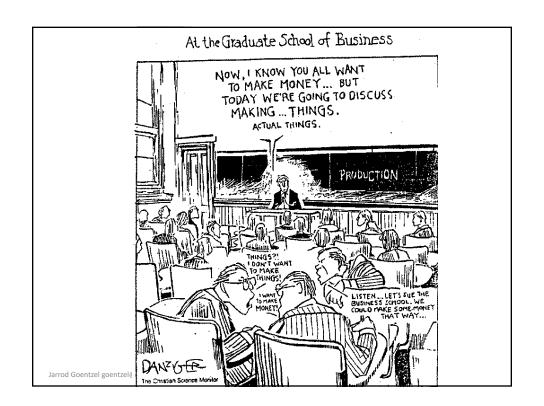
Preparation to be CEO

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The first principle in a common MBA finance textbook

"A company's finances and operations are integrally connected."



Source: Higgins, R. Analysis for Financial Management. 10th ed. McGraw-Hill Irwin, 2011

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Why is operations undervalued?

- "In our company, operations is not glamorous. Deals are."
- Operations is a branch of engineering requiring a different skill set and mindset
- Top managers who entered through finance, strategy, or marketing – are ignorant about operations and uninterested in learning more, relying on others to mind the details of actual work
- "Financial data dominate the discourse in the modern organization, although operational performance is the driver of financial results."

Source: "Deep Change: How Operational Innovation Can Transform Your Company," Michael Hammer Harvard Business Review, Vol. 82 Issue 4, April 2004, pp. 84-93.

The Language of Finance

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The language of finance

- Financial Statements
 - Balance Sheet
 - Income Statement
- Financial Analysis
 - Ratios
 - Acronyms (ROA, ROIC, NOPAT, EBIDTA,...)

Balance Sheet

- · Snapshot of the firm's value
 - Approximation: accountants measured value at the time the transaction took place
 - Book value is the lower of cost or market value
- Assets (listed in order of liquidity)

consumed in the

- Current: cash, marketable securities, accounts receivable, inventories
- Fixed: property, plant, equipment (less accumulated depreciation) consumed in the future
- Intangible: patents, goodwill..."growth assets"

consumed theoretically

- Liabilities (listed in order in which they must be paid)
 - Current: accounts payable, notes payable,...
 - Long-term: notes, bonds, deferred income taxes,...
- Shareholders' equity (a.k.a. net worth)
 - Stock: preferred, common
 - Retained earnings

Last to be paid if a firm is dissolved

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Income Statement

- Performance record between snapshots
- Explains why retained earnings has changed over time
 - Sales (net of markdowns)
 - Cost of goods sold
 - GROSS INCOME
 - Selling, general & administrative (SGA) expenses
 - OPERATING INCOME

 Depreciation 8 amortization

EBITDA

Depreciation & amortization

OPERATING INCOME

EBIT

- Interest expense
- Other nonoperating expenses/income
- Income taxes
- Extraordinary items
- NET INCOME

EIATBS

Financial statements

"Financial statements are like fine perfume; to be sniffed but not swallowed."

- Abraham Brilloff

Source: Higgins, R. Analysis for Financial Management. 10th ed. McGraw-Hill Irwin, 2011.

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Financial analysis

"accountants try to measure the current standing and immediate past performance of a firm, whereas financial analysis is much more forward looking."

- Aswath Damodaran, Stern School of Business

 $Source: http://pages.stern.nyu.edu/``adamodar/New_Home_Page/AccPrimer/accstate.htm'' adamodar/New_Home_Page/AccPrimer/accstate.htm'' adamodar/New_Home_Page/AccArrange.htm'' adamodar/New_Ho$

Ratio analysis

Income Statement

Sales

Cost of Goods Sold Gross Profit SG&A Expenses

Depreciation & amortization

EBIT

Interest Expense Income Taxes Net Income

$$Ratio = \frac{Numerator}{Denominator}$$

Balance Sheet

Cash & Equivalents Accounts Receivable Inventories

Total Current Assets

Net Property/Plant/Equipment

Total Long Term Assets

Total Assets

Accounts Payable
Total Current Liabilities
Long Term Debt
Total Liabilities
Common Stock
Retained Earnings
Total Stockholder's Equity

Total Liabilities & Equity

Overall measure of financial performance

- Is there a single metric that can reflect the firm's financial performance for investors?
- for executives?

• Return on Equity
$$ROE = \frac{Net\ Income}{Equity}$$

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

DuPont analysis

 DuPont analysis is based on a return-on-investment formula developed in 1914 by a DuPont explosives salesman named Donaldson Brown and used by the company. Mr. Brown later used it as CFO at General Motors, but it was already known as the DuPont formula.

$$R = T \times P$$

where

R = rate of return on capital invested,

T = rate of turnover of invested capital, and

P = percentage of profit on sales





(Source: http://berttage.dupont.com)

• In essence, it is a simple combination of two ratios

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Source: Flesher, D. L., & Previts, G. J. (2013). Donaldson Brown (1885-1965): the power of an individual and his ideas over time. *The Accounting Historians Journal*, 79-101.

DuPont analysis

Gross or Operating Margin is a more common metric for supply chain professionals than Net Margin

Inventory Turnover, a narrower focus than Asset Turnover, is often a metric for supply chain professionals

Net margin =
$$\frac{\text{Net income}}{\text{Sales}}$$

Asset turnover =
$$\frac{\text{Sales}}{\text{Total assets}}$$

 $ROA = Net margin \times Asset turnover$

$$Financial leverage = \frac{Total assets}{Equity}$$

 $ROE = Net margin \times Asset turnover \times Financial leverage$

Levers of performance for 10 diverse companies, 2010

	Return on Equity (ROE) (%)	=	Profit Margin (P) (%)	×	Asset Turnover (A) (times)	×	Financial Leverage (T) (times)
Adobe Systems	14.9	=	20.4	×	0.47	×	1.57
Chevron	18.1	=	10.0	×	1.03	×	1.76
Google	18.4	=	29.0	×	0.51	×	1.25
Hewlett-Packard	21.7	=	7.0	×	1.01	×	3.08
JPMorgan Chase	10.3	=	15.0	×	0.054	×	12.58
Norfolk Southern	14.0	=	15.7	×	0.34	×	2.64
Novartis	15.5	=	19.3	×	0.41	×	1.95
Safeway	11.8	=	1.42	×	2.71	×	3.03
Sensient Technoligies	10.9	=	8.1	×	0.83	×	1.63
Southern Company	12.6	=	11.7	×	0.32	×	3.40

Source: Higgins, R. Analysis for Financial Management. 10th ed. McGraw-Hill Irwin, 2011.

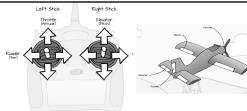
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Financial analysis

- · Higgins' three levers of management control
 - Net margin: Net income / Sales
 - Asset turnover: Sales / Assets
 - Financial leverage: Assets / Shareholders' equity
- Study the "ties between a company's operating decisions...and its financial performance."
 - "Operating decisions are the levers by which management controls financial performance."
 - Examples given: how many units to make this month, how to price them

Source: Higgins, R. Analysis for Financial Management. 10th ed. McGraw-Hill Irwin, 2011.

Financial analysis



- Analogy: levers to control a fixed wing aircraft
 stick, throttle, rudder
- "We analyze financial statements for the purpose of
 - evaluating performance and
 - understanding the levers of management control."

Source: Higgins, R. Analysis for Financial Management. 10th ed. McGraw-Hill Irwin, 2011. Graphic: http://learn.parallax.com/tutorials/robot/elev-8/how-fly-multirotor-suav/steering-aircraft Jarrod Goentzel goentzel@mit.edu

Principal ratio definitions (Higgins)*

Profitability Ratios Return on equity = Net income/Shareholders' equity Return on assets = Net income/Assets Earnings before interest and taxes \times (1 – Tax rate) Return on invested capital Interest-bearing debt + Shareholders' equity **Profit margin** = Net income/Sales Gross margin Gross profit/Sales Price to earnings Price per share/Earnings per share Turnover-Control Ratios Asset turnover = Sales/Assets Fixed-asset turnover Sales/Net property, plant, and equipment Inventory turnover = Cost of goods sold/Ending inventory Collection period Accounts receivable/Credit sales per day (If credit sales unavailable, use sales) Days' sales in cash = Cash and securities/Sales per day Payables period Accounts payable/Credit purchases per day (If purchases unavailable, use cost of goods sold)

* Excluding the leverage and liquidity ratios

Source: Higgins, R. Analysis for Financial Management. 10th ed. McGraw-Hill Irwin, 2011.

Ratio analysis advice

- There are not any "correct" values for ratios
- Ratio values need to be understood in context
 - Compare with industry averages
 - Compare with specific competitors
 - Observe trends over time
- Develop a framework of several ratios to monitor
- In combination, these clues may tell an interesting story

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You are now ready to be CEO

Sunflower Nutraceutical (SNC)
Simulation

Sunflower Nutraceutical (SNC)

- How did you like being CEO?
- What was your objective in making decisions (in rank order)?
- What approaches did you use to evaluate options?

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SUNFLOWER NUTRACEUTICALS

Sunflower Nutraceuticals (SNC) is a privately held nutraceuticals distributor based in Miami, Florida, and founded in 2006. SNC started as an

internet-based, direct-to-consumer distributor and retailer of dietary supplements, including vitamins, minerals, and herbs for women, with product offerings for all age groups. Through its website and catalog, SNC offers customers a large selection of stock keeping units (SKUs) from more than 50 third-party brands. Since its founding, the company ambitiously expanded into new retail outlets and launched several private-label brands, including a line of women's electrolyte sports drinks, metabolism-boosting powders, and a vitamin line for teenage girls.

SNC is breaking even, with relatively flat annual sales growth on total revenues of \$10 million. The business is working-capital-intensive, and margins are generally thin. Several times during the past few years, the company struggled to finance the payroll, given the firm's constrained cash position, and more than once the company's line of credit was overdrawn. SNC keeps a minimum amount of cash on hand to meet operational needs and this level of required cash is \$30,000. The company also accesses a line of credit, with a fairly restrictive set of governing covenants, issued by a national bank. The credit limit on the facility of \$3,200,000 is priced as a spread over the 1-year LIBOR. It is currently set at a rate of 8%. SNC uses a cost of capital of 12% to evaluate investment opportunities.

Health food companies have sold vitamins for decades, but the nutraceuticals industry is relatively new. Although regulatory bodies apply stricter definitions, the term nutraceuticals generally means "a fortified food or dietary supplement that provides health benefits". Examples include omega-3 fatty acids, probiotics, and soy and energy drinks. By 2010, the global nutraceuticals market was worth approximately \$128.6 billion; it is forecasted to grow at a compound annual growth rate (CAGF) of 4.9% and reach \$180.1 billion by 2017. The key driving factors for industry growth are the increase in the elderly population, the rate of growth in chronic diseases, the relative affluence of the working population, and increasing societal awareness of preventive medicine.

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VORKING CAPITAL SIMULATION: MANAGING GROWTH

HOW TO PLAY



Read the Prepare tab to familiarize yourself with the basic background of Sunflower Nutraceuticals. Download the La Terminology Primer to review key terms before beginning the simulation.

Step 2: Analyze Reports

The financial statements report the company's historical and current financial picture and how the financial condition of Sunflower Nutraceuticals is changing over time.

Step 3: Enter Decisions

Click on the Decide tab to enter investment decisions for the next phase. You can choose to invest in or reject any or all of the opportunities available to you in that 3-year phase. When you have finished entering your investment decisions, click the Submit Decision button to advance to the next phase.

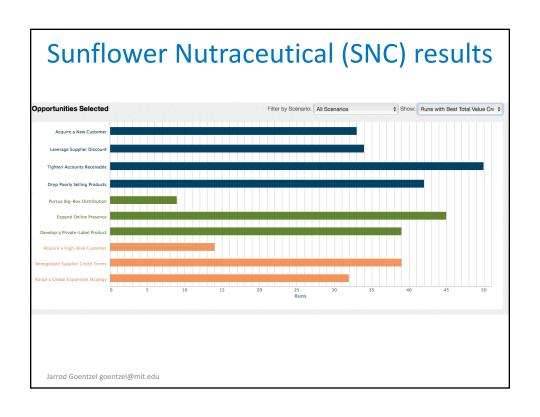
Step 4: Review Results

Look at the Synopsis page and your financial statements to see how each opportunity you selected impacted Sunflower Nutraceutical's performance. Continue until you have completed all phases of the simulation.

Non-binding Credit Limit

You will have unlimited attempt(s) to complete this scenario.

\$23,430 \$23,430	\$2,500	Value \$5,407	Violation	Date	User	Sales*	EBIT*	Value	
									Violation
S23.430					Miranda, Vitor	\$22,856	\$1,750	\$4,719	
	\$2,500	\$5,407		8/23/17 13:47		\$22,856	\$1,750	\$4,719	
\$23,430	\$2,500	\$5,407			Felicio, Nestor	\$14,459		\$4,699	
		1 - 7							
						\$15,488			
				8/24/17 11:38	Abullarade, Juan	\$7,873	\$827	\$4,563	No
				8/24/17 5:32	Monzon, Donato	\$8,998	\$945	\$4,504	No
						\$20,391	\$1,583		
				8/23/17 13:48	Gupta, Prakkhar	\$11,469	\$1,007	\$4,397	No
,				8/23/17 13:48	Haces, Jesus	\$21,098	\$1,555	\$4,388	Yes
				8/23/17 13:56	Espinoza, Bruno	\$14,459	\$1,236	\$4,341	No
				8/23/17 21:29	Rossi, Alejandro	\$16,567	\$1,434	\$4,313	No
				8/23/17 13:51	Heuser, Alison	\$16,567	\$1,434	\$4,313	No
				8/23/17 21:00	Rocha, Josh	\$15,465	\$1,417	\$4,241	No
				8/23/17 13:51	Figueroa, Jose	\$17,497	\$1,452	\$4,214	No
				8/24/17 11:19	Miceli, Vitor	\$13,086	\$1.112	\$4.175	No
				8/23/17 13:55	Liem. Fiona	\$13,067	\$1.053	\$4.087	No
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						\$9,000	\$622		
						\$13.086	\$851	\$3,957	No
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Two goals of the CEO

- Provide Shareholder Value
- ...and stay out of jail

Bernard J. "Bernie" Ebbers co-founded the telecommunications company WorldCom and was the CEO. In 2005, he was sentenced to 25 years in prison for his role in the \$11 billion accounting fraud that brought down the company.



Goal of the CEO

• Provide Shareholder Value



Kramer, M. R., & Porter, M. (2011). Creating shared value. Harvard business review, 89(1/2), 62-77.

Goal of the CEO

Provide Shareholder Value

It is now in vogue to dismiss the idea that creating shareholder value should be a CEO's guiding objective. Concepts like "societal value," "shared value," and "customer capitalism" are offered as desirable and more enlightened substitutes. This is muddled thinking. CEOs who understand the principles of shareholder value and execute effectively will satisfy most, if not all, of the objectives of those who call for a new way of thinking. The problem is that the true definition of creating shareholder value seems to have gotten lost.

- Michael J. Mauboussin. "What Shareholder Value is Really About," HBR Online Forum, October 03, 2011. https://hbr.org/2011/10/ceos-must-understand-what-crea

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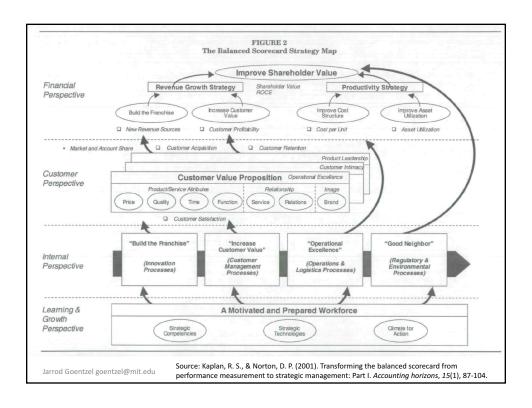
How do you provide shareholder value?

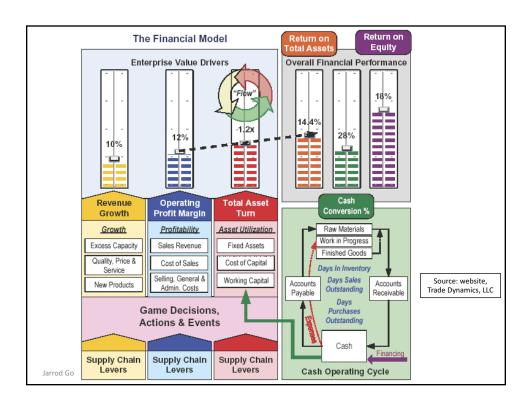
Balanced Scorecard

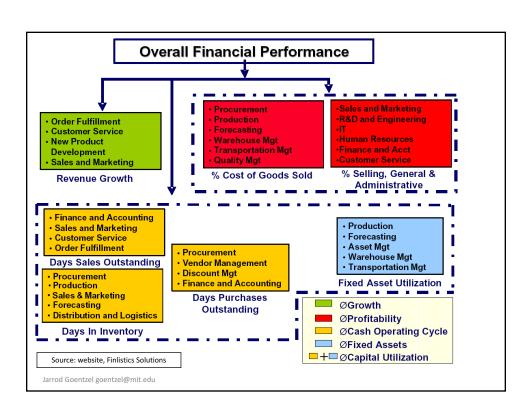
- "Ultimately, causal paths from all the measures on a Scorecard should be linked to financial objectives."
- "We have found that companies use three financial themes to achieve their business strategies:
 - Revenue Growth and Mix
 - Cost Reduction / Productivity Improvement
 - Asset Utilization / Investment Strategy"

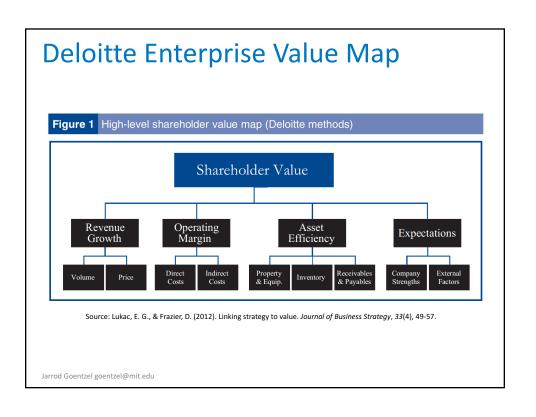
Source: Kaplan, R. S., & Norton, D. P. (1996). Linking the balanced scorecard to strategy. *Colifornia management review*, 39(1), 53-79.

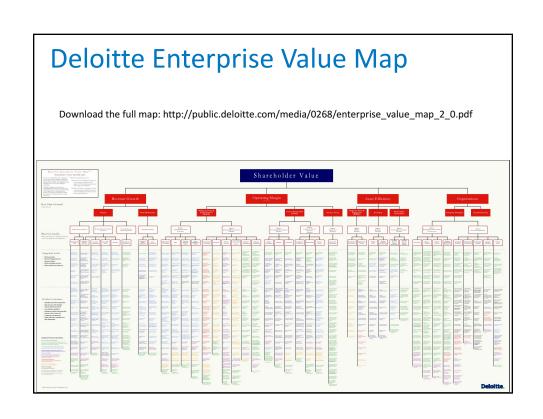
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Goal of the CEO

- Provide Shareholder Value
- Drivers of Shareholder Value
 - Revenue Growth
 - Operating Margin
 - Asset Productivity

Supply chain professionals can affect all three!

