income}}{\text{Average total assets}}$$

DuPont Return on Assets

$$\text{Profit margin} \times \text{Asset turnover}$$

$$\frac{\text{Net income}}{\text{Sales (net)}} \times \frac{\text{Sales (net)}}{\text{Average total assets}}$$

Profitability Ratios

Measure of the success or failure of an enterprise for a given time period

Return on Equity

$$\frac{\text{Net income}}{\text{Average total equity}}$$

Interest Burden

$$\frac{\text{EBT (Earnings before Tax)}}{\text{EBIT (Earnings before Int \& Tax)}}$$

Operating Cash Flow

$$\frac{\text{Cash flow from operations}}{\text{Current liabilities}}$$

Tax Burden

$$\frac{\text{NI (Net Income)}}{\text{EBT (Earnings before Tax)}}$$

Liquidity Ratios

Measure of a firm's short-term ability to pay maturing obligations

Current Ratio

$$\frac{\text{Current assets}}{\text{Current liabilities}}$$

Quick Ratio

$$\frac{\text{Cash and cash equivalents} + \text{Short-term marketable securities} + \text{Receivable (net)}}{\text{Current liabilities}}$$

AR Turnover

$$\frac{\text{Sales (net)}}{\text{Average accounts receivable (net)}}$$

Day Sales in AR

$$\frac{\text{Ending accounts receivable (net)}}{\text{Sales (net) / 365}}$$

Inventory Turnover

$$\frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

Days in Inventory

$$\frac{\text{Ending inventory}}{\text{Cost of goods sold / 365}}$$

AP Turnover

$$\frac{\text{Cost of goods sold}}{\text{Average accounts payable}}$$

Days of Payables Outstanding

$$\frac{\text{Ending accounts payable}}{\text{Cost of goods sold / 365}}$$

Cash Conversion Cycle

Days in AR
+ Days in Inventory
- Days of Payables Outstanding

Solvency Ratios

Measures of security or protection for long-term creditors/investors

Debt-to-Equity

$$\frac{\text{Total liabilities}}{\text{Total equity}}$$

Total Debt

$$\frac{\text{Total liabilities}}{\text{Total assets}}$$

Equity Multiplier

$$\frac{\text{Total assets}}{\text{Total equity}}$$

Times Interest Earned

$$\frac{\text{Earnings before interest and taxes}}{\text{Interest expense}}$$

Performance Metrics

Measures used to evaluate operating performance and elements of a company's stock performance from the perspective of current and potential investors

Earnings per Share (EPS)

$$\frac{\text{Income available to common shareholders}}{\text{Weighted average common shares outstanding}}$$

Price-to-Earnings Ratios

$$\frac{\text{Price per share}}{\text{Basic earnings per share}}$$

Asset Turnover

$$\frac{\text{Sales (net)}}{\text{Average total assets}}$$

EBITDA (Earnings Before Interest, Taxes, Depreciation, and Amortization)

Top-down

Sales – Cost of goods sold – Operating expenses (excluding depreciation and amortization)

Bottom-up

Net income + Income tax expense + Interest expenses + Depreciation and amortization

Dividend Payout

(\$Dividend/share x # shares outstanding)/NI

$$\frac{\text{Cash dividends}}{\text{Net income}}$$

Data Analysis

Data can be sourced internally and externally
Unstructured data – original unmodified
Structured data – organized, consistent data types and format, and easily searchable

Structured Data – Components

Tables – stored containing columns and row

Attributes – [columns] properties that describe objects

Records – [Rows] contain information about entity/object

Fields – Data value [Row and column intersection]

Database Keys – attributes that uniquely identify record or facilitate relationship

BAR Notes – B3 Operations Management (Cont.)

Database Keys

- Primary Key – unique identifier
- Foreign Key – contain values from a primary key in another table
- Composite – no single unique identifier available, so many combine 2(+) to create unique key

Data Transformation

Ensure data is complete, clean, current, encrypted, and user-friendly

- Ensuring completeness and integrity of data
- Data Integration – target location/database
- Cleaning/scrubbing data – format and clean
- Data Encryption – data transit and storage

Data Visualizations

Take high-volume content and transform into easy-to-read graphs/charts/visuals

- Choose right type of visualization
- Apply correct scaling
- Utilize appropriate colors
- Emphasize focus area

Normalization

Dividing large tables into smaller tables that are linked together with a foreign key

Relational Database

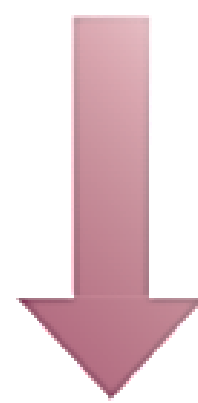
Effective way to reduce data redundancies for a structured data set by using the concept of “keys”

Analytic Techniques

- Regression Analysis – evaluate relationships between variables
- Variance Analysis – compare forecasted/budgeted values vs actual values
- Period-over-Period Analysis – compare (non)financial values over periods
- Classification – use historic data to predict class/categ for new data point
- Trend Analysis – use to develop expectations of future results

Types of Data Analytics

Value / Complexity



Descriptive analytics	Describing or explaining <i>what has occurred</i>	} Backward-looking
Diagnostic analytics	Diagnosing or explaining <i>why it occurred</i>	
Predictive analytics	Predicting <i>what will occur</i>	} Forward-looking
Prescriptive analytics	Prescribing <i>what could or should occur</i>	

Variance Analysis

<https://www.facebook.com/groups/1632715387517897>

Standard Costing System

- [Most common cost measurement system]
Measure costs the firm expects it should incur during production (for all manufacturing costs)
- Cost control
 - Data for performance evaluations (variance)
 - Learn from standards & improve processes

Product Costs subject to Variance Analysis

- Direct Materials (DM)
- Direct Labor (DL)
- Fixed Manufacturing Overhead (FOH)
- Variable Manufacturing Overhead (VOH)

PURE SAD DADS

- Price = $\frac{\text{Diff}}{\text{Actual}}$
Usage = $\frac{\text{Diff}}{\text{Standard}}$
Rate = $\frac{\text{Diff}}{\text{Actual}}$
Efficiency = $\frac{\text{Diff}}{\text{Standard}}$
[Standard - Actual = Difference]

Direct Materials & Direct Labor Variances

Approached in either equation or tabular format

PURE SAD DADS

- P = DA (DM) SAD
U = DS (DM)
R = DA (DL)
E = DS (DL)

DM price variance	= Actual quantity purchased × (Actual price – Standard price)
DM quantity usage variance	= Standard price × (Actual quantity used – Standard quantity allowed)
DL rate variance	= Actual hours worked × (Actual rate – Standard rate)
DL efficiency variance	= Standard rate × (Actual hours worked – Standard hours allowed)

All-CPA-CMA

Evaluating Variances (DM)

- SAD (Standard-Actual=Difference)
- Favorable = Actual Cost\$ < Standards Cost\$
 - Unfavorable = Actual Cost\$ > Standard Cost

Manufacturing Overhead Variances

PURE SAD DADS

- P = DA (FOH) SAD
U = DS*(FOH) ASD
R = DA (VOH) SAD
E = DS (VOH) SAD

- FOH budget (spending) variance = Actual fixed overhead – Budgeted fixed overhead
- FOH volume variance = Budgeted fixed overhead – Standard fixed overhead cost allocated to production*
- *Based on Actual production × Standard rate
- VOH rate (spending) variance = Actual hours × (Actual rate – Standard rate)
- VOH efficiency variance = Standard rate × (Actual hours – Standard hours allowed for actual production volume)

Evaluating Variances (Manuf)

- Favorable = Volume > Anticipated
- Unfavorable = Volume < Anticipated
- Favorable = Actual\$ < Budgeted\$
Overapplied = ↓ COGS/Exp, ↑ Profit
- Unfavorable = Actual\$ > Budgeted\$
Underapplied = ↑ COGS/Exp, ↓ Profit

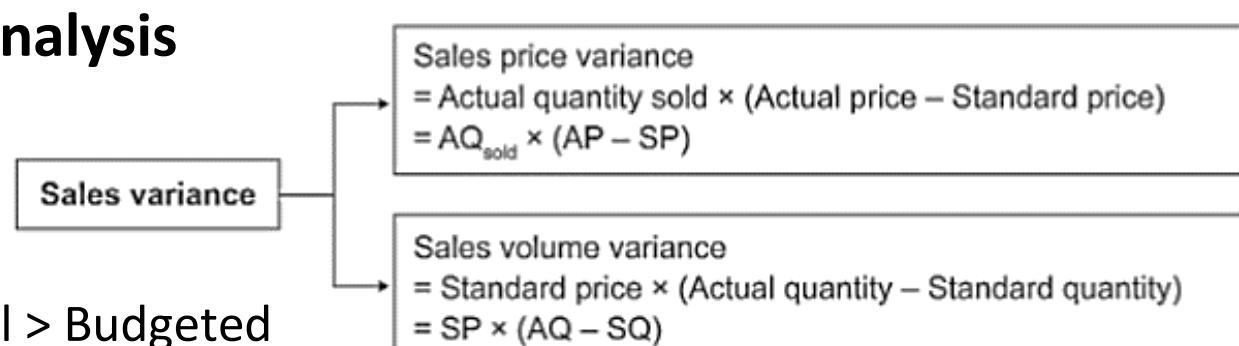
Sales Variance Analysis

PU ASD DADS

- P = DA (SP) ASD
U = DS (Volume)

- Favorable = Actual > Budgeted
- Unfavorable = Actual < Budgeted

[Above evaluation applies to both Actual SP and/or units sold]



Sales Mix Variance

Considers impact of multiple products on the projected and actual sales volume of an org.

$$\text{Sales mix variance} = \left[\begin{matrix} \text{Actual sales} \\ \text{mix ratio for} \\ \text{a product} \end{matrix} - \begin{matrix} \text{Budgeted sales} \\ \text{mix ratio for} \\ \text{a product} \end{matrix} \right] \times \begin{matrix} \text{Total number of} \\ \text{units of all} \\ \text{products sold} \end{matrix} \times \begin{matrix} \text{Budgeted contribution} \\ \text{margin per unit} \\ \text{of product} \end{matrix}$$

- Favorable = Actual quantity sold > Budgeted
- Unfavorable = Actual quantity sold < Budgeted

BAR Notes – B4 Technical Accounting and Reporting

Intangibles with Indefinite Lives

Start-up costs = Expense [Ex: organizational costs]

Unsuccessful Legal Fees = Expense

Successful Legal Fees =

CAPITALIZE [Ex: legal costs to file]

Computer Software Development Costs

to be sold, leased, or licensed

○ Before Tech Feasibility = Expense

○ After Tech Feasibility = CAPITALIZE! & amortize

[On BS at < of CV or NRV]

NRV = SP – cost to sell

(Goodwill) Impairment

@ Reported unit (FV)

Qualitative = > 50% chance that FV < CV, do Quantitative

Quantitative = If CV > FV,

FV - CV = IL (up to Goodwill!)

[Reversal prohibited! unless held for disposal]

DR	Loss due to impairment	(Equity) ↓
CR	Goodwill	(Asset) ↓

Research & Development (R&D) Costs

Research = discover, Development = improve/create

R&D = EXPENSED! Few exceptions

○ Future alternative use = capitalized. [Depreciation only = expensed!]

○ R&D on behalf of others = Operating expense [Other company will put as R&D]

○ "In Process" R&D in purchase = capitalized

Not R&D = ~~Admin costs, routine/periodic design, marketing research, quality control~~

Amortization of Computer Software Development

Amortized over > of SL (Capitalized/economic life) or % of revenue

$$\% \text{ revenue} = \frac{\text{Total capitalize\$} \cdot \text{Current sales\$}}{\text{Expected sales\$}}$$

Total Contract Cost = Actual costs + Estimated costs to complete

Five-Step Approach

I Step 1: Identify the contract with the customer

S Step 2: Identify the separate performance obligations in the contract

T Step 3: Determine the transaction price

A Step 4: Allocate the transaction price to the separate performance obligations

R Step 5: Recognize revenue when or as the entity satisfies each performance obligation

Allocate Transaction Price

$$\text{Allocated} = \frac{\text{Standalone} \cdot \$SP}{\text{Contract \$ Total of all standalone \$}}$$

Incremental costs = costs to obtain contract

Current Asset (Liabilities)

$$\begin{aligned} & \text{GP\$} [\% \text{ for year}] \\ & + \text{Actual Cost\$} [\text{for year}] \\ & - \text{Progress Billings} [\text{to date}] \\ & \text{Current Asset (Liabilities)} \end{aligned}$$

Refund Liability

Recognize Revenue when refund period end

Cash
Refund Liability
Revenue

Long-Term Construction Contracts

Recognized either:

Over time = % completion

Point-in-time = Completed contract

Completed Contract

Revenue = when COMPLETED

Losses recognized immediately!

$$\text{Gross profit or loss} = \text{Contract price} - \text{Total costs}$$

Journal Entries – completed cont.

Same first 3 entries as % completion

Progress Billing
Revenue
Construction Expense
Construction in Progress

Principal vs Agent

Principal maintain inventory

% commission = agent revenue

Bill & Hold

Recognize revenue when READY if requested by customer to hold (not when paid)

% Completion

$$\frac{\text{Contract Price\$} \cdot \text{GP\$}}{\text{(Total Contract Cost)}} = \frac{\text{Actual Cost\$ (to date)}}{\text{Total Contract Cost (estimated)}}$$

Losses booked immediately!

Journal Entries – % completion

Construction in Progress (Actual Cost)
Cash
AR
Progress Billing
Cash
AR
Construction Expense (Actual Cost)
Construction in Progress (GP)
Revenue
Progress Billings
Constructions in Progress

Repurchase Agreements

Forward (Obligation) or Call (Right)

Repurchase Price (RP) < Original SP = Lease
RP ≥ Original SP = Financial arrangement

Put Option

RP < Original SP (econ. incentive = Lease, no econ. Incent. = Sale w/ right of return)
RP ≥ Original SP (≤ emv = sale w/right of return, > emv = Financial arrangement)

Revenue Recognition Advanced Topics

Stock Compensation

Employee Stock Options

- noncompensatory; or ← No expense recorded
- compensatory. ← Expense recorded

Noncompensatory Stock Option

No JE until employee buys stock

Compensatory Stock Option

Grant Date – date issued = date valued (No JE)

Compensation Expense – allocated per year

FMV (@ Grant date)

Exercise period

Compensation expense
Additional paid-in capital—stock options

@ 12/31

- Exercise Options:
Cash (Exercise/strike \$)
APIC – Stock Options (Reverse Compensation Expense used)
CS (@ Par)
APIC (Plug)
- Expired Options:
APIC – Stock Options (Unused Compensation Expense)
APIC – Expired Stock Options

BAR Notes – B4 Technical Accounting and Reporting (Cont.)

Stock Appreciation Rights (SAR)

SAR = No cash received by corporations
Record Compensation Expense & Liability
Compensation Expense Adjusted annually
[Subtract prior year(s) compensation exp]

Market \$ - Strike Grant \$
Service Period

Compensation expense
Liability for SAR plan

Exercise

Liability for SAR plan
Cash

Acquisition

Cash
Investment in Sub
Cash
Common Stock
Investment in Sub
Expense
Common Stock
APIC
Cash (Expense+"cap")

Consolidation Adjustments – CAR IN BIG

Common Stock – Sub
APIC – Sub [Investment in Sub+Expense-CS-Cash]
Retained Earnings – Sub [Beg RE+Inc-Div=End RE]
Investment in Sub [FMV]
NCI
BS adjustment to FV
Identifiable intangible assets to FV
Goodwill/Gain

} Sub Equity (BV)

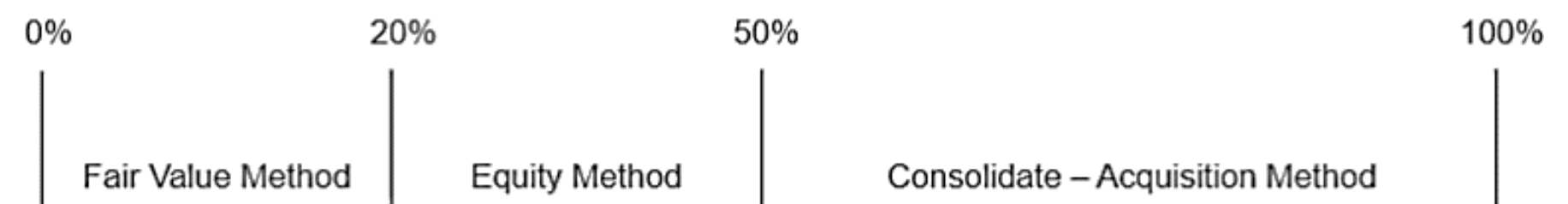
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Acquisition Costs = EXPENSE!
Registration & Issuance Costs = debit APIC ("cap")

Investment in Sub

Beg Investment in Sub
+ Sub NI
- Sub Div
End Investment in Sub

Business Combinations and Consolidated Financial Statements



Variable Interest Entity (VIE)

- Financial stake
- Lack basic equity/ownership
- Primary Beneficiary (Biggest loser/winner) – Power, Absorb losses, Receive profits = Required to consolidate
[Else, use Voting Interest Model]

Consolidations

- Control > 50% = Consolidate [External Reporting] Equity for Internal
Exceptions: Use Equity
- Bankruptcy
 - Legal reorganization

Fair value = Acquisition price = Investment in subsidiary

Noncontrolling Interest (NCI)

FV Sub x NCI% = NCI
(FV Sub = SP/% controlling)
Beg NCI [Above #!]
+ Sub NI (%NCI)
- Sub Dividend (%NCI)
= End NCI
(No Effect on RE)

Goodwill

SP (FV Sub) - FV Net Assets - Other FV

$$\text{Goodwill} = \text{FV subsidiary} - \text{FV subsidiary net assets}$$

Gain

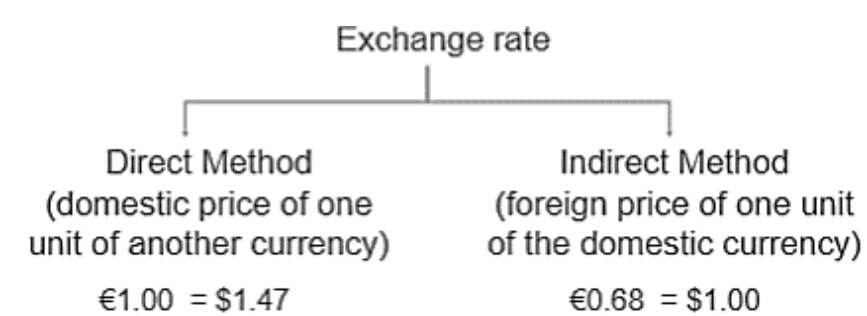
SP (FV Sub) - BV Net Assets - BS FV
Adjustments - FV Other

Measurement Period

<1 year from acquisition and ends when it becomes obvious no better info will be avail.

- Consolidated __ = Parent's __
- RE – Retained Earnings
 - SHE – Stockholder's Equity
 - CS – Common Stock
 - NI – Net Income
 - Dividends Paid

Consolidated Financial Statements: Foreign Currency Translation Adjustments



Reporting Currency = US\$

Functional Currency =

local currency

Spot rate = current exchange rate

Remeasurement (Dysfunctional)

BS

Monetary (Cash, AR, AP) = YE Spot Rate

Nonmonetary (fluctuate) = Historical

IS

Non-BS = Weighted Average [WA]

BS (Dep/PPE, COGS/Inv, Intang./Bond amort) = Historical

Plug G/L on IS

Translation (Functional)

IS
Weighted Average [WA]
BS
Assets, Liabilities = YE Spot Rate
CS, APIC (Capital accounts) = Historical
Plug G/L on OCI

Functionality

- Using local currency
- Doing own banking
- Not hyperinflationary

Derivatives and Hedge Accounting

Derivatives – tied to an underlying (\$) notional (#) amount

Premium

Initial net investment
Buyer = pays premium (-Loss)
Seller = collects premium (+Gain)

OFFS (FFS – no initial cost)

Options, Futures, Forward, Swap

Options Contract

Buy Call = hope P\$↑
[S-X]

Buy Put = hope P\$↓
[X-S]

- ★ Gain/Loss Summary: (S = new price)

Call if S>X = exercise!

Buyer = (S-X) - premium

Seller = -(S-X) + premium

Put if S<X = exercise!

Buyer = (X-S) - premium

Seller = -(X-S) + premium

- **Note:** Above = GP. To get actual total Gain/Loss, do GP · # shares

Call if S<X = let it expire!

Buyer = 0 - premium [Loss]

Seller = 0 + premium

Put if S>X = let it expire!

Buyer = 0 - premium [Loss]

Seller = 0 + premium

BAR Notes – B4 Technical Accounting and Reporting (Cont.)

Futures Contract

Publicly traded = ↑ liquidity

Buy/Long — Profit if P > Strike price
Sell/Short — Profit if P < Strike price

Forward Contract

Privately negotiated

Buy/Long — Profit if P > Strike price
Sell/Short — Profit if P < Strike price

Swap Contract

Private agreement

[Only loser makes payment]
SOFR+1%

Derivative Risks

Market Risk – incur loss on derivative [Net gains/losses]

Credit Risk – Default (Nonperformance)

Fair Value Hedge

G/L on IS

Notes Payable Issued

Cash

Notes Payable

FMV of Swap and Hedge item (NP)

Interest Expense (NI – Loss)

Interest Rate Swap

Notes Payable

Interest Expense (NI – Gain)

Accrued Interest Payment on NP

Interest Expense

Accrued Interest Payable/Cash

Net Settlement of Swap

Interest Expense

Cash

Cash Flow Hedge

G/L on OCI (reclassify)

Notes Payable Issued

Cash

Notes Payable

FMV of Swap

Interest Rate Swap (Asset)

OCI

Accrued Interest Payment on NP

Interest Expense

Accrued Interest Payable

Net Settlement (Reclassify)

OCI

Interest Expense

Cash

Interest Rate Swap (Asset)

Foreign currency hedge	
Fair value hedge	Included in current earnings as an offset to the gain/loss from the change in fair value of the hedged item
Cash flow hedge	Included in other comprehensive income until the hedged transaction impacts earnings
Net investment hedge	Included in other comprehensive income, as cumulative translation adjustment

Perfect Hedge = No possibility of future Gain or Loss

Leases

Lease Classification Criteria (OWNES PC)

<u>Ownership</u>	<u>Lessor</u>
Written Purchase Option	Meet 1
Net PV ≥ FV 90%	=
Economic Life ≥ 75% Lease term	Sales-Type Lease
Specialized Asset	↓
	If none met, evaluate
	PV > FV
	Collection is probable
	↓
	Both met None or 1 met
	= =
	Direct Finance Operating Lease

If payment paid at start (ADVANCE): AKA Skip 1st interest if payment made on inception

Date	Lease Expense	Interest	Difference	CV
	Lease \$		Lease \$	Lease \$ - PV
	Lease \$	CV - Implicit %	Difference	Difference

*Down to Residual Value, not 0!

Sales-Type Lease

Interest Income! [Decreases]

Cash (lease payment)
Interest income (implicit interest rate)
Lease receivable (principal payment)

Direct Financing Lease

Initial direct costs deferred and amortized over lease term.

Interest Income! [Decreases]

Cash (lease payment)
Interest income (implicit interest rate)
Lease receivable (principal payment)

<u>Lessor</u>		
↓	↓	↓
Operating	Finance	
(Some risks and rewards)	↓	
None	Sales-type	Direct Finance
	(All risks and rewards)	(Most risks and rewards)
	<u>OWNES 1+</u>	<u>PC Both</u>

Operating Lease

Rental Income! [Remains same]

Lessor keeps asset on BS (depreciation)

Cash
Rental income

PV - CV = Profit on Sale [SP-Cost]

Rent x PV = Original Principal

Sales-Leaseback

○ Sale – Control transferred (Operating) No Dep.

Cash
Revenue/Gain
Sold Asset

○ Financing/Borrowing – Control not transferred (Finance) Depreciate!

Cash (SP)
AD – Equipment
Equipment (down to NBV)
Financing Liability = SP-FV ★
Gain on Equipment (FV-CV)

Segment Reporting and Public Company Reporting Topics

Disclosures

Publicly traded only!

- Operating segments (annual and interim)
- Products and services
- Geographic areas
- Major customers <https://www.facebook.com/groups/1632715387517897>
- The title and position of the individual or the name of the group or committee identified as the chief operating decision maker (CODM)

10% “Size” Test

Report if any segment is 10% of:

Combined Revenue

Profit/Loss

Assets

[Combined – Intersegment and Unaffiliated]

75% “Reporting Sufficiency” Test

Segment external sales must add up to consolidated total (external)

- Whatever passed 10% size test
- Add next highest to get to 75%

Segment Operating Profit

Only traceable or reasonably allocated expenses [No corporate or untraceable expenses]

Regulation S-X

SEC (GAAP)

BS – 2 most recent fiscal year | IS/CF/OE – 3 years

BAR Notes – B4 Technical Accounting and Reporting (Cont.)

Regulation S-K

- o Business (101-105)
- o Registration Securities (201-202)
- o Financial Information (301-308)
- o Management and Certain Security Holders (401-407)
- o Registration Statement and Prospectus Provisions (501-512)
- o Exhibits (601)
- o Industry Guides (801-802)
- o Roll-up Transactions (901-915)

XBRL

- (eXtensive Business Reporting Language)
- Tags define data
- o Level 1 – Each complete FN/Schedule
 - o Level 2 – Each Significant Accounting Policy
 - o Level 3 – Table within FN/Schedule
 - o Level 4 – Within each FN/S (Indiv. Amounts)

Funded Status

- o Plan Assets > Plan Liability
-> Overfunded -> low risk of distress
- o Plan Assets < Plan Liability
-> Underfunded -> high risk of distress

Financial Statements of Employee Benefit Plans

Defined Benefit Plan

Employer responsible for funding - % of employee's salary = risk on employer

1. Statement of Net Assets Available for Benefits ("BS – Assets")
2. Statement of Δ in Net Assets Available for Benefits ("IS")
3. Statement of Accumulated Plan Benefits ("BS – Liabilities")
4. Statement of Δ in Accumulated Plan Benefits ("Changes in Liabilities")

Optional: Statement of Cash Flows

Defined Contribution Plan

Up to employees to save money for retirement = risk on employee

1. Statement of Net Assets Available for Benefits ("BS – Assets")
2. Statement of Δ in Net Assets Available for Benefits ("IS")

Optional: Statement of Cash Flows

Analysts look at the **pension expense on the income statement** of the sponsoring company to determine

- o Why did the defined benefit obligation go up?
- o What was the service cost, interest cost, etc.?

$$\text{Net Assets Available for Plan Benefits} = \text{Plan benefits} - \text{Plan liabilities}$$

Examples: administrative costs, pension fund management cost

Not liabilities owed to the employees when they retire

Statement of Net Assets Available for Benefits

Assets:

Investments @ FV

- Common Stock
- Corporate Bonds
- U.S. Government securities
- Mortgages
- Real Estate

Receivables:

- Employer Contributions
- Securities Sold
- Accrued Interest & Dividends

Cash:

- Cash

Liabilities:

- Due to Brokers for Securities Purchased
- Accounts Payable
- Accrued Expenses

Statement of Δ in Net Assets Available for Benefits

Additions:+

- Investment Income
- FV of Investments, Net Appreciation
- Interest*
- Dividends

Less: Investment Expenses

- Contributions
- Employer Contributions
- Participant Contributions
- Rollovers

Deductions: -

- Benefits Paid to Participants
- Administrative Expenses
- = Net Increase (Transfers)*
- Beg Net Assets Available for Benefits
- = End Net Assets Available for Benefits

- Additions
- (Deductions)
- Net Increase (Transfer)
- Beginning Net Assets
- End Net Assets

Statement of Accumulated Plan Benefits

Vested Benefits

Nonvested Benefits

Total Actuarial PV of Accumulated Plan Benefits

Statement of Δ in Accumulated Plan Benefits

Beg Actuarial PV Accumulated Plan Benefits

Net Increase(decrease):

- Plan Amendment (Changes in Actuarial Assumptions)
- Benefits Accumulated
- (Benefits Paid)

=End Actuarial PV Accumulated Plan Benefits

BAR Notes – B5 Governmental Accounting

Budgetary & Activity Accounting

Fund Structures

- Governmental Funds (GRaSPP)
- Proprietary Funds (SE)
- Fiduciary Funds (CIPPOE)

BAE-BAE Overview

- Budgetary – Manage and control spending
- Activity – Emphasizes the flow of current financial resources
- Encumbrances – Monitor spending, record POs

Book → Close →
 Budget → Budget ← Same Amounts!
 Activity → Activity (Actual)
 Encumbrances → Encumbrances

Governmental Funds (GRaSPP) – MAC

- Modified Accrual Accounting – Recognize Revenue when they become available & measurable (<60 days)
- Current Financial Resources Measurement Focus – No FA or LTD! Current only

Estimated Revenue examples
 Property taxes, licenses, fines, and intergovernmental revenues

"BAE"	
Budget:	Book on opposite side as control
Activity:	Revenue—measurable and available Expenditure—all spending Assets—expended Debts—other financing sources
Encumbrances:	Commit funds for purchase orders

Budgetary Accounting

- Budget adopted (beg of year)
 Estimated Revenue Control <- Budgetary Revenue
 Budgetary Control (-/+)
 Appropriations <- Budgetary Expenditure
- End of year [Same amount!]
 Appropriation
 Budgetary Control (+/-)
 Estimated Revenue Control

Activity Accounting

READ (Revenue, Expenditures, Assets, Debts)

Revenue

Measurable and available <60 days

Non-exchange = do not receive same value in return

- Derived Revenue – income/sales tax
 [Received = Revenue]
- Imposed Revenue – Real estate tax, fine, penalty
 [Billed/recorded = Revenue]

Real property taxes receivable—current
Revenues—property taxes
Allowance for uncollectible taxes receivable—current

Assets

Fixed Assets = Expenditure! [Not capitalized/depreciated]

Expenditure—capital outlay
Vouchers payable (or cash)

Debts

Long Term Debt (LTD) = Other Financing Sources =

Do not carry Debt Service Payments
Bond Issuance Proceed Expenditure – principal
 Cash Expenditure – interest
 Other Financing Sources Cash

Other Financing: Leases

Right to use another entity's nonfinancial assets

- Short-term ("Operating")
- Contracts that transfer ownership ("Sales-type")
- Other ("Direct Finance")

Short Term Leases

(<12m) Same for all

Lessee Lessor
 Lease Expense Receivable
 Cash Revenue

Other Leases - GRaSPP

Same as transfer
 No amortization!

Expenditures

All spending! = not an asset

Examples: New machines, paid interest debt, paid debt principal, salary, equipment, utilities, office supplies

- Purchase Method – Expend all! Record left on hand
 Expenditures -> Inventory [@ yr end]
 Cash Inventory – Nonspendable fund balance
- Consumption Method – Expend as used
 Inventory -> Expenditures [as used]
 Cash Inventory

Expenditure Classifications

- **Function:** PUBLIC & SAFETY expenditures
- **Character:** CAPITAL & DEBT expenditures
- **Object Classes:** Chart of accounts = salaries & wages, salaries payable, supplies, principal & interest payments
- **Other Financing Sources:** TRANSFERS between government funds

Contracts that Transfer Ownership – GRaSPP (No amortization!)

<u>Lessee</u>	<u>Lessor</u>
Capital Outlay [Lease Execution]	Lease Receivable [Initial]
Other Financing Sources	Revenue
Expenditures – principal [1 st Payment]	Deferred Inflows of Resources
Expenditures – interest	Interest Receivable
Cash	Interest Revenue
	Cash [Collection]
	Lease Receivable
	Interest Receivable

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Contracts that Transfer Ownership – Prop., Fid, Gov-wide

<u>Lessee</u>	<u>Lessor</u>
ROU Asset [Lease Execution]	Lease Receivable [Initial]
Lease Liability	Deferred Inflows of Resources
Lease Liability [1 st Payment]	Cash [Collection]
Interest Expense	Interest Income
Cash	Lease Receivable
Amortization Expense	Deferred Inflows of Resources
Accumulated Amortization ROU	Revenue

BAR Notes – B5 Governmental Accounting (Cont.)

Encumbrances and Other Transactions

Encumbrances

- Commit fund for POs (GRaSPP)
 - Approved PO Issued
 - Encumbrance (@ estimated cost)
 - Budgetary Control
 - Satisfy PO [Same amount!]
 - Budgetary Control
 - Encumbrance
 - Record Actual
 - Expenditures
 - Cash/Vouchers Payable
 - Unused PO @ YE
 - Unassigned Fund Balance
 - Committed Fund Balance

Remaining Available Appropriations

- Budget: appropriations
 - (Activity: expenditures)
 - (Encumbrances)
 - Remaining available appropriations

Deferred Inflows/Outflows

- Deferred Inflows
 - Cash/Receivables
 - Deferred Inflows
 - Deferred Inflows [once earned]
 - Revenue
- Deferred Outflows
 - Deferred Outflows
 - Account (Ex: Forward Contract)

Interfund Activity

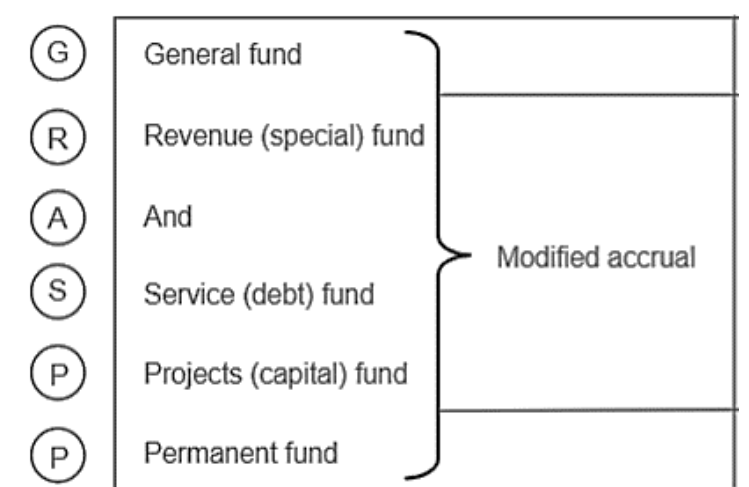
- Flow of resources between funds and primary gov. and its component units
- Reciprocal – Exchange for something = Revenue [loans, services provided/used]
 - Non-Reciprocal – Non-Exchange = Transfer/Eliminated
 - Transfers: Other Financing Sources (GRaSPP)
 - Reimbursements: ELIMINATED (Gov-wide)

Net Positions/Components (RUN) – SE & Gov-wide

- Restricted = imposed by LAW
- Unrestricted = rest. FUTURE intentions
- Net Investment in Capital Assets

Fund Balances/Components (NUCAR) – GRaSPP

- Nonspendable Fund Balance – Inventory or Prepaid Expense
- Unassigned Fund Balance – Rest! [General fund = + only]
- Committed Fund Balance – Encumbered appropriations [Most restrictive]
- Assigned Fund Balance – Gov intends to obligate but not formally committed
- Restricted Fund Balance – Legislation restricted. Bond covenants, indenture



Governmental Funds Financial Statements: Part 1

(G)eneral Fund

- Revenue sources: Taxes, Public Safety & Regulation, Intergovernmental (transfers)
- Expenditure types: General gov, Public Safety, Culture & Recreation, Capital Outlay

Special (R)evenue Fund

- Legally restricted! Committed for specific purpose
- Gasoline tax to finance road repairs

(a)nd Debt (S)ervice Fund

- Pays off debt of other GRaSPP fund!
- Principal & Interest [Expenditure/Cash]
- Encumbrances not applicable

Governmental Funds Financial Statements: Part 2

Capital (P)rojects Fund

- Construction
- Short life (limited to 1-3 years)
- Revenue sources: Finance capital improvements, Federal capital grant
- Other Financing sources: Proceeds (net of premium), transfers from other funds

Cash	Interfund transfer (to debt service)
Other financing sources—bond issue proceeds	Cash
Other financing sources—premium on bonds	

Journal entry to record unrestricted government grant:

DR	Cash	\$XXX	
CR	Revenue		\$XXX

Journal entry to record restricted government grants (revenue when spent):

DR	Cash	\$XXX	
CR	Revenue collected in advance		\$XXX

Journal entries to recognize revenue restricted (when spent) by a cost reimbursement con:

DR	Expenditure	\$XXX	
CR	Vouchers payable/cash		\$XXX

And:

DR	Revenue collected in advance	\$XXX	
CR	Revenue		\$XXX

(P)ermanent Fund

- Legally restricted to earnings only (not principal).
- INTEREST
- Investments accounted for @ FV
- Encumbrances not applicable

Overview: GRaSPP

- **General Fund:** Public safety, intergovernmental, culture & recreation
- **Special Revenue Fund:** Legally restricted, Gasoline tax
- **and**
- **Debt Service Fund:** Pays off debt of other GRaSPP funds, Principal & Interest, encumbrances not applicable
- **Capital Projects Fund:** Construction, transfers, capital improvements, proceeds net of premium, NUCAR @ YE
- **Permanent Fund:** Legally restricted, earnings only/interest, encumbrances not applicable

Proprietary Funds Financial Statements

- Statements of Net Position [BS]
- Statement of Revenue, Expenses, and Δ Net Position [IS]
- Statement of Cash Flows = Required!
- Footnotes

Proprietary & Fiduciary Funds – SCARE

- SE – Proprietary
- CIPPOE – Fiduciary
- Accrual [Full]
- Record FA & LTD
- Economic Resources Measurement Focus

BAR Notes – B5 Governmental Accounting (Cont.)

Internal (S)ervice Fund

Customers pay fees

Examples: motor pools, janitorial, building maintenance, transportation, self-insurance

Revenue sources: Operating Revenue – billing for services provided to other governmental funds

Cash (or due from other fund)
Billings to other departments (operating revenue)

Expense Types: Operating Expenses

Other Accounting: Interfund transfer – cash from other fund(s) to capitalize

Cash
Interfund transfer

Contribute assets (ex: from general fund)

Capital assets
Contribution

(E)nterprise Fund

Fees to recover costs

Examples: Public utilities, university, state-operated lottery or hospital, water & sewer, landfill

Revenue sources: Operating Revenue, Nonoperating Revenue = Shared revenue

Expense Types: Operating Expenses, Nonoperating Expenses – Interest Expense & State appropriations

Other Accounting: Contribute assets, Issue General Obligation Bonds

Cash
Long-term bonds payable

Overview: SE (Recover costs)

- **Internal Service Fund**: Maintenance, transportation
- **Enterprise Fund**: Public, utilities, water & sewer

Treat like CUSTOMERS = “for profit” motive
[Income determination]

Presentation of Statement of Rev, Exp, & Δ Net Position

- (I) Income (operating)
- (N) Nonoperating income and expense
- (C) Capital contributions
- (A) Additions to endowments
- (S) Special items (unusual or infrequent)
- (E) Extraordinary items
- (T) Transfers

- (S) Service (internal) fund
- (E) Enterprise fund

Fiduciary Funds Financial Statements

<https://www.facebook.com/groups/1632715387517897>

- Statements of Fiduciary Net Position [BS]
- Statement of Δ Fiduciary Net Position [IS]
- ~~Statement of Cash Flows~~ = not required
- Footnotes

City/gov has no liability for any debt related to...
= government has **NO administrative or direct financial involvement**

Overview: CIPPOE (No liability, no admin involvement)

- **Custodial Fund**: Sales tax collection
- **Investment Trust Fund**: Sponsor investment pool
- **Private Purpose Fund**: Private, abandoned property
- **Pension (& Other Employee Benefits) Fund**: Employee plans

(C)ustodial Fund

Collects cash to be held temporarily for authorized recipient

Ex: Sales tax collections

Cash

Additions: Tax Collections

Liability – Due to other funds [Any fees]

Special assessments – not liable for debt

(I)nterest Trust Fund

Investment Pools (Ex: Sponsor inv. Pools)

Revenue/additions: contributions, net appreciation, RGL, UGL, bond premium/discounts

(P)rivate Purpose Trust Fund

Not general public use

Examples: Abandoned/escheat property fund (in water & sewer)

(P)ension & (O)ther (E)mployee Benefits

Accounts for gov-sponsored defined benefit/contribution plans and other employee benefits @ fv

Fund contributions to POE – From GRaSPP = Expenditure, From SE-CIPPOE = Expenses

- (C) Custodial
- (I) Investment trust
- (P) Private purpose
- (P) Pension and
- (O) Other
- (E) Employee benefit

Accountability

- Gov-wide = operational accountability
- Fund FS = Fiscal accountability

Integrated Approach

- MD&A (Management’s Discussion & Analysis) – Before FS
- Basic FS –
 - Gov-wide FS
 - Statements of Net Position
 - Statement of Activities
 - NO Statement of Cash Flows
 - Fund FS
 - Gov Funds: GRaSPP
 - Proprietary Funds: SE
 - Fiduciary Fund: CIPPOE
 - Notes to FS
- Required Supplementary Info (Other than MD&A) – After FS
 - Pension, Budget, Infrastructure

Form and Content of the Annual Comprehensive Financial Report (GASB 34)

Management’s Discussion & Analysis (MD&A)	[Before FS]
---	-------------

Gov-wide	↔	Fund FS
Reconcile		
Notes to FS [Basic FS]		

Required Supplementary Info (Other than MD&A)	[After FS]
---	------------

Gov. Reporting Classification

Gov Fund	Proprietary	Fiduciary
GRaSPP	+	S E CIPPOE
↓		↓
= Government		= Business-Type
Activities		Activities

Annual Comprehensive Financial Report (ACFR)

- Introductory – Unaudited
 - Letter of transmittal
 - Organizational chart
 - List of principal officers
- Basic FS & Required Supplementary Info – Audited
 - MD&A
 - Gov-wide FS
 - Fund FS
 - Notes to FS
 - Required Supplementary Info
- Statistical – Unaudited
 - 10 fiscal years financial
 - 10 fiscal years economic + Other data

BAR Notes – B5 Governmental Accounting (Cont.)

The Financial Reporting Entity

Primary government vs component [Financial Accountability]

- **Primary Government** – SELF
 - Separately
 - Elected board
 - Legally Separate
 - Fiscally independent of other state/local governments
- **Component Unit** [City interchangeable with primary gov]
 - Blended Presentation – Controlled [Rare]
 - Substantially same as primary government
 - Serves primary government exclusively
 - Discrete Presentation – “Influenced” ★ [Default]
 - Separate legal entity
 - Primary government approves budget [Benefit, access, significance to primary government]

SELF✓ = Primary Gov
 X = Components
 ↓ ↓
 Same✓ = Blended X Different = Discrete

Gov-wide FS = Economic resource management focus and full accrual

Government-wide Financial Statements

- Statement of Net Position [BS]
 - Statement of Activities [IS]
- There must be distinction between gov and business-type activities, total, and component units

Capital Assets – Capitalization and Depreciation

- Forfeiture property – capitalized @ lower of cost or market
- Fixed/capital assets donated = recorded @ fv when received
- Artwork & Historical Treasure – No depreciation
 - Capitalized, unless all met:
 - Public exhibition
 - Protected
 - Proceeds used to acquire other items
- Construction interest – expensed! NOT-capitalized

Statement of Net Position

Assets and deferred outflows of resources
- Liabilities and deferred inflows of resources
<u>Net position</u>

Net Position Formula: Governments Could -Do Real -Life Impacts

- + Gov Fund Balance
- + Capital Assets used [+ Def outflow - Def inflow]
- Depreciation
- + Restricted Assets
- Liabilities
- + Internal Service Fund Net Position
- \$0 Proprietary Fund Net Position
- \$0 Fiduciary Fund Net Position
- Net Position Gov Activities

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- Restricted – Externally imposed [Restricted Assets - Liabilities]
- Unrestricted – everything else
- Net Investment in Capital Assets [Capital Assets - AD]
 - +Def outflows - Def inflows

Statement of Activities

- Functions/Programs
 - Primary Gov – Government Activities = GRaSP + S [Land, Building net AD, Maintenance Exp, Roads]
 - Primary Gov – Business-Type Activities = E [Public utilities, Plant improvements]
 - Component Units – [Ex: Rescue squad, Board of Educ.]
- Program Revenue – **SOC** away these revenues
 - Charges for **S**ervices
 - **O**perating Grants and Contribution
 - **C**apital Grants and Contributions
- General Revenue – Property Tax Revenue [Ignore collected]
 - Levied\$ x % = amount to subtract from levied
 - Property Taxes Receivable
 - Allowance for Uncollectible Taxes
 - Property Tax Revenue
- Expenses
- Net (Expense) Revenue & Δ in Net Position

Required vs Modified Approach

Required Approach

*Recorded & depreciated ★
Record historical cost & dep
 Capital Asset
 AD
 Net Position
Assets Additions
 Capital Assets
 Capital Outlay Expenditures
Depreciation Expense
 Depreciation Expense
 AD
Repair & Maintenance Expense
 Repairs & Maintenance Expense
 Cash

Modified Approach

* **NO depreciation!** ★
Historical cost & depreciation
 NO ENTRY!
Assets Additions
 Capital Assets
 Capital Outlay Expenditures
Depreciation Expense
 NO ENTRY!
Repair & Maintenance Expense
 Repairs & Maintenance Expense
 Cash

Note: Switch from required → modified or modified → required = Δ estimate

Interfund receivables/payables between government and enterprise fund = reported as internal balances

Fund Financial Statements

Major Funds

Must pass both

- 10% Test – any Revenue, Assets, or Expenditures must be 10%> of corresponding government **OR** enterprise fund
 - 5% Test – any Revenue, Assets, or Expenditures must be 5%> of total government **AND** enterprise fund
- [General Fund always = major fund!]

Governmental Funds – BS

Assets + Deferred outflows = Liabilities + Deferred inflows + Fund balance

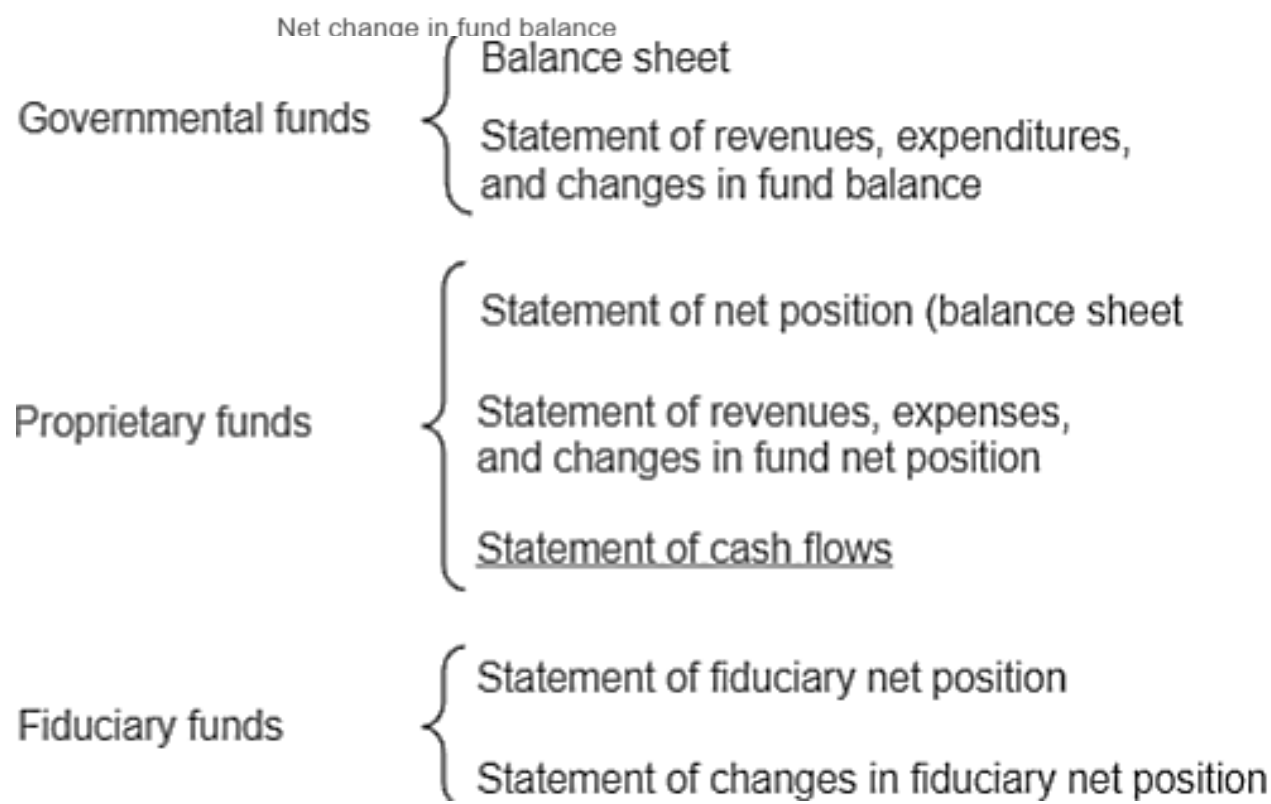
Balance sheet

Proprietary and Fiduciary Funds – Net Position

Net position = (Assets + Deferred outflows) – (Liabilities + Deferred inflows)

BAR Notes – B5 Governmental Accounting (Cont.)

Fund Financial Statements



Reconciliation of Operating Income (Loss) to Net Cash provided (used) by OA

Total should = same as Cash Flows from OA
 Assets [$\uparrow = \downarrow$] and Liabilities [$\uparrow = \uparrow$] relationship

Operating Income (Loss)

Adjustments:

Depreciation Expense [Dep = operating exp]

Change in Assets & Liabilities:

Receivables, net

Inventories

Accounts & other Payables

Total changes in Assets & Liabilities

Net Cash provided (used) by OA

Statement of Cash Flows – Proprietary Funds

Must use Direct Method and reconcile OA at bottom

Cash Flows from OA

Receipts from Customers

Payments to Suppliers

Payments to Employees

Net Cash provided (used) by OA

Cash Flows from noncapital FA

Operating subsidies & transfers to other funds

Net Cash provided (used) by noncapital FA

Cash Flows from capital & related FA

Proceeds from capital debt [Bonds]

Purchases of capital assets

Principal paid on capital debt

Interest paid on capital debt

Proceeds from sale of assets

Net Cash provided (used) by capital & related FA

Cash Flows from IA

Proceeds from sales & maturities of investments [liquidated]

Interest & dividends [received]

Net Cash provided (used) by IA

Net Increase/Decrease in Cash & Cash Equivalents

Balance – Beginning of the year

Balance – End of the year

Deriving Government-wide Financial Statements and Reconciliation Requirements

Due to differences in measurement focus and basis of accounting

(C) (A) (N) (C) (P) (A) (S) (R) (I) (D) (E) (O) (R) (S) (I) (T)

Reconciliation of Δ in Net Position

(IS) - CAN CPAS RIDE or SIT [Subtract ASIDE]

Governmental fund balances

CAN \$0

(C) Capital outlay (expenditures)

(P) Principal payments on debt

(A) - (Asset disposal adjustment @ NBV)

(S) - (Sources (other financing) debt proceeds)

(R) Revenue accrual (expected to be collected)

(I) - (Interest accrual [incurred/unpaid])

(D) (E) - (Depreciation expense)

(S) Internal service fund change in net position

(I) (T) Interfund Transfer <- almost never dealt with

Change in net position of governmental activities

(C)	DR	Capital assets
	CR	Net position

(A)	DR	Net position (beginning)
	CR	Accumulated depreciation

(N)	DR	Net position (beginning)
	CR	Non-current debt (liabilities)

Reconciliation of Net Position (BS) – CANS

Governmental fund balances

(C) Capital assets

(A) - (Accumulated depreciation)

(N) - (Non-current liabilities)

(S) Internal service fund net position

Net position of governmental activities

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Journal Entries

(C)	DR	Capital assets
	CR	Capital outlay

(P)	DR	Long-term debt
	CR	Principal payments (expenditure)

(A)	DR	Other financing sources: proceeds from asset disposal
	DR	Accumulated depreciation
	CR	Cost of asset
	CR	Gain on disposal

(S)	DR	Other financing sources: debt proceeds
	CR	Long-term debt

(R)	DR	Deferred inflows
	CR	Tax revenue

(I)	DR	Interest expense
	CR	Accrued interest payable

(D)	DR	Depreciation expense
	CR	Accumulated depreciation

BAR Notes – B5 Governmental Accounting (Cont.)

Notes and Supplementary Information

Overview/Recap

MD&A	← Before FS
Gov-wide FS	
Fund FS	← Basic FS
Notes to FS	
Required Supplementary Info	← After FS
Optional Supplementary Info	

Management Discussion & Analysis (MD&A): Before

- Compare CURRENT to prior year
- Description of FS
- Identity of primary gov and discrete component units
- Economic conditions and outlook
- Major initiatives

Notes to the FS: Basic FS

- Generic disclosures ← exclusion of CIPPOE, elimination of internal activity
- Correcting noncompliance
- Analysis of interfund account balances
- Defining revenue under **modified** accrual
- Focus on primary government

Required Supplementary Info: After (BPI)

- **Budgetary** comparison: schedule showing original budget, final appropriations budget, and actual inflows, outflows, and balances on a budgetary basis
- **Pensions:** 10 fiscal years Δ Net Position
- **Infrastructure:** Assess condition and estimated annual amount to maintain and preserve infrastructure

Optional Supplementary Info: After

- Budget VARIANCES
- **Nonmajor funds** ← combined FS statements [for those that failed 10% and 5%]
- All other

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