

# Working Capital Simulation

Based on materials provided by Harvard Business Publishing

Jarrold Goentzel

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**SIMULATION**

**Working Capital Simulation: Managing Growth V2**

Sandeep Dahiya

Added on Mar 11, 2016, Purchased on Feb 29, 2016

[Details](#)

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**WORKING CAPITAL SIMULATION: MANAGING GROWTH**

PREPARE ANALYZE Dashboard Balance Sheet Income Statement Cash Flow Cash Cycle Synopsis DECIDE

Welcome to the Working Capital Simulation

**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 \$300,000. 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 (CAGR) of 4.9% and reach \$190.1 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.

**HOW TO PLAY**

**Step 1: Prepare**

Read the Prepare tab to familiarize yourself with the basic background of Sunflower Nutraceuticals. Download the [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.

[More Details](#)

**Non-binding Credit Limit**

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

**ONLINE SIMULATIONS**

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TERMINOLOGY PRIMER

**Working Capital Simulation: Managing Growth**


**How to Play**

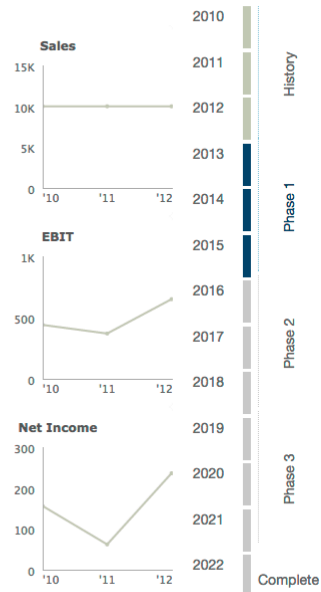
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## Income Statement

(data in thousands of dollars)	2010	2011	2012
Sales	\$10,000	\$10,000	\$10,000
Cost of Sales	\$9,560	\$9,630	\$9,350
<b>EBIT</b>	<b>\$440</b>	<b>\$370</b>	<b>\$650</b>
Interest Expense	\$180	\$267	\$256
<b>Pre-Tax Income</b>	<b>\$260</b>	<b>\$103</b>	<b>\$394</b>
Income Taxes	\$104	\$41	\$157
<b>Net Income</b>	<b>\$156</b>	<b>\$62</b>	<b>\$236</b>

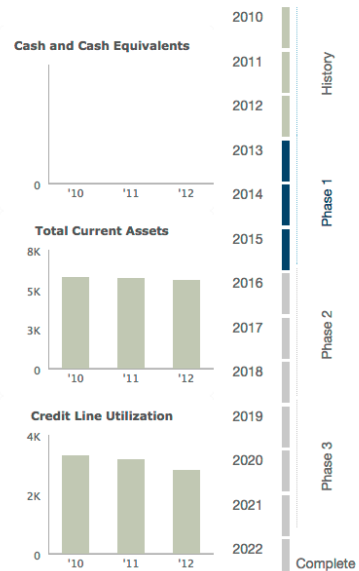
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## Balance Sheet

(data in thousands of dollars)	2010	2011	2012
Minimum Cash Requirement	\$300	\$300	\$300
Cash & Equivalents (Shortfall)*	\$0	\$0	\$0
Accounts Receivable	\$3,123	\$3,096	\$3,014
Inventories	\$2,357	\$2,348	\$2,305
Other CA	\$0	\$0	\$0
<b>Total Current Assets</b>	<b>\$5,781</b>	<b>\$5,744</b>	<b>\$5,619</b>
Net PP&E	\$40	\$40	\$40
Other FA	\$0	\$0	\$0
<b>Total Assets</b>	<b>\$5,821</b>	<b>\$5,784</b>	<b>\$5,659</b>
Accounts Payable	\$1,021	\$1,055	\$1,050
Accrued Expenses	\$0	\$0	\$0
<b>Total Current Liabilities</b>	<b>\$1,021</b>	<b>\$1,055</b>	<b>\$1,050</b>
Amount Borrowed from Credit Line	\$3,332	\$3,200	\$2,844
<b>Total Liabilities</b>	<b>\$4,353</b>	<b>\$4,255</b>	<b>\$3,894</b>
Common Stock	\$200	\$200	\$200
Retained Earnings	\$1,267	\$1,329	\$1,565
<b>Total Stockholder's Equity</b>	<b>\$1,467</b>	<b>\$1,529</b>	<b>\$1,765</b>
<b>Total Liabilities &amp; Equity</b>	<b>\$5,821</b>	<b>\$5,784</b>	<b>\$5,659</b>



## Warmup analysis: Cash Conversion Cycle for SNC

- Calculate the following for 2012
  - DSO: Days Sales Outstanding
  - DPO: Days Purchases Outstanding
  - DSI: Days Sales in Inventory
  - CCC: Cash Conversion Cycle (in days)

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### Cash Cycle

#### The Cash Conversion Cycle



	2010	2011	2012
Accounts Receivables (days)	-	113	110
Inventories (days)	-	89	90
Accounts Payables (days)	-	40	41
Cash Cycle (days)	-	162	159
Cash Cycle (months)	-	5	5

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**Decisions Phase 1: 2013 - 2015**

**Acquire a New Customer**

**Leverage Supplier Discount**

**Tighten Accounts Receivable**

**Drop Poorly Selling Products**

**Opportunities Selected**  
No opportunities selected yet.

**Submit Decisions**

SNC is considering an opportunity to add Atlantic Wellness, a large, successful health food chain as a new corporate customer for its herbal nutraceutical product line. Taking on this customer would immediately increase SNC's sales by \$4 million per year (a one-time increase of 40%) and EBIT by \$260,000. The profit margins and net working capital terms would remain the same as for SNC's existing business.

What would you like to do about this opportunity?

**Accept** **Decline**

	2013	2014	2015	Post 2015
<b>Incremental Summary Income Statement (\$ in thousands)</b>				
Sales	\$4,000	\$4,000	\$4,000	\$4,000
Cost of Sales	\$3,740	\$3,740	\$3,740	\$3,740
EBIT	\$260	\$260	\$260	\$260
<b>Incremental Balance Sheet (\$ in thousands)</b>				
Accounts Receivable	\$1,205	\$1,205	\$1,205	\$1,205
Inventories	\$922	\$922	\$922	\$922
Accounts Payable	\$420	\$420	\$420	\$420

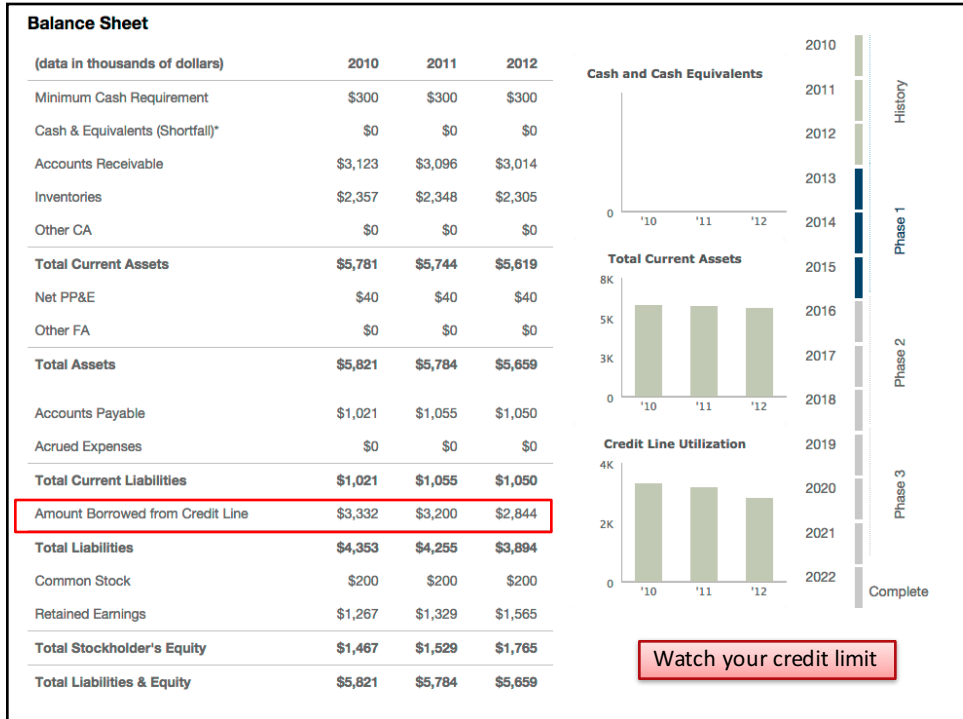
- You simply make YES/NO decisions about business opportunities
- There are 10 opportunities over the next 8 years (1024 solutions if you want to completely enumerate them)

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## Working Capital Simulation

- Roles: You are the CEO, I am the shareholder
- Goal: Make me happy
- Constraint: Your credit line cannot exceed \$3.2 million; later I may reduce the credit line and see how it affects your performance.
- Resources available
  - Video (6 minutes) to describe the game
  - Copy to clipboard option (may need to refresh the browser)
  - Terminology Primer

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## Questions to consider for the debrief

- What is the key to SNC success?
- What was your objective in making decisions?
- What approaches did you use to evaluate options?