Carolinas Cash Adventure - 2018: CTP Track
Financial Statements, Analysis & Decisions
Session #4 (Mon. 9:15 – 10:15 am)

The Treasury Academy
New Frontiers in Treasury Education

- ***ETM5-Chapter 8:*** *Financial Accounting and Reporting*
- ***ETM5-Chapter 9:*** *Financial Planning and Analysis*

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As a prep course for the CTP exam, significant portions of these lectures are based on materials from the ***Essentials*** text.

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- E-mail request to: djmasson@treasuryacademy.org
- You will receive an invitation to join the class from Canvas-Instructure
- Click on link and use your e-mail address as Username and you can set your own password
- First place to go is MODULES
- Materials for all of the chapters in ETM5 are provided

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Addition Information

- Check out the web site for The Treasury Academy
- www.treasuryacademy.org
- Copies of all session lecture notes from conference
- Additional handouts and other items of interest are provided there
- Please note that the full content and on-line support are all on the Canvas site, which requires you to e-mail me for an invitation

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Overview of Chapter 8 Topics

- Introduction
- Accounting Concepts and Standards
- Financial Reporting Statements
- Accounting for Derivatives, Hedges, and Foreign Exchange(FX) Translation
- Accounting for G/NFP

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Introduction to Financial Accounting and Reporting

- Financial statements summarize a company's operating results and financial position

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Analyzing Financial Statements Provides Insights Into:

- Overall liquidity level
- Ability to generate revenues from assets and control costs
- Capital structure

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Accounting Concepts and Standards

- Global Accounting Standards
  - IASB & IFRS
- U.S. Accounting Standards
  - GAAP & SEC Filings
- Comparison
  - IFRS is high level/less detailed than GAAP
  - GAAP converging towards IFRS standards

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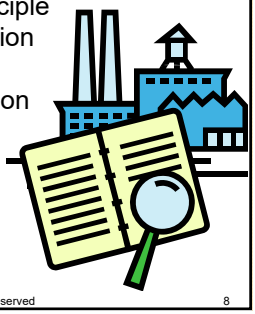
U.S. Accounting Standards

- Principles underlying GAAP
  - Measurement Principle
  - Revenue-Recognition Principle
  - Expense Recognition (Matching) Principle
  - Full Disclosure Principle



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Group Exercise

- **Working in your groups, answer the following questions:**
- Why do we need auditors?
- Is there a difference between internal and external auditors?
- What was the impact of SOX on the auditing profession?

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Auditing & Financial Statement Reliability

- Confidence in the integrity of financial reports is critical in an open, market-driven economy
- Certification of accounting and auditing professionals is a key part of the process

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The Audit Process

- An independent audit helps to assure outside parties that the information provided in the financial statements is relevant, complete, accurate and presented fairly

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Audit Opinions

- Standard Unqualified Opinion
- Unqualified with Explanatory Paragraph or Modified Unqualified
- Qualified
- Adverse
- Disclaimer of Opinion

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Impact of SOX on Audit Process

- Role of the PCAOB
- controls
- CEO and CFO certification of financial statements
- Fines and criminal penalties
- Requires independent audit committees

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Types of Financial Statements

- Balance Sheet
  - Assets
  - Liabilities
  - Shareholders' Equity
- Income Statement
  - Revenues
  - Expenses
- Statement of Retained Earnings
- Statement of Cash Flows
  - Sources and Uses of Funds

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Sample Balance Sheet

AS OF DECEMBER 31

ASSETS	2016	2015	CHANGE
CASH	$ 1,500,000	$ 1,000,000	$ 500,000
SHORT-TERM INVESTMENTS	1,300,000	1,500,000	(200,000)
ACCOUNTS RECEIVABLE	1,700,000	1,300,000	400,000
INVENTORY	2,600,000	2,300,000	300,000
PREPAID EXPENSES	900,000	900,000	-
TOTAL CURRENT ASSETS	$ 8,000,000	$ 6,800,000	$ 1,200,000
GROSS PROPERTY, PLANT & EQUIPMENT	9,000,000	8,100,000	900,000
LESS: ACCUMULATED DEPRECIATION	1,500,000	1,300,000	200,000
NET PROPERTY, PLANT & EQUIPMENT	7,500,000	6,800,000	700,000
INTANGIBLE ASSETS	500,000	500,000	-
TOTAL ASSETS	$ 16,000,000	$ 14,100,000	$ 1,900,000

LIABILITIES AND SHAREHOLDERS' EQUITY	2016	2015	CHANGE
ACCOUNTS PAYABLE	$ 1,600,000	$ 1,200,000	$ 400,000
SHORT-TERM NOTES PAYABLE	1,800,000	1,300,000	500,000
TOTAL CURRENT LIABILITIES	$ 3,400,000	$ 2,500,000	$ 900,000
LONG-TERM DEBT	3,900,000	3,500,000	400,000
TOTAL LIABILITIES	$ 7,300,000	$ 6,000,000	$ 1,300,000
COMMON STOCK AT PAR VALUE	200,000	200,000	-
PAID-IN CAPITAL	3,600,000	3,600,000	-
RETAINED EARNINGS	4,900,000	4,300,000	600,000
TOTAL EQUITY	$ 8,700,000	$ 8,100,000	$ 600,000
TOTAL LIABILITIES AND EQUITY	$ 16,000,000	$ 14,100,000	$ 1,900,000

Source: ETMS - © AFP

"Snapshot"
Assets:
- Current assets
- Fixed assets
- Depreciable fixed assets
- Intangible assets

Liabilities:
- Current liabilities
- Long-term liabilities

Equity
Assets = Liabilities + Shareholders' Equity

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Sample Income Statement

FOR THE YEAR ENDING DECEMBER 31

	2016	2015	CHANGE
REVENUES	$ 15,000,000	$ 12,500,000	$ 2,500,000
COST OF GOODS SOLD	9,200,000	7,400,000	1,800,000
GROSS PROFIT	$ 5,800,000	$ 5,100,000	$ 700,000
OPERATING EXPENSES	4,000,000	3,500,000	500,000
DEPRECIATION	200,000	150,000	50,000
OPERATING INCOME/EBIT	$ 1,600,000	$ 1,450,000	$ 150,000
INTEREST EXPENSE	300,000	245,000	55,000
NET PROFIT BEFORE TAXES	$ 1,300,000	$ 1,205,000	$ 95,000
PROVISION FOR INCOME TAXES	450,000	370,000	80,000
NET INCOME	$ 850,000	$ 835,000	$ 15,000
SHARES OUTSTANDING	100,000	100,000	-
EARNINGS PER SHARE (EPS)	$8.50	$8.35	$0.15

STATEMENT OF RETAINED EARNINGS	2016	2015	CHANGE
BEGINNING RETAINED EARNINGS	$ 4,300,000	$ 3,715,000	$ 585,000
EARNINGS AVAILABLE FOR COMMON SHAREHOLDERS	850,000	835,000	15,000
COMMON STOCK DIVIDENDS PAID	250,000	250,000	-
ADDITION TO RETAINED EARNINGS	$ 600,000	$ 585,000	$ 15,000
ENDING RETAINED EARNINGS	$ 4,900,000	$ 4,300,000	$ 600,000

- A record of revenues and expenses
- Shows the net change in shareholders' equity from operations over a specified period

Source: ETM5 - © AFP

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Sample Statement of Cash Flows

FOR THE YEAR ENDING DECEMBER 31, 2016

CASH FLOWS FROM OPERATING ACTIVITIES		
NET INCOME	$ 850,000	
ADJUSTMENTS TO RECONCILE NET INCOME TO OPERATING CASH		
DEPRECIATION	200,000	
DECREASE (INCREASE) IN ACCOUNTS RECEIVABLE	(400,000)	
DECREASE (INCREASE) IN INVENTORY	(500,000)	
INCREASE (DECREASE) IN ACCOUNTS PAYABLE	400,000	
NET CASH PROVIDED BY (USED FOR) OPERATING ACTIVITIES		$ 550,000
CASH FLOWS FROM INVESTING ACTIVITIES		
CAPITAL EXPENDITURES	$ (900,000)	
DECREASE (INCREASE) IN SHORT-TERM INVESTMENTS	200,000	
NET CASH PROVIDED BY (USED FOR) INVESTING ACTIVITIES		$ (700,000)
CASH FLOWS FROM FINANCING ACTIVITIES		
INCREASE (DECREASE) IN SHORT-TERM BORROWING	$ 500,000	
INCREASE (DECREASE) IN LONG-TERM DEBT	400,000	
DIVIDENDS PAID	(250,000)	
NET CASH PROVIDED BY (USED FOR) FINANCING ACTIVITIES		$ 650,000
NET CASH INCREASE (DECREASE)		$ 500,000
CASH AT BEGINNING OF YEAR		$ 1,000,000
CASH AT END OF YEAR		$ 1,500,000

- Shows sources and uses of cash
- Sections:
  - Operating
  - Investing
  - Financing
- Cash from operations calculated by adding back non-cash charges (e.g., depreciation)
- Cash, not earnings, repays debt
- This example shows the indirect format

Source: ETM5 - © AFP

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Accounting for Derivatives, Hedges and FX Translation

- Derivative/Hedge Accounting
  - What is instrument's intended use?
- FX Translation Accounting
  - Functional Currency: currency of the primary economic environment in which the entity operates
  - Translation of foreign statements to reporting currency
- GAAP VS IFRS

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Overview of Chapter 9 Topics

- Introduction
- Time Value of Money
- Capital Budgeting
- Budgeting
- Cost Behavior
- Financial Statement Analysis
- Performance Measurement

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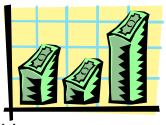
Basic Financial Concepts

- Time Value of Money
  - Future Value
  - Present Value

$$FV = PV \times (1 + i)^n$$
$$= \$100 \times (1 + .10)^2$$
$$= \$100 \times 1.21 = \$121$$

- Opportunity Cost
  - What is the right rate to use?
- Cost of Capital
  - Concept of WACC
- Cost Behavior
  - Total, Fixed, Variable, Semi-variable
  - Operating & Financial Leverage, Econ. of Scale
- Capital Budgeting
  - NPV, PI, IRR



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Concept of Opportunity Cost

- What is the appropriate rate to use for time value analysis?
  - Investors look to alternative investments in a particular risk class to discover the best rate of return available
  - By investing in one particular company or investment, the investor loses the opportunity to invest in other securities
  - The firm must provide a return that equals the investors' opportunity cost

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Time Value of Money

The value of cash flow is determined by:

- Amount of the cash flows.
- Appropriate interest rate.
- At what future period the cash flow is expected to occur.

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Future Value

What is the future value of $100 if it can be invested for two years, compounded annually, at a rate of 10% per year?

$$\text{Future Value} = PV \times (1+i)^n$$
$$= \$100 \times (1+.10)^2$$
$$= \$100 \times (1.10) \times (1.10)$$
$$= \$100 \times 1.21 = \$121$$

Source: ETM5 - © AFP

Where:
FV = Future value
PV = Present value
i = Periodic interest rate
n = Number of periods

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Present Value

What is the present value of $2,382 to be received after three years, discounted at a rate of 6.00% annually?

$$\text{Present Value} = \frac{FV}{(1+i)^n} = \frac{\$2,382}{(1+0.06)^3}$$
$$= \frac{\$2,382}{(1.06)(1.06)(1.06)}$$
$$= \frac{\$2,382}{1.191} = \$2,000$$

Source: ETM5 - © AFP

Where:
FV = Future value
i = Periodic interest rate
n = Number of periods

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PV of a Stream of Payments

$$PV = \frac{C_1}{(1+i)^1} + \frac{C_2}{(1+i)^2} + \frac{C_3}{(1+i)^3} + \ldots + \ldots \frac{C_n}{(1+i)^n}$$

As an example, assume the following annual cash flows: $200 in year one, $400 in year two and $600 in year three. If the appropriate discount rate is 12%, then the PV of the stream would be:

$$PV = \frac{\$200}{(1+.12)^1} + \frac{\$400}{(1+.12)^2} + \frac{\$600}{(1+.12)^3}$$

$$= \frac{\$200}{1.12} + \frac{\$400}{1.2544} + \frac{\$600}{1.4049}$$

$$= \$178.57 + \$318.88 + \$427.08 = \$924.53$$

Source: ETM5 - © AFP

PV for Periods of Less Than 1 Year

$$FV = PV\left(1+(Days)\left(\frac{i}{Days\ in\ a\ Year}\right)\right)$$

$$PV = \frac{FV}{\left(1+(Days)\left(\frac{i}{Days\ in\ a\ Year}\right)\right)}$$

Assume a payment of $50,000 to be received in 15 days at an annual discount rate of 6%, compute the present value.

$$PV = \frac{50{,}000}{\left(1+(15)\left(\frac{0.06}{365}\right)\right)} = \$49{,}877.02$$

Source: ETM5 - © AFP

Decision Evaluation

- Identifying Relevant Costs and Revenues
  - A relevant economic cost or revenue must affect future cash flows – beware of sunk costs
  - A relevant economic cost or revenue must differ among the alternatives
  - Opportunity costs must also be considered when making choices

Cost of Capital

- This refers to the permanent sources of capital such as LT debt, preferred stock and common equity
- All costs of capital should be determined on an after-tax basis
- Equity costs are already on an after-tax basis, so only debt costs need to be adjusted for marginal income taxes
- Concept of Weighted Average Cost of Capital (WACC)

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Capital Budgeting

- Developing strategic plans for a company's proposed large-dollar investments
- For example, replacement of existing equipment, expansion of facilities, purchase of new equipment or introduction of a new product line
- Form of Cost-Benefit analysis using models
  - Payback period
  - Net present value
  - Profitability index
  - Internal rate of return

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Net Present Value (NPV)

Evaluates the present value (PV) of all inflows and outflows of a project using the weighted average cost of capital as a discount rate

NPV = PV of Cash Inflows – PV of Cash Outflows

If the only cash outflow takes place in the present :

NPV = PV of Cash Inflows – Cash Cost

$$NPV = \frac{C_1}{(1+i)^1} + \frac{C_2}{(1+i)^2} + \frac{C_3}{(1+i)^3} + \ldots + \frac{C_n}{(1+i)^n} - Cost$$

Source: ETM5 - © AFP

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Net Present Value (NPV)

	Year 1	Year 2	Year 3	Year 4	Year 5
Project A	$300	$300	$400	$100	$100
Project B	$300	$300	$400	$1,000	$1,000

Assume an initial outlay of $1,000 and a cost of capital of 10%

$$NPV_A = \frac{\$300}{(1+.10)^1} + \frac{\$300}{(1+.10)^2} + \frac{\$400}{(1+.10)^3} + \frac{\$100}{(1+.10)^4} + \frac{\$100}{(1+.10)^5} - \$1,000$$
$$= \$-48.42$$

$$NPV_B = \frac{\$300}{(1+.10)^1} + \frac{\$300}{(1+.10)^2} + \frac{\$400}{(1+.10)^3} + \frac{\$1,000}{(1+.10)^4} + \frac{\$1,000}{(1+.10)^5} - \$1,000$$
$$= \$1,124.98$$

Source: ETM5 - © AFP

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Profitability Index (PI)

Ratio of the PV gained to the cost required to obtain that value; shows value gained per dollar of investment

$$\text{Profitability Index} = \frac{\text{Present Value of Cash Inflows}}{\text{Present Value of Cash Outflows}}$$

If the only cash outflow is in the present (period 0):

$$PI_A = \frac{\$951.57}{\$1,000} = 0.952$$

$$PI_B = \frac{\$2,124.98}{\$1,000} = 2.125$$

 Source: ETM5 - © AFP 32

Internal Rate of Return (IRR)

Discount rate (i) for NPV = 0

or

PV of Cash Inflows = PV of Cash Outflows

NPV = PV of Cash Inflow – Cost = 0

$$NPV_A = \frac{\$300}{(1+i)^1} + \frac{\$300}{(1+i)^2} + \frac{\$400}{(1+i)^3} + \frac{\$100}{(1+i)^4} + \frac{\$100}{(1+i)^5} - \$1,000 = 0$$

$$\Rightarrow i = 7.7\%$$

$$NPV_B = \frac{\$300}{(1+i)^1} + \frac{\$300}{(1+i)^2} + \frac{\$400}{(1+i)^3} + \frac{\$1,000}{(1+i)^4} + \frac{\$1,000}{(1+i)^5} - \$1,000 = 0$$

$$\Rightarrow i = 38.1\%$$

 Source: ETM5 - © AFP 33

Capital Expenditure Analysis Summary

Method	Project Acceptance Criterion	Project A	Project B
Net Present Value (NPV)	NPV > 0	$–48.43	$1,124.98
Profitability Index (PI)	PI > 1	0.952	2.2125
Internal Rate of Return (IRR)	IRR > WACC*	7.7%	38.1%

Source: ETM5 - © AFP

** Weighted Average Cost of Capital (WACC) = 10% in the example*

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Risk Analysis

- Scenario analysis
  - "What if" analyses establishing best and worst cases (calculates NPV for each)
- Sensitivity analysis
  - Identifies and evaluates areas of greatest vulnerabilities by varying one factor while holding others constant in an NPV calculation
- Simulation
  - Monte Carlo simulation
- Risk Adjusted Discount Rate (RADR)
  - Requires high-risk endeavors to earn a higher rate of return in order to justify the investment
- Risk-Adjusted Return on Capital (RAROC)
  - Measures the expected profitability of a project from a risk-adjusted standpoint – primarily used by financial institutions to evaluate the profitability of investment opportunities and relationships

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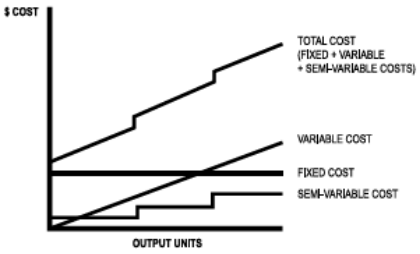
Cost Types and Behaviors



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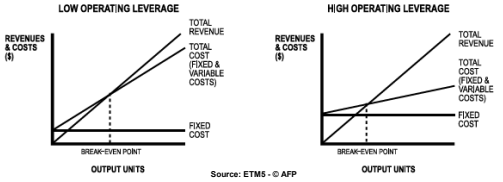
Operating Leverage

Operating leverage is determined by the extent to which fixed costs are used in a company's operating cost structure. The higher the proportion of fixed costs, the higher the company's operating leverage.



Source: ETM5 - © AFP

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Breakeven Analysis

Breakeven point: Level of activity for an operation at which costs exactly equal benefits

$$\text{Unit B/E Point} = \frac{\text{Fixed Costs}}{\text{Selling Price Per Unit} - \text{Variable Cost Per Unit}}$$

$$= \frac{\$10{,}000}{\$10 - \$6}$$

$$= 2{,}500 \text{ Units}$$

Source: ETM5 - © AFP

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Business and Financial Risk

- In determining a company's capital structure policy, the total risk of the company's operations and financing must be considered.
- Total risk includes:
  - Business risk – related to the stability and predictability of a company's revenue stream, the greater the volatility, the greater the risk
  - Financial risk – related to the variability of the company's after-tax profits, usually due to costs of financing

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Operating and Financial Leverage

OPERATING LEVERAGE (OL) IS THE RESULT OF FIXED COSTS IN OPERATIONS.
FINANCIAL LEVERAGE (FL) RESULTS FROM FIXED FINANCING COSTS (INTEREST).

ASSUMPTIONS:
VARIABLE OPERATING COSTS ARE 50% OF SALES.
FIXED OPERATING COSTS ARE $2,000.
INTEREST EXPENSE IS $1,000.
THE TAX RATE IS 40%.

ACCOUNT	YEAR 2015 $ AMOUNT		YEAR 2016 $ AMOUNT		CHANGE
SALES		10,000		12,000	+20%
LESS: VARIABLE COSTS (50%)	(5,000)		(6,000)		OL
FIXED COSTS	(2,000)	(7,000)	(2,000)	(8,000)	
OPERATING PROFIT (EBIT)		3,000		4,000	+33%
LESS: INTEREST		(1,000)		(1,000)	
TAXABLE INCOME		2,000		3,000	FL
LESS: TAXES (40%)		(800)		(1,200)	
NET INCOME		1,200		1,800	+50%

Source: ETM5 – Exhibit 9.7 - © AFP

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Operating Risk and Leverage (DOL)

- Operating risk is a function of the mix of variable and fixed costs in a company's operations
- It is assessed by looking at the changes in a company's EBIT for given change in sales

$$\text{Degree of Operating Leverage} = \frac{\%\ \text{Change in EBIT}}{\%\ \text{Change in Sales}}$$

Using the information from the text Exhibit 9.7

$$\text{Degree of Operating Leverage} = \frac{33\%}{20\%} = 1.65\ \text{Times}$$

Source: ETM5 - © AFP

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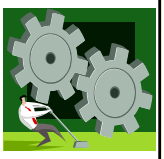
Financial Risk and Leverage (DFL)



- Financial risk is a function of the mix of capital sources used to finance the company
- It is assessed by looking at the changes in a company's net income for given change in EBIT

$$\text{Degree of Fin. Leverage} = \frac{\%\ \text{Change in Net Income}}{\%\ \text{Change in EBIT}}$$

Using the information from the text Exhibit 9.7

$$\text{Degree of Fin. Leverage} = \frac{50\%}{33\%} = 1.515\ \text{Times}$$

Source: ETM5 - © AFP

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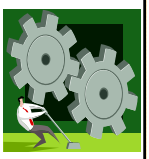
Total Leverage (DTL)

- This is a measure of the total risk of the company
- It is assessed by looking at the relationship between Net Income and Sales
- It can also be calculated as: DTL = DOL X DFL



$$\text{Degree of Total Leverage} = \frac{\%\ \text{Change in Net Income}}{\%\ \text{Change in Sales}}$$

$$\text{Degree of Total Leverage} = \frac{50\%}{20\%} = 2.5\ \text{Times}$$

or

DTL = DOL X DFL = 1.650 X 1.515 = 2.5 Times

Source: ETM5 - © AFP

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Financial Statement Analysis

- Common-Size Statements and Ratios
- Liquidity or Working Capital Ratios
- Efficiency or Asset Management Ratios
- Debt Management Ratios
- Performance Ratios
- Integrated Ratio Analysis
- Service Industry Ratios
- Strengths and Limitations of Ratio Analysis

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Sample Common-Size Balance Sheet

ASSETS	CURRENT YEAR	PRIOR YEAR	CHANGE
CASH	9.68%	7.35%	2.32%
SHROT-TERM INVESTMENTS	8.39%	11.03%	-2.64%
ACCOUNTS RECEIVABLE	10.97%	9.56%	1.41%
INVENTORY	16.77%	15.44%	1.33%
PRE-PAID EXPENSES	5.81%	6.62%	-0.81%
TOTAL CURRENT ASSETS	51.61%	50.00%	1.61%
GROSS PROPERTY, PLANT AND EQUIPMENT	58.06%	59.56%	-1.49%
LESS: ACCUMULATED DEPRECIATION	9.68%	9.56%	0.12%
NET PROPERTY, PLANT AND EQUIPMENT	48.39%	50.00%	-1.61%
INTANGIBLE ASSETS	0.00%	0.00%	0.00%
TOTAL ASSETS	100.00%	100.00%	0.00%
LIABILITIES AND OWNERS' EQUITY	CURRENT YEAR	CURRENT YEAR	CHANGE
ACCOUNTS PAYABLE	10.32%	8.82%	1.50%
SHROT-TERM NOTES PAYABLE	11.61%	9.56%	2.05%
TOTAL CURRENT LIABILITIES	21.94%	18.38%	3.55%
LONG TERM DEBT	25.16%	25.74%	-0.57%
TOTAL LIABILITIES	47.10%	44.12%	2.98%
COMMON STOCK AT PAR VALUE	1.29%	1.47%	-0.18%
PAID-IN CAPITAL	23.23%	26.47%	-3.24%
RETAINED EARNINGS	28.39%	27.94%	0.45%
TOTAL EQUITY	52.90%	55.88%	-2.98%
TOTAL LIABILITIES AND EQUITY	100.00%	100.00%	0.00%

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Financial Statement Analysis

- Suppliers determine whether to make sales on credit.
- Trading partners assess the financial ability of a counterparty to meet contractual obligations.
- Lenders determine whether to extend or maintain credit.
- Rating agencies assess credit risk of issues.
- Investors make decisions about purchasing and selling corporate debt and equity.

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Key Financial Ratios

- Liquidity or Working Capital
  - Measures firm's ability to meet its payment obligations and cash management efficiency
- Efficiency or Asset Management
  - Measures how efficiently assets are utilized
- Debt Management
  - Measures level of debt and ability to service it
- Performance
  - Measures profitability in relation to revenue and investment

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Liquidity or Working Capital Current Ratio

Measures the degree to which current obligations are covered by current assets

$$\text{Current Ratio} = \frac{\text{Total Current Assets}}{\text{Total Current Liabilities}}$$

$$= \frac{\$8{,}000}{\$3{,}400} = 2.35$$

Source: ETM5 - © AFP

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Liquidity or Working Capital: Quick Ratio

Measures the degree to which a company's current liabilities are covered by its most liquid current assets

$$\text{Quick Ratio} = \frac{\text{(Cash) + (S-T Investments) + (A/R)}}{\text{Total Current Liabilities}}$$

$$= \frac{\$1{,}500 + \$1{,}300 + \$1{,}700}{\$3{,}400} = 1.32$$

Source: ETM5 - © AFP

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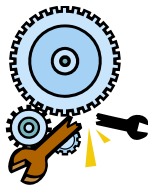
Efficiency and Asset Management: Total Asset Turnover



Measures how many times the asset base is turned over with the flow of revenue

$$\text{Total Asset Turnover} = \frac{\text{Revenues}}{\text{Total Assets}}$$

$$= \frac{\$15{,}000}{\$16{,}000} = 0.938 \text{ Times}$$

Source: ETM5 - © AFP

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Efficiency and Asset Management: Fixed Asset Turnover

Focuses on how efficiently fixed assets, or plant and equipment, are used

$$\text{Fixed Asset Turnover} = \frac{\text{Revenue}}{\text{Net Property, Plant \& Equip}}$$

$$= \frac{\$15{,}000}{\$7{,}500} = 2.0 \text{ Times}$$

Source: ETM5 - © AFP

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Debt Management: Total Liabilities to Total Assets

Measures the percentage of all liabilities relative to total investments or total assets

$$\text{Total Liabilities to Total Assets} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

$$= \frac{\$7,300}{\$16,000} = .456 \text{ or } 45.6\%$$

Source: ETM5 - © AFP
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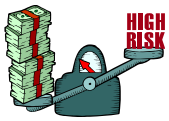
Debt Management: Long-Term Debt to Capital



Measures the percentage of a company's capitalization that is provided by long-term debt

$$\text{L / T Debt to Capital} = \frac{\text{Long-Term Debt}}{\left[(\text{Long-Term Debt}) + (\text{Equity})\right]}$$

$$= \frac{\$3,900}{(\$3,900 + \$8,700)} = .310 \text{ or } 31.0\%$$

Source: ETM5 - © AFP
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Debt Management/Coverage: Times Interest Earned (TIE) Ratio

Measures a firm's ability to service debt through interest payments

$$\text{TIE} = \frac{\text{Operating Profit}}{\text{Interest Expense}}$$

$$= \frac{\text{EBIT}}{\text{Interest Expense}}$$

$$= \frac{\$1,600}{\$300} = 5.33 \text{ Times}$$

Source: ETM5 - © AFP

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Performance: Gross Profit Margin

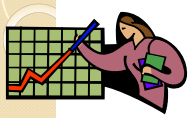
Measures the percentage of revenues remaining after the cost of goods sold is deducted from revenue – it is also a typical common-size ratio measure

$$\text{Gross Profit Margin} = \frac{\text{Gross Profit}}{\text{Revenues}} = \frac{\$5,800}{\$15,000}$$

$$= .387 \text{ or } 38.7\%$$

 Source: ETM5 - © AFP 55

Performance: Operating & EBITDA Profit Margins



Measures the flow of commonly used operating income measures in relation to the flow of revenue

$$\text{Operating Profit Margin} = \frac{\text{EBIT}}{\text{Revenues}}$$

$$= \frac{\$1,600}{\$15,000} = 0.107 \text{ or } 10.7\%$$

$$\text{EBITDA Margin} = \frac{\text{EBITDA}}{\text{Revenues}}$$

$$= \frac{\$1,800}{\$15,000} = 0.120 \text{ or } 12.0\%$$

 Source: ETM5 - © AFP 56

Performance: Net Profit Margin

Measures the flow of net income in relation to the flow of revenue

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Revenues}}$$

$$= \frac{\$850}{\$15,000}$$

$$= .057 \text{ or } 5.7\%$$

 Source: ETM5 - © AFP 57

Performance: Return on Total Assets

Measures net income in relation to the stock of assets

$$\text{Return on Total Assets} = \frac{\text{Net Income}}{\text{Total Assets}}$$

$$= \frac{\$850}{\$16{,}000}$$

$$= .053 \text{ or } 5.3\%$$

Source: ETM5 - © AFP

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Performance: Return on Common Equity

Measures earnings available to common shareholders (net income less any preferred stock dividends) expressed as a percentage of common equity

$$\text{Return on Common Equity} = \frac{\text{Earnings Avail. to Common S / Hs}}{\text{Common Equity}}$$

$$= \frac{(\text{Net Income} - \text{Preferred Dividends})}{(\text{Total Equity} - \text{Preferred Stock})}$$

$$= \frac{(\$850 - 0)}{(\$8{,}700 - 0)} = 0.098 \text{ or } 9.8\%$$

Source: ETM5 - © AFP

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Integrated Ratio Analysis: DuPont Equation

Looks at the return on total assets as a product of the return on sales and total asset turnover

$$\text{Return on Total Assets} = \text{Return on Sales} \times \text{Total Asset Turnover}$$

$$= \frac{\text{Net Income}}{\text{Total Revenues}} \times \frac{\text{Total Revenues}}{\text{Total Assets}}$$

$$= 0.057 \times 0.938 = 0.053 = 5.3\%$$

Source: ETM5 - © AFP

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Strength and Limitations of Ratio Analysis

Advantages:

- Easily computed
- Widely used
- Information easily obtained
- Facilitate comparison between companies

Disadvantages:

- Express static (historical), not dynamic, relationships
- Summarize accounting information and may not reflect economic value
- Cannot reflect qualitative value (business strategies, managerial talent)
- Use of different accounting methods may reduce the validity of comparisons between companies

Source: ETM5 - © AFP

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Performance Measurement

- Return on Investment (ROI)
- Economic Value Added (EVA)
- Free Cash Flow (FCF)

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Performance Measurement

- Return on investment (ROI)
  - ROI does not include charge for cost of capital.
  - Positive NPV project can be rejected if it lowers overall ROI
  - ROI over a partial period may be misleading.

$$ROI = \frac{\text{Net Income}}{\text{Invested Capital}} = \frac{\text{Net Income}}{(\text{Long-Term Debt}) + (\text{Equity})}$$

$$= \frac{\$850}{(\$3{,}900 + \$8{,}700)} = \frac{\$850}{(\$12{,}600)} = 0.0675 \text{ or } 6.75\%$$

Source: ETM5 - © AFP

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Economic Value Added (EVA)

A measure of the incremental value that a company's investments add.

What is the EVA for the following company?

- Long-term debt of $3,900,000
- Equity of $8,700,000
- Marginal tax rate of 34.615%
- Weighted average cost of capital (WACC) of 9%
- Operating income (EBIT) of $1,600,000

EVA = EBIT x (1 – Tax Rate) – (WACC) x (Long-term Debt + Equity)

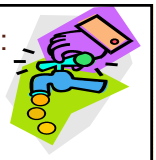
= $1,600 x (1 – .34615) – (.09) x ($3,900 + $8,700)

= $1,046 – (.09)($12,600)

= $1,046 – $1,134 = – $88

Source: ETM5 - © AFP

Performance Measurement: Free Cash Flow



- Free Cash Flow (FCF)
  - A type of RI analysis, but also includes adjustments for noncash items, operating working capital investments and capital expenditures (CapEx)
  - There are many different formulas used for FCF
  - Considered a better representation of the value of the firm to shareholders

FCF = Net Income + (D&A) – Change in Op W/C – CapEx

= $850 + $200 – $500 – $900 = – $350

Source: ETM5 - © AFP

Session Wrap-up

Session 4: Financial Statements, Analysis & Decisions

- ***What did we learn in this session?***
- ***What topics do we need to learn more about?***

Carolinas Cash Adventure – 2018: CTP Track
Financial Statements Analysis & Decisions

End of This Session

We will reconvene at 10:30 am Today.

The topic will be:

More Key Concepts
Capital Structure Decision & Management

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